APPENDIX F

Data Validation Report
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U.S. Army Corps of Engineers
Louisville District

Ravenna Army Ammunition Plant
Ravenna, Ohio
Site Investigation
Compliance Restoration Sites:
RVAAP-70 East Classification Yard, RVAAP-71 Barn No. 5 Petroleum Release RVAAP-72 Facility-Wide USTs, RVAAP-75 George Road Sewer Treatment Plant Mercury Spill, RVAAP-77 Building 1037 Laundry Waste Water Sump and RVAAP-83 Former Buildings 1031 and 1039

Final Data Validation Report
Sample Delivery Groups:
Multiple

August 2014

Prepared for:
U.S. Army Corps of Engineers
Louisville District
Contract No. W912QR-08-D-0012
Delivery Order 001

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CONTRACTOR STATEMENT OF INDEPENDANT TECHNICAL REVIEW

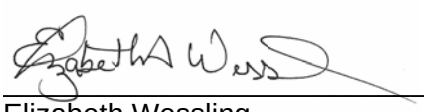
MEC^X, Inc. (MEC^X) has completed the Data Validation Report for Multiple Sample Delivery Groups from the Ravenna Army Ammunition Plant Site Investigation Compliance Restoration Sites.

Notice is hereby given that an independent technical review has been conducted to determine the usability and bias of the analytical data.

Significant concerns and the resolution are as follows:

None

As noted above, all concerns resulting from this independent technical review have been considered.



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EXECUTIVE SUMMARY

The overall objective for the project data described in this document is to define the nature and extent of contamination for the completion of Site Investigations (SI) at each Compliance Restoration (CR) site.

Data described in this report are comprised of samples collected from six CR sites at the Ravenna Army Ammunition Plant (RVAAP) by Environmental Chemical Corporation (ECC) from November 2012 to August 2013. The number and matrix of the samples, as described in numerous ECC Site Inspection Reports, are as shown below:

Analysis	Soil		
	MI	Discrete	Duplicate
Metals	35	99	15
Semivolatiles	43	45	10
PAH	0	74	7
Explosives	21	21	4
Propellants[1]	16	19	4
Volatiles	37	27	7
BTEX	0	72	7
Pesticides	4	9	2
PCBs	19	21	4
Herbicides	6	6	6
TPH	25	85	12
Hexavalent Chromium	0	29	3

1 –nitroguanidine and nitrocellulose
MI – multi-incremental
PAH – polynuclear aromatic hydrocarbons
BTEX – benzene, toluene, ethylbenzene, xylenes
PCBs – polychlorinated biphenyls
TPH – total petroleum hydrocarbons

This report details the data validation of approximately 10% of the primary sample data, analysis of field duplicate results, and the determination of data usability of the validated samples. Validation results, field duplicate comparisons, and data usability are presented by site in Sections 4 through 9.

The majority of the primary samples were analyzed for one or more of the following parameters by TestAmerica Laboratories, North Canton (TA-North Canton) located in North Canton, Ohio.

- United States Environmental Protection Agency (USEPA) SW-846 Method 8260B for volatile organic compounds (VOCs)
- USEPA SW-846 Method 8270C for semivolatile compounds (SVOCs) or polynuclear aromatic hydrocarbons (PAHs)
- USEPA SW-846 Method 8015B for total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) and diesel range organics (DRO)

- USEPA SW-846 Method 8081 for pesticides
- USEPA SW-846 Method 8082 for polychlorinated biphenyls (PCBs)
- USEPA SW-846 Method 8151 for herbicides
- USEPA SW-846 Method 6020 for metals
- USEPA SW-846 Method 7470A/7471A for mercury
- USEPA SW-846 Method 7196A for hexavalent chromium

TA-North Canton subcontracted the hexavalent chromium analyses by USEPA SW-846 Method 7196A to TA-Pittsburg. TA-North Canton also subcontracted the following analyses to TA-West Sacramento:

- USEPA SW-846 Method 8330B for explosive compounds
- USEPA SW-846 8330 Modified for nitroguanidine
- Laboratory Standard Operating Procedure (SOP) WS-WC-0050 for nitrocellulose

Samples from two CR sites (71 and 83) collected in August 2013, were analyzed for one or more of the following parameters by CT Laboratories (CT) located in Baraboo, Wisconsin.

- USEPA SW-846 Method 8260C for volatile organic compounds (VOCs)
- USEPA SW-846 Method 8270D for semivolatile compounds (SVOCs) or polynuclear aromatic hydrocarbons (PAHs)
- USEPA SW-846 Method 8015C for total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) and diesel range organics (DRO)
- USEPA SW-846 Method 8081B for pesticides
- USEPA SW-846 Method 8082A for polychlorinated biphenyls (PCBs)
- USEPA SW-846 Method 6010C for metals
- USEPA SW-846 Method 7470A/7471A for mercury
- USEPA SW-846 Method 8330B for explosive compounds
- USEPA SW-846 8330 Modified for nitroguanidine
- USEPA SW-846 Method 9056 Modified for nitrocellulose

The quality assurance (QA) split samples were submitted to Microbac Laboratories (Microbac) in Marietta, Ohio. Michigan and were analyzed for one or more of the aforementioned parameters. These data are discussed in a separate report.

Specific concerns regarding the data are noted below:

- Hexavalent chromium was reported utilizing the method of standard additions (MSA), which is recommended for matrices expected to have interference. Results from MSA are best when the MSA linear regression slope is nearly equivalent to the initial calibration slope; however the slopes for most site samples were more than a factor of 10 less than the initial calibration slope, indicating a nominal change in absorbance was observed in the MSA analyses for a relatively significant change in concentration.

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

Some data were rejected due to quality control outliers. Rejected data, presented in the table below, are not usable. Results with LODs that exceed project criteria may be usable for their intended purposes; however, it is dependent on the final data user to make this determination on a case-by-case basis. All remaining results are usable for their intended purposes as qualified by MEC^{X}.

Table 1. Rejected data

Site	Sample	SDG	Analyte	Reason
70	070SB-044M-0001-SO	240-18581-1	n-Nitrosodiphenylamine	calibration
	070SB-046M-0001-SO	240-18581-1	n-Nitrosodiphenylamine	calibration
	070SS-006M-0001-SO	240-17230-1	4-Chloroaniline	matrix spike
			3,3'-Dichlorobenzidine	matrix spike
71	071SB-0018M-0001-SO	9923	Benzyl alcohol	calibration
	071SB-0013M-0001-SO	99236	Benzyl alcohol	calibration
72	072SB-0014-0001-SO	240-18297	4-Nitroanline	calibration
	072SB-0026-0001-SO	240-18441	Antimony	matrix spike
	072SB-0039-0001-SO	240-18449	Antimony	matrix spike
75	075SD-0002-0001-SD	240-17457	3,3'-Dichlorobenzidine	matrix spike
77	077SS-0001M-0001-SO	240-17525	Benzoic acid	matrix spike
			n-Nitrosodiphenylamine	calibration
83	083SB-0005M-0001-SO	99211	3,5-Dinitroaniline	calibration
			Benzyl alcohol	calibration

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ACRONYMS AND ABBREVIATIONS

ADR	Automated Data Review
AST	Aboveground Storage Tank
°C	Degrees Celsius
CCB	Continuing Calibration Blank
CCC	Calibration Check Compounds
CCV	Continuing Calibration Verification
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CR	Compliance Restoration
CT	CT Laboratories
CUG	Cleanup Goal
%D	Percent Difference
DL	Detection Limit
DoD	Department of Defense
DRO	Diesel Range Organics
ECC	Environmental Chemical Corporation
EDD	Electronic Data Deliverable
FWQAPP	Facility-Wide Quality Assurance Project Plan
GC/MS	Gas Chromatography/Mass Spectrometry
GRO	Gasoline Range Organics
HHR	Historical Records Review
HTRW	Hazardous, Toxic, Radioactive Waste
ICSA	Interference Check Sample A
ICSAB	Interference Check Sample AB
ICV	Initial Calibration Verification
ICP	Inductively Coupled Plasma
LS	Louisville Supplement
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection
LOQ	Limit of Quantitation
MEC	Munitions and Explosives of Concern
MEC^X	MEC^X, Inc.
Microbac	Microbac Laboratories
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
RPD	Relative Percent Difference
RRF	Relative Response Factor
RSD	Relative Standard Deviation
RSL	Regional Screening Levels
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation

SAP	Sampling and Analysis Plan
SDG	Sample Delivery Group
SI	Site Investigation
SOP	Standard Operating Procedure
SPCC	System Performance Check Compound
RSL	Regional Screening Level
SVOC	Semivolatile Organic Compound
TA	TestAmerica Laboratories
TPH	Total Petroleum Hydrocarbon
USACE	United State Army Corps of Engineers
USEPA	United State Environmental Protection Agency
VOC	Volatile Organic Compound

1 INTRODUCTION

1.1 Project Overview

The overall objective for the project data described in this document is to define the nature and extent of contamination for the completion of Site Investigations (SI) at each Compliance Restoration (CR) site. Project details can be found in the project documents, including *Final Site Inspection and Remedial Investigation Work Plan at Compliance Restoration Sites* (ECC, 2012).

Data described in this report are comprised of samples collected from six CR sites at the Ravenna Army Ammunition Plant (RVAAP) by Environmental Chemical Corporation (ECC) from November 2012 to August 2013. The number and matrix of the samples, as described in numerous ECC Site Inspection Reports, are as shown below:

Table 2. SI Site sample counts

Analysis	Soil		
	MI	Discrete	Duplicate
Metals	35	99	15
Semivolatiles	43	45	10
PAH	0	74	7
Explosives	21	21	4
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Volatiles	37	27	7
BTEX	0	72	7
Pesticides	4	9	2
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TPH	25	85	12
Hexavalent Chromium	0	29	3

1 –nitroguanidine and nitrocellulose
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The majority of the primary samples were analyzed for one or more of the following parameters by TestAmerica Laboratories, North Canton (TA-North Canton) located in North Canton, Ohio.

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TA-North Canton subcontracted the hexavalent chromium analyses by USEPA SW-846 Method 7196A to TA-Pittsburg. TA-North Canton also subcontracted the following analyses to TA-West Sacramento:

- USEPA SW-846 Method 8330B for explosive compounds
- USEPA SW-846 8330 Modified for nitroguanidine
- Laboratory Standard Operating Procedure (SOP) WS-WC-0050 for nitrocellulose

Samples (35 primary soil samples and 7 aqueous quality control samples) from two CR sites (71 and 83) collected in August 2013, were analyzed for one or more of the following parameters by CT Laboratories (CT) located in Baraboo, Wisconsin.

- USEPA SW-846 Method 8260C for volatile organic compounds (VOCs)
- USEPA SW-846 Method 8270D for semivolatile compounds (SVOCs) or polynuclear aromatic hydrocarbons (PAHs)
- USEPA SW-846 Method 8015C for total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) and diesel range organics (DRO)
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The quality assurance (QA) split samples were submitted to Microbac Laboratories (Microbac) in Marietta, Ohio and were analyzed for one or more of the aforementioned parameters. These data are discussed in a separate report.

This report details the data validation of 10% of the primary sample data, analysis of field duplicate results, and the determination of data usability of the validated samples. Validation results, field duplicate comparisons and data usability are presented by site, in Sections 4 through 9.

1.2 Previous Activities and Data

The following summary was adapted from the Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio

(FWQAPP) prepared by Science Applications International Corporation (SAIC), March 2001. Site-specific information is presented in Sections 4 through 21.

Located in northeastern Ohio on approximately 21,000 acres, RVAAP was established in 1940 to load, store, and demilitarize conventional artillery ammunition, bombs, mines, fuses and boosters, primers and percussion elements. Originally RVAAP operated as two separate units, the Portage Ordnance Depot and the Ravenna Ordnance Plant. During World War II, a contractor operated the Ravenna Ordnance Depot and the government operated the Portage Ordnance Depot. Ordnance production and storage for World War II continued until August 1945, at which time the facility was renamed the Ravenna Arsenal, and the government assumed control of all operations. Then, from 1951 to 1999, the entire facility was operated by contractors. Ordnance production at the facility was phased out and sent to Plum Brook Ordnance Works in Sandusky, Ohio and Keystone Ordnance Works in Meadville, Pennsylvania. All production at the facility had ceased by 1957 and the plant was placed on standby. In 1961, the plant was operational for seven months, processing and performing explosive melt-out of bombs. After deactivation late in 1961, the facility was renamed RVAAP. From mid-1968 until 1971, the plant was reactivated to load, assemble, and pack munitions on three load lines and two component lines. Operations ceased at Load Lines 1, 2, 3, and 4 in 1971; however, the Lines were reactivated to perform demilitarization operations for several months in 1973 and 1974. In 1992, RVAAP was again placed on inactive status. Salvage and demolition operations started in 1998 and administrative control of the facility was transferred to the Ohio Army National Guard in 1999.

Since 1978, approximately 20 environmental condition investigations have been performed at RVAAP. Only a portion of these investigations are discussed below.

2 DESCRIPTION OF WORK PERFORMED

This section describes the data verification and data validation procedures used during the evaluation of the site samples reported in 40 sample delivery groups (SDGs) from TA-North Canton or CT.

2.1 Data Validation Process

Level IV validation was performed on 10% of the total number of primary samples collected. Primary samples with associated QA and field duplicate samples were prioritized for Level IV validation; however, not all samples validated at Level IV had associated QA or field duplicate samples.

Data validators assessed results based on the FWQAPP, Department of Defense Quality Systems Manual for Environmental Laboratories Version 4.2 (DoD QSM), Louisville DOD Quality Systems Manual Supplement, Version 1 (LS), the specific EPA methods, the National Functional Guidelines for Superfund Organic Methods Data Review (2008), and the National Functional Guidelines for Inorganic Superfund Data Review (2010). The following were reviewed for Level IV validation:

- Sample management (collection techniques, sample containers, preservation, handling, transport, chain-of-custody, holding times),
- Calibration results (initial, continuing, and method reporting limit),
- Method and calibration blank sample results,
- Laboratory control sample (LCS) or LCS/LCS duplicate (LCS/LCSD) recoveries and/or precision,
- Surrogate recoveries (if applicable),
- Metals interference check sample results
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and precision,
- Laboratory duplicate precision
- Post digestion spike accuracy,
- Serial dilution precision,
- Field QA/QC sample results (equipment rinsate, field blank, trip blank)
- Gas Chromatography/Mass Spectrometry (GC/MS) or inductively coupled plasma (ICP) MS tuning,
- Internal standards performance,
- Sample results verification,
- Target compound identification,
- Raw data.

Blanks – method, calibration, trip, field and equipment – were assessed using the National Functional Guidelines 5× and 10× rules. Target compound detections less than or equal to 5× a blank detection and common laboratory contaminant compound detections less than or equal to 10× a blank detect were qualified as nondetected. Nondetected results were reported at the

limit of detection (LOD) if the original detect was less than or equal to the LOD or reported at the level of contamination if the original detect was greater than the LOD.

ECC provided a list of field blank/source water, equipment rinsate, and trip blank samples collected in association with the SI samples. These samples are listed below.

Table 3. Field blank/source water and equipment rinsate samples

Sampling Event	Applicability	Sample	Water Type	Date Collected	Validator Application
All 2012-2013 Sampling Event	Non-dedicated hand sampling tools	070-0057-0001-Source Water	ECC bottled decontamination water	12/12/2012	Surface soil ("SS") samples collected in 2012
2012 Subsurface Sampling Event	Direct push drilling tools	070-0056-0001-Source Water	Driller bottled decontamination water	12/12/2012	Not used
2013 Subsurface Sampling Event	Direct push drilling tools	079-0007-0001-Source Water	Driller bottled decontamination water	3/14/2013	Not used
2012 SI Sampling Event	Non-dedicated hand sampling tools during sampling event	076-0067-0001-ER	N/A	11/15/2012	Surface soil ("SS") samples collected in November 2012
2012 SI Sampling Event	Non-dedicated hand sampling tools during sampling event	076-0140-0001-ER	N/A	12/9/2012	Surface soil ("SS") samples collected in December 2012
2013 SI Sampling Event and Sites 71 and 83 Sampling Event	Non-dedicated hand sampling tools during sampling event	083SB-0023-0001-ER	N/A	8/15/2013	Surface soil ("SS") samples collected in August 2013

Due to the large number of high concentration detects for metals analytes in samples 070-0056-0001-Source Water and 079-0007-0001-Source Water, these samples were not used to qualify site sample results. Therefore, there was no field blank/source water associated with the subsurface samples.

2.2 Data Validation Qualifiers

Data qualifiers, as defined below, were applied following the FWQAPP and the DoD QSM:

U Nondetected at the limit of detection
The analyte was analyzed for but not definitively detected.

J Estimated
The identification of the analyte is acceptable but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision. Additionally used to identify detects reported below the limit of quantitation (LOQ).

N Identity Presumptive and Tentative
There is presumptive evidence that the analyte is present but it has not been confirmed. There is an indication that the reported analyte is present; however, all quality control requirements necessary for confirmation were not met.

R Rejected
Data are considered to be rejected and shall not be used for environmental decisions.

2.3 Data Validation Flagging Codes

The qualification codes in the following table may have been used to flag the data described in this document: Sample qualifications are summarized in Appendix B. All qualifications and associated qualification codes have been entered into the electronic data deliverables (EDD) received from the laboratories and may be reviewed Appendices A and B of this report.

Table 4. Qualification code reference table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration %RSD or %D was noncompliant. MRL was outside control limits or missing.	Correlation coefficient was noncompliant. MRL was outside control limits or missing.
R	Calibration RRF was noncompliant.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Control Sample/Control Sample Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tuning was noncompliant
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was	Post Digestion Spike recovery was not within

Qualifier	Organics	Inorganics
	poor.	control limits.
*II, *III	A deficiency was found that has been described in the "Sample Management," section (*II) or the "Method Analyses" section (*III).	A deficiency was found that has been described in the "Sample Management," section (*II) or the "Method Analyses" section (*III).

3 DATA ACQUISITION ACTIVITIES

3.1 Sample Collection

Samples were collected from November 2012 to August 2013. The samples were submitted under chain of custody to the primary laboratories, TA-North Canton or CT.

Unless otherwise noted In Sections 4 through 9, the chains-of-custody associated with the samples validated at Level IV were appropriately signed by both field and/or laboratory personnel with all samples and analyses accounted for, cooler custody seals intact, and within the temperature limits of 4±2^{o}C. All documentation regarding sample handling as presented in the case narratives, chains of custody, correspondence, and sample condition upon receipt forms was evaluated. No further requests were made to the primary contractor or the laboratories, and no data were qualified.

3.2 Sample Analysis

The primary laboratories, or their subcontractors, analyzed the samples for the parameters shown in the table ined in Section1.1.

3.3 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing.

3.4 Sample Preservation and Holding Time Requirements

All method preservation requirements were met. The extraction and analytical holding times for the soil analyses validated in this document are listed in the table below.

Table 5. Holding times

Method	Analysis	Holding Time	
		Extraction	Analysis
6010C/6020	Metals	N/A	180 days
7471A	Mercury	N/A	28 days
8260B/8260C	VOCs	N/A	14 days
8270C/8270D	SVOCs	14 days	40 days
8015B/8015C	TPH-GRO	N/A	14 days
8015B/8015C	TPH-DRO	14 days	40 days
8081/8081B	Pesticides	14 days	40 days
8082/8082A	PCBs	14 days	40 days
8151	Herbicides	14 days	40 days
8330B	Explosives	14 days	40 days
8330	Nitroguanidine	14 days	40 days
9056M/WS-WC-0050	Nitrocellulose	N/A	28 days
7196A	Hexavalent chromium	30 days	24 hours

Qualifications applied for missed holding times are discussed by Site in Sections 4 through 9.

3.5 Detection Limit Requirements

Limits of detection (LODs) and detection limits for nondetected analytes were compared against the most stringent criteria listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the USEPA Regional Screening Levels (RSLs).

Some LODs and DLs exceeded the cleanup goals (CUGs) or project criteria. These exceedances are reported by site in Sections 4 through 9. As noted in the Executive Summary, results with DLs exceeding project criteria may be usable for their intended purposes; however, it is dependent on the final data user to make this determination on a case-by-case basis.

4 EAST CLASSIFICATION YARD, RVAAP-70

4.1 Current Investigation

ECC completed an SI at the East Classification Yard (RVAAP-70). The SI for RVAAP-70 was conducted in accordance with the *Interim Final Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* (USEPA 1992).

A historical records review (HRR) evaluation reviewed historic uses at RVAAP-70 for potential environmental concerns with respect to possible hazardous, toxic, and radioactive waste (HTRW) and/or munitions and explosives of concern (MEC) issues (SAIC 2011). The HHR identified the following facilities within RVAAP-70 as candidates for investigation:

- Former Fuel Oil Spill Area – In 1986, a leak of No.5 fuel oil occurred from a former aboveground storage tank (AST) located west of Building 47-40 (Roundhouse). Contaminated soil was stockpiled within the containment area and over 16,000-gallons of fuel oil was salvaged from the containment area. Approximately 120-gallons of oil/soil/straw were disposed of as per Ohio EPA instructions. The spill report indicated samples of contaminated soil were collected for analysis. The laboratory report indicated the soil in the containment area was acceptable for burning; however, no final report regarding the disposition of the contaminated soil was discovered.

- Building 47-40 (Roundhouse) – Although no documented releases were discovered during the HHR, staining was visible on the concrete floor within the building. According to the HHR, chemicals used within the building included engine washing compounds, valve oil, electrolytes (battery maintenance), locomotive black paint, solvents for parts degreasing, lubrication oil, metal preservatives, carbolineum, creosote, and cold patch asphalt. No documented waste management practices were found.

- Former Herbicide Storage Shed – This shed (Building 47-60) was used to house the track-mounted sprayer and herbicides. Herbicide mixing operations may have occurred in this site.

- Outdoor Wash Rack Area – This area was used to wash box cars which carried explosives and engines. An interviewee noted there were no controls in place to collect the wash water.

The data validated in this report are part of the initial intrusive SI at RVAAP-70 conducted to assess the potential presence of contamination. The sample counts, samples selected for data validation, and the field duplicates are presented in the tables below.

Table 6. Total sample count for RVAAP-70

Matrix	Field Duplicates	Split Samples	Explosives	Propellants	Herbicides	PCBs	SVOCs	TPHs	VOCs/BTEX	Metals
Soil	5	0	15	7	14	32	51	18	19	24

Table 7. RVAAP-70 validated samples and methods

Sample ID	SDG	Matrix	Collected	Explosives	Propellants	Herbicides	PCBs	SVOCs	TPHs	VOCs/BTEX	Metals
070SS-0003M-0001-SO	240-17230-1	Soil	11/5/2012					x			
070SS-0006M-0001-SO	240-17230-1	Soil	11/5/2012	x	x	x	x	x	x	x	x
070SB-042M-0001-SO	240-18735-1	Soil	12/7/2012						x		
070SB-044M-0001-SO	240-18581-1	Soil	12/7/2012	x		x	x	x		x	x
070SB-046M-0001-SO	240-18581-1	Soil	12/7/2012					x			

Table 8. RVAAP-70 field duplicate samples

Duplicate Sample ID	Parent Sample
070SS-0007M-0001-SO	070SS-0006M-0001-SO
070SB-0042M-0001-SO	070SB-0043M-0001-SO
070SB-0045M-0001-SO	070SB-0044M-0001-SO
070SB-0047M-0001-SO	070SB-0046M-0001-SO

4.1.1 Sample Collection

The chains-of-custody were appropriately signed and dated by field and laboratory personnel. According to the laboratory Sample Receipt Form, custody seals were not utilized; however, in reviewing the relinquish and receipt times, it appeared the samples were transferred to the laboratory by courier. For SDG 240-18581-1, the laboratory Sample Receipt Checklist did not list a temperature, noted the samples were not received on ice, but also noted the samples were received chilled. No other sample collection issues were noted.

4.1.2 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing from the SDGs reviewed.

4.1.3 Preservation and Holding Time Requirements

A portion of the sample coolers were received at temperatures below the 4 ±2^{o}C control limit; however, as the samples were not noted to be frozen or damaged, no qualifications were

required. All remaining method preservation requirements were met. All holding times, as listed in Table 4, were met.

4.1.4 Detection Limit Requirements

LODs and DLs for nondetected analytes were compared against the most stringent CUGs listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the RSLs if no CUG was listed. The table below lists the number of LODs and DLs that exceeded criteria.

Table 9. RVAAP-70 LOD/DL validated sample exceedances

Method	LOD	DL
Explosives	0	0
Propellants	0	0
PCBs	0	0
Herbicides	0	0
TPH	0	0
SVOCs	12	12
VOCs	0	0
Metals	0	0

Results with LODs/DLs exceeding project criteria may be usable for their intended purposes; however, it is dependent on the final data user to make this determination on a case-by-case basis.

4.2 RVAAP-70 Data Quality Evaluation

This section summarizes the data quality of validated samples for each analytical method evaluated.

4.2.1 Explosives

A total of 15 primary soil samples and 1 field duplicate sample were analyzed by TA-West Sacramento for explosives by USEPA SW-846 Method 8330B. A total of 2 primary soils were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The primary column initial calibration average percent relative standard deviations (%RSDs) for RDX and 2-nitrotoluene exceeded the control limit at 20% and 16%, respectively; therefore, the nondetected results for these compounds were qualified as estimated, "UJ," in 070SS-0006M-0001-SO and 070SB-044M-0001-SO. The qualified results were coded with a "C" qualification code. The remaining initial calibration average %RSDs were within the control limits listed in DoD QSM Table F-3 of ≤15%, or the linear regression r^2 values were ≥0.990.

- The second source initial calibration verification (ICV) standard recoveries were within the control limit listed in DoD QSM Table F-3 of ±20%.

- The continuing calibration verification (CCV) standard %Ds were within the control limits listed in DoD QSM Table F-3 of ±20%.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. Low-level MRL standards were analyzed in association with the validated samples and the results were within the reasonable control limits of 70-130%.

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in DoD QSM Table F-3 of one-half the limit of quantitation (LOQ).

- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (76-116%) and PETN (76-116%).

- Surrogate Recovery: As no surrogate control limit was listed in the DoD QSM, surrogate recoveries were assessed against the reasonable laboratory-established control limits of 78-118%. Recoveries were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 070SS0006M-0001-SO. The recoveries for 4-amino-2,6-dinitrotoluene (124%, 135%) were above the control limit (81-121%); however, qualifications are only applied to detects for high recoveries. Both recoveries for nitroglycerin (63%, 62%) were below the control limits (76-116%); therefore, nondetected nitroglycerin in the parent sample was qualified as estimated, "UJ," and the result coded with a "Q" qualification code.

- Compound Identification: Compound identification was verified for those samples validated at a Level IV. Review of sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: As no target compounds were detected in the samples validated at Level IV, compound quantification was verified for a portion of the LCS results. The LOQs were supported by the low point of the initial calibration and the laboratory detection limits (DLs). Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Confirmation analyses were performed; however, no compounds were confirmed.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in samples 070SS-0006M-0001-SO and 070SB-044M-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8330B results for nitrobenzene were

rejected, "R," as duplicate data and coded with a "D" qualification code. The 8330B results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for the initial calibrations and low-level CCVs. All manual integrations were performed in order to report incompletely resolved peaks or to account for baseline anomalies and were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with sample 070SS-006M-0001-SO. The field blank and equipment rinsate had no target compound detects. The validated subsurface soil sample had no associated field QC samples.

    - Field Duplicates: One field duplicate sample was collected and analyzed for explosive compounds. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

4.2.2 Propellants

A total of 7 primary soil samples and 1 field duplicate were analyzed by TA-West Sacramento for nitroguanidine by USEPA SW-846 Method 8330 and for nitrocellulose by laboratory standard operating procedure (SOP) WS-WC-0050. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration:

    - The nitroguanidine initial calibration average percent %RSD was within the control limit listed in DoD QSM Table F-2 of ≤20%. Nitrocellulose linear regression r values were within the control limit listed in the DoD QSM Table F-11 of ≥0.995.

    - The nitroguanidine second source ICV recovery was within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose ICV recovery exceeded the

control limit at 192% (limits are 90-110%); however, as nitrocellulose was not detected in the sample, no qualifications were required.

- The nitroguanidine CCV recoveries were within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose CCV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries associated with the sample were within the reasonable control limits of 70-130%.

- Blanks: The method blanks had no target compound detects above the control limits listed in DoD QSM Tables F-2 and F-11 of one-half the LOQ.

- Laboratory Control Samples: No nitroguanidine or nitrocellulose LCS control limits are listed in the DoD QSM; therefore, the laboratory control limits were used to assess the results. All nitroguanidine recoveries were within the control limits of 72-121% for soils. The nitrocellulose recoveries were within the laboratory-established control limits of 34-115% for soils.

- Surrogate Recovery: A surrogate was not required for the analysis of nitroguanidine or nitrocellulose.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 070SB-0006M-0001-SO for both propellants. The recoveries were within the laboratory-established control limits of 72-121% for nitroguanidine and 34-115% for nitrocellulose. Both RPDs were ≤20%.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for those samples validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Nitroguanidine was not detected in the validated sample; therefore, confirmation analysis was not required.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for nitroguanidine. The manual integrations were performed to correct baseline integration. The manual integrations were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank and equipment rinsate had no target compound detects.

    - Field Duplicates: One field duplicate sample was collected and analyzed for propellants. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

4.2.3 Polychlorinated Biphenyls (PCBs)

A total of 30 primary soil samples and 2 field duplicates samples were analyzed by TA-North Canton for PCBs by USEPA SW-846 Method 8082. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.

    - Initial calibration average %RSDs were within the control limit of ≤20%.

    - The second source ICV recoveries were within the control limit of ±20% for all applicable Aroclors.

    - The CCV standard recoveries were within the control limit of ±20%.

    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.

- Laboratory Control Samples: Recoveries for Aroclor 1016 and Aroclor 1260 were within the control limits listed in DoD QSM Table G-17.

- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 070SS-0006M-0001-SO. Both recoveries for Aroclor 1016 were above the control limits of 40-140%, at 155% and 149%. The parent sample detect for Aroclor 1242 was qualified as estimated, "J," and coded with a "Q" qualification code. Recoveries for Aroclor 1260 were within the control limits listed in DoD QSM Table G-17 and RPDs for both Aroclors were within the control limit listed in the DoD QSM Table F-2 of ≤30%.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated samples. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Sample 070SS-0006M-0001-SO was analyzed at a 5× dilution for a high concentration of Aroclor 1242. The intercolumn RPD exceeded the control limit of ≤40%; therefore, the result was qualified as estimated, "J," and coded with a "*III" qualification code.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data associated with the sample data, primarily due to poor baseline integration. All manual integrations reviewed at Level IV were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with sample 070SS-006M-0001-SO. The field blank and equipment rinsate had no target compound detects. The validated subsurface soil sample had no associated field QC samples.

  - Field Duplicate Samples: Two field duplicate samples were collected and analyzed for PCBs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The result for Aroclor-1242 in pair 070SS-0006M-0001-SO/070SS-0007M-0001-SO was not within ± the LOQ. The remaining results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

4.2.4 Herbicides

A total of 12 primary soil samples and 2 field duplicate samples were analyzed by TA-North Canton for herbicides by USEPA SW-846 Method 8151. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
  - Initial calibration average %RSDs were within the DoD QSM Table F-2 control limit of ≤20% or linear regression r^2 values ≥0.990.
  - The second source ICV recoveries were within the DoD QSM Table F-2 control limit of ±20%.
  - The CCV standard recoveries were within the DoD QSM Table F-2 control limit of ±20%.
  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%, with exceptions noted in the table below. The sample results, all nondetects, were qualified as estimated, "UJ," and coded with a "C" qualification code.

Samples qualified for MRL %Recovery outliers		
Analyte	**%Recoveries**	**Qualified Samples**
MCPP	42% / 59%	070SS-0006M-0001-SO
MCPA	48% / 62%	
MCPP	53%	070SB-0044M-0001-SO
MCPA	56%	

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in the DoD QSM Table F-2 of one-half the LOQ.
- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-9, or within laboratory-established control limits when no QSM limits were prescribed. Spiked analytes utilizing laboratory established control limits included dalapon (30-122%) and MCPA (25-132%). The reviewer noted MCPP and pentachlorophenol were not included in the LCS.
- Surrogate Recovery: Recoveries for surrogate 2,4-dichlorophenylacetic acid were within the laboratory-established control limits of 1-122%, as no QSM limits were prescribed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on samples 070SS-0006M-0001-SO and 070SB-0044M-0001-SO. Recoveries affecting sample data

were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-9, or within laboratory-established control limits when no QSM limits were prescribed (see Laboratory Control Samples section). Exceptions are noted in the table below. RPDs were within the control limit listed in the DoD QSM Table F-2 of ≤30%. The nondetected parent sample results for the outliers were qualified as estimated, "UJ," and coded with a "Q" qualification code. Pentachlorophenol and MCPP were not spiked in to the MS/MSD.

Samples qualified for MS/MSD %Recovery outliers			
Analyte	**%Recoveries**	**Recovery Limits**	**Qualified Sample(s)**
Dicamba	45% / 51%	55-110%	070SS-0006M-0001-SO
Dichlorprop	57% / 66%	75-140%	

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated samples. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data associated with the sample data, primarily to correct baseline integration of pentachlorophenol. All manual integrations reviewed at Level IV were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with sample 070SS-006M-0001-SO. The field blank and equipment rinsate had no target compound detects. The validated subsurface soil sample had no associated field QC samples.

    - Field Duplicate Samples: Two field duplicate samples were collected and analyzed for herbicides. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results

were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

4.2.5 Total Petroleum Hydrocarbons (TPH)

A total of 17 primary soil samples and 2 field duplicate samples were analyzed by TA-North Canton for GRO (C6-C12) and DRO (C10-C20, C20-C34) by USEPA SW-846 Method 8015B. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
  - Initial calibration average %RSDs were within the DoD QSM Table F-2 vcontrol limit of ≤20% or linear regression r^2 values ≥0.990.
  - The second source ICV recoveries were within the DoD QSM Table F-2 control limit of ±20%.
  - The CCV standard recoveries were within the DoD QSM Table F-2 control limit of ±20%.
  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%, with exception of one recovery of 133% in the beginning MRL associated with the GRO analysis of sample 070SS-0006M-0001-SO. The sample detect was qualified as estimated, "J," and coded with a "C" qualification code.
- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.
- Laboratory Control Samples: As no QSM limits are prescribed, recoveries were within the laboratory-established control limits of 60-142% for GRO, and 47-138% for DRO.
- Surrogate Recovery: As no QSM limits are prescribed, recoveries were within the laboratory-established control limits of 10-150% for GRO surrogate trifluorotoluene and 10-110% for DRO surrogate n-nonane.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on samples 070SS-0006M-0001-SO and 070SB-0042M-0001-SO for both GRO and DRO. As no QSM limits are prescribed, the laboratory-established soil control limits of 10-142% for GRO and 10-199% for DRO were applied, and RPDs were evaluated using the control limit listed in the DoD QSM Table F-2 of ≤30%.

The RPD exceeded the control limit for the GRO MS/MSD of sample 070SS-0006M-0001-SO, at 35%, partially due to a difference in spiking amounts; however, when the difference was accounted for in the calculation, the RPD was still above the control limit at 32%. The detected result associated with the RPD outlier was qualified as estimated, "J," and coded with a "Q" qualification code in sample 070SS-0006M-0001-SO. The remaining RPD was within the control limit.

DRO recoveries for the MS/MSD of sample 070SS-0006M-0001-SO were within the laboratory-established control limits of 10-199%, and the RPD was within the control limit of ≤30%. The DRO concentration in parent sample 070SB-0042M-0001-SO exceeded 4× the spiked amount, and the sample and MS/MSD were also analyzed at 10× dilutions; therefore, recoveries were not evaluated.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification. The laboratory analyzed for GRO hydrocarbon range C6-C12, and DRO ranges C10-C20 and C20-C34.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated samples. The DRO analysis of sample 070SB-0042M-0001-SO required a 10× dilution due to high concentrations of both hydrocarbon ranges. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for some GRO calibration and QC data associated with the sample data, primarily to correct baseline integration of the surrogate trifluorotoluene. All manual integrations reviewed at Level IV were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: QC samples:

    - Trip Blanks: The validated samples had no associated trip blanks analyzed for GRO.

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with sample 070SS-006M-0001-SO. The field blank and

equipment rinsate had detects for C6-C12 below the LOQ; however, the concentrations were not sufficient to qualify site sample results. The validated subsurface soil sample had no associated field QC samples.

- Field Duplicate Samples: Twoe field duplicate sample was collected and analyzed for GRO. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

SVOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
070SS-0006M-0001-SO	070SS-0007M-0001-SO	C20-C34	N/A	No
070SB-0042M-0001-SO	070SB-043M-0001-SO	C6-C12	N/A	No

4.2.6 Semivolatile Organic Compounds (SVOCs)

A total of 47 primary soil samples and 4 field duplicate samples were analyzed by TA-North Canton for SVOCs by USEPA Method 8270C. A total of 4 samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- GC/MS Tuning: The DFTPP tunes met the method abundance criteria. The samples were analyzed within 12 hours of the DFTPP injection time.
- Calibration: Calibration criteria listed in the DoD QSM Table F-4 were met, with exceptions affecting sample results noted in the tables below.
  - Initial calibration average RRFs and ICV and CCV RRFs were within method control limits of ≥0.050. All initial calibration %RSDs were within the control limits of ≤30% for calibration check compounds (CCCs) and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.
  - All second source ICV standard recoveries affecting sample data were within the control limit of ±20%, with the exception of the recovery of 73.3% for 3,3'dichlorobenzidine in one ICV associated with sample 070SS-0003M-0001-SO. The nondetected result was qualified as estimated, "UJ," in the sample and coded with a "C qualification code.
  - Continuing calibration %Ds affecting sample data were within the control limit of ≤20%.
  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%, with exceptions noted in the table below. The nondetected results for n-nitrosodiphenylamine were rejected, "R," in the affected samples and remaining

results listed in the table below, all nondetects, were qualified as estimated, "UJ." All qualified results were coded with a "C" qualification code.

Samples qualified for MRL %R outliers		
Analyte	**%R**	**Qualified Samples**
2,4-dinitrophenol	42%	070SS-0003M-0001-SO 070SS-0006M-0001-SO
4,6-dinitro-2-methylphenol	47%	
2,4-dinitrophenol	57%	070SB-0044M-0001-SO 070SB-0046M-0001-SO
benzo(g,h,i)perylene	62%	
n-nitrosodiphenylamine	**0%**	

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ for target compounds, and no common laboratory contaminants detected above the LOQ.

- Laboratory Control Samples: Benzoic acid was reported as not detected in one LCS; however, the recovery calculated from the raw data was acceptable. All LCS recoveries were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the LCS.

- Surrogate Recovery: All surrogate recoveries were within the control limits listed in the DoD QSM Tables G-2 (poor performers) or G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated samples 070SS-0006M-0001-SO and 070SB-0044M-0001-SO. Sample 070SB-0044M-0001-SO was analyzed at a 10× dilution; therefore, the recoveries were not evaluated, as the spike was considered diluted out.

  As the spiking level was below the DL for benzoic acid, it was reported as "NC" (not calculated); however, the reviewer-calculated recoveries and RPDs from the MS/MSD concentrations in the raw data were within the control limits. Qualifications were not assigned if recoveries were not outside of control limits in both the MS and MSD; however, if RPDs exceeded the control limit due to inconsistent recoveries, parent sample results were qualified.

  The MS and MSD of sample 070SS-0006M-0001-SO had no recoveries of 4-chloroaniline or 3,3-dichlorobenzidine; therefore, the nondetected results for both compounds were rejected, "R," in the parent sample. Recoveries for 3-nitroaniline were below the control limits of 25-110%, at 16% and 13%. The nondetected result for 3-nitroaniline was qualified as estimated, "UJ," for the recovery outliers. The MSD had no recoveries for 4,6-dinitro-2-methylphenol or 4-nitroaniline, resulting in RPDs of 200%, and the MS recovery for 4-nitroaniline was also below the control limits of 35-115%, at 25%. The nondetected results for 4,6-dinitro-2-methylphenol and 4-nitroaniline were qualified as estimated, "UJ," for the RPD outliers, and 4-nitroaniline was also qualified as estimated, "UJ," for the recoveries. Remaining recoveries were within the control limits

listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the MS/MSD. Remaining RPDs were within the control limit of ≤30% listed in DoD QSM Table F-4. All qualified results were coded with a "Q" qualification code.

- Internal Standards Performance: The internal standard area counts and retention times were within the DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the samples validated at Level IV. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the samples validated at Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

  The samples had a 2-ml final extract volume, resulting in an effective 2× dilution. Sample 070SS-0006M-0001-SO was analyzed at an additional 5× dilution, and the remaining samples at additional 10× dilutions. The case narratives for these SDGs attributed the dilutions to the nature of the sample matrix; however, as all sample chromatograms were scaled to the large aldol condensate peak (an artifact of the preparation process), the matrix interference cited by the laboratory was not visually apparent.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in samples 070SS-0006M-0001-SO and 070SB-044M-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8270C results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were rejected, "R," as duplicate data and coded with a "D" qualification code. The 8270C results for nitrobenzene were retained.

  Pentachlorophenol was analyzed both by Method 8270 and Method 8151. As the LOQ for Method 8151 was significantly lower than the Method 8270C LOQ, pentachlorophenol in this analysis was rejected, "R," as duplicate data.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the samples, and for calibration and QC data associated with the sample data, primarily due to peaks missed or incorrectly chosen by the data system, or poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with samples 070SS-0003M-0001-SO and 070SS-006M-0001-SO. The field blank and equipment rinsate had no target compound detects. The validated subsurface soil samples had no associated field QC samples.

    - Field Duplicate Samples: Four field duplicate samples were collected and analyzed for SVOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

SVOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
070SS-0006M-0001-SO	070SS-0007M-0001-SO	Pyrene	53%	N/A
		Benzo(a)anthracene	N/A	No
		Benzo(a)pyrene	N/A	No
		Benzo(g,h,i)perylene	N/A	No
		Fluorene	N/A	No
070SB-0042M-0001-SO	070SB-043M-0001-SO	Acenaphthene	N/A	No
		Chrysene	N/A	No

4.2.7 Volatile Organic Compounds (VOCs)

A total of 17 primary soil samples and 2 field duplicate samples were analyzed by TA-North Canton for volatile compounds by USEPA Method 8260B. A total of 2 primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The BFB tunes met the method abundance criteria. The samples were analyzed within 12 hours of the BFB injection time.

- Calibration: Calibration criteria listed in DoD QSM Table F-4 were met, with exceptions noted below.

    - Initial calibration average RRFs and ICV and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane.

    - All initial calibration %RSDs were within the method control limits of ≤30% for the CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.

- All second source initial calibration verification standard recoveries were within the control limit of ±20%.

- Continuing calibration %Ds affecting validated sample data were within the method control limit of ≤20%.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%, with exceptions listed in the table below. The sample results, all nondetects, were qualified as estimated, "UJ," and coded with a "C" qualification code.

Samples qualified for MRL recovery outliers		
Analyte	**% Recovery**	**Qualified Sample(s)**
Acetone	58%	070SS-0006M-0001-SO
2-Hexanone	68%	070SB-0044M-0001-SO

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ, and no common laboratory contaminants detected above the LOQ, with exceptions affecting sample data listed in the table below. As the sample detects were below the LOQ, results were qualified as nondetected, "U," at the LOQ and coded with a "B" qualification code.

Samples qualified for method blank contamination				
Analyte	**Method Blank Concentration**	**Sample Result (µg/Kg)**	**LOQ (µg/Kg)**	**Associated Sample**
2-Hexanone	2.37(J) µg/Kg	1.8(J)	23	070SS-0044M-0001-SO
Methyl isobutyl ketone	1.41(J) µg/Kg	1.3(J)	23	

- Laboratory Control Samples: LCS/LCSD recoveries were within the control limits listed in DoD QSM Table G-4, and RPDs were within the QSM Table F-4 control limit of ≤30%.

- Surrogate Recovery: Surrogate recoveries affecting sample data were within the control limits listed in DoD QSM Table G-3, with the exception of BFB recovered below the control limits of 85-120% in both samples, at 75% in sample 070SS-0006M-0001-SO and 72% in sample 070SB-0044M-0001-SO. Results in both samples were qualified as estimated, "J," for detects, and "UJ," for nondetects. The qualified results were coded with an "S" qualification code. The MSD analysis of 070SB-0044M-0001-SO had a similar recovery for BFB, suggesting a matrix effect on the surrogate; however, the remaining MS and MSD analyses of both samples were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on both validated samples. The MSD of sample 070SS-0006M-0001-SO had recoveries below the control limits of 75-125% for chlorobenzene (69%), ethylbenzene (74%), and styrene (67%); however, qualifications were not assigned if recoveries were not out of control

limits in both the MS and MSD. The laboratory also reported 14 RPDs above the control limit of ≤30% for the MS/MSD of 070SS-0006M-0001-SO; however, the reviewer determined the outliers were due to an approximately 16% difference in spike amounts based on the difference in sample weight. With the disparity of spike amounts taken into account, all RPDs were within the control limit.

All recoveries for 070SB-044M-0001-SO MS/MSD were within the control limits listed in DoD QSM Table G-4 and RPDs were within the control limit listed in DoD QSM Table F-4, with the exception of the RPD for 1,1,2,2-tetrachloroethane, of 57%. The RPD outlier was not due to a disparity in spike amount. The nondetected parent sample result for 1,1,2,2-tetrachloroethane was qualified as estimated, "UJ," and coded with a "Q" qualification code.

- Internal Standards Performance: The internal standard area counts and retention times were within DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the samples validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual integrations: Manual integrations were not performed for the validated samples or for associated calibration and QC samples.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Trip Blanks: The trip blanks associated with the validated samples in this SDG had no reportable detects.

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with sample 070SS-006M-0001-SO. The field blank had detects below the LOQ for acetone, bromodichloromethane, toluene,

dibromochloromethane, 2-butanone, and chloroform, and the equipment rinsate also had a detect below the LOQ for chloroform; however, none of the field QC contaminants were present in the site sample. The validated subsurface soil sample had no associated field QC samples.

- Field Duplicate Samples: Two field duplicate samples were collected and analyzed for VOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

4.2.8 Metals

A total of 22 primary soil samples and 2 field duplicate samples were analyzed by TA-North Canton for metals by USEPA Methods 6020 and 7471A. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration: Except as noted below, calibration criteria were met.
  - As per DoD QSM Table F-8, the mass calibrations were ≤0.1 atomic mass units (amu) of the true values and the resolutions were <0.9 amu at full width at 10% peak height. Except as noted below, the %RSDs were within the control limit listed in the DoD QSM Table F-8 of ≤5%. The detected results listed in the table below were qualified as estimated, "J," and were coded with an "M" qualification code.

Samples qualified for tune %RSD outliers		
Analyte	**%RSD**	**Qualified Samples**
^{78}Selenium	20.43	070SS-0006M-0001-SO
^{137}Barium	24.31	070SB-044M-0001-SO
^{138}Barium	9.85	070SB-044M-0001-SO

  - Initial calibration: Linear regression r-values were within the control limit listed in the DoD QSM Tables F-7 and F-8 of ≥0.995.
  - The ICPMS ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-8 of 90-110%. The mercury ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110% and 80-120%, respectively.
  - CRI/MRL recoveries affecting sample results were within the control limits listed in DoD QSM Tables F-7 and F-8 of 80-120%.
- Blanks: Method blanks had no applicable detects above the control limits listed in DoD QSM Tables F-7 and F-8 of one-half the LOQ or greater than one-tenth the amount

measured in any sample. CCBs had no detects above the control limit listed in DoD QSM Tables F-7 and F-8 of greater than the LOD.

- Interference Check Samples: ICPMS interference check sample A (ICSA) and AB (ICSAB) recoveries were within the control limits listed in DoD QSM Table F-8 of 80-120%. Selenium was detected in the ICSA associated with 070SB-044M-0001-SO at 1.15 µg/L. As the interferents were present in the sample at concentrations similar to the ICSA, selenium detected in 070SB-044M-0001-SO was qualified as estimated with a potential positive bias, "J+," and the qualified result was coded with an "I" qualification code. There were no analytes affecting sample results detected in the ICSA above the control limit listed in DoD QSM Table F-8 of >LOD.

- Laboratory Control Samples: The recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%. All 6020 RPDs were within the control limit listed in DoD QSM Table F-8 of ≤20%.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on 070SS-0006M-0001-SO for all analytes. Except for the analytes listed below, RPDs were within the control limits listed in DoD QSM Tables F-7 and F-8 of ≤20%. Results listed below were qualified as estimated, "J," and were coded with an "E" qualification code.

Samples qualified for laboratory duplicate outliers		
Analyte	**RPD**	**Qualified sample**
Chromium	42%	070SS-0006M-0001-SO
Cadmium	41%	070SS-0006M-0001-SO
Lead	94%	070SS-0006M-0001-SO

- Matrix Spike/Matrix Spike Duplicate: Except as noted below, recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%. Matrix spike control limits were not applied when the native sample concentration exceeded the spiked amount by a factor of four or more.

  The results listed in the table below, all detects, were qualified as estimated, "J," and coded with a "Q" qualification code. When no other qualifications with conflicting bias were assigned to a result, detected results with low recoveries were assigned a negative bias, "J-," and detected results with high recoveries were assigned a positive bias, "J+."

Samples qualified for matrix spike recovery outliers		
Parent Sample	**Analyte**	**%R**
070SS-0006M-0001-SO	Antimony	19%
	Chromium	72%
	Potassium	136%
	Selenium	79%
	Vanadium	130%

- Serial Dilution: Except as noted below, serial dilution %Ds were within the control limits listed in DoD QSM Table F-8 of ≤10%. The serial dilution control limit is only applicable when the original sample concentration is minimally ≥50× the LOQ.

  Results listed in the table below were qualified as estimated, "J." The qualified results were coded with an "A" qualification code.

Samples qualified for serial dilution %D outliers			
Parent Sample	**Analyte**	**%Ds**	**Qualified Samples**
070SS-0006M-0001-SO	Copper	15%	070SS-0006M-0001-SO
	Lead	12%	
	Nickel	11%	

- Internal Standards: All ICPMS sample internal standards intensities were within 30-120% of those in the ICV, as per the DOD QSM Table F-8. Yttrium (^{89}Y) was spiked into the QC samples but not the site samples.

- Sample Result Verification: For Level IV validation, calculations were verified and the sample results reported on the sample result summary were verified against the raw data. Manganese in sample 070SS-0006M-0001-SO was reported from a 5× dilution. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

- Manual Integrations: No manual integrations were noted in the mercury analyses.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with sample 070SS-006M-0001-SO. The validated subsurface soil sample had no associated field QC samples. Sodium was detected at 1600 µg/L in 070-0057-0001-Source Water; therefore, sodium detected in 070SS-0006M-0001-SO was qualified as nondetected, "U," at the level of contamination. The qualified result was coded with an "F" qualification code. There were other detects in the field QC samples, but non at sufficient concentration to qualify the associated sample.

  - Field Duplicate Samples: A total of two field duplicate samples were collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only

applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The results for beryllium in pair 070SB-046M-0001-SO.070SB-047M-0001-SO were not within ± the LOQ. The remaining results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

4.3 Data Usability

According to the Draft Site Inspection Report prepared by ECC, the field completeness was 100%.

Four data points were rejected for poor MS/MSD recoveries or calibration outliers. In instances where a data point had multiple results, the reviewer chose the most technically sound result to report and rejected the remaining data points. These rejected data points do not affect data quality or usability and are not included in the table below. Data with LODs or DLs that exceeded the established criteria and data estimated for quality control outliers or for detects between the DL and the LOQ were included in the table below for informational purposes only.

Table 10. Analytical completeness for RVAAP-70 validated primary data

			Number of Results					
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	**Percent Complete**
Explosives*	2	16	30	0	0/0	5	0	100%
Nitroguanidine	1	1	1	0	0/0	0	0	100%
Nitrocellulose	1	1	1	0	0/0	0	1	100%
Herbicides	2	11	22	0	0/0	6	0	100%
PCBs	2	7	14	0	0/0	1	1	100%
SVOCs*	4	66	258	4	12/12	11	4	98.4%
VOCs	2	36	72	0	0/0	72	4	100%
TPH	2	3 or 1	5	0	0/0	1	0	100%
Metals	2	23	42	0	0/0	11	6	100%
		Totals	**445**	**4**	**12/12**	**107**	**16**	**99.1%**

*Results rejected as duplicate data do not appear in the Total Analyte count.

The analytical completeness goal for the project established in the FWQAPP was 90% for each method. The completeness goal was met for all analyses.

4.4 Primary and Field Duplicate Comparison Summary

Primary and field duplicate sample comparisons were considered to be in good agreement as only 2.5% of the field duplicate pair results were above the FWQAPP control limit of 50% or +/- the LOQ for results below 5× the LOQ.

Of the eleven outliers, seven were in pair 070SS-0006M-0001-SO/070SS-0007M-0001-SO, with five of the outliers for SVOCs. All comparison results are presented in Appendix C. A summary of the field duplicate results is presented in the table below. Please note that rejected results were not assessed and the rejected analytes do not appear in the "Total Analytes" field.

Table 11. RVAAP-70 primary/field duplicate sample comparison summary

Method	Primary/Field Duplicate Pairs	Number of Analytes	Total Analytes	Results within control limits	Results above control limit
Explosives*	16	1	15	15	0
Nitroguanidine	1	1	1	1	0
Nitrocellulose	1	1	1	1	0
Herbicides	11	2	22	22	0
PCBs	7	2	14	13	1
SVOCs*	66	4	254	247	7
VOCs	36	2	72	72	0
TPH	2	2 or 3	5	3	2
Metals	23	2	46	45	1

*Results rejected as duplicate data do not appear in the Total Analyte count

4.5 Specific Data Concerns

Specific concerns regarding the data are noted below:

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

In order to avoid repetition of the issues noted above, the following actions should be taken:

- MEC^X recommends the laboratory be requested to alter the IPCMS and mercury instrument set up in order to report mercury and ICPMS raw absorbances and ICPMS ICV, CCV, ICSAB, and MRL concentrations.

5 BARN NUMBER 5 PETROLEUM RELEASE, RVAAP-71

5.1 Current Investigation

ECC completed an SI at the Barn Number 5 Petroleum Release Site (RVAAP-71). This work was carried out in accordance with the *Final Site Inspection/Remedial Investigation Work Plan Addendum for CC RVAAP-71 and CC RVAAP-83* (ECC 2013). The SI for RVAAP-71 was conducted in accordance with the *Interim Final Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* (USEPA 1992).

In 1964, a gasoline release from a broken underground pipeline occurred in the vicinity of Barn Number 5. As the HHR (ECC, 2012) found no records indicating environmental sampling had been conducted at the site, RVAAP-71 was identified as a candidate for further investigation. Contaminants released at RVAAP-71 were petroleum-related chemicals and were primarily gasoline range hydrocarbons associated with the former buried gasoline pipeline. The HRR evaluation determined there were no historic uses or potential environmental concerns at this site with respect to possible HTRW and/or MEC issues (ECC 2012).

The data validated in this report are part of the initial intrusive SI at RVAAP-71 conducted to assess the potential presence of contamination. The sample counts, samples selected for data validation, and the field duplicates are presented in the tables below.

Table 12. Total sample count for RVAAP-71

Matrix	Primary Samples	Field Duplicates	Split Samples	Explosives	Propellants	PCBs	Pesticide	SVOCs	TPHs	VOCs	Metals
Soil	17	2	4	2	2	2	2	17	17	17	17

Table 13. RVAAP-71 validated samples and methods

Sample ID	SDG	Matrix	Collected	Explosives	Propellants	PCBs	SVOCs	TPHs	VOCs	Metals
071SB-0013M-0001-SO	99236	Soil	8/13/2013				x	x	x	x
071SB-0017M-0001-SO	99236	Soil	8/13/2013	x	x	x				
071SB-0018M-001-SO	99236	Soil	8/13/2013				x	x	x	x

Table 14. RVAAP-71 field duplicate samples

Duplicate Sample ID	Parent Sample
071SB-0014M-0001-SO	071SB-0013M-0001-SO
071SB-0019M-0001-SO	071SB-0018M-0001-SO

5.1.1 Sample Collection

The chains-of-custody were appropriately signed and dated by field and laboratory personnel. Custody seals were intact. The following sample collection issues were noted.

- Two trip blanks were shipped with the samples but were not listed on the chains-of-custody.
- The collection dates for all samples were listed as 2012. The laboratory entered the collection dates correctly, as 2013.

5.1.2 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing from the SDGs reviewed.

5.1.3 Preservation and Holding Time Requirements

The sample coolers were received with temperatures within the control limit of 4 ±2^{o}C. All method preservation requirements were met. All holding times, as listed in Table 4, were met.

5.1.4 Detection Limit Requirements

LODs and DLs for nondetected analytes were compared against the most stringent CUGs listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the RSLs if no CUG was listed. No LODs or DLs exceeded criteria.

5.2 RVAAP-71 Data Quality Evaluation

This section summarizes the data quality of validated samples for each analytical method evaluated.

5.2.1 Explosives

A total of 2 primary soil samples were analyzed by CT for explosives by USEPA SW-846 Method 8330B. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The primary column correlation coefficients were within the control limit listed in DoD QSM Table F-3 of ≤15%, or the linear regression r values were ≥0.990.
    - The second source initial calibration verification standard recoveries were within the control limit listed in DoD QSM Table F-3 of ±20%.

- The CCV standard %Ds were within the control limits listed in DoD QSM Table F-3 of ±20%.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. The MRLs associated with the sample had low recoveries for 4-amino-2,6-dinitrotoluene (68% and 60%) and 2-nitrotoluene (57%); therefore, the nondetected results for these compounds were qualified as estimated, "UJ," in 071SB-0017M-0001-SO. The qualified results were coded with a "C" qualification code. The remaining MRL standard recoveries were within the reasonable control limits of 70-130%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in DoD QSM Table F-3 of one-half the LOQ.

- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (66-130%) and PETN (65-134%).

- Surrogate Recovery: As no surrogate control limit was listed in the DoD QSM, surrogate recoveries were assessed against the reasonable laboratory-established control limits of 74-134%. Recoveries were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: As no target compounds were detected in the sample validated at Level IV, compound quantification was verified for a portion of the LCS results. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Confirmation analyses were performed; however, no compounds were confirmed.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for the initial calibrations and low-level CCVs. All manual integrations were performed in order to report incompletely resolved peaks or to account for baseline anomalies and were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: The site sample had no associated field blank or equipment rinsate samples.

    - Field Duplicates: No explosive field duplicate samples were collected for RVAAP-71.

5.2.2 Propellants

Nine primary soil samples were analyzed by CT for nitroguanidine by USEPA SW-846 Method 8330 and for nitrocellulose by laboratory SOP WS-WC-0050. One primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration:

    - The nitroguanidine and nitrocellulose correlation coefficients were within the control limit listed in the DoD QSM Tables F-2 and F-11 of ≥0.995.

    - The nitroguanidine second source ICV recovery was within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose ICV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

    - The nitroguanidine CCV recoveries were within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose CCV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries associated with the sample were within the reasonable control limits of 70-130%.

- Blanks: The method blanks had no target compound detects above the control limits listed in DoD QSM Tables F-2 and F-11 of one-half the LOQ.

- Laboratory Control Samples: No nitroguanidine or nitrocellulose LCS control limits are listed in the DoD QSM; therefore, the laboratory control limits were used to assess the results. All nitroguanidine recoveries were within the control limits of 37-134% for soils. The nitrocellulose recoveries were within the laboratory-established control limits of 63-130% for soils.

- Surrogate Recovery: The nitroguanidine surrogate recovery was within the laboratory control limits of 50-150%. A surrogate was not required for the analysis of nitrocellulose.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for those samples validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Nitroguanidine was not detected in the validated sample; therefore, confirmation analysis was not required.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for nitroguanidine. The manual integrations were performed to correct baseline integration. The manual integrations were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: The site sample had no associated field blank or equipment rinsate samples.

  - Field Duplicates: No propellant field duplicate samples were collected for Site 71.

5.2.3 Polychlorinated Biphenyls (PCBs)

A total of 2 primary soil samples were analyzed by CT for PCBs by USEPA SW-846 Method 8082. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.

  - Initial calibration average %RSDs were within the control limit of ≤20%.

  - The second source ICV recoveries were within the control limit of ±20% for all applicable Aroclors.

  - The CCV standard recoveries were within the control limit of ±20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.

- Laboratory Control Samples: Recoveries for Aroclor 1016 and Aroclor 1260 were within the control limits listed in DoD QSM Table G-17.

- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Manual integrations were not performed for the validated samples or associated calibration and QC.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: The site sample had no associated field blank or equipment rinsate samples.

  - Field Duplicates: No field duplicate samples were collected from Site 71 for PCBs.

5.2.4 Total Petroleum Hydrocarbons (TPH)

A total of 17 primary soil samples and 2 field duplicate samples were analyzed by CT for GRO and DRO by USEPA SW-846 Method 8015B. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.

  - Initial calibration average %RSDs were within the control limit of ≤20% or linear regression r^2 values ≥0.990.

  - The second source ICV recoveries were within the control limit of ±20%.

  - The CCV standard recoveries affecting sample data were within the control limit of ±20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.

- Laboratory Control Samples: As no QSM limits are prescribed, recoveries were assessed against the laboratory-established control limits of 60-142% for GRO and 47-138% for DRO. All recoveries were within the control limits.

- Surrogate Recovery: As no QSM limits are prescribed, the recoveries were assessed against the laboratory-established control limits of 10-150% for GRO surrogate trifluorotoluene and 10-110% for DRO surrogate n-nonane. All recoveries were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on a validated sample. Evaluation of method accuracy was based on the LCS results.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated samples. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Manual integrations were not performed for the validated samples or associated calibration and QC.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: QC samples:

    - Trip Blanks: The GRO analysis was not requested for the trip blanks associated with the validated samples.

    - Field Blanks and Equipment Rinsates: The site sample had no associated field blank or equipment rinsate samples.

    - Field Duplicate Samples: Two field duplicate samples were collected and analyzed for TPH. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

5.2.5 Semivolatile Organic Compounds (SVOCs)

A total of 17 primary soil samples and 2 field duplicate samples were analyzed by CT for SVOCs by USEPA Method 8270D. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The DFTPP tunes met the method abundance criteria. The samples were analyzed within 12 hours of the DFTPP injection time.

- Calibration: Calibration criteria listed in the DoD QSM Table F-4 were met, with exceptions affecting sample results noted in the tables below.

    - Initial calibration average RRFs and ICV and CCV RRFs were within method control limits of ≥0.050 for SPCCs. All initial calibration %RSDs were within the control limits of ≤30% for CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990, with the exception of %RSDs for benzyl alcohol at 15.2%, benzoic acid at 17.7%, and hexachlorocyclopentadiene at 15.5%. Retained results for the %RSD outliers, all nondetects, were qualified as estimated, "UJ," in the samples. The qualified results were coded with a "C" qualification code.

    - All second source ICV standard recoveries affecting sample data were within the control limit of ±20%.

    - Continuing calibration %Ds affecting sample data were within the control limit of ≤20%.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting validated sample data were within the reasonable control limit of ±30%, with the exception of no recovery of benzyl alcohol and a recovery of 60% for 4,6-dinitro-2-methylphenol in the closing MRL. The nondetected results for benzyl alcohol were rejected, "R," and the results for 4,6-dinitro-2-methylphenol were qualified as estimated, "UJ," in samples 071SB-0013M-0001-SO and 071SB-0018M-0001-SO. Qualified results were coded with a "C" qualification code.

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ for target compounds, and no common laboratory contaminants detected above the LOQ, with exceptions listed in the table below. Results listed in the table below were qualified as nondetected, "U," at the LOD if detected below the LOD, or at the level of contamination if detected above. Qualified results were coded with a "B" qualification code.

Sample	Analyte	Method Blank (µg/Kg)	Sample (µg/Kg)	LOD (µg/Kg)
071SB-0013M-0001-SO	Benzo(a)anthracene	0.45	0.90	0.82
	Phenanthrene	0.97	4.0	0.82
071SB-0018M-0001-SO	Benzo(a)anthracene	0.45	1.2	0.82
	Naphthalene	0.35	0.35	0.82
	Phenanthrene	.097	4.7	0.82

- Laboratory Control Samples: All LCS recoveries affecting sample data were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7.

- Surrogate Recovery: All surrogate recoveries were within the control limits listed in the DoD QSM Tables G-2 (poor performers) or G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on a validated sample. Evaluation of method accuracy was based on the LCS results.

- Internal Standards Performance: The internal standard area counts and retention times were within the DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the samples validated at Level IV. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the samples validated at Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and

the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for calibration and QC data associated with the sample data, primarily to correct the integration of improperly split peaks, or to correct poor baseline integration. The manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: The site samples had no associated field blank or equipment rinsate samples.

    - Field Duplicate Samples: A total of 2 soil field duplicate samples were collected and analyzed for SVOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% for soil samples was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The result for naphthalene in pair 071SB-013M-0001-SO/071SB-0014M-0001-SO exceeded ± the LOQ. The remaining results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

5.2.6 Volatile Organic Compounds (VOCs)

A total of 17 primary soil samples and 2 field duplicate samples were analyzed by CT for volatile compounds by USEPA Method 8260B. A total of 2 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The BFB tunes met the method abundance criteria. The samples were analyzed within 12 hours of the BFB injection time.

- Calibration: Calibration criteria listed in DoD QSM Table F-4 were met, with exceptions noted below.

    - Initial calibration average RRFs and ICV and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane.

- All initial calibration %RSDs were within the method control limits of ≤30% for the CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.

- All second source initial calibration verification standard recoveries were within the control limit of ±20%.

- Continuing calibration %Ds affecting validated sample data were within the method control limit of ≤20%, with the exception of low responses for bromomethane (20.3%) and methylene chloride (44.8%). The nondetected results for both target compounds were qualified as estimated, "UJ," in the samples. The qualified results were coded with a "C" qualification code.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. The MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated samples had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ, and no common laboratory contaminants detected above the LOQ. Methylene chloride was detected in the method blank at 6.4(J) µg/L; therefore, methylene chloride detected in the validated samples was qualified as nondetected, "U," at the levels of contamination.

- Laboratory Control Samples: LCS recoveries affecting validated sample data were within the control limits listed in DoD QSM Table G-4.

- Surrogate Recovery: Surrogate recoveries affecting validated sample data were within the control limits listed in DoD QSM Table G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on a validated sample. Evaluation of method accuracy was based on the LCS results.

- Internal Standards Performance: The internal standard area counts and retention times were within DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification.

  The laboratory reported isomers o-xylene and m,p-xylenes as well as total xylenes. The isomers o-xylene and m,p-xylenes were rejected, "R," as duplicate data. The result for total xylenes was retained to maintain consistency with data reported from other laboratories.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the samples validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual integrations: Manual integrations were performed for some calibration and QC data associated with the validated samples, primarily to correct baseline integration. The manual integrations were considered appropriate.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Trip Blanks: The trip blanks associated with the validated samples in this SDG had no detects affecting sample results.

    - Field Blanks and Equipment Rinsates: The site samples had no associated field blank or equipment rinsate samples.

    - Field Duplicate Samples: A total of 2 soil field duplicate samples were collected and analyzed for VOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% for soil samples was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

5.2.7 Metals

A total of 17 primary soil samples and 2 field duplicate samples were analyzed by CT for various metals by USEPA Methods 6010C and 7471B. A total of 2 primary soils, analyzed for lead only, were validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Except as noted below, calibration criteria were met.

    - Initial calibration: Linear regression r-values were within the control limit listed in the DoD QSM Table F-7 of ≥0.995.

    - The ICP ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110%.

- MRL recoveries affecting sample results were within the control limits listed in DoD QSM Table F-7 of 80-120%.

- Blanks: Method blanks had no applicable detects above the control limits listed in DoD QSM Table F-7 of one-half the LOQ or greater than one-tenth the amount measured in any sample. CCBs had no detects above the control limit listed in DoD QSM Table F-7 of greater than the LOD.

- Interference Check Samples: ICP ICSA and ICSAB recoveries were within the control limits listed in DoD QSM Table F-7 of 80-120%. There were no analytes affecting sample results detected in the ICSA above the control limit listed in DoD QSM Table F-7 of >LOD.

- Laboratory Control Samples: All recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on 071SB-0003M-0001-SO and 071SB-0010M-0001-SO for lead. RPDs were within the control limit listed in DoD QSM Table F-7 of ≤20%.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on 071SB-0003M-0001-SO and 071SB-0010M-0001-SO. Except as noted below, recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%. The results listed in the table below, both detects, were qualified as estimated with a potential low bias, "J-," and coded with a "Q" qualification code.

Samples qualified for MS/MSD recovery outliers			
Parent Sample	**Analyte**	**%R**	**Qualified samples**
071SB-0003M-0001-SO	Lead	67%, 58%	071SB-0013M-0001-SO, 071SB-0018M-0001-SO
071SB-0010M-0001-SO	Lead	57%, 60%	

- Post Digestion Spike: Except as noted below, recoveries were within the control limits listed in DoD QSM Table F-7 of 75-125%. Spike control limits were not applied when the native sample concentration exceeded the spiked amount by a factor of four or more. The results listed in the table below, all detects, were qualified as estimated with a potential low bias, "J-," and coded with a "P" qualification code.

Samples qualified for post digestion spike recovery outliers			
Parent Sample	**Analyte**	**%R**	**Qualified samples**
071SB-0003M-0001-SO	Lead	74%	071SB-0013M-0001-SO, 071SB-0018M-0001-SO
071SB-0010M-0001-SO	Lead	58%	

- Serial Dilution: Serial dilution analyses were performed on 071SB-0003M-0001-SO and 071SB-0010M-0001-SO. The %Ds were within the control limits listed in DoD QSM

Table F-7 of ≤10%. The serial dilution control limit is only applicable when the original sample concentration is minimally ≥50× the LOQ.

- Sample Result Verification: For Level IV validation, calculations were verified and the sample results reported on the sample result summary were verified against the raw data. Lead in 071SB-0003M-0001-SO and 071SB-0010M-0001-SO was reported from a 5× dilution. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- Manual Integrations: No manual integrations were noted in the mercury analyses.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: The site sample had no associated field blank or equipment rinsate samples.

    - Field Duplicate Samples: A total of 2 field duplicate samples were collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% for soil samples was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

5.3 Data Usability

According to the Draft Site Inspection Report prepared by ECC, the field completeness was 100%.

Two data points were rejected for poor calibration recoveries. In instances where a data point had multiple results, the reviewer chose the most technically sound result to report and rejected the remaining data points. These data points data do not affect data quality or usability and are not included in the table below. Data with LODs that exceeded the established criteria and data estimated for quality control outliers or for detects between the DL and the LOQ were included in the table below for informational purposes only.

Table 15. Analytical completeness for RVAAP-71 validated primary data

			Number of Results					
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	**Percent Complete**
Explosives*	1	17	17	0	0/0	1	0	100%
Nitroguanidine	1	1	1	0	0/0	0	0	100%
Nitrocellulose	1	1	1	0	0/0	0	0	100%
PCBs	1	9	9	0	0/0	0	0	100%
SVOCs	2	65	130	2	0/0	11	12	98.5%
TPH	2	2	4	0	0/0	0	2	100%
VOCs	2	40	76	0	0/0	4	0	100%
Metals	2	1	2	0	0/0	2	0	100%
		Totals	**240**	**2**	**0/0**	**18**	0/0	**99.2%**

*Results rejected as duplicate data do not appear in the Total Analyte count.

The analytical completeness goal for the project established in the FWQAPP was 90% for each method. The completeness goal was met for all analyses.

5.4 Primary and Field Duplicate Comparison Summary

Primary and field duplicate sample comparisons were considered to be in good agreement as less than 1% of the field duplicate pair results were above the FWQAPP control limit of 50% for soils or +/- the LOQ for results below 5× the LOQ. All comparison results are presented in Appendix C.

Table 16. RVAAP-71 primary/field duplicate sample comparison summary

Method*	**Primary/Field Duplicate Pairs**	**Number of Analytes**	**Total Analytes**	**Results within control limits**	**Results above control limit**
SVOCs*	2	65	128	127	1
TPH	2	2	4	4	0
VOCs	2	40	76	76	0
Metals	1	2	2	2	0

*Results rejected as duplicate data do not appear in the Total Analyte count.

5.5 Specific Data Concerns

Specific concerns regarding the data are noted below:

- None

6 FACILITY-WIDE UNDERGROUND STORAGE TANKS, RVAAP-72

6.1 Current Investigation

ECC completed an SI for the Facility-Wide Underground Storage Tanks (RVAAP-72). The SI for RVAAP-72 was conducted in accordance with the USEPA *Interim Final Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* (USEPA 1992). The HRR identified historic uses and potential environmental concerns at this site with respect to possible HTRW and/or MEC issues (SAIC 2011).

RVAAP-72 consists of 58 underground storage tanks (USTs). Of these, 43 have received a No Further Action (NFA) designation and 15 were identified as candidates for further investigation in the HRR (SAIC 2011b). The data validated in this report are part of the initial intrusive SI at RVAAP-72 conducted to assess the potential presence of contamination. The total sample counts, samples selected for data validation, and the field duplicates are presented in the tables below.

Table 17. Total sample count for RVAAP-72

Matrix	Primary Samples	Field Duplicates	Split Samples	Explosives	Propellants	PCBs	Pesticides	SVOCs/PAHs	TPHs	VOCs/BTEX	Metals	Hexavalent Chromium
Soil	101	10	0	7	7	7	7	74	74	74	74	29

Table 18. RVAAP-72 validated samples and methods

Sample ID	SDG	Matrix	Collected	Explosives	Propellants	PCBs	Pesticides	SVOCs/PAHs	TPHs	VOCs/BTEX	Metals	Hexavalent Chromium
072SB-0001-0001-SO	240-18297-1	Soil	12/3/2012					x	x	x	x	
072SB-0012-0001-SO	240-18297-1	Soil	12/3/2012					x	x	x	x	
072SB-0014-0001-SO	240-18297-1	Soil	12/3/2012	x	x	x	x	x	x	x	x	
072SB-0026-0001-SO	240-18441-1	Soil	12/4/2012					x	x	x	x	
072SB-0030-0001-SO	240-18441-1	Soil	12/4/2012						x	x		
072SB-0039-0001-SO	240-18449-1	Soil	12/5/2012					x	x	x	x	
072SB-0063-0001-SO	240-18544-1	Soil	12/6/2012					x	x	x	x	
072SB-0083-0001-SO	240-18703-1	Soil	12/10/2012						x	x		
072SB-0085-0001-SO	240-18703-1	Soil	12/10/2012						x	x		
076SB-0119-0001-SO	240-18735-1	Soil	12/11/2012									x
076SB-0122-0001-SO	240-18735-1	Soil	12/11/2012									x
076SB-0126-0001-SO	240-18735-1	Soil	12/11/2012									x
076SB-0130-0001-SO	240-18735-1	Soil	12/12/2013									x

Table 19. RVAAP-72 field duplicate samples

Duplicate Sample ID	Parent Sample
072SB-0002-0001-SO	072SB-0001-0001-SO
072SB-0013-0001-SO	072SB-0012-0001-SO
072SB-0027-0001-SO	072SB-0026-0001-SO
072SB-0036-0001-SO	072SB-0035-0001-SO
072SB-0064-0001-SO	072SB-0063-0001-SO
072SB-0077-0001-SO	072SB-076-0001-SO
072SB-0086-0001-SO	072SB-0085-0001-SO
076SB-0089-0001-SO	076SB-0076-0001-SO
076SB-0127-0001-SO	076SB-0126-0001-SO
076SB-0133-0001-SO	076SB-0132-0001-SO

6.1.1 Sample Collection

The chains-of-custody were appropriately signed and dated by field and laboratory personnel. When utilized, cooler custody seals were intact upon receipt at the laboratory. When not utilized, it was determined by reviewing the relinquish and receipt times, that the samples were transferred to the laboratory by courier. With exceptions noted below, no sample collection issues were identified.

- Some corrections made to the chains-of-custody were initialed but not dated and some were neither initialed nor dated.
- Some corrections were made by overwriting the original entry.
- Samples 072SB-0001-0001-SO and 072SB-0012-0001-SO did not have PAHs requested on the chains-of-custody, but this analysis was reported for both samples. There was no documentation for this change.

6.1.2 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing from the SDGs reviewed.

6.1.3 Preservation and Holding Time Requirements

A portion of the sample coolers were received at temperatures nominally below the 4±2^{o}C control limit; however, as the samples were not noted to be frozen or damaged, no qualifications were required. All remaining method preservation requirements were met.

The hexavalent chromium samples were prepared within 30 days of collection but, according to the preparation summary form, the samples were analyzed 24 hours beyond the 24-hour analysis holding time. The hexavalent chromium raw data, however, indicates the samples were prepared and immediately analyzed. In the reviewer's professional opinion, the preparation referred to in the raw data was the addition of the color development reagents and the preparation referred to on the summary form was the sample extraction. As the method

specifically states the 24-hour holding time begins after extraction, the hexavalent chromium results were qualified as estimated, "UJ," for nondetects and estimated with a potential low bias, "J-," for detects. The qualified results were coded with an "H" qualification code. All remaining holding times, as listed in Table 4, were met.

6.1.4 Detection Limit Requirements

LODs and DLs for nondetected analytes were compared against the most stringent CUGs listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the RSLs if no CUG was listed. No LODs or DLs exceeded criteria.

6.2 RVAAP-72 Data Quality Evaluation

This section summarizes the data quality of validated samples for each analytical method evaluated.

6.2.1 Explosives

A total of 7 primary soil samples were analyzed by TA-West Sacramento for explosives by USEPA SW-846 Method 8330B. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The primary column initial calibration average %RSDs for RDX and 2-nitrotoluene exceeded the control limit at 20% and 16%, respectively; therefore, the nondetected results for these compounds were qualified as estimated, "UJ," in 072SB-0014-0001-SO. The qualified results were coded with a "C" qualification code. The remaining initial calibration average %RSDs were within the control limits listed in DoD QSM Table F-3 of ≤15%, or the linear regression r^2 values were ≥0.990.
    - The second source initial calibration verification standard recoveries were within the control limit listed in DoD QSM Table F-3 of ±20%.
    - The CCV standard %Ds were within the control limits listed in DoD QSM Table F-3 of ±20%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. Low-level MRL standards were analyzed in association with the validated samples and the results affecting the sample were within the reasonable control limits of 70-130%.
- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in DoD QSM Table F-3 of one-half the LOQ.

- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (76-116%) and PETN (76-116%).

- Surrogate Recovery: As no surrogate control limit was listed in the DoD QSM, surrogate recoveries were assessed against the reasonable laboratory-established control limits of 78-118%. Recoveries were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatogram and retention times indicated no problems with target compound identification.

  Although not affecting the nondetected sample results, the primary column MRL recoveries for the later eluting compounds were recovered above the control limit. Review of the chromatogram indicated poorer peak shape for these compounds.

- Compound Quantification and Reported Detection Limits: As no target compounds were detected in the sample validated at Level IV, compound quantification was verified for a portion of the LCS results. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Confirmation analyses were performed; however, no compounds were confirmed.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in sample 072SB-0014-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8330B result for nitrobenzene was rejected, "R," as duplicate data and coded with a "D" qualification code. The 8330B results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for the initial calibrations and low-level CCVs. All manual integrations were performed in order to report incompletely resolved peaks or to account for baseline anomalies and were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

- Field Duplicates: No field duplicate samples were collected from RVAAP-72 for explosive compounds.

6.2.2 Propellants

A total of 7 primary soil samples were analyzed by TA-West Sacramento for nitroguanidine by USEPA SW-846 Method 8330 and for nitrocellulose by laboratory SOP WS-WC-0050. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration:

  - The nitroguanidine initial calibration average percent %RSD was within the control limit listed in DoD QSM Table F-2 of ≤20%. Nitrocellulose linear regression r values were within the control limit listed in the DoD QSM Table F-11 of ≥0.995.

  - The nitroguanidine second source ICV recovery was within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose ICV recovery exceeded the control limit at 192% (limits are 90-110%); however, as nitrocellulose was not detected in the sample, no qualifications were required.

  - The nitroguanidine CCV recoveries were within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose CCV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries associated with the sample were within the reasonable control limits of 70-130%.

- Blanks: The method blanks had no target compound detects above the control limits listed in DoD QSM Tables F-2 and F-11 of one-half the LOQ.

- Laboratory Control Samples: No nitroguanidine or nitrocellulose LCS control limits are listed in the DoD QSM; therefore, the laboratory control limits were used to assess the results. The nitroguanidine recovery was within the control limits of 72-121%. The nitrocellulose recovery was within the laboratory-established control limits of 34-115%.

- Surrogate Recovery: A surrogate was not required for the analysis of nitroguanidine or nitrocellulose.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Nitroguanidine was not detected in the validated sample; therefore, confirmation analysis was not required.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for nitroguanidine. The manual integrations were performed to correct baseline integration. The manual integrations were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

  - Field Duplicates No field duplicate samples were collected from RVAAP-72 for propellants.

6.2.3 Polychlorinated Biphenyls (PCBs)

A total of 7 primary soil samples were analyzed by TA-North Canton for PCBs by USEPA SW-846 Method 8082. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.

  - Initial calibration average %RSDs were within the control limit of ≤20%.

  - The second source ICV recoveries were within the control limit of ±20% for all applicable Aroclors.

  - The CCV standard recoveries were within the control limit of ±20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.

- Laboratory Control Samples: Recoveries for Aroclor 1016 and Aroclor 1260 were within the control limits listed in DoD QSM Table G-17.

- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data associated with the sample data, primarily due to split incompletely resolved peaks. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

  - Field Duplicates: No field duplicate samples were collected from RVAAP-72 for PCBs.

6.2.4 Pesticides

A total of 7 primary soil samples were analyzed by TA-North Canton for pesticides by USEPA SW-846 Method 8081. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.
    - Initial calibration average %RSDs were within the control limit of ≤20%.
    - The performance evaluation mixture (PEM) %breakdown results were within the DoD QSM Table F-2 control limit of ≤15%.
    - Both columns had individual toxaphene peaks with %Ds exceeding the control limit. Column CLP-1 had three outliers at -43.2%, -20.2%, and 49.8%, and column CLP-2 had two outliers at -30.1% and -32.9%. The nondetected result for toxaphene in sample 072SB-0014-0001-SO was qualified as estimated, "UJ." The qualified results were coded with a "C" qualification code. The remaining second source ICV recoveries were within the control limit of ±20%.
    - The CCV standard recoveries were within the control limit of ±20%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.
- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.
- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Table G-15. Toxaphene was not spiked in the LCS sample.
- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the validated sample, 072SB-0014-0001-SO. Qualifications were only applied for recovery outliers when both the MS and MSD were recovered outside the control limits. Due to generally low recoveries in the MSD, all but four RPDs exceeded the control limit listed in DoD QSM Table F-2 of ≤30%. Sample 072SB-0014-0001-SO results listed in the table below, all nondetects, were qualified as estimated, "UJ," and coded with "Q" qualification codes. The remaining recoveries were within the control limits listed in DoD QSM Table G-15. Toxaphene was not spiked in the MS/MSD samples.

Compounds qualified for MS/MSD outliers				
Compound	MS %R	MSD %R	Limits	%RPD
4,4'-DDD	acceptable	42%	30-135%	37%
4,4'-DDE	66%	45%	70-125%	34%
alpha-BHC	acceptable	44%	60-125%	37%
alpha-Chlordane	62%	41%	65-120%	37%
beta-BHC	acceptable	39%	60-125%	41%
delta-BHC	acceptable	43%	55-130%	40%
Dieldrin	acceptable	46%	65-125%	39%
Endosulfan I	acceptable	39%	15-135%	39%
Endosulfan II	acceptable	acceptable	N/A	37%
Endosulfan sulfate	acceptable	39%	60-135%	35%
Endrin	acceptable	43%	60-135%	36%
Endrin aldehyde	acceptable	acceptable	N/A	36%
Endrin ketone	53%	39%	65-135%	acceptable
gamma-BHC	58%	39%	60-125%	36%
gamma-Chlordane	62%	41%	65-125%	40%
Heptaclor epoxide	acceptable	46%	65-130%	39%
Methoxyclor	53%	40%	55-145%	acceptable

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data, primarily due to poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicate Samples: No field duplicate samples were collected from Site 72 for pesticide compounds.

6.2.5 Total Petroleum Hydrocarbons (TPH)

A total of 74 primary soil samples and 7 field duplicate samples were analyzed by TA-North Canton for GRO and DRO by USEPA SW-846 Method 8015B. A total of 9 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.
    - Initial calibration average %RSDs were within the control limit of ≤20% or linear regression r^2 values ≥0.990.
    - The second source ICV recoveries were within the control limit of ±20%.
    - The CCV standard recoveries affecting sample data were within the control limit of ±20%. One high %D for gasoline range C6-C12 was attributed to carryover from a previous site sample; however, as C6-C12 was not detected in the associated validated sample, no qualification was necessary.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%. One high recovery for gasoline range C6-C12 in an ending MRL was attributed to carryover from a previous site sample; however, as C6-C12 was not detected in the associated validated sample, no qualification was necessary.
- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.
- Laboratory Control Samples: As no QSM limits are prescribed, recoveries were assessed against the laboratory-established control limits of 60-142% for GRO and 47-138% for DRO. All recoveries were within the control limits.
- Surrogate Recovery: As no QSM limits are prescribed, the recoveries were assessed against the laboratory-established control limits of 10-150% for GRO surrogate trifluorotoluene and 10-110% for DRO surrogate n-nonane. All recoveries were within the control limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated samples 072SB-0001-0001-SO, 072SB-0012-0001-SO, 072SB-0026-0001-SO, and 072SB-0063-0001-SO for both GRO and DRO. As no QSM limits are prescribed, the recoveries were assessed against the laboratory-established soil control limits of 10-142% for GRO and 10-199% for DRO, and RPDs were evaluated using the control limit listed in the DoD QSM Table F-2 of ≤30%.

The RPDs exceeded the control limit for the GRO MS/MSDs of samples 072SB-0001-0001-SO and 072SB-0026-0001-SO, at 49% and 67%, respectively. The detected result for the RPD outlier (C6-C12) in sample 072SB-0001-0001-SO was qualified as estimated, "J," and coded with a "Q" qualification code. As C6-C12 was not detected in sample 072SB-0026-0001-SO, and recoveries were within the control limits, no qualifications were assigned for the RPD outlier. The remaining GRO and DRO recoveries and RPDs were within the control limits.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification. The laboratory analyzed for GRO hydrocarbon range C6-C12, and DRO ranges C10-C20 and C20-C34.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated samples. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for some GRO calibration and QC data associated with the sample data, primarily to correct baseline integration of the surrogate trifluorotoluene. All manual integrations reviewed at Level IV were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Trip Blanks: Two of four trip blanks associated with the validated samples had detects below the LOQ for GRO; however, the trip blank concentrations were not sufficient to qualify associated site sample detects.

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated samples.

    - Field Duplicate Samples: Seven field duplicate samples were collected and analyzed for GRO. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where

results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The results for TPH range C6-C12 in pair 072SB-0001-0001-SO/072SB-0002-0001-SO exceeded ± the LOQ. The remaining results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

6.2.6 Semivolatile Organic Compounds (SVOCs) and Polynuclear Aromatic Hydrocarbons (PAHs)

A total of 74 primary soil samples and 7 field duplicate samples were analyzed by TA-North Canton for SVOCs and/or PAHS by USEPA Method 8270C. A total of 6 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- GC/MS Tuning: The DFTPP tunes met the method abundance criteria. The samples were analyzed within 12 hours of the DFTPP injection time.
- Calibration: Calibration criteria listed in the DoD QSM Table F-4 were met, with exceptions affecting sample results noted in the text and table below.
    - Initial calibration average RRFs and ICV and CCV RRFs were within method control limits of ≥0.050. All initial calibration %RSDs were within the control limits of ≤30% for calibration check compounds (CCCs) and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.
    - All second source ICV standard recoveries affecting sample data were within the control limit of ±20%, with the exception of the recovery of 78.9% for 3,3'-dichlorobenzidine in the ICV associated with sample 072SB-0014-0001-SO. The nondetected result was qualified as estimated, "UJ," in the sample. The qualified result was coded with a "C" qualification code.
    - Continuing calibration %Ds affecting sample data were within the control limit of ≤20%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%, with exceptions noted in the table below. The nondetected result for 4-nitroaniline was rejected, "R," and the remaining results listed in the table below, both nondetects, were qualified as estimated, "UJ." The qualified results were coded with a "C" qualification code.

Samples qualified for MRL %R outliers		
Analyte	**%R**	**Qualified Samples**
2,4-dinitrophenol	55%	072SB-0014-0001-SO
4,6-dinitro-2-methylphenol	69%	
4-nitroaniline	**0%**	

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ for target compounds, and no common laboratory contaminants detected above the LOQ. Bis(2-ethylhexyl)phthalate was detected below the LOQ at 19.2(J) µg/Kg in the method blank associated with sample 072SB-0014-0001-SO. The sample result of 22(J) µg/Kg was qualified as nondetected, "U," at the LOQ of 56 µg/Kg, and coded with a "B" qualification code.

- Laboratory Control Samples: All LCS recoveries affecting sample data were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the LCS associated with the full-list analysis of sample 072SB-0014-0001-SO.

- Surrogate Recovery: All applicable surrogate recoveries were within the control limits listed in the DoD QSM Tables G-2 (poor performers) or G-3, with the exception of a recovery of 44% (limits 45-105%) for 2-fluorobiphenyl in sample 072SB-0026-0001-SO. The sample was re-extracted outside of the holding time, with a recovery of 46%. As the recoveries were very similar, indicating a matrix effect on the surrogate, the reviewer chose to retain the original extraction analysis. The retained sample results were qualified as estimated, "J," for detects and "UJ," for nondetects, and were coded with an "S" qualification code. The re-extraction results were rejected, "R," as duplicate data and were coded with a "D" qualification code.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated samples 072SB-0001-0001-SO, 072SB-0012-0001-SO, 072SB-0026-0001-SO, and 072SB-0063-0001-SO. Recoveries affecting parent sample data were within the control limits listed in DoD QSM Table G-7 and RPDs were within the control limit of ≤30% listed in DoD QSM Table F-4. Hexachlorocyclopentadiene was not spiked in to the MS/MSD.

- Internal Standards Performance: The internal standard area counts and retention times were within the DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the samples validated at Level IV. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the samples validated at Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD. The samples had a 2-ml final extract volume, resulting in an effective 2× dilution.

Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Methods 8330B and 8270C in sample 072SB-0014-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8270C results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were rejected, "R," as duplicate data and coded with a "D" qualification code. The 8270C result for nitrobenzene was retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the samples, and for calibration and QC data associated with the sample data, primarily to correct the integration of improperly split peaks, or to correct poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated samples.

    - Field Duplicate Samples: Six field duplicate samples were collected and analyzed for SVOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

SVOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
072SB-0026-0001-SO	072SB-0027-0001-SO	Pyrene	N/A	No
		Benzo(a)anthracene	N/A	No
		Benzo(a)pyrene	N/A	No
		Naphthalene	N/A	No
		Benzo(g,h,i)perylene	61	N/A
072SB-035-0001-SO	072SB-0036-0001-SO	2-Methylnaphthylene	N/A	No
		Benzo(a)pyrene	N/A	No
		Phenanthrene	N/A	No
072SB-0076-0001-SO	072SB-0077-0001-SO	Benzo(a)anthracene	N/A	No
		Benzo(a)pyrene	N/A	No
		Benzo(b)fluoranthene	N/A	No
		Benzo(g,h,i)perylene	N/A	No
		Benzo(k)fluoranthene	N/A	No
		Chrysene	N/A	No
		Fluoranthene	N/A	No
		Indeno(1,2,3-cd)pyrene	N/A	No

SVOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
		Phenanthrene	N/A	No
		Pyrene	N/A	No

6.2.7 Volatile Organic Compounds (VOCs)

A total of 74 primary soil samples and 7 field duplicate samples were analyzed by TA-North Canton for volatile compounds by USEPA Method 8260B. A total of 9 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- GC/MS Tuning: The BFB tunes met the method abundance criteria. The samples were analyzed within 12 hours of the BFB injection time.
- Calibration: Calibration criteria listed in DoD QSM Table F-4 were met, with exceptions noted below.
    - Initial calibration average RRFs and ICV and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane.
    - All initial calibration %RSDs were within the method control limits of ≤30% for the CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.
    - All second source initial calibration verification standard recoveries were within the control limit of ±20%.
    - Continuing calibration %Ds affecting validated sample data were within the method control limit of ≤20%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. Except as noted below, the MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%. Results listed in the table below, all nondetects, were qualified as estimated, "UJ," and coded with a "C" qualification code.

Samples qualified for MRL recovery outliers		
Analyte	**%R**	**Qualified samples**
Acetone	61%, 28%	072SB-0014-0001-SO, 072SB-0030-0001-SO
2-Hexanone	65%	
2-Hexanone	63%	072SB-0039-0001-SO

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ, and no common laboratory contaminants detected above the LOQ.

- Laboratory Control Samples: LCS recoveries were within the control limits listed in DoD QSM Table G-4.

- Surrogate Recovery: Except as noted below the surrogate recoveries affecting sample data were within the control limits listed in DoD QSM Table G-3. Results listed in the table below, all nondetects, were qualified as estimated, "UJ." The qualified results were coded with an "S" qualification code.

Samples qualified for surrogate recovery outliers				
Sample	Surrogate	%R	Limits	Qualified Results
072SB-0001-0001-SO	4-bromofluorobenzene	72%	85-120%	all
	toluene-d8	73%	85-115%	
072SB-0012-0001-SO	4-bromofluorobenzene	76%	85-120%	all
072SB-0026-0001-SO	4-bromofluorobenzene	47%	85-120%	all
	toluene-d8	73%	85-115%	
072SB-0030-0001-SO	4-bromofluorobenzene	58%	85-120%	all

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on samples 072SB-0001-0001-SO, 072SB-0012-0001-SO, 072SB-0026-0001-SO, and 072SB-0063-0001-SO. All recoveries were within the control limits listed in DoD QSM Table G-4 and RPDs were within the control limit listed in DoD QSM Table F-4 of ≤30%.

  All RPDs for the MS/MSD of 072SB-0063-0001-SO exceeded 30%; however, the reviewer determined the outliers were due to an approximately 33% difference in spike amounts based on the difference in sample weight. With the disparity of spike amounts taken into account, all RPDs were within the control limit.

- Internal Standards Performance: With one exception, the internal standard area counts and retention times were within DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas. Internal standard 1,4-dichlorobenzene-d4 was recovered below the control limit at 41% in sample 072SB-0030-0001-SO; therefore, the associated compound, nondetected 1,1,2,2-tetrachloroethane, was qualified as estimated, "UJ," and coded with an "I" qualification code.

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the samples validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual integrations: Manual integrations were not performed for the validated samples or for associated calibration and QC samples.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Trip Blanks: The trip blanks associated with the validated samples in this SDG had no detects affecting sample results.

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated samples.

    - Field Duplicate Samples: Seven field duplicate samples were collected and analyzed for VOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

VOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
072SB-0076-0001-SO	072SB-0077-0001-SO	Benzene	N/A	No
		Ethylbenzene	N/A	No
		Toluene	N/A	No
		Xylenes	N/A	No

6.2.8 Metals

A total of 74 primary soil samples and 7 field duplicate samples were analyzed by TA-North Canton for various metals by USEPA Methods 6020 and 7471. A total of 6 primary soils were validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Except as noted below, calibration criteria were met.

    - As per DoD QSM Table F-8, the mass calibrations were ≤0.1 amu of the true values and the resolutions were <0.9 amu at full width at 10% peak height. Except as noted below, the %RSDs were within the control limit listed in the DoD QSM Table F-8 of ≤5%. The detected results listed in the table below were qualified as estimated, “J,” and were coded with an “M” qualification code.

Samples qualified for tune %RSD outliers		
Analyte	**%RSD**	**Qualified Samples**
^{137}Barium	35.98	072SB-0026-0001-SO, 072SB-0039-0001-SO
	19.32	072SB-0063-0001-SO
^{138}Barium	7.81	072SB-0063-0001-SO

- Initial calibration: The mercury linear regression correlation coefficients were within the control limit listed in the DoD QSM Table F-7 of ≥0.995. The ICPMS analytes used a single point calibration.

- The ICPMS ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-8 of 90-110%. The mercury ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110% and 80-120%, respectively.

- CRI/MRL recoveries affecting sample results were within the control limits listed in DoD QSM Tables F-7 and F-8 of 80-120%.

- Blanks: The method blanks had no applicable detects above the control limits listed in DoD QSM Tables F-7 and F-8 of one-half the LOQ or greater than one-tenth the amount measured in any sample. CCBs had no applicable detects above the control limit listed in DoD QSM Tables F-7 and F-8 of greater than the LOD.

- Interference Check Samples: ICPMS ICSA and ICSAB recoveries were within the control limits listed in DoD QSM Table F-8 of 80-120%. Except as noted below, there were no analytes affecting sample results detected in the ICSA above the control limit listed in DoD QSM Table F-8 of >LOD.

  When the interferents were present in the samples at similar concentration to the ICSA, the samples were further reviewed for possible matrix interference, based on detects for unspiked compounds in the ICSA. If the unspiked compounds were present in the samples at concentrations within 10× of the ICSA detect, the results were qualified. Results listed in the table below, all detects, were qualified as estimated, "J," and coded with an "I" qualification code. When no other qualifications with conflicting bias were assigned, the results were qualified as estimated with a potential positive bias, "J+."

Samples qualified for ICSA detects			
SDG	Analyte	Detect (µg/L)	Qualified samples
240-18441-1, 240-18449-1	Cadmium	0.315	072SB-0026-0001-SO, 072SB-0039-0001-SO
	Silver	0.098	
240-18544-1	Antimony	0.32	072SB-0063-0001-SO
	Cadmium	0.385	
	Selenium	0.912	
	Silver	0.15	

- Laboratory Control Samples: The recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on 072SB-0001-0001-SB, 072SB-0012-0001-SO, 072SB-0026-0001-SO, 073SB-0007M-0001-SO, 072SB-0035-0001-SO, 072SB-0063-0001-SO, 076SB-0090M-0001-SO, 076SB-0091M-0001-SO, 076SB-0100M-0001-SO, and 075TR-0002-0001-SO. The results were only assessed for common detects ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted in the table below, the RPDs were within the control limits listed in DoD QSM Tables F-7 and F-8 of ≤20%.

  Results listed in the table below were qualified as estimated, "J," and coded with an "E" qualification code. As per the *National Function Guidelines*, all samples in an SDG were qualified; however, the parent samples were qualified only for their own outliers.

Samples qualified for laboratory duplicate RPD outliers			
Parent Sample	Analyte	RPD	Qualified samples
072SB-0001-0001-SO	Calcium	28%	072SB-0001-0001-SO, 072SB-0014-0001-SO
072SB-0012-0001-SO	Arsenic	29%	072SB-0012-0001-SO, 072SB-0014-0001-SO
072SB-0035-0001-SO	Potassium	24%	072SB-0039-0001-SO
072SB-0063-0001-SO	Manganese	36%	072SB-0063-0001-SO

- Matrix Spike/Matrix Spike Duplicate: Matrix spike analyses were performed on 072SB-0001-0001-SB, 072SB-0012-0001-SO, 072SB-0026-0001-SO, 073SB-0007M-0001-SO, 072SB-0035-0001-SO, 072SB-0063-0001-SO, 076SB-0090M-0001-SO, 076SB-0091M-0001-SO, 076SB-0100M-0001-SO, and 075TR-0002-0001-SO. The results were not assessed when the native sample concentration exceeded the spiked amount by a factor of four or more. Except as noted in the table below, the recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%.

  Based on consistently poor recoveries from all SI Sites, the nondetected antimony results associated with recoveries below 30% were rejected, "R," even though the post digestion spike recoveries were acceptable. Detected results listed in the table below were qualified as estimated, "J." In the absence of qualifications with conflicting bias, the results were qualified as estimated with a potential low bias, "J-," or estimated with a potential high bias, "J+." The qualified results were coded with a "Q" qualification code. As per the *National Function Guidelines*, all samples in an SDG were qualified; however, the parent samples were qualified only for their own outliers.

Samples qualified for matrix spike recovery outliers			
Parent Sample	Analyte	%R	Qualified samples
072SB-0001-0001-SO	Arsenic	77%	072SB-0001-0001-SO, 072SB-0014-0001-SO
	Barium	127%	

Samples qualified for matrix spike recovery outliers			
Parent Sample	Analyte	%R	Qualified samples
	Beryllium	79%	
	Calcium	298%	
	Cadmium	79%	
	Nickel	69%	
	Antimony	24%	
	Potassium	55%	
	Selenium	68%	
072SB-0012-0001-SO	Beryllium	78%	072SB-0012-0001-SO, 072SB-0014-0001-SO
	Copper	123%	
	Lead	122%	
	Antimony	18%	
	Potassium	71%	
	Selenium	74%	
072SB-0026-0001-SO	Arsenic	69%	072SB-0026-0001-SO
	Calcium	74%	
	Copper	75%	
	Antimony	**20%**	
	Thallium	75%	
	Selenium	73%	
072SB-0035-0001-SO	Arsenic	64%	072SB-0039-0001-SO
	Barium	32%	
	Beryllium	76%	
	Chromium	73%	
	Nickel	79%	
	Lead	159%	
	Antimony	**23%**	
	Vanadium	61%	
	Potassium	5%	
	Selenium	68%	
072SB-0063-0001-SO	Silver	39%	072SB-0063-0001-SO
	Arsenic	0%	
	Calcium	193%	
	Cadmium	60%	
	Chromium	79%	
	Cobalt	52%	
	Copper	16%	
	Sodium	39%	
	Antimony	28%	
	Potassium	70%	
	Selenium	25%	

Bold analytes were nondetected and rejected in the associated samples.

All post digestion spike recoveries were within the control limits listed in DoD QSM Table F-8 of 75-125%.

- Serial Dilution: Serial dilution analyses were performed on 072SB-0001-0001-SB, 072SB-0012-0001-SO, 072SB-0026-0001-SO, 073SB-0007M-0001-SO, 072SB-0035-0001-SO, 072SB-0063-0001-SO, 076SB-0090M-0001-SO, 076SB-0091M-0001-SO, and 076SB-0100M-0001-SO for the 6020 analytes. A zinc %D associated with sample 072SB-0026-0001-SO exceeded the control limit at 11%; therefore, the zinc detect in the sample was qualified as estimated, "J," and coded with an "A" qualification code. All remaining %Ds were within the control limits listed in DoD QSM Table F-7 and F-8 of ≤10%. The serial dilution control limit is only applicable when the original sample concentration is minimally ≥50× the LOQ.

- Internal Standards: As per the DOD QSM Table F-8, the ICPMS sample internal standards intensities were within 30-120% of those in the ICV. Yttrium (^{89}Y) was spiked into the QC samples but not the site samples.

- Sample Result Verification: For Level IV validation, calculations were verified and the sample results reported on the sample result summary were verified against the raw data. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

- Manual Integrations: No manual integrations were noted in the mercury analyses.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated samples.

  - Field Duplicate Samples: Seven field duplicate samples were collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, all results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

Metals field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
072SB-0001-0001-SO	072SB-0002-0001-SO	Barium	64%	N/A
		Calcium	149%	N/A
072SB-0026-0001-SO	072SB-0027-0001-SO	Arsenic	61%	N/A

Metals field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
		Manganese	116%	N/A

6.2.9 General Chemistry - Hexavalent Chromium

A total of 29 primary soil samples and 3 field duplicate samples were analyzed by TA-Pittsburg for hexavalent chromium by USEPA Method 7196A. A total of 4 primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration: Calibration criteria were met.
    - Initial calibration: The linear regression correlation coefficient was within the control limit listed in DoD QSM Table F-9 of ≥0.995.
    - The ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-9 of 90-110%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries affecting sample results were within the reasonable control limits of 70-130%.
- Blanks: The method blank and CCBs had no applicable detects above the control limit listed in DoD QSM Table F-9 of one-half the LOQ.
- Laboratory Control Samples: The recoveries were within the matrix spike control limits listed in DoD QSM Table F-9 of 85-115%
- Laboratory Duplicates: A laboratory duplicate analysis was performed on 076SB-0125-0001-SO. Hexavalent chromium was not detected in either sample.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on a site sample. Method accuracy was evaluated based on LCS results.
- Sample Result Verification: For Level IV validation, calculations were verified and the sample results reported on the sample result summary were verified against the raw data. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Hexavalent chromium was reported utilizing the method of standard additions (MSA), which is recommended for matrices expected to have interference. Results from MSA are best when the MSA linear regression slope is nearly equivalent to the initial calibration slope; however, the slopes for most site samples were more than a factor of 10 less than the initial calibration slope, indicating a nominal change in absorbance is observed in the MSA analyses for a relatively significant change in concentration.

- Manual Integrations: Manual integrations are not applicable to this analysis.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated samples.

    - Field Duplicate Samples: Four field duplicate samples were collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

6.3 Data Usability

According to the Draft Site Inspection Report prepared by ECC, the field completeness was 100%.

Three data points were rejected for poor MS/MSD and calibration standard recoveries. In instances where a data point had multiple results, the reviewer chose the most technically sound result to report and rejected the remaining data points. These data points do not affect data quality or usability and are not included in the table below. Data with LODs that exceeded the established criteria and data estimated for quality control outliers or for detects between the DL and the LOQ were included in the table below for informational purposes only.

Table 20. Analytical completeness for RVAAP-72 validated primary data

			Number of Results					
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	**Percent Complete**
Explosives*	1	16	15	0	0/0	2	0	100%
Nitroguanidine	1	1	1	0	0/0	0	0	100%
Nitrocellulose	1	1	1	0	0/0	0	0	100%
PCBs	1	7	7	0	0/0	0	0	100%
Pesticides	1	21	21	0	0/0	20	0	100%
TPH	9	3	27	0	0/0	1	0	100%
SVOCs*	6	66 or 16	144	1	0/0	20	7	99.3%
VOCs	9	36 or 4	132	0	0/0	51	3	100%
Metals	6	23	138	2	0/0	60	15	98.6%
Hexavalent chromium	4	1	4	0	0/0	4	1	100%
		Totals	**490**	**3**	**0/0**	**154**	**26**	**99.4%**

*Results rejected as duplicate data do not appear in the Total Analyte count.

The analytical completeness goal for the project established in the FWQAPP was 90% for each method. The completeness goal was met for all analyses.

6.4 Primary and Field Duplicate Comparison Summary

Primary and field duplicate sample comparisons were considered to be in good agreement as only 5.5% of the field duplicate pair results were above the FWQAPP control limit of 50% for soils or +/- the LOQ for results below 5× the LOQ.

Fifteen of the twenty-seven outliers were in pair 072SB-0076-001-SO/072SB-0077-0001-SO and eighteen of the twenty-seven outliers were for SVOCs. In general, 072SB-0077-0001-SO had higher concentrations than 072SB-0076-001-SO. All comparison results are presented in Appendix C.

Table 21. RVAAP-72 primary/field duplicate sample comparison summary

Method	Primary/Field Duplicate Pairs	Number of analytes	Total Analytes	Results within control limits	Results above control limit
TPH	7	3	21	20	1
SVOCs	7	16 or 66	262	244	18
VOCs	7	4 or 5	30	26	4
Metals*	7	23	160	156	4
Hexavalent chromium	3	1	3	3	0
Herbicide	1	11	11	11	0

*Total Analyte count affected by rejected results

6.5 Specific Data Concerns

Specific concerns regarding the data are noted below:

- Hexavalent chromium was reported utilizing MSA, which is recommended for matrices expected to have interference. Results from MSA are best when the MSA linear regression slope is nearly equivalent to the initial calibration slope; however the slopes for most site samples were more than a factor of 10 less than the initial calibration slope, indicating a nominal change in absorbance is observed in the MSA analyses for a relatively significant change in concentration.

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

In order to avoid repetition of the issues noted above, the following actions should be taken:

- MEC^X recommends requesting the laboratory, TA-North Canton, to analyze one MRL standard and one matrix spike by MSA in order to confirm the laboratory's accuracy in reporting hexavalent chromium by MSA.

- MEC^X recommends the laboratory be requested to alter the IPC-MS and mercury instrument set up in order to report mercury and ICP-MS raw absorbances and ICP-MS ICV, CCV, ICSAB, and MRL concentrations.

7 GEORGE ROAD SEWER TREATMENT PLANT MERCURY SPILL, RVAAP-75

7.1 Current Investigation

ECC completed an SI at George Road Sewage Treatment Plant Mercury Spill (RVAAP-75). The SI for RVAAP-75 was conducted in accordance with the USEPA *Interim Final Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* (USEPA 1992). The HRR identified historic uses and potential environmental concerns at this site with respect to possible HTRW and/or MEC issues (SAIC 2011).

Due to a spill of a one pint jar of elemental mercury within the comminutor building that subsequently entered the building's drain system, the HHR concluded the RVAAP-75 was a candidate for further investigation. The data validated in this report are part of the initial intrusive SI at RVAAP-75 conducted to assess the potential presence of contamination. The total sample counts, samples selected for data validation, and the field duplicates are presented in the tables below.

Table 22. Total sample count for RVAAP-75

Matrix	Primary Samples	Field Duplicates	Split Samples	Explosives	Propellants	PCBs	Pesticides	SVOCs	VOCs	Metals
Soil	8	2	0	1	1	1	1	1	1	8

Table 23. RVAAP-75 validated samples and methods

Sample ID	SDG	Matrix	Collected	Explosives	Propellants	PCBs	SVOCs	VOCs	Metals
075SD-0002-0001-SD	240-17467-1 240-17467-2	Soil	11/9/2012	x	x	x	x	x	x

Table 24. RVAAP-75 field duplicate samples

Duplicate Sample ID	Parent Sample
075TR-0003-0001-SO	075TR-0002-0001-SO
075SD-0003-0001-SD	075SD-0002-0001-SD

7.1.1 Sample Collection

According to the laboratory Sample Receipt Form, custody seals were not utilized; however, in reviewing the relinquish and receipt times, it appeared the samples were transferred to the laboratory by courier. One correction was made to the chain-of-custody by overwriting the original entry. The correction was not initialed or dated. No other sample collection issues were noted.

7.1.2 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing from the SDGs reviewed.

7.1.3 Preservation and Holding Time Requirements

The sample coolers were received within the temperature control limit of 4 ±2^{o}C control limit. All method preservation requirements were met.

All holding times, as listed in Table 4, were met, with the exception of a re-extraction of SVOC sample 075SD-0002-0001-SD, due to a noncompliant method blank. Only target compound bis(2-ethylhexyl)phthalate was reported from the re-extraction analysis. The result was qualified as an estimated nondetect, "UJ," and coded with an "H" qualification code.

7.1.4 Detection Limit Requirements

LODs and DLs for nondetected analytes were compared against the most stringent CUGs listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the RSLs if no CUG was listed. No LODs or DLs exceeded criteria.

7.2 RVAAP-75 Data Quality Evaluation

This section summarizes the data quality of validated samples for each analytical method evaluated.

7.2.1 Explosives

A single soil sample and one field duplicate sample were analyzed by TA-West Sacramento for explosives by USEPA SW-846 Method 8330B. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The primary column initial calibration average %RSDs for RDX and 2-nitrotoluene exceeded the control limit at 20% and 16%, respectively; therefore, the nondetected results for these compounds were qualified as estimated, "UJ," in 075SD-0002-0001-SD. The qualified results were coded with a "C" qualification code. The remaining initial calibration average %RSDs were within the control limits listed in DoD QSM Table F-3 of ≤15%, or the linear regression r^2 values were ≥0.990.
    - The second source initial calibration verification standard recoveries were within the control limit listed in DoD QSM Table F-3 of ±20%.

  - The CCV standard %Ds were within the control limits listed in DoD QSM Table F-3 of ±20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. Low-level MRL standards were analyzed in association with the validated samples and the results were within the reasonable control limits of 70-130%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in DoD QSM Table F-3 of one-half the LOQ.

- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (76-116%) and PETN (76-116%).

- Surrogate Recovery: As no surrogate control limit was listed in the DoD QSM, surrogate recoveries were assessed against the reasonable laboratory-established control limits of 78-118%. Recoveries affecting sample results were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 075SB-0002-0001-SD. Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (76-116%) and PETN (76-116%). The RPDs were within the control limit listed in DoD QSM Table F-3 of ≤20%.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of sample chromatograms and retention times indicated no problems with target compound identification. The intercolumn %RPD for tetryl was 105%; therefore, tetryl detected in 075SD-0002-0001-SD was qualified as tentatively identified, "N," and coded with an "*III" qualification code.

  Although not affecting the nondetected sample results, the primary column MRL recoveries for the later eluting compounds were recovered above the control limit. Review of the chromatogram indicated poorer peak shape for these compounds.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample detect and a portion of the LCS results. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  The intercolumn %RPD for tetryl exceeded the control limit listed in DoD QSM Table F-3 of ≤40%, at 105%; therefore, tetryl detected in 075SD-0002-0001-SD was qualified as estimated, "J," and coded with an "*III" qualification code.

Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in sample 075SD-0002-0001-SD. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8330B result for nitrobenzene was rejected, "R," as duplicate data and coded with a "D" qualification code. The 8330B results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for the initial calibrations, CCVs, and the site sample. All manual integrations were performed in order to report closely eluting peaks or to account for baseline anomalies and were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicates: One field duplicate sample was collected and analyzed for explosive compounds. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

7.2.2 Propellants

A single soil sample and one field duplicate sample were analyzed by TA-West Sacramento for nitroguanidine by USEPA SW-846 Method 8330 and for nitrocellulose by laboratory SOP WS-WC-0050. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration:

    - The nitroguanidine initial calibration average percent %RSD was within the control limit listed in DoD QSM Table F-2 of ≤20%. Nitrocellulose linear regression r values were within the control limit listed in the DoD QSM Table F-11 of ≥0.995.

    - The nitroguanidine second source ICV recovery was within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose ICV recovery exceeded the

control limit at 192% (limits are 90-110%); however, as nitrocellulose was not detected in the sample, no qualifications were required.

- The nitroguanidine CCV recoveries were within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose CCV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries associated with the sample were within the reasonable control limits of 70-130%.

- Blanks: The method blanks had no target compound detects above the control limits listed in DoD QSM Tables F-2 and F-11 of one-half the LOQ.

- Laboratory Control Samples: No nitroguanidine or nitrocellulose LCS control limits are listed in the DoD QSM; therefore, the laboratory control limits were used to assess the results. The nitroguanidine recovery was within the control limits of 72-121%. The nitrocellulose recovery was within the laboratory-established control limits of 34-115%.

- Surrogate Recovery: A surrogate was not required for the analysis of nitroguanidine or nitrocellulose.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 075SD-0002-0001-SD for both propellants. The nitroguanidine recoveries (56%, 58%) were below the laboratory-established control limits of 72-121%; therefore, nondetected nitroguanidine was qualified as estimated, UJ," in 075SD-0002-0001-SD. The qualified result was coded with a "Q" qualification code. The nitrocellulose recoveries were within the laboratory-established control limits of 34-115%. Both RPDs were ≤20%.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Nitroguanidine was not detected in the validated sample; therefore, confirmation analysis was not required.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for nitroguanidine. The manual integrations were performed to correct baseline integration. The manual integrations were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicates: One field duplicate sample was collected and analyzed for propellants. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

7.2.3 Polychlorinated Biphenyls (PCBs)

A single soil sample and one field duplicate sample were analyzed by TA-North Canton for PCBs by USEPA SW-846 Method 8082. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.

    - Initial calibration average %RSDs were within the control limit of ≤20%.

    - The second source ICV recoveries were within the control limit of ±20% for all applicable Aroclors.

    - The CCV standard recoveries were within the control limit of ±20%.

    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.

- Laboratory Control Samples: Recoveries for Aroclor 1016 and Aroclor 1260 were within the control limits listed in DoD QSM Table G-17.

- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 075SD-0002-0001-SD. Recoveries were within the control limits listed in DoD QSM Table G-17 and RPDs for both Aroclors were within the control limit listed in the DoD QSM Table F-2 of ≤30%.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data associated with the sample data, primarily to correct baseline integration and/or separate coeluting peaks. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for PCBs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

7.2.4 Semivolatile Organic Compounds (SVOCs)

A single soil sample and one field duplicate sample were analyzed by TA-North Canton for SVOCs by USEPA Method 8270C. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The DFTPP tunes met the method abundance criteria. The samples were analyzed within 12 hours of the DFTPP injection time.

- Calibration: Calibration criteria listed in the DoD QSM Table F-4 were met, with exceptions affecting sample results noted in the text and table below.

  - Initial calibration average RRFs and ICV and CCV RRFs were within method control limits of ≥0.050 for SPCCs. All initial calibration %RSDs were within the control limits of ≤30% for CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.

  - All second source ICV standard recoveries affecting sample data were within the control limit of ±20%, with the exception of the recovery of 79.9% for 3,3'dichlorobenzidine. The associated sample result was rejected for other reasons (see Matrix Spike/Matrix Spike Duplicate section), and was not further qualified for the ICV recovery outlier.

  - Continuing calibration %Ds affecting sample data were within the control limit of ≤20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%, with exceptions noted in the table below. Results listed in the table below were qualified as estimated, "J," for detects, and "UJ," for nondetects in the affected sample. The qualified results were coded with a "C" qualification code.

Samples qualified for MRL %R outliers		
Analyte	**%R**	**Qualified Samples**
2,4-dinitrophenol	37%	075SD-0002-0001-SD
4,6-dinitro-2-methylphenol	46%	
benzo(g,h,i)perylene	58%	
dibenz(a,h)anthracene	68%	
hexachloroethane	58%	
Indeno(1,2,3-cd)pyrene	67%	

- Blanks: The method blank had a detect below the LOQ for 1,2-dichlorobenzene; however, the sample detect for 1,2-dichlorobenzene exceeded five times the method blank concentration and required no qualification. The method blank also had a detect above the LOQ of 50 µg/Kg for bis(2-ethylhexyl)phthalate at 90 µg/Kg. As the method blank was non-compliant, sample 075SD-0002-0001-SD was re-extracted, with an acceptable result. The laboratory reported both the original and re-extraction analyses for all target compounds except bis(2-ethylhexyl)phthalate, which was reported only from the re-extraction analysis; therefore, the results for all compounds in 075SD-0002-0001-SDRE, except bis(2-ethylhexyl)phthalate, were rejected, "R," in favor of the original results. The method blanks associated with the validated sample had no other target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ for target compounds, and no other common laboratory contaminants detected above the LOQ.

- Laboratory Control Samples: All LCS recoveries were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the LCS.

- Surrogate Recovery: All surrogate recoveries were within the control limits listed in the DoD QSM Tables G-2 (poor performers) or G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 075SD-0002-0001-SD. The MS and MSD had recoveries of 5% and 0% for 3,3-dichlorobenzidine; therefore, the nondetected parent sample result was rejected, "R." Recoveries for 4-nitroaniline were below the control limits of 35-115%, at 30% and 25%. The nondetected result for 4-nitroaniline was qualified as estimated, "UJ." The qualified results were coded with a "Q" qualification code. Remaining recoveries affecting parent sample results were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the MS/MSD. RPDs were within the control limit of ≤30% listed in DoD QSM Table F-4**.**

- Internal Standards Performance: The internal standard area counts and retention times were within the DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the sample validated at Level IV. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at Level IV. The sample had a 2-ml final extract volume, resulting in an effective 2× dilution. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in samples 075SD-0002-0001-SD. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8270C results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were rejected, "R," as duplicate data and coded with a "D" qualification code. The 8270C result for nitrobenzene was retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the samples, and for calibration and QC data associated with the sample data, primarily due to peaks

missed or incorrectly chosen by the data system, split peaks, or poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

  - Field Duplicate Samples: One field duplicate sample was collected and analyzed for SVOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

SVOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
075SD0002-0001-SD	075SD-0003-0001-SD	Benzo(b)fluoranthene	63%	N/A
		Chrysene	155%	N/A
		Phenanthrene	67%	N/A
		1,2-Dichlorobenzene	60%	N/A
		Anthracene	N/A	No
		Fluorene	N/A	No

7.2.5 Volatile Organic Compounds (VOCs)

A single soil sample and one field duplicate sample were analyzed by TA-North Canton for volatile compounds by USEPA Method 8260B. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The BFB tunes met the method abundance criteria. The samples were analyzed within 12 hours of the BFB injection time.

- Calibration: Calibration criteria listed in DoD QSM Table F-4 were met, with exceptions noted below.

  - Initial calibration average RRFs and ICV and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane.

  - All initial calibration %RSDs were within the method control limits of ≤30% for the CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.

- All second source initial calibration verification standard recoveries were within the control limit of ±20%.

- Continuing calibration %Ds affecting validated sample data were within the control limit of ≤20%

- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ, and no common laboratory contaminants detected above the LOQ, with one exception affecting sample data. Styrene was detected in the method blank at 0.15 µg/Kg. Styrene detected in 075SD-0002-0001-SD between the LOD and LOQ was qualified as nondetected, "U," at the LOQ. The qualified result was coded with a "B" qualification code.

- Laboratory Control Samples: LCS recoveries were within the control limits listed in DoD QSM Table G-4.

- Surrogate Recovery: Surrogate recoveries affecting sample data were within the control limits listed in DoD QSM Table G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 075SD-0002-0001-SD. Recoveries affecting sample data were within the control limits listed in DoD QSM Table G-4 and RPDs were within the control limit listed in DoD QSM Table F-4, of ≤30%.

- Internal Standards Performance: The internal standard area counts and retention times were within DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual integrations: Manual integrations were not performed for the validated sample or for associated calibration and QC samples.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Trip Blanks: The trip blank associated with the validated sample in this SDG had no reportable detects above the DL.

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for VOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

7.2.6 Metals

Eight primary soil samples and two field duplicate samples were analyzed by TA-North Canton for various metals by USEPA Methods 6020 and 7471. One primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: All calibration criteria were met.

    - As per DoD QSM Table F-8, the mass calibrations were ≤0.1 amu of the true values and the resolutions were <0.9 amu at full width at 10% peak height. The %RSDs were within the control limit listed in the DoD QSM Table F-8 of ≤5%.

    - Initial calibration: The mercury linear regression correlation coefficient was within the control limit listed in the DoD QSM Table F-7 of ≥0.995. The remaining analytes used a single point calibration.

    - The ICPMS ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-8 of 90-110%. The mercury ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110% and 80-120%, respectively.

    - CRI/MRL recoveries affecting sample results were within the control limits listed in DoD QSM Tables F-7 and F-8 of 80-120%.

- Blanks: The method blanks had no applicable detects above the control limits listed in DoD QSM Tables F-7 and F-8 of one-half the LOQ or greater than one-tenth the amount measured in any sample. CCBs had no applicable detects above the control limit listed in DoD QSM Tables F-7 and F-8 of greater than the LOD.

- Interference Check Samples: ICPMS interference check sample A (ICSA) and AB (ICSAB) recoveries were within the control limits listed in DoD QSM Table F-8 of 80-120%. There were several analytes detected in the ICSA, but not at sufficient concentration to warrant qualification of the site sample.

- Laboratory Control Samples: The recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%.

- Laboratory Duplicates: A laboratory duplicate analysis was performed on 075SD-0002-0001-SD. The RPDs for aluminum (26%), chromium (21%), sodium (32%), vanadium (24%), and potassium (42%) exceeded the control limit; therefore, detects for these analytes in 075SD-0002-0001-SD were qualified as estimated, "J," and coded with an "E" qualification code. The remaining RPDs were within the control limits listed in DoD QSM Tables F-7 and F-8 of ≤20%. The control limit was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied.

- Matrix Spike/Matrix Spike Duplicate: A matrix spike analysis was performed on 075SD-0002-0001-SD. The recoveries for arsenic (76%), barium (57%), chromium (73%), magnesium (69%), nickel (77%), antimony (25%), vanadium (66%), potassium (56%), mercury (60%), and selenium (74%) were below the control limit; therefore, the results for these analytes, all detects, were qualified as estimated with a potential low bias, "J-." The qualified results were coded with a "Q" qualification code. The remaining recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%. Matrix spike control limits were not applied when the native sample concentration exceeded the spiked amount by a factor of four or more.

  All post digestion spike recoveries were within the control limits listed in DoD QSM Table F-8 of 75-125%.

- Serial Dilution: A serial dilution analysis was performed on 075SD-0002-0001-SD for the 6020 analytes. The %Ds were within the control limits listed in DoD QSM Table F-8 of ≤10%. The serial dilution control limit is only applicable when the original sample concentration is minimally ≥50× the LOQ.

- Internal Standards: As per the DOD QSM Table F-8, the ICPMS sample internal standards intensities were within 30-120% of those in the ICV.

- Sample Result Verification: For Level IV validation, calculations were verified and the sample results reported on the sample result summary were verified against the raw data.

Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

- Manual Integrations: No manual integrations were noted in the mercury analyses.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.
    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

Metals field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
075SD0002-0001-SD	075SD-0003-0001-SD	Beryllium	63%	N/A
		Calcium	155%	N/A
		Magnesium	67%	N/A
		Manganese	60%	N/A
		Sodium	N/A	No
		Mercury	N/A	No

7.3 Data Usability

According to the Draft Site Inspection Report prepared by ECC, the field completeness was 100%.

One data point was rejected for poor MS/MSD recoveries. In instances where a data point had multiple results, the reviewer chose the most technically sound result to report and rejected the remaining data points. These data points do not affect data quality or usability and are not included in the table below. Data with LODs/DLs that exceeded the established criteria and data estimated for quality control outliers or for detects between the DL and the LOQ were included in the table below for informational purposes only.

Table 25. Analytical completeness for RVAAP-75 validated primary data

			Number of Results					
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	**Percent Complete**
Explosives*	1	16	15	0	0/0	3	0	100%
Nitroguanidine	1	1	1	0	0/0	1	0	100%
Nitrocellulose	1	1	1	0	0/0	0	0	100%
PCBs	1	7	7	0	0/0	0	0	100%
SVOCs*	1	66	64	1	0/0	8	3	98.4%
VOCs	1	36	36	0	0/0	1	2	100%
Metals	1	23	23	0	0/0	12	1	100%
		Totals	**147**	**1**	**0/0**	**25**	**6**	**99.3%**

*Results rejected as duplicate data do not appear in the Total Analyte count.

The analytical completeness goal for the project established in the FWQAPP was 90% for each method. The completeness goal was met for all analyses.

7.4 Primary and Field Duplicate Comparison Summary

Primary and field duplicate sample comparisons were considered to be in reasonable agreement as only 7.2% of the field duplicate pair results were above the FWQAPP control limit of 50% for soils or +/- the LOQ for results below 5× the LOQ. There were six outliers in the metals and SVOCs. The metals results for 075SD-0003-0001-SD were larger than those for 075SD-0002-0001-SO, while the SVOC result were generally larger in 075SD0002-0001-SO. All comparison results are presented in Appendix C.

Table 26. RVAAP-75 primary/field duplicate sample comparison summary

Method	**Primary/Field Duplicate Pairs**	**Number of Analytes**	**Total Analytes**	**Results within control limits**	**Results above control limit**
Explosives*	1	16	15	15	0
Nitroguanidine	1	1	1	1	0
Nitrocellulose	1	1	1	1	0
PCBs	1	7	7	7	0
Pesticides	1	21	21	21	0
SVOCs*	1	65	62	56	6
VOCs	1	36	36	36	0
Metals	2	23 or 1	24	18	6

*Results rejected as duplicate data do not appear in the Total Analyte count.

7.5 Specific Data Concerns

Specific concerns regarding the data are noted below:

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

In order to avoid repetition of the issues noted above, the following actions should be taken:

- MEC^X recommends the laboratory be requested to alter the IPC-MS and mercury instrument set up in order to report mercury and ICP-MS raw absorbances and ICP-MS ICV, CCV, ICSAB, and MRL concentrations.

8 BUILDING 1037, LAUNDRY WASTE WATER SUMP, RVAAP-77

8.1 Current Investigation

ECC completed an SI at Building 1037 Laundry Waste Water Sump (RVAAP-77). The SI for RVAAP-77 was conducted in accordance with the USEPA *Interim Final Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* (USEPA 1992). The HRR identified historic uses and potential environmental concerns at this site with respect to possible HTRW and/or MEC issues (SAIC 2011).

The HHR (SAIC 2011) identified RVAAP-77 as a candidate for further investigation due to a waste water sump that received discharge water from the former laundry operation that may have resulted in a release of contaminants. The data validated in this report are part of the initial intrusive SI at RVAAP-77 conducted to assess the potential presence of contamination. The total sample counts, samples selected for data validation, and the field duplicates are presented in the tables below.

Table 27. Total sample count for RVAAP-77

Matrix	Primary Samples	Field Duplicates	Split Samples	Explosives	Propellants	PCBs	Pesticides	SVOCs	VOCs	Metals
Soil	9	1	0	9	9	1	1	1	1	1

Table 28. RVAAP-77 validated samples and methods

Sample ID	SDG	Matrix	Collected	Explosives	Propellants	PCBs	Pesticides	SVOCs	VOCs	Metals
077SS-0001M-0001-SO	240-17525-1	Soil	11/11/2012	x	x	x	x	x	x	x

Table 29. RVAAP-77 field duplicate samples

Duplicate Sample ID	Parent Sample
077SS-0002M-0001-SO	077SS-0001M-0001-SO

8.1.1 Sample Collection

According to the laboratory Sample Receipt Form, custody seals were not utilized; however, in reviewing the relinquish and receipt times, it appeared the samples were transferred to the laboratory by courier. Other than listed below, no sample collection issues were noted.

- Some corrections made to the chains-of-custody were initialed but not dated and some were neither initialed nor dated.

- Some corrections were made by overwriting the original entry.

8.1.2 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing from the SDGs reviewed.

8.1.3 Preservation and Holding Time Requirements

The sample coolers were received within control limit of 4 ±2^{o}C. All other preservation requirements were met. All holding times, as listed in Table 4, were met.

8.1.4 Detection Limit Requirements

LODs and DLs for nondetected analytes were compared against the most stringent CUGs listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the RSLs if no CUG was listed. No LODs or DLs exceeded criteria.

8.2 RVAAP-77 Data Quality Evaluation

This section summarizes the data quality of validated samples for each analytical method evaluated.

8.2.1 Explosives

Nine primary soil samples and one field duplicate sample were analyzed by TA-West Sacramento for explosives by USEPA SW-846 Method 8330B. One primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The primary column initial calibration average %RSDs for RDX and 2-nitrotoluene exceeded the control limit at 20% and 16%, respectively; therefore, the nondetected results for these compounds were qualified as estimated, “UJ,” in 077SS-0001M-0001-SO. The qualified results were coded with a “C” qualification code. The remaining initial calibration average %RSDs were within the control limits listed in DoD QSM Table F-3 of ≤15%, or the linear regression r^2 values were ≥0.990.
    - The second source initial calibration verification standard recoveries were within the control limit listed in DoD QSM Table F-3 of ±20%.
    - The CCV standard %Ds were within the control limits listed in DoD QSM Table F-3 of ±20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. Low-level MRL standards were analyzed in association with the validated samples and the results were within the reasonable control limits of 70-130%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in DoD QSM Table F-3 of one-half the LOQ.

- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (76-116%) and PETN (76-116%).

- Surrogate Recovery: As no surrogate control limit was listed in the DoD QSM, surrogate recoveries were assessed against the reasonable laboratory-established control limits of 78-118%. Recoveries were within the control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 077SS-0001M-0001-SO. The recoveries were within the control limits listed in DoD QSM Table s G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (76-116%) and PETN (76-116%). The RPDs were within the control limit listed in DoD QSM Table F-3 of ≤20%.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: As no target compounds were detected in the sample validated at Level IV, compound quantification was verified for a portion of the LCS results. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Confirmation analyses were performed; however, no compounds were confirmed.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in sample 077SS-0001M-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8330B result for nitrobenzene was rejected, "R," as duplicate data and coded with a "D" qualification code. The 8330B results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for the initial calibrations and low-level CCVs. All manual integrations were performed in order to report

incompletely resolved peaks or to account for baseline anomalies and were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank and equipment rinsate had no target compound detects.

    - Field Duplicates: One field duplicate sample was collected and analyzed for explosive compounds. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.2.2 Propellants

Nine primary soil samples and one field duplicate sample were analyzed by TA-West Sacramento for nitroguanidine by USEPA SW-846 Method 8330 and for nitrocellulose by laboratory SOP WS-WC-0050. One primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration:

    - The nitroguanidine initial calibration average percent %RSD was within the control limit listed in DoD QSM Table F-2 of ≤20%. Nitrocellulose linear regression r values were within the control limit listed in the DoD QSM Table F-11 of ≥0.995.

    - The nitroguanidine second source ICV recovery was within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose ICV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

    - The nitroguanidine CCV recoveries were within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose CCV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.

    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries associated with the sample were within the reasonable control limits of 70-130%.

- Blanks: The method blanks had no target compound detects above the control limits listed in DoD QSM Tables F-2 and F-11 of one-half the LOQ.

- Laboratory Control Samples: No nitroguanidine or nitrocellulose LCS control limits are listed in the DoD QSM; therefore, the laboratory control limits were used to assess the results. All nitroguanidine recoveries were within the control limits of 72-121% for soils. The nitrocellulose recoveries were within the laboratory-established control limits of 34-115% for soils.

- Surrogate Recovery: A surrogate was not required for the analysis of nitroguanidine or nitrocellulose.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 070SB-0006M-0001-SO for both propellants. The recoveries were within the laboratory-established control limits of 72-121% for nitroguanidine and 34-115% for nitrocellulose. Both RPDs were ≤20%.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at a Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Nitroguanidine was not detected in the validated sample; therefore, confirmation analysis was not required.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for nitroguanidine. The manual integrations were performed to correct baseline integration. The manual integrations were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank and equipment rinsate had no target compound detects.

- Field Duplicates: One field duplicate sample was collected and analyzed for propellants. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.2.3 Polychlorinated Biphenyls (PCBs)

One primary soil sample and one field duplicate sample were analyzed by TA-North Canton for PCBs by USEPA SW-846 Method 8082. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.
  - Initial calibration average %RSDs were within the control limit of ≤20%.
  - The second source ICV recoveries were within the control limit of ±20% for all applicable Aroclors.
  - The CCV recoveries were within the control limit of ±20%.
  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.
- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.
- Laboratory Control Samples: Recoveries for Aroclor 1016 and Aroclor 1260 were within the control limits listed in DoD QSM Table G-17.
- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 077SS-0001M-0001-SO. Recoveries were within the control limits listed in DoD QSM Table G-17 and RPDs for both Aroclors were within the control limit listed in the DoD QSM Table F-2 of ≤30%.
- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.
- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial

calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data associated with the sample data, primarily to correct baseline integration and/or separate coeluting peaks. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank and equipment rinsate had no target compound detects.

    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for PCBs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.2.4 Pesticides

One primary soil sample and one field duplicate sample were analyzed by TA-North Canton for pesticides by USEPA SW-846 Method 8081. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met, with one exception noted below.

    - Initial calibration average %RSDs were within the control limit of ≤20%.

    - The performance evaluation mixture (PEM) %breakdown results were within the control limit of ≤15%.

    - Both columns had individual toxaphene peaks with %Ds exceeding the control limit. Column CLP-1 had two outliers at -20.9% and 53.7%, and column CLP-2 had two outliers at -34.0% and 88.2%. The nondetected result for toxaphene in sample

077SS-0001M-0001-SO was qualified as estimated, "UJ." The remaining second source ICV recoveries were within the control limit of ±20%.

- The CCV standard recoveries were within the control limit of ±20%.
- Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.
- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Table G-15. Toxaphene was not spiked in the LCS sample.
- Surrogate Recovery: Due to dilution of sample 077SS-0001M-0001-SO, the surrogate spike was considered diluted out and recoveries were not evaluated.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 077SS-0001M-0001-SO; however, due to dilution, the spike was considered diluted out and recoveries and RPDs were not evaluated. Toxaphene was not spiked in the MS/MSD samples.
- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.
- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD. According to the case narrative, sample 077SS-0001M-0001-SO was analyzed at a 10× dilution due to the nature of the sample matrix.
- System Performance: Review of the raw data indicated no problems with system performance.
- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data, primarily due to poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank and equipment rinsate had no target compound detects.

- Field Duplicate Samples: One field duplicate sample was collected and analyzed for pesticide compounds. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.2.5 Semivolatile Organic Compounds (SVOCs)

One primary soil sample and one field duplicate sample were analyzed by TA-North Canton for SVOCs by USEPA Method 8270C. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The DFTPP tunes met the method abundance criteria. The samples were analyzed within 12 hours of the DFTPP injection time.

- Calibration: Calibration criteria listed in the DoD QSM Table F-4 were met, with exceptions affecting sample results noted in the text below.

  - Initial calibration average RRFs and ICV and CCV RRFs were within method control limits of ≥0.050 for SPCCs. All initial calibration %RSDs were within the control limits of ≤30% for CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.

  - All second source ICV standard recoveries affecting sample data were within the control limit of ±20%, with the exception of the recovery of 79.9% for 3,3'-dichlorobenzidine. The nondetected result for 3,3'-dichlorobenzidine in sample 077SS-0001M-0001-SO was qualified as estimated, "UJ," and coded with a "C" qualification code.

  - Continuing calibration %Ds affecting sample data were within the control limit of ≤20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%, with the exception of no recovery of n-nitrosodiphenylamine in the closing MRL. The nondetected result for n-nitrosodiphenylamine in sample 077SS-0001M-0001-SO was rejected, "R," and coded with a "C" qualification code.

- Blanks: The method blank had a detect below the LOQ for bis(2-ethylhexyl)phthalate at 31(J) µg/Kg; however, bis(2-ethylhexyl)phthalate was not detected in the validated

sample. The method blank had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ for target compounds, and no common laboratory contaminants detected above the LOQ.

- Laboratory Control Samples: All LCS recoveries were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the LCS.

- Surrogate Recovery: All surrogate recoveries were within the control limits listed in the DoD QSM Tables G-2 (poor performers) or G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 077SS-0001M-0001-SO. Benzoic acid was not recovered in the MS or MSD; therefore, the nondetected parent sample result was rejected, "R." The qualified result was coded with a "Q" qualification code. Remaining recoveries affecting parent sample results were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7. The reviewer noted hexachlorocyclopentadiene was not spiked in the MS/MSD. RPDs were within the control limit of ≤30% listed in DoD QSM Table F-4**.**

- Internal Standards Performance: The internal standard area counts and retention times were within the DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the sample validated at Level IV. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at Level IV. The sample had a 2-ml final extract volume, resulting in an effective 2× dilution. The sample was analyzed at an additional 4× dilution for high concentrations of target compounds. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in sample 077SS-0001M-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs. The 8270C results for 2,4-dinitrotoluene and 2,6-dinitrotoluene were rejected, "R," as duplicate data and coded with a "D" qualification code. The 8270C result for nitrobenzene was retained.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the samples, and for calibration and QC data associated with the sample data, primarily due to peaks missed or incorrectly chosen by the data system, split peaks, or poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank and equipment rinsate had no target compound detects.

    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for SVOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.2.6 Volatile Organic Compounds (VOCs)

One primary soil sample and one field duplicate sample were analyzed by TA-North Canton for volatile compounds by USEPA Method 8260B. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- GC/MS Tuning: The BFB tunes met the method abundance criteria. The samples were analyzed within 12 hours of the BFB injection time.

- Calibration: Calibration criteria listed in DoD QSM Table F-4 were met.

    - Initial calibration average RRFs and ICV and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane.

    - All initial calibration %RSDs were within the method control limits of ≤30% for the CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.

    - All second source initial calibration verification standard recoveries were within the control limit of ±20%.

    - Continuing calibration %Ds affecting validated sample data were within the control limit of ≤20%

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ, and no common laboratory contaminants detected above the LOQ.

- Laboratory Control Samples: LCS recoveries were within the control limits listed in DoD QSM Table G-4.

- Surrogate Recovery: Surrogate recoveries affecting sample data were within the control limits listed in DoD QSM Table G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 077SS-0001M-0001-SO. Recoveries affecting sample data were within the control limits listed in DoD QSM Table G-4. RPDs are calculated based on amounts recovered, rather than percent recoveries, and due to the difference in sample amounts of the MS and MSD, 26 of 34 RPDs marginally exceeded the control limit listed in DoD QSM Table F-4, of ≤30%. When the difference in sample amounts was accounted for, all RPDs were within the control limit.

- Internal Standards Performance: The internal standard area counts and retention times were within DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual integrations: Manual integrations were not performed for the validated sample or for associated calibration and QC samples.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Trip Blanks: The trip blank associated with the validated sample in this SDG had no reportable detects above the DL.

- Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. The field blank had detects below the LOQ for acetone, bromodichloromethane, toluene, dibromochloromethane, 2-butanone, and chloroform, and the equipment rinsate also had a detect below the LOQ for chloroform; however, none of the field QC contaminants were present in the site sample.

- Field Duplicate Samples: One field duplicate sample was collected and analyzed for VOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.2.7 Metals

A total of 1 primary soil sample and 1 field duplicate sample were analyzed by TA-North Canton for metals by USEPA Methods 6020 and 7471A. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Except as noted below, calibration criteria were met.

  - As per DoD QSM Table F-8, the mass calibrations were ≤0.1 amu of the true values and the resolutions were <0.9 amu at full width at 10% peak height. With one exception, the %RSDs were within the control limit listed in the DoD QSM Table F-8 of ≤5%. The ^{137}barium %RSD was 15.47%; therefore, barium detected in 077SS-0001M-0001-SO was qualified as estimated, "J," and coded with an "M" qualification code.

  - Initial calibration: Linear regression correlation coefficients were within the control limit listed in the DoD QSM Tables F-7 and F-8 of ≥0.995.

  - The ICPMS ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-8 of 90-110%. The mercury ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110% and 80-120%, respectively.

  - CRI/MRL recoveries affecting sample results were within the control limits listed in DoD QSM Tables F-7 and F-8 of 80-120%.

- Blanks: Method blanks had no applicable detects above the control limits listed in DoD QSM Tables F-7 and F-8 of one-half the LOQ or greater than one-tenth the amount measured in any sample. CCBs had no detects above the control limit listed in DoD QSM Tables F-7 and F-8 of greater than the LOD.

- Interference Check Samples: ICPMS ICSA and ICSAB recoveries were within the control limits listed in DoD QSM Table F-8 of 80-120%. Except as noted below, there were no analytes affecting sample results detected in the ICSA above the control limit listed in DoD QSM Table F-8 of >LOD.

  When the interferents were present in the samples at similar concentration to the ICSA, the samples were further reviewed for possible matrix interference, based on detects for unspiked compounds in the ICSA. If the unspiked compounds were present in the samples at concentrations within 10× of the ICSA detect, the results were qualified. Results listed in the table below, all detects, were qualified as estimated, "J," and coded with an "I" qualification code. When no other qualifications with conflicting bias were assigned, the results were qualified as estimated with a potential positive bias, "J+."

Samples qualified for ICSA contamination		
Analyte	**Detect (µg/L)**	**Qualified sample**
Antimony	0.259	077SS-0001M-0001-SO
Cadmium	0.249	
Silver	0.095	

- Laboratory Control Samples: The recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on 069SS-0001M-0001-S0 and 077SS-0001M-0001-SO for all analytes. The results were only assessed for common detects ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as listed below, RPDs were within the control limits listed in DoD QSM Tables F-7 and F-8 of ≤20%. Results listed below were qualified as estimated, "J," for detected and, "UJ," for nondetects. The qualified results were coded with an "E" qualification code.

Samples qualified for laboratory duplicate outliers			
Parent sample	**Analyte**	**RPD**	**Qualified sample**
077SS-0001M-0001-SO	Calcium	21%	077SS-0001M-0001-SO
	Sodium	N/A, >±LOQ	

- Matrix Spike/Matrix Spike Duplicate: Matrix spike analyses were performed on 077SS-0001M-0001-SO for all analytes. Except as noted below, recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%. Matrix spike control limits were not applied when the native sample concentration exceeded the spiked amount by a factor of four or more.

The results listed in the table below, all detects, were qualified as estimated, "J," and coded with a "Q" qualification code. When no other qualifications with conflicting bias were assigned to a result, detected results with low recoveries were assigned a negative bias, "J-," and detected results with high recoveries were assigned a positive bias, "J+."

Samples qualified for matrix spike recovery outliers			
Parent Sample	**Analyte**	**%R**	**Sample qualified**
077SS-0001M-0001-SO	Arsenic	78%	077SS-0001M-0001-SO
	Cadmium	79%	
	Copper	317%	
	Magnesium	132%	
	Antimony	21%	
	Potassium	122%	
	Selenium	72%	

Post digestion spike recoveries for ICPMS metals were all within the control limits listed in DoD QSM Table F-8 of 75-125%.

- Serial Dilution: Except as noted below, serial dilution %Ds were within the control limits listed in DoD QSM Table F-8 of ≤10%. The serial dilution control limit is only applicable when the original sample concentration is minimally ≥50× the LOQ.

  Results listed in the table below were qualified as estimated, "J." The qualified results were coded with an "A" qualification code.

Samples qualified for serial dilution %D outliers			
Parent Sample	**Analyte**	**%Ds**	**Qualified Samples**
077SS-0001M-0001-SO	calcium	12%	077SS-0001M-0001-SO

- Internal Standards: All ICPMS sample internal standards intensities were within 30-120% of those in the ICV, as per the DOD QSM Table F-8. Yttrium (^{89}Y) was spiked into the QC samples but not the site samples.

- Sample Result Verification: For Level IV validation, calculations were verified and the sample result reported on the sample result summary was verified against the raw data. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

- Manual Integrations: No manual integrations were noted in the mercury analyses.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: Sample 070-0057-0001-Source Water was identified as the field blank and sample 076-0067-0001-ER was the equipment rinsate associated with the validated site sample. Sodium was detected at 1600 µg/L in sample 070-0057-0001-Source Water; therefore, sodium detected in 077SS-0001M-0001-SO was qualified as nondetected, "U," at the level of contamination. The qualified result was coded with an "F" qualification code. There were other detects in the field QC samples, but none at sufficient concentration to qualify the site sample.

    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

8.3 Data Usability

According to the Draft Site Inspection Report prepared by ECC, the field completeness was 100%.

Two data points were rejected for poor MS/MSD and calibration standard recoveries. In instances where a data point had multiple results, the reviewer chose the most technically sound result to report and rejected the remaining data points. These data points do not affect data quality or usability and are not included in the table below. Data with LODs that exceeded the established criteria and data estimated for quality control outliers or for detects between the DL and the LOQ were included in the table below for informational purposes only.

Table 30. Analytical completeness for RVAAP-77 validated primary data

			Number of Results					Percent Complete
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	
Explosives*	1	16	15	0	0/0	2	0	100%
Nitroguanidine	1	1	1	0	0/0	0	0	100%
Nitrocellulose	1	1	1	0	0/0	0	0	100%
PCBs	1	7	7	0	0/0	0	0	100%
Pesticides	1	21	21	0	0/0	1	0	100%

			Number of Results					Percent Complete
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	
SVOCs	1	66	64	2	0/0	1	2	96.9%
VOCs	1	36	36	0	0/0	0	0	100%
Metals	1	23	23	0	0/0	11	0	100%
		Totals	**168**	**2**	**0/0**	**15**	**2**	**98.8%**

* Total analyte counts affected by rejected data.

The analytical completeness goal for the project established in the FWQAPP was 90% for each method. The completeness goal was met for all analyses.

8.4 Primary and Field Duplicate Comparison Summary

Primary and field duplicate sample comparisons were considered to be in good agreement as all results were within the control limits listed in the FWQAPP control limit of 50% for soils or +/- the LOQ for results below 5× the LOQ. All comparison results are presented in Appendix C.

Table 31. RVAAP-77 primary/field duplicate sample comparison summary

Method	Primary/Field Duplicate Pairs	Number of Analytes	Total Analytes	Results within control limits	Results above control limit
Explosives*	1	16	15	16	0
Nitroguanidine	1	1	1	1	0
Nitrocellulose*	1	1	1	1	0
PCBs	1	7	7	7	0
Pesticides	1	21	21	21	0
SVOCs*	1	66	62	62	0
VOCs	1	36	36	36	0
Metals	1	23	23	23	0

*Total analyte counts affected by rejected data.

8.5 Specific Data Concerns

Specific concerns regarding the data are noted below:

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

In order to avoid repetition of the issues noted above, the following actions should be taken:

- MEC^X recommends the laboratory be requested to alter the IPC-MS and mercury instrument set up in order to report mercury and ICP-MS raw absorbances and ICP-MS ICV, CCV, ICSAB, and MRL concentrations.

9 FORMER BUILDINGS 1031 AND 1039, RVAAP-83

9.1 Current Investigation

ECC completed an SI at Former Buildings 1031 and 1039. The SI for was conducted in accordance with the *Final Site Inspection/Remedial Investigation Work Plan Addendum for CC RVAAP-71 and CC RVAAP-83* (ECC 2013) and the USEPA *Interim Final Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* (USEPA 1992).

CC RVAAP-83 is comprised of the Former Building 1031 (Hospital) and the Former Building 1039 (Laboratory). Former Building 1031 received a No Further Action; therefore, no additional investigation activities were required. Former Laboratory Building 1039 (RVAAP-83) was identified as a candidate for further investigation in the HHR due to historical practices. The HHR evaluation determined there were no historic uses or potential environmental concerns at this site with respect to possible HTRW and/or MEC issues (ECC 2012).

The data validated in this report are part of the initial intrusive SI at RVAAP-83 conducted to assess the potential presence of contamination specifically related to the former sump and drainage area identified at Former Laboratory Building 1039. The total sample counts, samples selected for data validation, and the field duplicates are presented in the tables below.

Table 32. Total sample count for RVAAP-83

Matrix	Primary Samples	Field Duplicates	Split Samples	Explosives	Propellants	PCBs	Pesticides	SVOCs	VOCs	Metals
Soil	12	1	2	12	12	1	1	12	12	12

Table 33. RVAAP-83 validated samples and methods

Sample ID	SDG	Matrix	Collected	Explosives	Propellants	PCBs	SVOCs	VOCs	Metals
083SB-0002M-0001-SO	99211	Soil	8/12/2013					x	
083SB-0005M-0001-SO	99211	Soil	8/12/2013	x	x		x	x	x
083SB-0012M-0001-SO	99211	Soil	8/12/2013			x			

Table 34. RVAAP-83 field duplicate samples

Duplicate Sample ID	Parent Sample
083SB-0006-0001SO	083SB-0005-0001-SO

9.1.1 Sample Collection

The chains-of-custody were appropriately signed and dated by field and laboratory personnel. Custody seals were intact. Other than listed below, no sample collection issues were noted.

- A correction was made to the chain-of-custody by overwriting the original entry. The correction was neither initialed nor dated.
- Sample 083SB-0002M-0001-SO was listed on the chain-of-custody twice. One listing requested only VOCs, the other requested the remaining analyses.

9.1.2 Data Completeness

Data completeness for the project described in this report was found to be generally acceptable as no deliverables were missing from the SDGs reviewed.

9.1.3 Preservation and Holding Time Requirements

A portion of the sample coolers were received at temperatures nominally below the 4 ±2°C control limit; however, as the samples were not noted to be frozen or damaged, no qualifications were required. All remaining method preservation requirements were met.

All holding times, as listed in Table 4, were met.

9.1.4 Detection Limit Requirements

LODs and DLs for nondetected analytes were compared against the most stringent CUGs listed in Tables 5-8, 5-9, and 5-10 of *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (2010) or the RSLs if no CUG was listed. The table below lists the number of LODs and DLs that exceeded criteria.

Table 35. RVAAP-83 LOD/DL exceedances

Method	LOD	DL
Explosives	0	0
Propellants	0	0
PCBs	0	0
SVOCs	1	0
VOCs	0	0
Metals	0	0

The results with the LOD exceeding project criteria may be usable for their intended purposes; however, it is dependent on the final data user to make this determination on a case-by-case basis.

9.2 RVAAP-83 Data Quality Evaluation

This section summarizes the data quality of validated samples for each analytical method evaluated.

9.2.1 Explosives

A total of 12 primary soil samples and 1 field duplicate sample were analyzed by CT for explosives by USEPA SW-846 Method 8330B. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The primary column correlation coefficients were within the control limit listed in DoD QSM Table F-3 of ≥0.990.
    - The second source initial calibration verification standard recoveries were within the control limit listed in DoD QSM Table F-3 of ±20%.
    - The CCV standard %Ds were within the control limits listed in DoD QSM Table F-3 of ±20%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. The recoveries for 4-amino-2,6-dinitrotoluene (68% and 60%) and 2-nitrotoluene (57%) were below the control limit; therefore the results for these analytes, both nondetects, were qualified as estimated, "UJ," and coded with a "C" qualification code. The remaining recoveries were within the reasonable control limits of 70-130%.

      The laboratory also ran two DL standards. 3,5-dinitroaniline was not detected in one of the DL standards; therefore, nondetected 3,5-dinitroaniline in the sample was rejected, "R," and coded with a "C" qualification code. All other analytes were detected in the DL standards.
- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in DoD QSM Table F-3 of one-half the LOQ.
- Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 and G-13 and within the reasonable laboratory control limits for nitroglycerin (66-130%) and PETN (65-132%).
- Surrogate Recovery: As no surrogate control limit was listed in the DoD QSM, the surrogate recovery was assessed against the laboratory-established control limits of 50-150%. The recovery was within the control limits.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.

- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: As no target compounds were detected in the sample validated at Level IV, compound quantification was verified for a portion of the LCS results. The LOQs were supported by the low point of the initial calibration and the DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

  As no compounds were detected on the primary column, confirmation analysis was not necessary.

  Target compounds 2,4-dinitrotoluene, 2,6-dinitrotoluene, and nitrobenzene were reported by both Method 8330B and 8270C in sample 071SB-0017M-0001-SO. As there were no detects for these compounds; the reviewer chose to report the results with the lowest LODs from the 8270C analysis. The 8330B results for all three target compounds were rejected, "R," as duplicate data and coded with a "D" qualification code.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for the initial calibrations and low-level CCVs. All manual integrations were performed in order to report incompletely resolved peaks or to account for baseline anomalies and were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

  - Field Duplicates: One field duplicate sample was collected and analyzed for explosive compounds. The RPD criterion in FWQAPP Table 3-1 of ≤50% for soil samples and was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

9.2.2 Propellants

A total of 12 primary soil samples and 1 field duplicate sample were analyzed by CT for nitroguanidine by USEPA SW-846 Method 8330 and for nitrocellulose by laboratory SOP WS-WC-0050. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- Calibration:
    - The nitroguanidine and nitrocellulose linear regression correlation coefficients were within the control limit listed in the DoD QSM Tables F-2 and F-11 of ≥0.995.
    - The nitroguanidine second source ICV recovery was within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose ICV recovery was within the control limits listed in DoD QSM Table F-11 of 90-110%.
    - The nitroguanidine CCV recoveries were within the control limits listed in DoD QSM Table F-2 of 85-115%. The nitrocellulose CCV recoveries were within the control limits listed in DoD QSM Table F-11 of 90-110%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL recoveries associated with the sample were within the reasonable control limits of 70-130%.
- Blanks: The method blanks had no target compound detects above the control limits listed in DoD QSM Tables F-2 and F-11 of one-half the LOQ.
- Laboratory Control Samples: No nitroguanidine or nitrocellulose LCS control limits are listed in the DoD QSM; therefore, the laboratory control limits were used to assess the results. All nitroguanidine recoveries were within the control limits of 37-134%. The nitrocellulose recoveries were within the laboratory-established control limits of 63-130% for soils.
- Surrogate Recovery: The nitroguanidine surrogate recovery was within the laboratory control limits of 74-134%. A surrogate was not required for the analysis of nitrocellulose.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the validated sample. Method accuracy was evaluated based on LCS results.
- Compound Identification: Compound identification was verified for the sample validated at a Level IV. Review of the sample chromatograms and retention times indicated no problems with target compound identification.
- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at a Level IV. The LOQs were supported by the low

point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

Nitroguanidine was not detected in the validated sample; therefore, confirmation analysis was not required.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some manual integrations were performed for nitroguanidine. The manual integrations were performed to correct baseline integration. The manual integrations were deemed acceptable by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicates: One field duplicate sample was collected and analyzed for nitroguanidine and nitrocellulose. The RPD criterion in FWQAPP Table 3-1 of ≤50% for soil samples and Table 3-2 of ≤30% for aqueous samples was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

9.2.3 Polychlorinated Biphenyls (PCBs)

One primary soil sample and one field duplicate sample were analyzed by CT for PCBs by USEPA SW-846 Method 8082. The primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria listed in the DoD QSM Table F-2 were met.

    - Initial calibration average %RSDs were within the control limit of ≤20%.

    - The second source ICV recoveries were within the control limit of ±20% for all applicable Aroclors.

    - The CCV recoveries were within the control limit of ±20%.

  - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%.

- Blanks: The method blank associated with the validated sample had no target compound detects above the control limit listed in the DoD QSM Table F-2, of one-half the LOQ.

- Laboratory Control Samples: Recoveries for Aroclor 1016 and Aroclor 1260 were within the control limits listed in DoD QSM Table G-17.

- Surrogate Recovery: Recoveries were within the control limits listed in DoD QSM Table G-3 of 60-125%.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on validated sample 083SB-0012M-0001-SO. Recoveries were within the control limits listed in DoD QSM Table G-17 and RPDs for both Aroclors were within the control limit listed in the DoD QSM Table F-2 of ≤30%.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the calibration and QC data associated with the sample data, primarily to correct baseline integration and/or separate coeluting peaks. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

  - Field Duplicate Samples: One field duplicate sample was collected and analyzed for PCBs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were

<5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

9.2.4 Semivolatile Organic Compounds (SVOCs)

A total of 12 primary soil samples and 1 field duplicate sample were analyzed by TA-North Canton for SVOCs by USEPA Method 8270C. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.
- GC/MS Tuning: The DFTPP tunes met the method abundance criteria. The samples were analyzed within 12 hours of the DFTPP injection time.
- Calibration: Calibration criteria listed in the DoD QSM Table F-4 were met, with exceptions affecting sample results noted in the text below.
    - Initial calibration average RRFs and ICV and CCV RRFs were within method control limits of ≥0.050 for SPCCs. All initial calibration %RSDs were within the control limits of ≤30% for CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990, with the exception of %RSDs for benzyl alcohol at 15.2%, benzoic acid at 17.7%, and hexachlorocyclopentadiene at 15.5%. Retained results for the %RSD outliers, all nondetects, were qualified as estimated, "UJ," and coded with a "C" qualification code.
    - All second source ICV standard recoveries affecting sample data were within the control limit of ±20%.
    - Continuing calibration %Ds affecting sample data were within the control limit of ≤20%.
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries were within the reasonable control limit of ±30%, with the exception of no recoveries of benzyl alcohol in the beginning and closing MRLs, and a recovery of 69% for hexachlorocyclopentadiene in the closing MRL. The nondetected result for benzyl alcohol was rejected, "R," and the result for hexachlorocyclopentadiene was qualified as estimated, "UJ," in sample 083SB-0005M-0001-SO. Both results were coded with a "C" qualification code.
- Blanks: The method blank had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ for target compounds, and no common laboratory contaminants detected above the LOQ.
- Laboratory Control Samples: All LCS recoveries were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-7.

- Surrogate Recovery: All surrogate recoveries were within the control limits listed in the DoD QSM Tables G-2 (poor performers) or G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on the validated sample of this SDG. Evaluation of method accuracy was based on the LCS results.

- Internal Standards Performance: The internal standard area counts and retention times were within the DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the sample validated at Level IV. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the sample validated at Level IV. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual Integrations: Some routine manual integrations were performed for the samples, and for calibration and QC data associated with the sample data, primarily due to incorrectly split peaks, or poor baseline integration. All manual integrations reviewed were deemed appropriate by the reviewer.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.

    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for SVOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. Except as noted below, the results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

SVOC field duplicate outliers				
Primary Sample	**Field Duplicate**	**Analyte**	**RPD**	**W/In LOQ**
083SB-0005M-0001-SD	083SB-0006M-0001-SD	Anthracene	N/A	No
		Benzo(a)anthracene	N/A	No
		Benzo(a)pyrene	N/A	No
		Benzo(b)fluoranthene	N/A	No
		Benzo(g,h,i)perylene	N/A	No
		Fluoranthene	N/A	No
		Indeno(1,2,3-cd)pyrene	N/A	No
		Pyrene	N/A	No

9.2.5 Volatile Organic Compounds (VOCs)

A total of 12 primary soil samples and 1 field duplicate sample were analyzed by CT for volatile compounds by USEPA Method 8260B. Two primary soil samples were validated at Level IV.

- MDL studies were not evaluated as part of this project.
- GC/MS Tuning: The BFB tunes met the method abundance criteria. The samples were analyzed within 12 hours of the BFB injection time.
- Calibration: Calibration criteria listed in DoD QSM Table F-4 were met, with the exception noted below.
    - Initial calibration average RRFs and ICV and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane.
    - All initial calibration %RSDs were within the method control limits of ≤30% for the CCCs and ≤15% for remaining compounds, or linear regression r^2 values ≥0.990.
    - All second source initial calibration verification standard recoveries were within the control limit of ±20%.
    - Continuing calibration %Ds affecting validated sample data were within the control limit of ≤20%
    - Although not required by the DoD QSM, a standard of 3× the DL is required by the FWQAPP. MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%, with the exception of the recovery of 65% for chloroethane in the closing MRL standard. The nondetected result for chloroethane in sample 083SB-0005M-0001-SO was qualified as estimated, "UJ," and coded with a "C" qualification code.
- Blanks: The method blank associated with the validated sample had no target compound detects above the control limits listed in DoD QSM Table F-4 of one-half the LOQ, and no common laboratory contaminants detected above the LOQ. Methylene chloride was detected in the method blank at 5.7(J) µg/L. The methylene chloride result for sample

083SB-0005M-0001-SO, 6.0(J) µg/L, which was above the LOD, was qualified as a nondetect, at the level of contamination.

- Laboratory Control Samples: LCS recoveries affecting sample results were within the control limits listed in DoD QSM Table G-4.

- Surrogate Recovery: Surrogate recoveries affecting sample data were within the control limits listed in DoD QSM Table G-3.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on the validated sample of this SDG.

- Internal Standards Performance: The internal standard area counts and retention times were within DoD QSM Table F-4 control limits established by the midpoint initial calibration standard: ±30 seconds for retention times and -50% / +100% for internal standard areas.

- Compound Identification: Compound identification was verified for the validated sample. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

  The laboratory reported isomers o-xylene and m,p-xylenes as well as total xylenes. The isomers o-xylene and m,p-xylenes were rejected, "R," as duplicate data. The result for total xylenes was retained to maintain consistency with data reported from other laboratories.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated sample. The LOQs were supported by the low point of the initial calibration and the laboratory DLs. Any result reported between the DL and the LOQ was qualified as estimated, "J," by the laboratory. Reported nondetects are valid to the LOD.

- System Performance: Review of the raw data indicated no problems with system performance.

- Manual integrations: Manual integrations were not performed for the validated sample or for associated calibration and QC samples.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Trip Blanks: The trip blanks associated with the validated samples in this SDG had no reportable detects above the DL.

- Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated samples.

- Field Duplicate Samples: One field duplicate sample was collected and analyzed for VOCs. The RPD criterion in FWQAPP Table 3-1 of ≤50% was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

9.2.6 Metals

A total of 12 primary soil samples and 1 field duplicate sample were analyzed by CT for various metals by USEPA Methods 6010C and 7471B. A single primary soil sample was validated at Level IV.

- MDL studies were not evaluated as part of this project.

- Calibration: Calibration criteria were met.

  - Initial calibration: Linear regression r values were within the control limit listed in the DoD QSM Table F-7 of ≥0.995.

  - The ICP ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110%. The mercury ICV and CCV recoveries were within the control limits listed in DoD QSM Table F-7 of 90-110% and 80-120%, respectively.

  - CRI/MRL recoveries affecting sample results were within the control limits listed in DoD QSM Table F-7 of 80-120%. When sample results exceeded more than 10× the LOQ, it was the reviewer's professional opinion the CCV results were more indicative of instrument performance; therefore, qualifications were not applied based on MRL results for these analytes.

- Blanks: Thallium was detected in the method blank associated with sample 083SB-0005M-0001-SO at 0.30 µg/L; therefore, thallium detected in the sample was qualified as nondetected, "U," at the LOD. Method blanks had no other applicable detects above the control limits listed in DoD QSM Table F-7 of one-half the LOQ or greater than one-tenth the amount measured in any sample. CCBs had no detects above the control limit listed in DoD QSM Table F-7 of greater than the LOD.

- Interference Check Samples: ICP ICSA and ICSAB recoveries were within the control limits listed in DoD QSM Table F-7 of 80-120%. There were no analytes affecting sample results detected in the ICSA above the control limit listed in DoD QSM Table F-7 of >LOD.

- Laboratory Control Samples: All recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on 083SB-0004M-0001-SO for all analytes. The results were only assessed for common detects ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. The RPDs were within the control limit listed in DoD QSM Table F-7 of ≤20% or the results were within ±LOQ.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample 083SB-0004M-0001-SO. Except as noted below, recoveries were within the control limits listed in DoD QSM Table G-19 of 80-120%. Matrix spike control limits were not applied when the native sample concentration exceeded the spiked amount by a factor of four or more.

  Results listed in the table below, all detects, were qualified as estimated, "J," and coded with a "Q" qualification code. When no other qualifications with conflicting bias were assigned to a result, detected results with low recoveries were assigned a negative bias, "J-," and detected results with high recoveries were assigned a positive bias, "J+." Nondetects with low recoveries were qualified as estimated, "UJ."

Samples qualified for matrix spike recovery outliers				
Parent Sample	**Analyte**	**%R**	**RPD**	**Qualified sample**
083SB-0004M-0001-SO	Arsenic	72%, 65%	acceptable	083SB-0005M-0001-SO
	Barium	74%, 56%	27%	
	Beryllium	75%, 64%	acceptable	
	Chromium	64%, 47%	31%	
	Cobalt	68%, 59%	acceptable	
	Copper	77%, 65%	acceptable	
	Lead	61%, 55%	acceptable	
	Magnesium	78%, 54%	36%	
	Nickel	71%, 57%	22%	
	Vanadium	66%, 57%	acceptable	
	Zinc	73%, 56%	26%	
	Antimony	27%, 5%	137%	
	Selenium	400%, 79%	134%	
	Silver	431%, acceptable	134%	
	Cadmium	62%, 59%	acceptable	
	Thallium	68%, 53%	25%	
	Mercury	123%, acceptable	acceptable	

The laboratory calculated RPDs based on the recovery amounts and the spike amounts were different. Recovery outliers listed in the table above were calculated based on recoveries. The qualified results were qualified as estimated, "UJ," for nondetects and, "J," for detects. The qualified results were coded with an "*III" qualification code.

- Post Digestion Spike: Except as noted below, recoveries were within the control limits listed in DoD QSM Table F-7 of 75-125%. Spike control limits were not applied when the native sample concentration exceeded the spiked amount by a factor of four or more.

  When no other qualifications with conflicting bias were assigned to a result, detected results with low recoveries were assigned a negative bias, "J-," and detected results with high recoveries were assigned a positive bias, "J+." Nondetects with low recoveries were qualified as estimated, "UJ." All qualified results were coded with a "P" qualification code.

Samples qualified for post digestion spike recovery outliers			
Parent Sample	**Analyte**	**%R**	**Qualified sample**
083SB-0004M-0001-SO	Barium	66%	083SB-0005M-0001-SO
	Beryllium	71%	
	Calcium	0%	
	Chromium	55%	
	Cobalt	70%	
	Lead	64%	
	Magnesium	0%	
	Nickel	72%	
	Vanadium	67%	
	Zinc	68%	
	Cadmium	68%	
	Thallium	61%	

- Serial Dilution: A serial dilution analysis was performed on 083SB-0004M-0001-SO. Except as noted below, serial dilution %Ds were within the control limits listed in DoD QSM Table F-7 of ≤10%. The serial dilution control limit is only applicable when the original sample concentration is minimally ≥50× the LOQ.

  Results listed in the table below were qualified as estimated, "J." The qualified results were coded with an "A" qualification code.

Samples qualified for serial dilution %D outliers			
Parent Sample	**Analyte**	**%Ds**	**Qualified Sample**
083SB-0004M-0001-SO	Barium	13%	083SB-0005M-0001-SO
	Magnesium	40%	

- Sample Result Verification: For Level IV validation, calculations were verified and the sample results reported on the sample result summary were verified against the raw data. All analytes except mercury, potassium, sodium, antimony, selenium, and silver were reported from 5× dilutions. Any result reported between the DL and the LOQ was qualified as estimated, "J." Reported nondetects are valid to the LOD.

Due to instrument limitations, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

During verification of raw sample concentrations, the reviewer noted that selenium and silver were detected in 083SB-0005M-0001-SO at -9.18 and -4.60 µg/L, respectively. Because the absolute value of these concentrations would result in detects greater than the LOD, the LOD was raised to the respective concentrations: 0.24 mg/kg for selenium and 0.12 mg/kg for silver. These analytes were qualified as estimated, "UJ," and coded with a "$" qualification code.

- Manual Integrations: No manual integrations were noted in the mercury analyses.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
    - Field Blanks and Equipment Rinsates: No field blank or equipment rinsate samples were associated with the validated sample.
    - Field Duplicate Samples: One field duplicate sample was collected and analyzed for metals. The RPD criterion in FWQAPP Table 3-1 of ≤50% for soil samples was only applied when results for common detects were ≥5× the LOQ. In cases where results were <5× the LOQ, the reasonable control limit of ± the LOQ was applied. All results were within the control limits. See Appendix C for a complete comparison of all primary and field duplicate results.

9.3 Data Usability

According to the Draft Site Inspection Report prepared by ECC, the field completeness was 100%.

Two data points were rejected for poor calibration check standard recoveries. In instances where a data point had multiple results, the reviewer chose the most technically sound result to report and rejected the remaining data points. These data points do not affect data quality or usability and are not included in the table below. Data with LODs that exceeded the established criteria and data estimated for quality control outliers or for detects between the DL and the LOQ were included in the table below for informational purposes only.

Table 36. Analytical completeness for RVAAP-83 validated primary data

			Number of Results					
Analysis	**Samples Analyzed**	**Analytes per Sample**	**Total**	**Rejected**	**LODs/DLs Exceeding Criteria**	**Estimated for QC Outliers**	**Estimated for Detects <LOQ**	**Percent Complete**
Explosives*	1	17	14	1	0/0	2	0	92.8%
Nitroguanidine	1	1	1	0	0/0	0	0	100%
Nitrocellulose	1	1	1	0	0/0	0	0	100%
PCBs	1	9	9	0	0/0	0	0	100%
SVOCs	1	65	65	1	1/0	2	3	98.5%
VOCs	1	43	41	0	0/0	2	0	100%
Metals	1	23	23	0	0/0	18	2	100%
		Totals	**140**	**1**	**1/0**	**22**	**5**	**99.3%**

*Total analyte counts affected by rejected data.

The analytical completeness goal for the project established in the FWQAPP was 90% for each method. The completeness goal was met for all analyses.

9.4 Primary and Field Duplicate Comparison Summary

Primary and field duplicate sample comparisons were considered to be in reasonable agreement as only 5% of the field duplicate pair results were above the FWQAPP control limit of 50% for soils or +/- the LOQ for results below 5× the LOQ. The outliers were all SVOCs. All field duplicate comparison results are presented in Appendix C.

Table 37. RVAAP-83 primary/field duplicate sample comparison summary

Method	**Primary/Field Duplicate Pairs**	**Number of Analytes**	**Total Analytes**	**Results within control limits**	**Results above control limit**
Explosives*	1	17	13	13	0
Nitroguanidine	1	1	1	1	0
Nitrocellulose	1	1	1	1	0
SVOCs	1	65	64	56	8
VOCs	1	37	37	37	0
Metals	1	23	23	23	0

*Total analyte counts affected by rejected data.

9.5 Specific Data Concerns

Specific concerns regarding the data are noted below:

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data.

Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

In order to avoid repetition of the issues noted above, the following actions should be taken:

- MEC^X recommends the laboratory be requested to alter the IPC-MS and mercury instrument set up in order to report mercury and ICP-MS raw absorbances and ICP-MS ICV, CCV, ICSAB, and MRL concentrations.

10 CONCLUSIONS

10.1 Data Qualification Summary

A summary of the qualifications applied to the data can be found in Appendix B.

10.2 Primary and Field Duplicate Summary

Site-specific comparison summaries can be found in Sections 4 through 9. A summary of the results can be found in Appendix C.

10.3 Data Usability

Site-specific data usability summaries can be found in Sections 4 through 9.

11 RECOMMENDATIONS

Specific concerns regarding the data are noted below:

- Hexavalent chromium was reported utilizing the method of standard additions (MSA), which is recommended for matrices expected to have interference. Results from MSA are best when the MSA linear regression slope is nearly equivalent to the initial calibration slope; however the slopes for most site samples were more than a factor of 10 less than the initial calibration slope, indicating a nominal change in absorbance is observed in the MSA analyses for a relatively significant change in concentration.

- Due to instrument limitations, the mercury raw data did not list the sample absorbances; therefore, the reviewer was not able to calculate the sample results from the raw data. Additionally, the ICP-MS raw data did not list absorbances for the ICV, CCV, ICSAB, and MRL samples, and the %R was listed instead of the sample concentrations.

In order to avoid repetition of the issues noted above, the following actions should be taken:

- MEC^X recommends requesting the laboratory, TA-North Canton, to analyze one MRL standard and one matrix spike by MSA in order to confirm the laboratory's accuracy in reporting hexavalent chromium by MSA.

- MEC^X recommends the laboratory be requested to alter the IPC-MS and mercury instrument set up in order to report mercury and ICP-MS raw absorbances and ICP-MS ICV, CCV, ICSAB, and MRL concentrations.

12 REFERENCES

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APPENDIX A

Qualified Sample Result Forms

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient was noncompliant.
R	Calibration RRF was noncompliant.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Control Sample/Control Sample Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tuning was noncompliant
T	Presumed contamination as indicated by the trip blank results.	Not applicable
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	A deficiency was found that has been described in the "Sample Management," section (*II) or the "Method Analyses" section (*III).	A deficiency was found that has been described in the "Sample Management," section (*II) or the "Method Analyses" section (*III).

Validated Sample Result Forms for Sampling : Ravenna Army Ammunition Plant Ravenna, Ohio
Remedial Investigation Compliance Restoration Site: RVAAP-70 East Classification Yard

Sample Delivery Group: 240-17230-1

Analysis Method E353.2

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
Nitrocellulose	9004-70-0	1	5	1.8	0.78	mg/kg	J	J	

Sample Delivery Group: 240-17230-1

Analysis Method SW6020

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
Aluminum	7429-90-5	9800	9.3	3.7	2.3	mg/kg	J	J	
Antimony	7440-36-0	1.5	0.19	0.14	0.057	mg/kg	J	J-	Q
Arsenic	7440-38-2	18	0.46	0.14	0.048	mg/kg			
Barium	7440-39-3	71	0.46	0.28	0.12	mg/kg			
Beryllium	7440-41-7	0.75	0.093	0.009	0.0032	mg/kg			
Cadmium	7440-43-9	0.46	0.19	0.009	0.0029	mg/kg		J	E
Calcium	7440-70-2	7000	190	93	37	mg/kg	J	J	
Chromium	7440-47-3	35	0.46	0.42	0.15	mg/kg		J-	E, Q
Cobalt	7440-48-4	8.6	0.093	0.014	0.0042	mg/kg			
Copper	7440-50-8	23	0.37	0.28	0.1	mg/kg		J-	A
Iron	7439-89-6	23000	46	28	10	mg/kg	J	J	
Lead	7439-92-1	62	0.28	0.19	0.065	mg/kg		J	A, E
Magnesium	7439-95-4	2800	93	23	8.2	mg/kg			
Manganese	7439-96-5	520	2.3	1.9	0.74	mg/kg	D,J	J	
Nickel	7440-02-0	30	0.46	0.23	0.08	mg/kg		J	A
Potassium	7440-09-7	940	93	9.3	3.5	mg/kg	J	J+	Q
Selenium	7782-49-2	0.99	0.46	0.056	0.019	mg/kg		J-	Q, M
Silver	7440-22-4	0.034	0.093	0.046	0.015	mg/kg	J	J	
Sodium	7440-23-5	55	93	37	13	mg/kg	J	U	F
Thallium	7440-28-0	0.24	0.19	0.14	0.052	mg/kg			
Vanadium	7440-62-2	16	0.46	0.093	0.04	mg/kg	J	J+	Q
Zinc	7440-66-6	110	3.7	1.9	0.93	mg/kg			

Analysis Method SW7471

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.05	0.091	0.03	0.013	mg/kg	J	J	

Sample Delivery Group: 240-17230-1

Analysis Method SW8015

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20		23	17	9.3	9.3	mg/kg			
C20-C34		110	17	9.3	9.3	mg/kg	M		

Analysis Method SW8082

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
Aroclor-1016	12674-11-2	100	320	120	100	ug/kg	U,J	U	
Aroclor-1221	11104-28-2	80	250	120	80	ug/kg	U	U	
Aroclor-1232	11141-16-5	70	220	120	70	ug/kg	U	U	
Aroclor-1242	53469-21-9	380	200	120	65	ug/kg	D	J	Q, *III
Aroclor-1248	12672-29-6	85	270	120	85	ug/kg	U	U	
Aroclor-1254	11097-69-1	85	270	120	85	ug/kg	U	U	
Aroclor-1260	11096-82-5	85	270	120	85	ug/kg	U	U	

Sample Delivery Group: 240-17230-1

Analysis Method SW8151

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
2,4,5-T		3.7	20	8.3	3.7	ug/kg	U	U	
2,4-D		19	80	33	19	ug/kg	U	U	
2,4-DB		21	80	33	21	ug/kg	U	U	
Dalapon		7.8	40	17	7.8	ug/kg	U	U	
Dicamba		8.1	40	17	8.1	ug/kg	U,J	UJ	Q
Dichlorprop		37	80	67	37	ug/kg	U,J	UJ	Q
Dinoseb		10	12	10	10	ug/kg	U	U	
MCPA		1600	8000	3300	1600	ug/kg	U	UJ	C
MCPP		1500	8000	3300	1500	ug/kg	U	UJ	C
Pentachlorophenol		4.3	10	8.3	4.3	ug/kg	U	U	
Silvex (2,4,5-TP)		4.1	20	8.3	4.1	ug/kg	U,J	U	

Sample Delivery Group: 240-17230-1

Analysis Method SW8260

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-Trichloroethane	71-55-6	0.97	8.7	1.7	0.97	ug/kg	U	UJ	S
1,1,2,2-Tetrachloroethane	79-34-5	0.59	8.7	0.87	0.59	ug/kg	U,J	UJ	S
1,1,2-Trichloroethane	79-00-5	0.68	8.7	0.87	0.68	ug/kg	U,J	UJ	S
1,1-Dichloroethane	75-34-3	0.62	8.7	0.87	0.62	ug/kg	U	UJ	S
1,1-Dichloroethene	75-35-4	0.9	8.7	1.7	0.9	ug/kg	U	UJ	S
1,2-Dibromoethane	106-93-4	0.87	8.7	1.7	0.87	ug/kg	U,J	UJ	S
1,2-Dichloroethane	107-06-2	0.59	8.7	0.87	0.59	ug/kg	U	UJ	S
1,2-Dichloroethene, Total	540-59-0	1.3	17	1.7	1.3	ug/kg	U	UJ	S
1,2-Dichloropropane	78-87-5	1.2	8.7	1.7	1.2	ug/kg	U	UJ	S
2-Butanone (MEK)	78-93-3	2.4	35	3.5	2.4	ug/kg	U	UJ	S
2-Hexanone	591-78-6	1.1	35	1.7	1.1	ug/kg	U,J	UJ	S
4-Methyl-2-pentanone (MIBK)	108-10-1	0.94	35	1.7	0.94	ug/kg	U	UJ	S
Acetone	67-64-1	11	35	11	11	ug/kg	U	UJ	C, S
Benzene	71-43-2	0.4	8.7	0.87	0.4	ug/kg	U	UJ	S
Bromochloromethane	74-97-5	1.2	8.7	1.7	1.2	ug/kg	U	UJ	S
Bromodichloromethane	75-27-4	0.49	8.7	0.87	0.49	ug/kg	U,J	UJ	S
Bromoform	75-25-2	0.57	8.7	0.87	0.57	ug/kg	U,J	UJ	S
Bromomethane	74-83-9	0.94	8.7	1.7	0.94	ug/kg	U	UJ	S
Carbon disulfide	75-15-0	0.76	8.7	0.87	0.76	ug/kg	U	UJ	S
Carbon tetrachloride	56-23-5	0.64	8.7	0.87	0.64	ug/kg	U	UJ	S
Chlorobenzene	108-90-7	0.57	8.7	0.87	0.57	ug/kg	U,J	UJ	S
Chloroethane	75-00-3	1.5	8.7	1.7	1.5	ug/kg	U	UJ	S
Chloroform	67-66-3	0.5	8.7	0.87	0.5	ug/kg	U	UJ	S
Chloromethane	74-87-3	0.71	8.7	0.87	0.71	ug/kg	U	UJ	S
cis-1,3-Dichloropropene	10061-01-5	0.59	8.7	0.87	0.59	ug/kg	U	UJ	S
Dibromochloromethane	124-48-1	0.95	8.7	1.7	0.95	ug/kg	U,J	UJ	S
Ethylbenzene	100-41-4	0.45	8.7	0.87	0.45	ug/kg	U,J	UJ	S
Methyl tert-butyl ether	1634-04-4	0.75	8.7	0.87	0.75	ug/kg	U	UJ	S

Sample Delivery Group: 240-17230-1

Methylene Chloride	75-09-2	1.2	8.7	1.7	1.2	ug/kg	U,J	UJ	S
Styrene	100-42-5	0.26	8.7	0.87	0.26	ug/kg	U,J	UJ	S
Tetrachloroethene	127-18-4	0.9	8.7	1.7	0.9	ug/kg	U,J	UJ	S
Toluene	108-88-3	0.47	8.7	0.87	0.47	ug/kg	U,J	UJ	S
trans-1,3-Dichloropropene	10061-02-6	0.94	8.7	1.7	0.94	ug/kg	U,J	UJ	S
Trichloroethene	79-01-6	0.73	8.7	0.87	0.73	ug/kg	U	UJ	S
Vinyl chloride	75-01-4	0.68	8.7	0.87	0.68	ug/kg	U	UJ	S
Xylenes, Total		1.2	17	2.6	1.2	ug/kg	U,J	UJ	S

Sample Delivery Group: 240-17230-1

Analysis Method SW8270

Sample Name 070SS-0003M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-Trichlorobenzene	120-82-1	270	510	270	270	ug/kg	U	U	
1,2-Dichlorobenzene	95-50-1	98	510	270	98	ug/kg	U	U	
1,3-Dichlorobenzene	541-73-1	110	510	270	110	ug/kg	U	U	
1,4-Dichlorobenzene	106-46-7	200	510	270	200	ug/kg	U	U	
2,4,5-Trichlorophenol	95-95-4	250	1500	270	250	ug/kg	U	U	
2,4,6-Trichlorophenol	88-06-2	810	1500	810	810	ug/kg	U	U	
2,4-Dichlorophenol	120-83-2	200	1500	270	200	ug/kg	U	U	
2,4-Dimethylphenol	105-67-9	200	1500	810	200	ug/kg	U	U	
2,4-Dinitrophenol	51-28-5	810	3300	810	810	ug/kg	U	UJ	C
2,4-Dinitrotoluene	121-14-2	270	2000	270	270	ug/kg	U	U	
2,6-Dinitrotoluene	606-20-2	210	2000	270	210	ug/kg	U	U	
2-Chloronaphthalene	91-58-7	33	510	33	33	ug/kg	U	U	
2-Chlorophenol	95-57-8	270	510	270	270	ug/kg	U	U	
2-Methylnaphthalene	91-57-6	540	67	33	33	ug/kg	D		
2-Methylphenol	95-48-7	810	2000	810	810	ug/kg	U	U	
2-Nitroaniline	88-74-4	92	2000	270	92	ug/kg	U	U	
2-Nitrophenol	88-75-5	270	510	270	270	ug/kg	U	U	
3 & 4 Methylphenol		200	4000	810	200	ug/kg	U	U	
3,3'-Dichlorobenzidine	91-94-1	180	1000	810	180	ug/kg	U	UJ	C
3-Nitroaniline	99-09-2	160	2000	810	160	ug/kg	U	U	
4,6-Dinitro-2-methylphenol	534-52-1	810	1500	810	810	ug/kg	U	UJ	C
4-Bromophenyl phenyl ether	101-55-3	130	510	270	130	ug/kg	U	U	
4-Chloro-3-methylphenol	59-50-7	210	1500	270	210	ug/kg	U	U	
4-Chloroaniline	106-47-8	170	1500	270	170	ug/kg	U	U	
4-Chlorophenyl phenyl ether	7005-72-3	130	510	270	130	ug/kg	U	U	
4-Nitroaniline	100-01-6	260	2000	270	260	ug/kg	U	U	
4-Nitrophenol	100-02-7	810	3300	810	810	ug/kg	U	U	
Acenaphthene	83-32-9	550	67	33	33	ug/kg	D		

Acenaphthylene	208-96-8	47	67	33	33	ug/kg	J,D	J
Anthracene	120-12-7	2500	67	33	33	ug/kg	D	
Benzo[a]anthracene	56-55-3	3200	67	33	33	ug/kg	D	
Benzo[a]pyrene	50-32-8	1900	67	33	33	ug/kg	D	
Benzo[b]fluoranthene	205-99-2	3100	67	33	33	ug/kg	D,M	
Benzo[g,h,i]perylene	191-24-2	1100	67	33	33	ug/kg	D	
Benzo[k]fluoranthene	207-08-9	980	67	33	33	ug/kg	D,M	
Benzoic acid	65-85-0	3400	6700	3400	3400	ug/kg	U	U
Benzyl alcohol	100-51-6	210	3300	270	210	ug/kg	U	U
bis (2-chloroisopropyl) ether	108-60-1	96	1000	270	96	ug/kg	U	U
Bis(2-chloroethoxy)methane	111-91-1	220	1000	270	220	ug/kg	U	U
Bis(2-chloroethyl)ether	111-44-4	20	1000	33	20	ug/kg	U	U
Bis(2-ethylhexyl) phthalate	117-81-7	190	510	270	190	ug/kg	U	U
Butyl benzyl phthalate	85-68-7	100	510	270	100	ug/kg	U	U
Carbazole	86-74-8	340	510	270	270	ug/kg	J,D	J
Chrysene	218-01-9	3300	67	33	11	ug/kg	D	
Dibenz(a,h)anthracene	53-70-3	33	67	33	33	ug/kg	U	U
Dibenzofuran	132-64-9	420	510	33	33	ug/kg	J,D	J
Diethyl phthalate	84-66-2	160	510	270	160	ug/kg	U	U
Dimethyl phthalate	131-11-3	170	510	270	170	ug/kg	U	U
Di-n-butyl phthalate	84-74-2	150	510	270	150	ug/kg	U	U
Di-n-octyl phthalate	117-84-0	270	510	270	270	ug/kg	U	U
Fluoranthene	206-44-0	8400	67	33	33	ug/kg	D	
Fluorene	86-73-7	710	67	33	33	ug/kg	D	
Hexachlorobenzene	118-74-1	21	67	33	21	ug/kg	U	U
Hexachlorobutadiene	87-68-3	270	510	270	270	ug/kg	U	U
Hexachlorocyclopentadiene	77-47-4	270	3300	270	270	ug/kg	U	U
Hexachloroethane	67-72-1	91	510	270	91	ug/kg	U	U
Indeno[1,2,3-cd]pyrene	193-39-5	1000	67	33	33	ug/kg	D	
Isophorone	78-59-1	130	510	270	130	ug/kg	U	U
Naphthalene	91-20-3	480	67	33	33	ug/kg	D	
Nitrobenzene	98-95-3	22	1000	33	22	ug/kg	U	U
N-Nitrosodi-n-propylamine	621-64-7	270	510	270	270	ug/kg	U	U

N-Nitrosodiphenylamine	86-30-6	210	510	270	210	ug/kg	U	U	
Pentachlorophenol	87-86-5	810	1500	810	810	ug/kg	U	U	
Phenanthrene	85-01-8	5900	67	33	33	ug/kg	D		
Phenol	108-95-2	270	510	270	270	ug/kg	U	U	
Pyrene	129-00-0	5700	67	33	33	ug/kg	D		

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-Trichlorobenzene	120-82-1	130	250	130	130	ug/kg	U	U	
1,2-Dichlorobenzene	95-50-1	48	250	130	48	ug/kg	U	U	
1,3-Dichlorobenzene	541-73-1	54	250	130	54	ug/kg	U	U	
1,4-Dichlorobenzene	106-46-7	99	250	130	99	ug/kg	U	U	
2,4,5-Trichlorophenol	95-95-4	120	740	130	120	ug/kg	U	U	
2,4,6-Trichlorophenol	88-06-2	390	740	390	390	ug/kg	U	U	
2,4-Dichlorophenol	120-83-2	99	740	130	99	ug/kg	U	U	
2,4-Dimethylphenol	105-67-9	99	740	390	99	ug/kg	U	U	
2,4-Dinitrophenol	51-28-5	390	1600	390	390	ug/kg	U	UJ	C
2,4-Dinitrotoluene	121-14-2	130	990	130	130	ug/kg	U	R	D
2,6-Dinitrotoluene	606-20-2	100	990	130	100	ug/kg	U	R	D
2-Chloronaphthalene	91-58-7	16	250	16	16	ug/kg	U	U	
2-Chlorophenol	95-57-8	130	250	130	130	ug/kg	U	U	
2-Methylnaphthalene	91-57-6	280	33	16	16	ug/kg	D		
2-Methylphenol	95-48-7	390	990	390	390	ug/kg	U	U	
2-Nitroaniline	88-74-4	45	990	130	45	ug/kg	U	U	
2-Nitrophenol	88-75-5	130	250	130	130	ug/kg	U	U	
3 & 4 Methylphenol		99	2000	390	99	ug/kg	U	U	
3,3'-Dichlorobenzidine	91-94-1	89	490	390	89	ug/kg	U,J	R	Q
3-Nitroaniline	99-09-2	79	990	390	79	ug/kg	U,J	UJ	Q
4,6-Dinitro-2-methylphenol	534-52-1	390	740	390	390	ug/kg	U,J	UJ	C, Q
4-Bromophenyl phenyl ether	101-55-3	64	250	130	64	ug/kg	U	U	
4-Chloro-3-methylphenol	59-50-7	100	740	130	100	ug/kg	U	U	
4-Chloroaniline	106-47-8	84	740	130	84	ug/kg	U,J	R	Q

Sample Delivery Group: 240-17230-1

4-Chlorophenyl phenyl ether	7005-72-3	64	250	130	64	ug/kg	U	U	
4-Nitroaniline	100-01-6	130	990	130	130	ug/kg	U,J	UJ	Q
4-Nitrophenol	100-02-7	390	1600	390	390	ug/kg	U	U	
Acenaphthene	83-32-9	40	33	16	16	ug/kg	D		
Acenaphthylene	208-96-8	16	33	16	16	ug/kg	U	U	
Anthracene	120-12-7	79	33	16	16	ug/kg	D		
Benzo[a]anthracene	56-55-3	160	33	16	16	ug/kg	D		
Benzo[a]pyrene	50-32-8	130	33	16	16	ug/kg	D		
Benzo[b]fluoranthene	205-99-2	200	33	16	16	ug/kg	D,M		
Benzo[g,h,i]perylene	191-24-2	130	33	16	16	ug/kg	D,M		
Benzo[k]fluoranthene	207-08-9	91	33	16	16	ug/kg	D,M		
Benzoic acid	65-85-0	1600	3300	1600	1600	ug/kg	U	U	
Benzyl alcohol	100-51-6	100	1600	130	100	ug/kg	U	U	
bis (2-chloroisopropyl) ether	108-60-1	47	490	130	47	ug/kg	U	U	
Bis(2-chloroethoxy)methane	111-91-1	110	490	130	110	ug/kg	U	U	
Bis(2-chloroethyl)ether	111-44-4	9.9	490	16	9.9	ug/kg	U	U	
Bis(2-ethylhexyl) phthalate	117-81-7	94	250	130	94	ug/kg	U	U	
Butyl benzyl phthalate	85-68-7	49	250	130	49	ug/kg	U	U	
Carbazole	86-74-8	130	250	130	130	ug/kg	U	U	
Chrysene	218-01-9	200	33	16	5.4	ug/kg	D		
Dibenz(a,h)anthracene	53-70-3	16	33	16	16	ug/kg	U	U	
Dibenzofuran	132-64-9	88	250	16	16	ug/kg	J,D	J	
Diethyl phthalate	84-66-2	79	250	130	79	ug/kg	U	U	
Dimethyl phthalate	131-11-3	84	250	130	84	ug/kg	U	U	
Di-n-butyl phthalate	84-74-2	74	250	130	74	ug/kg	U	U	
Di-n-octyl phthalate	117-84-0	130	250	130	130	ug/kg	U	U	
Fluoranthene	206-44-0	370	33	16	16	ug/kg	J,D	J	
Fluorene	86-73-7	38	33	16	16	ug/kg	D		
Hexachlorobenzene	118-74-1	10	33	16	10	ug/kg	U	U	
Hexachlorobutadiene	87-68-3	130	250	130	130	ug/kg	U	U	
Hexachlorocyclopentadiene	77-47-4	130	1600	130	130	ug/kg	U	U	
Hexachloroethane	67-72-1	44	250	130	44	ug/kg	U	U	
Indeno[1,2,3-cd]pyrene	193-39-5	90	33	16	16	ug/kg	D		

Sample Delivery Group: 240-17230-1

Isophorone	78-59-1	64	250	130	64	ug/kg	U	U	
Naphthalene	91-20-3	220	33	16	16	ug/kg	D		
Nitrobenzene	98-95-3	11	490	16	11	ug/kg	U	U	
N-Nitrosodi-n-propylamine	621-64-7	130	250	130	130	ug/kg	U	U	
N-Nitrosodiphenylamine	86-30-6	100	250	130	100	ug/kg	U	U	
Pentachlorophenol	87-86-5	390	740	390	390	ug/kg	U	R	D
Phenanthrene	85-01-8	420	33	16	16	ug/kg	J,D	J	
Phenol	108-95-2	130	250	130	130	ug/kg	U	U	
Pyrene	129-00-0	280	33	16	16	ug/kg	D		

Analysis Method SW8330

Sample Name 070SS-0006M-0001-SO **AnalysisType:**

Lab Sample Name: 240-17230-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-Trinitrobenzene	99-35-4	0.01	0.25	0.05	0.01	mg/kg	U	U	
1,3-Dinitrobenzene	99-65-0	0.0042	0.25	0.05	0.0042	mg/kg	U	U	
2,4,6-Trinitrotoluene	118-96-7	0.019	0.25	0.05	0.019	mg/kg	U	U	
2,4-Dinitrotoluene	121-14-2	0.0053	0.25	0.05	0.0053	mg/kg	U	U	
2,6-Dinitrotoluene	606-20-2	0.0073	0.25	0.05	0.0073	mg/kg	U	U	
2-Amino-4,6-dinitrotoluene	35572-78-2	0.012	0.25	0.05	0.012	mg/kg	U	U	
2-Nitrotoluene	88-72-2	0.013	0.25	0.05	0.013	mg/kg	U	UJ	C
3-Nitrotoluene	99-08-1	0.015	0.25	0.05	0.015	mg/kg	U	U	
4-Amino-2,6-dinitrotoluene	35572-78-2	0.01	0.25	0.05	0.01	mg/kg	U,J	U	
4-Nitrotoluene	99-99-0	0.018	0.25	0.05	0.018	mg/kg	U	U	
HMX	2691-41-0	0.012	0.25	0.05	0.012	mg/kg	U	U	
Nitrobenzene	98-95-3	0.018	0.25	0.05	0.018	mg/kg	U	R	D
Nitroglycerin	55-63-0	0.015	0.5	0.25	0.015	mg/kg	U	UJ	Q
Nitroguanidine	556-88-7	0.019	0.24	0.039	0.019	mg/kg	U	U	
PETN	78-11-5	0.025	0.5	0.25	0.025	mg/kg	U	U	
RDX	121-82-4	0.012	0.25	0.05	0.012	mg/kg	U	UJ	C
Tetryl	479-45-8	0.01	0.25	0.05	0.01	mg/kg	U	U	

Sample Delivery Group: 240-17317-1

Analysis Method M8015V

Sample Name 070SS-0006M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17317-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		58.0	92	46	42	UG/KG	J	J	C, Q

Sample Delivery Group: 240-18581-1

Analysis Method M8015D

Sample Name 070SB-0042M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C20-C34 PETROLEUM HYDROCA		430.0	210	110	110	MG/KG	D M		
PHCC10C20		370.0	210	110	110	MG/KG	D		

Sample Delivery Group: 240-18581-1

Analysis Method SW6020

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	10000.0	2.9	0.59	0.28	MG/KG			
ANTIMONY	7440-36-0	0.098	0.20	0.098	0.045	MG/KG	U	U	
ARSENIC	7440-38-2	7.7	0.098	0.049	0.018	MG/KG			
BARIUM	7440-39-3	64.0	0.98	0.020	0.010	MG/KG	Q	J	M
BERYLLIUM	7440-41-7	0.68	0.098	0.009	0.0074	MG/KG			
CADMIUM	7440-43-9	0.19	0.098	0.029	0.013	MG/KG			
CALCIUM	7440-70-2	7000.0	9.8	2.5	1.3	MG/KG			
CHROMIUM	7440-47-3	14.0	0.20	0.039	0.022	MG/KG			
COBALT	7440-48-4	8.2	0.049	0.009	0.0024	MG/KG	Q		
COPPER	7440-50-8	15.0	0.20	0.059	0.032	MG/KG	Q		
IRON	7439-89-6	20000.0	4.9	2.0	1.1	MG/KG	B		
LEAD	7439-92-1	12.0	0.098	0.029	0.015	MG/KG			
MAGNESIUM	7439-95-4	3400.0	9.8	2.0	1.1	MG/KG			
MANGANESE	7439-96-5	340.0	0.49	0.029	0.016	MG/KG			
NICKEL	7440-02-0	19.0	0.098	0.029	0.011	MG/KG			
POTASSIUM	7440-09-7	800.0	9.8	5.9	3.1	MG/KG			
SELENIUM	7782-49-2	0.47	0.49	0.098	0.050	MG/KG	J Q	J+	I
SILVER	7440-22-4	0.023	0.098	0.029	0.011	MG/KG	J	J	
SODIUM	7440-23-5	89.0	9.8	4.9	2.6	MG/KG			
THALLIUM	7440-28-0	0.13	0.098	0.020	0.010	MG/KG			
VANADIUM	7440-62-2	14.0	0.098	0.059	0.029	MG/KG			
ZINC	7440-66-6	44.0	0.49	0.20	0.064	MG/KG	Q		

Analysis Method SW7471A

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.017	0.11	0.037	0.016	MG/KG	J	J	

Sample Delivery Group: 240-18581-1

Analysis Method SW8082

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PCB-1016 (AROCHLOR 1016)	12674-11-2	24	64	24	21	UG/KG	U	U	
PCB-1221 (AROCHLOR 1221)	11104-28-2	24	49	24	16	UG/KG	U	U	
PCB-1232 (AROCHLOR 1232)	11141-16-5	24	44	24	14	UG/KG	U	U	
PCB-1242 (AROCHLOR 1242)	53469-21-9	24	39	24	13	UG/KG	U	U	
PCB-1248 (AROCHLOR 1248)	12672-29-6	24	54	24	17	UG/KG	U	U	
PCB-1254 (AROCHLOR 1254)	11097-69-1	24	54	24	17	UG/KG	U	U	
PCB-1260 (AROCHLOR 1260)	11096-82-5	24	54	24	17	UG/KG	U	U	

Analysis Method SW8151A

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
2,4 DB		33	80	33	21	UG/KG	U	U	
2,4,5-T (TRICHLOROPHENOXYAC		8.3	20	8.3	3.7	UG/KG	U	U	
2,4-D (DICHLOROPHENOXYACET		33	80	33	19	UG/KG	U	U	
DALAPON		17	40	17	7.8	UG/KG	U	U	
DICAMBA		17	40	17	8.1	UG/KG	U	U	
DICHLOROPROP		66	80	66	37	UG/KG	U	U	
DINOSEB		10	12	10	10	UG/KG	U	U	
MCPA		3300	8000	3300	1600	UG/KG	U	UJ	C
MCPP		3300	8000	3300	1500	UG/KG	U	UJ	C
PENTACHLOROPHENOL		8.3	10	8.3	4.3	UG/KG	U	U	
SILVEX (2,4,5-TP)		8.3	20	8.3	4.1	UG/KG	U	U	

Sample Delivery Group: 240-18581-1

Analysis Method SW8260B

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	1.1	5.7	1.1	0.64	UG/KG	U	UJ	S
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.57	5.7	0.57	0.39	UG/KG	U J	UJ	Q, S
1,1,2-TRICHLOROETHANE	79-00-5	0.57	5.7	0.57	0.44	UG/KG	U	UJ	S
1,1-DICHLOROETHANE	75-34-3	0.57	5.7	0.57	0.41	UG/KG	U	UJ	S
1,1-DICHLOROETHENE	75-35-4	1.1	5.7	1.1	0.59	UG/KG	U	UJ	S
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	1.1	5.7	1.1	0.57	UG/KG	U	UJ	S
1,2-DICHLOROETHANE	107-06-2	0.57	5.7	0.57	0.39	UG/KG	U	UJ	S
1,2-DICHLOROPROPANE	78-87-5	1.1	5.7	1.1	0.78	UG/KG	U	UJ	S
2-HEXANONE	591-78-6	1.8	23	1.1	0.72	UG/KG	J	UJ	B, C, S
ACETONE	67-64-1	41.0	23	7.2	7.2	UG/KG		J	S
BENZENE	71-43-2	1.3	5.7	0.57	0.26	UG/KG	J	J	S
BROMOCHLOROMETHANE	74-97-5	1.1	5.7	1.1	0.81	UG/KG	U	UJ	S
BROMODICHLOROMETHANE	75-27-4	0.57	5.7	0.57	0.32	UG/KG	U	UJ	S
BROMOFORM	75-25-2	0.57	5.7	0.57	0.37	UG/KG	U	UJ	S
BROMOMETHANE	74-83-9	1.1	5.7	1.1	0.61	UG/KG	U	UJ	S
CARBON DISULFIDE	75-15-0	0.57	5.7	0.57	0.50	UG/KG	U	UJ	S
CARBON TETRACHLORIDE	56-23-5	0.57	5.7	0.57	0.42	UG/KG	U	UJ	S
CHLOROBENZENE	108-90-7	0.57	5.7	0.57	0.37	UG/KG	U	UJ	S
CHLOROETHANE	75-00-3	1.1	5.7	1.1	0.98	UG/KG	U	UJ	S
CHLOROFORM	67-66-3	0.57	5.7	0.57	0.33	UG/KG	U	UJ	S
CHLOROMETHANE	74-87-3	0.57	5.7	0.57	0.47	UG/KG	U	UJ	S
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.57	5.7	0.57	0.39	UG/KG	U	UJ	S
DIBROMOCHLOROMETHANE	124-48-1	1.1	5.7	1.1	0.62	UG/KG	U	UJ	S
ETHYLBENZENE	100-41-4	1.8	5.7	0.57	0.30	UG/KG	J	J	S
METHYL ETHYL KETONE (2-BUT	78-93-3	12.0	23	2.3	1.6	UG/KG	J	J	S
METHYL ISOBUTYL KETONE (4-	108-10-1	1.3	23	1.1	0.61	UG/KG	J	UJ	B, S
METHYLENE CHLORIDE	75-09-2	1.1	5.7	1.1	0.76	UG/KG	U	UJ	S
STYRENE	100-42-5	0.57	5.7	0.57	0.17	UG/KG	U	UJ	S

Sample Delivery Group: 240-18581-1

TERT-BUTYL METHYL ETHER	1634-04-4	0.57	5.7	0.57	0.49	UG/KG	U	UJ	S
TETRACHLOROETHYLENE(PCE)	127-18-4	1.1	5.7	1.1	0.59	UG/KG	U	UJ	S
TOLUENE	108-88-3	3.3	5.7	0.57	0.31	UG/KG	J	J	S
TOTAL 1,2-DICHLOROETHENE	540-59-0	1.1	11	1.1	0.87	UG/KG	U	UJ	S
TRANS-1,3-DICHLOROPROPENE	10061-02-6	1.1	5.7	1.1	0.61	UG/KG	U	UJ	S
TRICHLOROETHYLENE (TCE)	79-01-6	0.57	5.7	0.57	0.48	UG/KG	U	UJ	S
VINYL CHLORIDE	75-01-4	0.57	5.7	0.57	0.44	UG/KG	U	UJ	S
XYLENES, TOTAL		1.7	11	1.7	0.76	UG/KG	U	UJ	S

Sample Delivery Group: 240-18581-1

Analysis Method SW8270D

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	270	510	270	270	UG/KG	U J	U	
1,2-DICHLOROBENZENE	95-50-1	270	510	270	98	UG/KG	U J	U	
1,3-DICHLOROBENZENE	541-73-1	270	510	270	110	UG/KG	U	U	
1,4-DICHLOROBENZENE	106-46-7	270	510	270	200	UG/KG	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	270	1500	270	250	UG/KG	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	810	1500	810	810	UG/KG	U	U	
2,4-DICHLOROPHENOL	120-83-2	270	1500	270	200	UG/KG	U	U	
2,4-DIMETHYLPHENOL	105-67-9	810	1500	810	200	UG/KG	U	U	
2,4-DINITROPHENOL	51-28-5	810	3300	810	810	UG/KG	U	UJ	C
2,4-DINITROTOLUENE	121-14-2	270	2000	270	270	UG/KG	U	R	D
2,6-DINITROTOLUENE	606-20-2	270	2000	270	210	UG/KG	U	R	D
2-CHLORONAPHTHALENE	91-58-7	33	510	33	33	UG/KG	U	U	
2-CHLOROPHENOL	95-57-8	270	510	270	270	UG/KG	U	U	
2-METHYLNAPHTHALENE	91-57-6	33	67	33	33	UG/KG	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	810	2000	810	810	UG/KG	U	U	
2-NITROANILINE	88-74-4	270	2000	270	92	UG/KG	U	U	
2-NITROPHENOL	88-75-5	270	510	270	270	UG/KG	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	810	1000	810	180	UG/KG	U J	U	
3-NITROANILINE	99-09-2	810	2000	810	160	UG/KG	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	810	1500	810	810	UG/KG	U	U	
4-BROMOPHENYL PHENYL ETHE	101-55-3	270	510	270	130	UG/KG	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	270	1500	270	210	UG/KG	U	U	
4-CHLOROANILINE	106-47-8	270	1500	270	170	UG/KG	U J	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	270	510	270	130	UG/KG	U	U	
4-NITROANILINE	100-01-6	270	2000	270	260	UG/KG	U	U	
4-NITROPHENOL	100-02-7	810	3300	810	810	UG/KG	U	U	
ACENAPHTHENE	83-32-9	33	67	33	33	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	33	67	33	33	UG/KG	U	U	

Sample Delivery Group: 240-18581-1

ANTHRACENE	120-12-7	33	67	33	33	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	33	67	33	33	UG/KG	U	U	
BENZO(A)PYRENE	50-32-8	33	67	33	33	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	33	67	33	33	UG/KG	U	U	
BENZO(G,H,I)PERYLENE	191-24-2	33	67	33	33	UG/KG	U J	UJ	C
BENZO(K)FLUORANTHENE	207-08-9	33	67	33	33	UG/KG	U	U	
BENZOIC ACID	65-85-0	3400	6700	3400	3400	UG/KG	U	U	
BENZYL ALCOHOL	100-51-6	270	3300	270	210	UG/KG	U	U	
BENZYL BUTYL PHTHALATE	85-68-7	270	510	270	100	UG/KG	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	270	1000	270	220	UG/KG	U J	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	33	1000	33	20	UG/KG	U	U	
BIS(2-CHLOROISOPROPYL) ETHE	108-60-1	270	1000	270	96	UG/KG	U	U	
BIS(2-ETHYLHEXYL) PHTHALAT	117-81-7	270	510	270	190	UG/KG	U	U	
CARBAZOLE	86-74-8	270	510	270	270	UG/KG	U	U	
CHRYSENE	218-01-9	33	67	33	11	UG/KG	U	U	
CRESOLS, M & P		810	4000	810	200	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	33	67	33	33	UG/KG	U J	U	
DIBENZOFURAN	132-64-9	33	510	33	33	UG/KG	U	U	
DIETHYL PHTHALATE	84-66-2	270	510	270	160	UG/KG	U	U	
DIMETHYL PHTHALATE	131-11-3	270	510	270	170	UG/KG	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	270	510	270	150	UG/KG	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	270	510	270	270	UG/KG	U	U	
FLUORANTHENE	206-44-0	33	67	33	33	UG/KG	U	U	
FLUORENE	86-73-7	33	67	33	33	UG/KG	U	U	
HEXACHLOROBENZENE	118-74-1	33	67	33	21	UG/KG	U	U	
HEXACHLOROBUTADIENE	87-68-3	270	510	270	270	UG/KG	U	U	
HEXACHLOROCYCLOPENTADIE	77-47-4	270	3300	270	270	UG/KG	U	U	
HEXACHLOROETHANE	67-72-1	270	510	270	91	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	33	67	33	33	UG/KG	U J	U	
ISOPHORONE	78-59-1	270	510	270	130	UG/KG	U	U	
NAPHTHALENE	91-20-3	33	67	33	33	UG/KG	U	U	
NITROBENZENE	98-95-3	33	1000	33	22	UG/KG	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	270	510	270	270	UG/KG	U	U	

N-NITROSODIPHENYLAMINE	86-30-6	270	510	270	210	UG/KG	U	R	C
PENTACHLOROPHENOL	87-86-5	810	1500	810	810	UG/KG	U	R	D
PHENANTHRENE	85-01-8	33	67	33	33	UG/KG	U	U	
PHENOL	108-95-2	270	510	270	270	UG/KG	U	U	
PYRENE	129-00-0	33	67	33	33	UG/KG	U	U	

Sample Name 070SB-046M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	270	500	270	270	UG/KG	U	U	
1,2-DICHLOROBENZENE	95-50-1	270	500	270	97	UG/KG	U	U	
1,3-DICHLOROBENZENE	541-73-1	270	500	270	110	UG/KG	U	U	
1,4-DICHLOROBENZENE	106-46-7	270	500	270	200	UG/KG	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	270	1500	270	250	UG/KG	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	800	1500	800	800	UG/KG	U	U	
2,4-DICHLOROPHENOL	120-83-2	270	1500	270	200	UG/KG	U	U	
2,4-DIMETHYLPHENOL	105-67-9	800	1500	800	200	UG/KG	U	U	
2,4-DINITROPHENOL	51-28-5	800	3300	800	800	UG/KG	U	UJ	C
2,4-DINITROTOLUENE	121-14-2	270	2000	270	270	UG/KG	U	U	
2,6-DINITROTOLUENE	606-20-2	270	2000	270	210	UG/KG	U	U	
2-CHLORONAPHTHALENE	91-58-7	33	500	33	33	UG/KG	U	U	
2-CHLOROPHENOL	95-57-8	270	500	270	270	UG/KG	U	U	
2-METHYLNAPHTHALENE	91-57-6	33	67	33	33	UG/KG	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	800	2000	800	800	UG/KG	U	U	
2-NITROANILINE	88-74-4	270	2000	270	91	UG/KG	U	U	
2-NITROPHENOL	88-75-5	270	500	270	270	UG/KG	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	800	1000	800	180	UG/KG	U	U	
3-NITROANILINE	99-09-2	800	2000	800	160	UG/KG	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	800	1500	800	800	UG/KG	U	U	
4-BROMOPHENYL PHENYL ETHE	101-55-3	270	500	270	130	UG/KG	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	270	1500	270	210	UG/KG	U	U	
4-CHLOROANILINE	106-47-8	270	1500	270	170	UG/KG	U	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	270	500	270	130	UG/KG	U	U	

Sample Delivery Group: 240-18581-1

4-NITROANILINE	100-01-6	270	2000	270	260	UG/KG	U	U	
4-NITROPHENOL	100-02-7	800	3300	800	800	UG/KG	U	U	
ACENAPHTHENE	83-32-9	33	67	33	33	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	33	67	33	33	UG/KG	U	U	
ANTHRACENE	120-12-7	33	67	33	33	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	33	67	33	33	UG/KG	U	U	
BENZO(A)PYRENE	50-32-8	33	67	33	33	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	33	67	33	33	UG/KG	U	U	
BENZO(G,H,I)PERYLENE	191-24-2	33	67	33	33	UG/KG	U	UJ	C
BENZO(K)FLUORANTHENE	207-08-9	33	67	33	33	UG/KG	U	U	
BENZOIC ACID	65-85-0	3300	6600	3300	3300	UG/KG	U	U	
BENZYL ALCOHOL	100-51-6	270	3300	270	210	UG/KG	U	U	
BENZYL BUTYL PHTHALATE	85-68-7	270	500	270	100	UG/KG	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	270	1000	270	220	UG/KG	U	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	33	1000	33	20	UG/KG	U	U	
BIS(2-CHLOROISOPROPYL) ETHE	108-60-1	270	1000	270	95	UG/KG	U	U	
BIS(2-ETHYLHEXYL) PHTHALAT	117-81-7	270	500	270	190	UG/KG	U	U	
CARBAZOLE	86-74-8	270	500	270	270	UG/KG	U	U	
CHRYSENE	218-01-9	33	67	33	11	UG/KG	U	U	
CRESOLS, M & P		800	4000	800	200	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	33	67	33	33	UG/KG	U	U	
DIBENZOFURAN	132-64-9	33	500	33	33	UG/KG	U	U	
DIETHYL PHTHALATE	84-66-2	270	500	270	160	UG/KG	U	U	
DIMETHYL PHTHALATE	131-11-3	270	500	270	170	UG/KG	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	270	500	270	150	UG/KG	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	270	500	270	270	UG/KG	U	U	
FLUORANTHENE	206-44-0	33	67	33	33	UG/KG	U	U	
FLUORENE	86-73-7	33	67	33	33	UG/KG	U	U	
HEXACHLOROBENZENE	118-74-1	33	67	33	21	UG/KG	U	U	
HEXACHLOROBUTADIENE	87-68-3	270	500	270	270	UG/KG	U	U	
HEXACHLOROCYCLOPENTADIE	77-47-4	270	3300	270	270	UG/KG	U	U	
HEXACHLOROETHANE	67-72-1	270	500	270	90	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	33	67	33	33	UG/KG	U	U	

Sample Delivery Group: 240-18581-1

ISOPHORONE	78-59-1	270	500	270	130	UG/KG	U	U	
NAPHTHALENE	91-20-3	33	67	33	33	UG/KG	U	U	
NITROBENZENE	98-95-3	33	1000	33	22	UG/KG	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	270	500	270	270	UG/KG	U	U	
N-NITROSODIPHENYLAMINE	86-30-6	270	500	270	210	UG/KG	U	R	C
PENTACHLOROPHENOL	87-86-5	800	1500	800	800	UG/KG	U	U	
PHENANTHRENE	85-01-8	33	67	33	33	UG/KG	U	U	
PHENOL	108-95-2	270	500	270	270	UG/KG	U	U	
PYRENE	129-00-0	33	67	33	33	UG/KG	U	U	

Analysis Method SW8330

Sample Name 070SB-044M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18581-3 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-TRINITROBENZENE	99-35-4	0.048	0.24	0.048	0.0096	MG/KG	U	U	
1,3-DINITROBENZENE	99-65-0	0.048	0.24	0.048	0.0040	MG/KG	U	U	
2,4,6-TRINITROTOLUENE	118-96-7	0.048	0.24	0.048	0.019	MG/KG	U	U	
2,4-DINITROTOLUENE	121-14-2	0.048	0.24	0.048	0.0051	MG/KG	U	U	
2,6-DINITROTOLUENE	606-20-2	0.048	0.24	0.048	0.0070	MG/KG	U	U	
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	0.048	0.24	0.048	0.012	MG/KG	U	U	
2-NITROTOLUENE	88-72-2	0.048	0.24	0.048	0.012	MG/KG	U	UJ	C
3-NITROTOLUENE	99-08-1	0.048	0.24	0.048	0.015	MG/KG	U	U	
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	0.048	0.24	0.048	0.0096	MG/KG	U	U	
4-NITROTOLUENE	99-99-0	0.048	0.24	0.048	0.017	MG/KG	U	U	
HEXAHYDRO-1,3,5-TRINITRO-1,3,	121-82-4	0.048	0.24	0.048	0.012	MG/KG	U	UJ	C
NITROBENZENE	98-95-3	0.048	0.24	0.048	0.017	MG/KG	U	R	D
NITROGLYCERIN	55-63-0	0.24	0.48	0.24	0.014	MG/KG	U	U	
OCTAHYDRO-1,3,5,7-TETRANITR	2691-41-0	0.048	0.24	0.048	0.012	MG/KG	U	U	
PENTAERYTHRITOL TETRANITR	78-11-5	0.24	0.48	0.24	0.024	MG/KG	U	U	
TETRYL	479-45-8	0.048	0.24	0.048	0.0096	MG/KG	U	U	

Sample Delivery Group: 240-18735-1

Analysis Method M8015V

Sample Name 070SB-0042M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18735-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		49	98	49	45	UG/KG	U	U	

Validated Sample Result Forms for Sampling : Ravenna Army Ammunition Plant Ravenna, Ohio
Remedial Investigation Compliance Restoration Site: RVAAP-71 Barn No. 5 Petroleum Release

Sample Delivery Group: 99236_71_0813

Analysis Method BNASIM

Sample Name 071SB-0013M-0001-SO **AnalysisType:** N

Lab Sample Name: 338377 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
2-METHYLNAPHTHALENE	91-57-6	2.9	1.5	0.82	0.23	ug/kg			
ACENAPHTHENE	83-32-9	1	1.5	0.82	0.34	ug/kg	J	J	
ACENAPHTHYLENE	208-96-8	0.82	1.5	0.82	0.25	ug/kg	U	U	
ANTHRACENE	120-12-7	0.82	1.5	0.82	0.32	ug/kg	U	U	
BENZO(A)ANTHRACENE	56-55-3	0.90	1.5	0.82	0.33	ug/kg	JB	U	B
BENZO(A)PYRENE	50-32-8	0.29	1.5	0.82	0.29	ug/kg	J	J	
BENZO(B)FLUORANTHENE	205-99-2	2.3	1.5	0.82	0.41	ug/kg			
BENZO(G,H,I)PERYLENE	191-24-2	1.8	1.5	0.82	0.4	ug/kg			
BENZO(K)FLUORANTHENE	207-08-9	0.82	1.5	0.82	0.38	ug/kg	U	U	
CHRYSENE	218-01-9	4.3	1.5	0.82	0.36	ug/kg			
DIBENZ(A,H)ANTHRACENE	53-70-3	0.82	1.5	0.82	0.36	ug/kg	U	U	
FLUORANTHENE	206-44-0	1	1.5	0.82	0.37	ug/kg	J	J	
FLUORENE	86-73-7	0.93	1.5	0.82	0.37	ug/kg	J	J	
INDENO(1,2,3-C,D)PYRENE	193-39-5	0.52	1.5	0.82	0.37	ug/kg	J	J	
NAPHTHALENE	91-20-3	3.7	1.5	0.82	0.28	ug/kg			
PHENANTHRENE	85-01-8	4.0	1.5	0.8	0.46	ug/kg	B	U	B
PYRENE	129-00-0	1.2	1.5	0.82	0.42	ug/kg	J	J	

Sample Name 071SB-0018M-0001-SO **AnalysisType:** N

Lab Sample Name: 338379 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
2-METHYLNAPHTHALENE	91-57-6	3	1.5	0.82	0.23	ug/kg			
ACENAPHTHENE	83-32-9	0.62	1.5	0.82	0.34	ug/kg	J	J	
ACENAPHTHYLENE	208-96-8	0.82	1.5	0.82	0.25	ug/kg	U	U	

Sample Delivery Group: 99236_71_0813

ANTHRACENE	120-12-7	0.82	1.5	0.82	0.32	ug/kg	U	U	
BENZO(A)ANTHRACENE	56-55-3	1.2	1.5	0.82	0.33	ug/kg	JB	U	B
BENZO(A)PYRENE	50-32-8	0.42	1.5	0.82	0.29	ug/kg	J	J	
BENZO(B)FLUORANTHENE	205-99-2	2.9	1.5	0.82	0.41	ug/kg			
BENZO(G,H,I)PERYLENE	191-24-2	1.5	1.5	0.82	0.4	ug/kg			
BENZO(K)FLUORANTHENE	207-08-9	0.82	1.5	0.82	0.38	ug/kg	U	U	
CHRYSENE	218-01-9	4.8	1.5	0.82	0.36	ug/kg			
DIBENZ(A,H)ANTHRACENE	53-70-3	0.82	1.5	0.82	0.36	ug/kg	U	U	
FLUORANTHENE	206-44-0	1.4	1.5	0.82	0.37	ug/kg	J	J	
FLUORENE	86-73-7	1.1	1.5	0.82	0.37	ug/kg	J	J	
INDENO(1,2,3-C,D)PYRENE	193-39-5	0.61	1.5	0.82	0.37	ug/kg	J	J	
NAPHTHALENE	91-20-3	0.82	1.5	0.82	0.28	ug/kg	JB	U	B
PHENANTHRENE	85-01-8	4.7	1.5	0.82	0.46	ug/kg	B	U	B
PYRENE	129-00-0	1.4	1.5	0.82	0.42	ug/kg	J	J	

Analysis Method E353.2

Sample Name 071SB-0017M-0001-SO **AnalysisType:** N

Lab Sample Name: 338375 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROCELLULOSE	9004-70-0	100	200	100	33	mg/kg	U	U	

Analysis Method ORTPHG

Sample Name 071SB-0013M-0001-SO **AnalysisType:** N

Lab Sample Name: 338378 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
GASOLINE COMPONENTS		2.6	5.3	2.6	1.1	mg/kg	U	U	

Sample Name 071SB-0018M-0001-SO **AnalysisType:** N

Lab Sample Name: 338380 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
GASOLINE COMPONENTS		2.6	5.3	2.6	1.1	mg/kg	U	U	

Sample Delivery Group: 99236_71_0813

Analysis Method SW6010C

Sample Name 071SB-0013M-0001-SO **AnalysisType:** N

Lab Sample Name: 338377 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
LEAD	7439-92-1	9	1.3	0.64	0.21	mg/kg		J-	P, Q

Sample Name 071SB-0018M-0001-SO **AnalysisType:** N

Lab Sample Name: 338379 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
LEAD	7439-92-1	8.8	1.2	0.62	0.2	mg/kg		J-	P, Q

Analysis Method SW8015

Sample Name 071SB-0013M-0001-SO **AnalysisType:** N

Lab Sample Name: 338377 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
DIESEL COMPONENTS		20	41	15	5.1	mg/kg	J	J	

Sample Name 071SB-0018M-0001-SO **AnalysisType:** N

Lab Sample Name: 338379 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
DIESEL COMPONENTS		19	41	15	5.1	mg/kg	J	J	

Sample Delivery Group: 99236_71_0813

Analysis Method SW8082

Sample Name 071SB-0017M-0001-SO **AnalysisType:** N

Lab Sample Name: 338375 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PCB-1016 (AROCHLOR 1016)	12674-11-2	20	31	20	5.1	ug/kg	U	U	
PCB-1221 (AROCHLOR 1221)	11104-28-2	20	31	20	7.2	ug/kg	U	U	
PCB-1232 (AROCHLOR 1232)	11141-16-5	20	31	20	9.2	ug/kg	U	U	
PCB-1242 (AROCHLOR 1242)	53469-21-9	20	31	20	7.2	ug/kg	U	U	
PCB-1248 (AROCHLOR 1248)	12672-29-6	20	31	20	7.2	ug/kg	U	U	
PCB-1254 (AROCHLOR 1254)	11097-69-1	20	31	20	9.2	ug/kg	U	U	
PCB-1260 (AROCHLOR 1260)	11096-82-5	20	31	20	6.1	ug/kg	U	U	
PCB-1262 (AROCHLOR 1262)	37324-23-5	20	31	20	7.2	ug/kg	U	U	
PCB-1268 (AROCHLOR 1268)	11100-14-4	20	31	20	5.1	ug/kg	U	U	

Sample Delivery Group: 99236_71_0813

Analysis Method SW8260C

Sample Name 071SB-0013M-0001-SO **AnalysisType:** N

Lab Sample Name: 338378 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.93	1.9	0.93	0.28	ug/kg	U	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.93	1.9	0.93	0.47	ug/kg	U	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.93	1.9	0.93	0.37	ug/kg	U	U	
1,1-DICHLOROETHANE	75-34-3	0.93	1.9	0.93	0.37	ug/kg	U	U	
1,1-DICHLOROETHENE	75-35-4	0.93	1.9	0.93	0.37	ug/kg	U	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	0.93	1.9	0.93	0.37	ug/kg	U	U	
1,2-DICHLOROETHANE	107-06-2	0.93	1.9	0.93	0.47	ug/kg	U	U	
1,2-DICHLOROPROPANE	78-87-5	0.93	1.9	0.93	0.37	ug/kg	U	U	
2-HEXANONE	591-78-6	19	37	19	10	ug/kg	U	U	
ACETONE	67-64-1	9.3	19	9.3	9.3	ug/kg	U	U	
BENZENE	71-43-2	0.93	1.9	0.93	0.28	ug/kg	U	U	
BROMOCHLOROMETHANE	74-97-5	0.93	1.9	0.93	0.37	ug/kg	U	U	
BROMODICHLOROMETHANE	75-27-4	0.93	1.9	0.93	0.37	ug/kg	U	U	
BROMOFORM	75-25-2	0.93	1.9	0.93	0.37	ug/kg	U	U	
BROMOMETHANE	74-83-9	0.93	1.9	0.93	0.65	ug/kg	U	UJ	C
CARBON DISULFIDE	75-15-0	1.9	3.7	1.9	0.84	ug/kg	U	U	
CARBON TETRACHLORIDE	56-23-5	0.93	1.9	0.93	0.28	ug/kg	U	U	
CHLOROBENZENE	108-90-7	0.93	1.9	0.93	0.37	ug/kg	U	U	
CHLOROETHANE	75-00-3	0.93	1.9	0.93	0.47	ug/kg	U	U	
CHLOROFORM	67-66-3	0.93	1.9	0.93	0.37	ug/kg	U	U	
CHLOROMETHANE	74-87-3	0.93	1.9	0.93	0.37	ug/kg	U	U	
CIS-1,2-DICHLOROETHYLENE	156-59-2	0.93	1.9	0.93	0.37	ug/kg	U	U	
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.93	1.9	0.93	0.28	ug/kg	U	U	
DIBROMOCHLOROMETHANE	124-48-1	0.93	1.9	0.93	0.37	ug/kg	U	U	
ETHYLBENZENE	100-41-4	0.93	1.9	0.93	0.37	ug/kg	U	U	
M,P-XYLENE (SUM OF ISOMERS)		1.9	3.7	1.9	0.65	ug/kg	U	R	D
METHYL ETHYL KETONE (2-BUT	78-93-3	9.3	19	9.3	9.3	ug/kg	U	U	
METHYL ISOBUTYL KETONE (4-	108-10-1	9.3	19	9.3	9.3	ug/kg	U	U	

METHYLENE CHLORIDE	75-09-2	9.9	9.9	1.9	1.6	ug/kg	Z	UJ	B, C
O-XYLENE (1,2-DIMETHYLBENZ	95-47-6	0.93	1.9	0.93	0.37	ug/kg	U	R	D
STYRENE	100-42-5	0.93	1.9	0.93	0.28	ug/kg	U	U	
TERT-BUTYL METHYL ETHER	1634-04-4	0.93	1.9	0.93	0.37	ug/kg	U	U	
TETRACHLOROETHYLENE(PCE)	127-18-4	0.93	1.9	0.93	0.37	ug/kg	U	U	
TOLUENE	108-88-3	0.93	1.9	0.93	0.37	ug/kg	U	U	
TOTAL 1,2-DICHLOROETHENE	540-59-0	0.93	1.9	0.93	0.37	ug/kg	U	U	
TRANS-1,2-DICHLOROETHENE	156-60-5	0.93	1.9	0.93	0.37	ug/kg	U	U	
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.93	1.9	0.93	0.37	ug/kg	U	U	
TRICHLOROETHYLENE (TCE)	79-01-6	0.93	1.9	0.93	0.28	ug/kg	U	U	
VINYL CHLORIDE	75-01-4	0.93	1.9	0.93	0.47	ug/kg	U	U	
XYLENES, TOTAL		1.9	3.7	1.9	0.65	ug/kg	U	U	

Sample Name 071SB-0018M-0001-SO **AnalysisType:** N

Lab Sample Name: 338380 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.86	1.7	0.86	0.26	ug/kg	U	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.86	1.7	0.86	0.43	ug/kg	U	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.86	1.7	0.86	0.35	ug/kg	U	U	
1,1-DICHLOROETHANE	75-34-3	0.86	1.7	0.86	0.35	ug/kg	U	U	
1,1-DICHLOROETHENE	75-35-4	0.86	1.7	0.86	0.35	ug/kg	U	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	0.86	1.7	0.86	0.35	ug/kg	U	U	
1,2-DICHLOROETHANE	107-06-2	0.86	1.7	0.86	0.43	ug/kg	U	U	
1,2-DICHLOROPROPANE	78-87-5	0.86	1.7	0.86	0.35	ug/kg	U	U	
2-HEXANONE	591-78-6	17	35	17	9.5	ug/kg	U	U	
ACETONE	67-64-1	8.6	17	8.6	8.6	ug/kg	U	U	
BENZENE	71-43-2	0.86	1.7	0.86	0.26	ug/kg	U	U	
BROMOCHLOROMETHANE	74-97-5	0.86	1.7	0.86	0.35	ug/kg	U	U	
BROMODICHLOROMETHANE	75-27-4	0.86	1.7	0.86	0.35	ug/kg	U	U	
BROMOFORM	75-25-2	0.86	1.7	0.86	0.35	ug/kg	U	U	
BROMOMETHANE	74-83-9	0.86	1.7	0.86	0.6	ug/kg	U	UJ	C
CARBON DISULFIDE	75-15-0	1.7	3.5	1.7	0.78	ug/kg	U	U	
CARBON TETRACHLORIDE	56-23-5	0.86	1.7	0.86	0.26	ug/kg	U	U	

Sample Delivery Group: 99236_71_0813

CHLOROBENZENE	108-90-7	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
CHLOROETHANE	75-00-3	0.86	1.7	0.86	0.43	ug/kg	U	**U**	
CHLOROFORM	67-66-3	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
CHLOROMETHANE	74-87-3	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
CIS-1,2-DICHLOROETHYLENE	156-59-2	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.86	1.7	0.86	0.26	ug/kg	U	**U**	
DIBROMOCHLOROMETHANE	124-48-1	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
ETHYLBENZENE	100-41-4	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
M,P-XYLENE (SUM OF ISOMERS)		1.7	3.5	1.7	0.6	ug/kg	U	**R**	**D**
METHYL ETHYL KETONE (2-BUT	78-93-3	8.6	17	8.6	8.6	ug/kg	U	**U**	
METHYL ISOBUTYL KETONE (4-	108-10-1	8.6	17	8.6	8.6	ug/kg	U	**U**	
METHYLENE CHLORIDE	75-09-2	6.3	8.6	1.7	1.5	ug/kg	J	**UJ**	**B, C**
O-XYLENE (1,2-DIMETHYLBENZ	95-47-6	0.86	1.7	0.86	0.35	ug/kg	U	**R**	**D**
STYRENE	100-42-5	0.86	1.7	0.86	0.26	ug/kg	U	**U**	
TERT-BUTYL METHYL ETHER	1634-04-4	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
TETRACHLOROETHYLENE(PCE)	127-18-4	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
TOLUENE	108-88-3	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
TOTAL 1,2-DICHLOROETHENE	540-59-0	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
TRANS-1,2-DICHLOROETHENE	156-60-5	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.86	1.7	0.86	0.35	ug/kg	U	**U**	
TRICHLOROETHYLENE (TCE)	79-01-6	0.86	1.7	0.86	0.26	ug/kg	U	**U**	
VINYL CHLORIDE	75-01-4	0.86	1.7	0.86	0.43	ug/kg	U	**U**	
XYLENES, TOTAL		1.7	3.5	1.7	0.6	ug/kg	U	**U**	

Sample Delivery Group: 99236_71_0813

Analysis Method SW8270D

Sample Name 071SB-0013M-0001-SO **AnalysisType:** N

Lab Sample Name: 338377 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	62	120	62	22	ug/kg	U	U	
1,2-DICHLOROBENZENE	95-50-1	62	120	62	25	ug/kg	U	U	
1,3-DICHLOROBENZENE	541-73-1	62	120	62	21	ug/kg	U	U	
1,4-DICHLOROBENZENE	106-46-7	62	120	62	20	ug/kg	U	U	
2,2'-OXYBIS(1-CHLORO)PROPAN	108-60-1	62	120	62	31	ug/kg	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	310	620	310	130	ug/kg	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	310	620	310	130	ug/kg	U	U	
2,4-DICHLOROPHENOL	120-83-2	310	620	310	120	ug/kg	U	U	
2,4-DIMETHYLPHENOL	105-67-9	310	620	310	100	ug/kg	U	U	
2,4-DINITROPHENOL	51-28-5	310	1000	310	280	ug/kg	U	U	
2,4-DINITROTOLUENE	121-14-2	62	120	62	25	ug/kg	U	U	
2,6-DINITROTOLUENE	606-20-2	62	120	62	25	ug/kg	U	U	
2-CHLORONAPHTHALENE	91-58-7	62	120	62	24	ug/kg	U	U	
2-CHLOROPHENOL	95-57-8	620	2100	620	350	ug/kg	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	620	2100	620	430	ug/kg	U	U	
2-NITROANILINE	88-74-4	62	120	62	24	ug/kg	U	U	
2-NITROPHENOL	88-75-5	310	1000	310	290	ug/kg	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	150	510	150	150	ug/kg	U	U	
3-NITROANILINE	99-09-2	62	120	62	23	ug/kg	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	310	1000	310	280	ug/kg	U	UJ	C
4-BROMOPHENYL PHENYL ETHE	101-55-3	62	120	62	26	ug/kg	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	620	2100	620	390	ug/kg	U	U	
4-CHLOROANILINE	106-47-8	62	210	62	40	ug/kg	U	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	62	120	62	27	ug/kg	U	U	
4-NITROANILINE	100-01-6	62	120	62	31	ug/kg	U	U	
4-NITROPHENOL	100-02-7	620	2100	620	410	ug/kg	U	U	
BENZOIC ACID	65-85-0	1500	3100	1500	300	ug/kg	U	UJ	C
BENZYL ALCOHOL	100-51-6	120	410	120	85	ug/kg	U	R	C

BENZYL BUTYL PHTHALATE	85-68-7	120	410	120	75	ug/kg	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	62	120	62	24	ug/kg	U	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	62	120	62	26	ug/kg	U	U	
CARBAZOLE	86-74-8	62	120	62	29	ug/kg	U	U	
CRESOLS, M & P		1100	3700	1100	670	ug/kg	U	U	
DIBENZOFURAN	132-64-9	62	120	62	25	ug/kg	U	U	
DIETHYL PHTHALATE	84-66-2	120	410	120	66	ug/kg	U	U	
DIMETHYL PHTHALATE	131-11-3	120	410	120	65	ug/kg	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	120	410	120	81	ug/kg	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	62	210	62	61	ug/kg	U	U	
HEXACHLOROBENZENE	118-74-1	62	120	62	29	ug/kg	U	U	
HEXACHLOROBUTADIENE	87-68-3	120	410	120	64	ug/kg	U	U	
HEXACHLOROCYCLOPENTADIE	77-47-4	62	210	62	53	ug/kg	U	UJ	C
HEXACHLOROETHANE	67-72-1	62	120	62	34	ug/kg	U	U	
ISOPHORONE	78-59-1	62	210	62	51	ug/kg	U	U	
NITROBENZENE	98-95-3	62	210	62	61	ug/kg	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	120	410	120	72	ug/kg	U	U	
N-NITROSODIPHENYLAMINE	86-30-6	120	250	120	51	ug/kg	U	U	
PENTACHLOROPHENOL	87-86-5	310	1000	310	250	ug/kg	U	U	
PHENOL	108-95-2	310	620	310	160	ug/kg	U	U	

Sample Name 071SB-0018M-0001-SO **AnalysisType:** N

Lab Sample Name: 338379 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	61	120	61	21	ug/kg	U	U	
1,2-DICHLOROBENZENE	95-50-1	61	120	61	25	ug/kg	U	U	
1,3-DICHLOROBENZENE	541-73-1	61	120	61	20	ug/kg	U	U	
1,4-DICHLOROBENZENE	106-46-7	61	120	61	19	ug/kg	U	U	
2,2'-OXYBIS(1-CHLORO)PROPAN	108-60-1	61	120	61	31	ug/kg	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	310	610	310	130	ug/kg	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	310	610	310	130	ug/kg	U	U	
2,4-DICHLOROPHENOL	120-83-2	310	610	310	120	ug/kg	U	U	
2,4-DIMETHYLPHENOL	105-67-9	310	610	310	100	ug/kg	U	U	

Sample Delivery Group: 99236_71_0813

2,4-DINITROPHENOL	51-28-5	310	1000	310	280	ug/kg	U	U	
2,4-DINITROTOLUENE	121-14-2	61	120	61	25	ug/kg	U	U	
2,6-DINITROTOLUENE	606-20-2	61	120	61	25	ug/kg	U	U	
2-CHLORONAPHTHALENE	91-58-7	61	120	61	23	ug/kg	U	U	
2-CHLOROPHENOL	95-57-8	610	2000	610	350	ug/kg	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	610	2000	610	430	ug/kg	U	U	
2-NITROANILINE	88-74-4	61	120	61	23	ug/kg	U	U	
2-NITROPHENOL	88-75-5	310	1000	310	290	ug/kg	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	150	510	150	150	ug/kg	U	U	
3-NITROANILINE	99-09-2	61	120	61	22	ug/kg	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	310	1000	310	280	ug/kg	U	UJ	C
4-BROMOPHENYL PHENYL ETHE	101-55-3	61	120	61	26	ug/kg	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	610	2000	610	390	ug/kg	U	U	
4-CHLOROANILINE	106-47-8	61	200	61	40	ug/kg	U	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	61	120	61	27	ug/kg	U	U	
4-NITROANILINE	100-01-6	61	120	61	31	ug/kg	U	U	
4-NITROPHENOL	100-02-7	610	2000	610	410	ug/kg	U	U	
BENZOIC ACID	65-85-0	1500	3100	1500	300	ug/kg	U	UJ	C
BENZYL ALCOHOL	100-51-6	120	410	120	85	ug/kg	U	R	C
BENZYL BUTYL PHTHALATE	85-68-7	120	410	120	75	ug/kg	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	61	120	61	23	ug/kg	U	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	61	120	61	26	ug/kg	U	U	
CARBAZOLE	86-74-8	61	120	61	29	ug/kg	U	U	
CRESOLS, M & P		1100	3700	1100	660	ug/kg	U	U	
DIBENZOFURAN	132-64-9	61	120	61	25	ug/kg	U	U	
DIETHYL PHTHALATE	84-66-2	120	410	120	65	ug/kg	U	U	
DIMETHYL PHTHALATE	131-11-3	120	410	120	64	ug/kg	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	120	410	120	81	ug/kg	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	61	200	61	60	ug/kg	U	U	
HEXACHLOROBENZENE	118-74-1	61	120	61	29	ug/kg	U	U	
HEXACHLOROBUTADIENE	87-68-3	120	410	120	63	ug/kg	U	U	
HEXACHLOROCYCLOPENTADIE	77-47-4	61	200	61	53	ug/kg	U	UJ	C
HEXACHLOROETHANE	67-72-1	61	120	61	34	ug/kg	U	U	

Sample Delivery Group: 99236_71_0813

ISOPHORONE	78-59-1	61	200	61	51	ug/kg	U	U
NITROBENZENE	98-95-3	61	200	61	60	ug/kg	U	U
N-NITROSODI-N-PROPYLAMINE	621-64-7	120	410	120	72	ug/kg	U	U
N-NITROSODIPHENYLAMINE	86-30-6	120	250	120	51	ug/kg	U	U
PENTACHLOROPHENOL	87-86-5	310	1000	310	250	ug/kg	U	U
PHENOL	108-95-2	310	610	310	160	ug/kg	U	U

Analysis Method SW8330

Sample Name 071SB-0017M-0001-SO **AnalysisType:** N

Lab Sample Name: 338375 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROGUANIDINE	556-88-7	0.12	0.25	0.12	0.06	mg/kg	U	U	

Sample Delivery Group: 99236_71_0813

Analysis Method SW8330B

Sample Name 071SB-0017M-0001-SO **AnalysisType:** N

Lab Sample Name: 338375 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-TRINITROBENZENE	99-35-4	0.3	0.5	0.3	0.13	mg/kg	U	U	
1,3-DINITROBENZENE	99-65-0	0.2	0.3	0.2	0.08	mg/kg	U	U	
2,4,6-TRINITROTOLUENE	118-96-7	0.2	0.5	0.2	0.09	mg/kg	U	U	
2,4-DINITROTOLUENE	121-14-2	0.2	0.3	0.2	0.08	mg/kg	U	U	
2,6-DINITROTOLUENE	606-20-2	0.2	0.3	0.2	0.07	mg/kg	U	U	
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	0.2	0.3	0.2	0.09	mg/kg	U	U	
2-NITROTOLUENE	88-72-2	0.2	0.3	0.2	0.09	mg/kg	U	UJ	C
3,5-DINITROANILINE	618-87-1	0.2	0.3	0.2	0.09	mg/kg	U	U	
3-NITROTOLUENE	99-08-1	0.3	0.5	0.3	0.11	mg/kg	U	U	
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	0.2	0.3	0.2	0.08	mg/kg	U	UJ	C
4-NITROTOLUENE	99-99-0	0.2	0.5	0.2	0.1	mg/kg	U	U	
HMX	2691-41-0	0.3	0.5	0.3	0.12	mg/kg	U	U	
NITROBENZENE	98-95-3	0.2	0.5	0.2	0.1	mg/kg	U	U	
NITROGLYCERIN	55-63-0	1.2	2	1.2	0.5	mg/kg	U	U	
PETN	78-11-5	1.2	2	1.2	0.6	mg/kg	U	U	
RDX	121-82-4	0.3	0.5	0.3	0.14	mg/kg	U	U	
TETRYL	479-45-8	0.2	0.3	0.2	0.09	mg/kg	U	U	

Validated Sample Result Forms for Sampling : Ravenna Army Ammunition Plant Ravenna, Ohio
Remedial Investigation Compliance Restoration Site: RVAAP-72 Facility-Wide USTs

Sample Delivery Group: 240-18297-1

Analysis Method E353.2

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROCELLULOSE	9004-70-0	20	54	20	8.5	MG/KG	U J	U	

Analysis Method M8015D

Sample Name 072SB-0001-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		11	20	11	11	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		11	20	11	11	MG/KG	U	U	

Sample Name 072SB-0012-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		10	19	10	10	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		10	19	10	10	MG/KG	U	U	

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		10	19	10	10	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		10	19	10	10	MG/KG	U	U	

Sample Delivery Group: 240-18297-1

Analysis Method M8015V

Sample Name 072SB-0001-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		320.0	110	55	50	UG/KG		J	Q

Sample Name 072SB-0012-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		47	93	47	43	UG/KG	U	U	

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		46	92	46	42	UG/KG	U	U	

Sample Delivery Group: 240-18297-1

Analysis Method SW6020

Sample Name 072SB-0001-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	12000.0	3.1	0.62	0.29	MG/KG	J	J	
ANTIMONY	7440-36-0	0.075	0.21	0.10	0.047	MG/KG	J	J-	Q
ARSENIC	7440-38-2	14.0	0.10	0.051	0.019	MG/KG		J-	Q
BARIUM	7440-39-3	36.0	1.0	0.021	0.011	MG/KG	Q	J+	Q
BERYLLIUM	7440-41-7	0.65	0.10	0.010	0.0077	MG/KG		J-	Q
CADMIUM	7440-43-9	0.15	0.10	0.031	0.014	MG/KG	Q	J-	Q
CALCIUM	7440-70-2	2900.0	10	2.6	1.4	MG/KG	J	J+	E, Q
CHROMIUM	7440-47-3	18.0	0.21	0.041	0.023	MG/KG			
COBALT	7440-48-4	12.0	0.051	0.010	0.0025	MG/KG	Q		
COPPER	7440-50-8	16.0	0.21	0.062	0.034	MG/KG	Q		
IRON	7439-89-6	28000.0	5.1	2.1	1.1	MG/KG	J	J	
LEAD	7439-92-1	11.0	0.10	0.031	0.016	MG/KG			
MAGNESIUM	7439-95-4	6000.0	10	2.1	1.1	MG/KG			
MANGANESE	7439-96-5	190.0	0.51	0.031	0.016	MG/KG	Q J	J	
NICKEL	7440-02-0	29.0	0.10	0.031	0.012	MG/KG	Q	J-	Q
POTASSIUM	7440-09-7	1900.0	10	6.2	3.2	MG/KG	J	J-	Q
SELENIUM	7782-49-2	0.9	0.51	0.10	0.052	MG/KG		J-	Q
SILVER	7440-22-4	0.033	0.10	0.031	0.012	MG/KG	J	J	
SODIUM	7440-23-5	85.0	10	5.1	2.7	MG/KG			
THALLIUM	7440-28-0	0.18	0.10	0.021	0.010	MG/KG			
VANADIUM	7440-62-2	17.0	0.10	0.062	0.031	MG/KG			
ZINC	7440-66-6	59.0	0.51	0.21	0.067	MG/KG	Q		

Sample Name 072SB-0012-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	8500.0	3.2	0.64	0.30	MG/KG	J	J	
ANTIMONY	7440-36-0	0.2	0.21	0.11	0.049	MG/KG	J	J-	Q

ARSENIC	7440-38-2	5.6	0.11	0.053	0.019	MG/KG		J	E
BARIUM	7440-39-3	55.0	1.1	0.021	0.011	MG/KG	Q		
BERYLLIUM	7440-41-7	0.88	0.11	0.011	0.0080	MG/KG		J-	Q
CADMIUM	7440-43-9	0.2	0.11	0.032	0.014	MG/KG	Q		
CALCIUM	7440-70-2	400.0	11	2.7	1.4	MG/KG			
CHROMIUM	7440-47-3	18.0	0.21	0.042	0.024	MG/KG			
COBALT	7440-48-4	18.0	0.053	0.011	0.0025	MG/KG	Q		
COPPER	7440-50-8	31.0	0.21	0.064	0.035	MG/KG	Q	J+	Q
IRON	7439-89-6	37000.0	5.3	2.1	1.1	MG/KG	J	J	
LEAD	7439-92-1	20.0	0.11	0.032	0.016	MG/KG		J+	Q
MAGNESIUM	7439-95-4	4000.0	11	2.1	1.1	MG/KG			
MANGANESE	7439-96-5	910.0	0.53	0.032	0.017	MG/KG	Q J	J	
NICKEL	7440-02-0	31.0	0.11	0.032	0.012	MG/KG	Q		
POTASSIUM	7440-09-7	1000.0	11	6.4	3.4	MG/KG		J-	Q
SELENIUM	7782-49-2	1.0	0.53	0.11	0.054	MG/KG		J-	Q
SILVER	7440-22-4	0.032	0.11	0.032	0.012	MG/KG	J	J	
SODIUM	7440-23-5	60.0	11	5.3	2.8	MG/KG			
THALLIUM	7440-28-0	0.14	0.11	0.021	0.011	MG/KG			
VANADIUM	7440-62-2	17.0	0.11	0.064	0.032	MG/KG			
ZINC	7440-66-6	69.0	0.53	0.21	0.069	MG/KG	Q		

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	9500.0	3.0	0.60	0.28	MG/KG			
ANTIMONY	7440-36-0	0.13	0.20	0.10	0.046	MG/KG	J	J-	Q
ARSENIC	7440-38-2	5.6	0.10	0.050	0.018	MG/KG		J-	E, Q
BARIUM	7440-39-3	61.0	1.0	0.020	0.011	MG/KG	Q	J+	Q
BERYLLIUM	7440-41-7	0.91	0.10	0.010	0.0075	MG/KG		J-	Q
CADMIUM	7440-43-9	0.26	0.10	0.030	0.013	MG/KG	Q	J-	Q
CALCIUM	7440-70-2	430.0	10	2.5	1.3	MG/KG		J+	E, Q
CHROMIUM	7440-47-3	19.0	0.20	0.040	0.022	MG/KG			
COBALT	7440-48-4	17.0	0.050	0.010	0.0024	MG/KG	Q		

Sample Delivery Group: 240-18297-1

COPPER	7440-50-8	34.0	0.20	0.060	0.033	MG/KG	Q	J+	Q
IRON	7439-89-6	40000.0	5.0	2.0	1.1	MG/KG			
LEAD	7439-92-1	23.0	0.10	0.030	0.015	MG/KG		J+	Q
MAGNESIUM	7439-95-4	4200.0	10	2.0	1.1	MG/KG			
MANGANESE	7439-96-5	840.0	0.50	0.030	0.016	MG/KG	Q		
NICKEL	7440-02-0	34.0	0.10	0.030	0.011	MG/KG	Q	J-	Q
POTASSIUM	7440-09-7	1200.0	10	6.0	3.1	MG/KG		J-	Q
SELENIUM	7782-49-2	1.1	0.50	0.10	0.051	MG/KG		J-	Q
SILVER	7440-22-4	0.036	0.10	0.030	0.011	MG/KG	J	J	
SODIUM	7440-23-5	61.0	10	5.0	2.7	MG/KG			
THALLIUM	7440-28-0	0.12	0.10	0.020	0.010	MG/KG			
VANADIUM	7440-62-2	19.0	0.10	0.060	0.030	MG/KG			
ZINC	7440-66-6	87.0	0.50	0.20	0.065	MG/KG	Q		

Analysis Method SW7471A

Sample Name 072SB-0001-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.039	0.12	0.039	0.016	MG/KG	U	U	

Sample Name 072SB-0012-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.04	0.10	0.034	0.014	MG/KG	J	J	

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.027	0.098	0.032	0.014	MG/KG	J	J	

Sample Delivery Group: 240-18297-1

Analysis Method SW8081

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALDRIN	309-00-2	1.5	4.6	1.5	1.4	UG/KG	U	U	
ALPHA BHC (ALPHA HEXACHLO	319-84-6	1.5	2.9	1.5	0.83	UG/KG	U J	UJ	Q
ALPHA ENDOSULFAN	959-98-8	0.77	1.9	0.77	0.59	UG/KG	U J	UJ	Q
ALPHA-CHLORDANE	5103-71-9	1.5	3.4	1.5	1.1	UG/KG	U J	UJ	Q
BETA BHC (BETA HEXACHLORO	319-85-7	1.5	4.0	1.5	1.3	UG/KG	U J	UJ	Q
BETA ENDOSULFAN	33213-65-9	1.5	2.9	1.5	0.94	UG/KG	U J	UJ	Q
DELTA BHC (DELTA HEXACHLO	319-86-8	1.5	4.6	1.5	1.4	UG/KG	U J	UJ	Q
DIELDRIN	60-57-1	0.77	1.9	0.77	0.54	UG/KG	U J	UJ	Q
ENDOSULFAN SULFATE	1031-07-8	1.5	3.4	1.5	0.99	UG/KG	U J	UJ	Q
ENDRIN	72-20-8	0.77	1.9	0.77	0.57	UG/KG	U J	UJ	Q
ENDRIN ALDEHYDE	7421-93-4	1.5	3.4	1.5	1.1	UG/KG	U J	UJ	Q
ENDRIN KETONE	53494-70-5	0.77	2.3	0.77	0.72	UG/KG	U J	UJ	Q
GAMMA BHC (LINDANE)	58-89-9	1.5	2.9	1.5	0.85	UG/KG	U J	UJ	Q
GAMMA-CHLORDANE	5566-34-7	0.77	1.9	0.77	0.48	UG/KG	U J	UJ	Q
HEPTACHLOR	76-44-8	1.5	4.0	1.5	1.3	UG/KG	U J	U	
HEPTACHLOR EPOXIDE	1024-57-3	1.5	2.9	1.5	0.91	UG/KG	U J	UJ	Q
METHOXYCHLOR	72-43-5	3.8	5.7	3.8	1.7	UG/KG	U J	UJ	Q
P,P'-DDD	72-54-8	0.77	2.3	0.77	0.71	UG/KG	U J	UJ	Q
P,P'-DDE	72-55-9	0.77	1.9	0.77	0.45	UG/KG	U J	UJ	Q
P,P'-DDT	50-29-3	0.77	2.3	0.77	0.72	UG/KG	U J	U	
TOXAPHENE	8001-35-2	23	77	23	22	UG/KG	U	UJ	C

Sample Delivery Group: 240-18297-1

Analysis Method SW8082

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PCB-1016 (AROCHLOR 1016)	12674-11-2	28	74	28	24	UG/KG	U	U	
PCB-1221 (AROCHLOR 1221)	11104-28-2	28	57	28	18	UG/KG	U	U	
PCB-1232 (AROCHLOR 1232)	11141-16-5	28	51	28	16	UG/KG	U	U	
PCB-1242 (AROCHLOR 1242)	53469-21-9	28	46	28	15	UG/KG	U	U	
PCB-1248 (AROCHLOR 1248)	12672-29-6	28	63	28	19	UG/KG	U	U	
PCB-1254 (AROCHLOR 1254)	11097-69-1	28	63	28	19	UG/KG	U	U	
PCB-1260 (AROCHLOR 1260)	11096-82-5	28	63	28	19	UG/KG	U	U	

Sample Delivery Group: 240-18297-1

Analysis Method SW8260B

Sample Name 072SB-0001-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	25	250	25	12	UG/KG	U J	UJ	S
ETHYLBENZENE	100-41-4	9.9	250	9.9	5.4	UG/KG	U J	UJ	S
TOLUENE	108-88-3	25	250	25	17	UG/KG	U J	UJ	S
XYLENES, TOTAL		30	500	30	8.0	UG/KG	U J	UJ	S

Sample Name 072SB-0012-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	0.47	4.7	0.47	0.22	UG/KG	U	UJ	S
ETHYLBENZENE	100-41-4	0.47	4.7	0.47	0.24	UG/KG	U	UJ	S
TOLUENE	108-88-3	0.47	4.7	0.47	0.25	UG/KG	U	UJ	S
XYLENES, TOTAL		1.4	9.4	1.4	0.63	UG/KG	U	UJ	S

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.88	4.4	0.88	0.49	UG/KG	U	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.44	4.4	0.44	0.30	UG/KG	U	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.44	4.4	0.44	0.34	UG/KG	U	U	
1,1-DICHLOROETHANE	75-34-3	0.44	4.4	0.44	0.32	UG/KG	U	U	
1,1-DICHLOROETHENE	75-35-4	0.88	4.4	0.88	0.46	UG/KG	U	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	0.88	4.4	0.88	0.44	UG/KG	U	U	
1,2-DICHLOROETHANE	107-06-2	0.44	4.4	0.44	0.30	UG/KG	U	U	
1,2-DICHLOROPROPANE	78-87-5	0.88	4.4	0.88	0.60	UG/KG	U	U	
2-HEXANONE	591-78-6	0.88	18	0.88	0.55	UG/KG	U	UJ	C
ACETONE	67-64-1	5.5	18	5.5	5.5	UG/KG	U	UJ	C
BENZENE	71-43-2	0.44	4.4	0.44	0.20	UG/KG	U	U	
BROMOCHLOROMETHANE	74-97-5	0.88	4.4	0.88	0.62	UG/KG	U	U	
BROMODICHLOROMETHANE	75-27-4	0.44	4.4	0.44	0.25	UG/KG	U	U	

Sample Delivery Group: 240-18297-1

BROMOFORM	75-25-2	0.44	4.4	0.44	0.29	UG/KG	U	U
BROMOMETHANE	74-83-9	0.88	4.4	0.88	0.47	UG/KG	U	U
CARBON DISULFIDE	75-15-0	0.44	4.4	0.44	0.39	UG/KG	U	U
CARBON TETRACHLORIDE	56-23-5	0.44	4.4	0.44	0.32	UG/KG	U	U
CHLOROBENZENE	108-90-7	0.44	4.4	0.44	0.29	UG/KG	U	U
CHLOROETHANE	75-00-3	0.88	4.4	0.88	0.75	UG/KG	U	U
CHLOROFORM	67-66-3	0.44	4.4	0.44	0.25	UG/KG	U	U
CHLOROMETHANE	74-87-3	0.44	4.4	0.44	0.36	UG/KG	U	U
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.44	4.4	0.44	0.30	UG/KG	U	U
DIBROMOCHLOROMETHANE	124-48-1	0.88	4.4	0.88	0.48	UG/KG	U	U
ETHYLBENZENE	100-41-4	0.44	4.4	0.44	0.23	UG/KG	U	U
METHYL ETHYL KETONE (2-BUT	78-93-3	1.8	18	1.8	1.2	UG/KG	U	U
METHYL ISOBUTYL KETONE (4-	108-10-1	0.88	18	0.88	0.47	UG/KG	U	U
METHYLENE CHLORIDE	75-09-2	0.88	4.4	0.88	0.59	UG/KG	U	U
STYRENE	100-42-5	0.44	4.4	0.44	0.13	UG/KG	U	U
TERT-BUTYL METHYL ETHER	1634-04-4	0.44	4.4	0.44	0.38	UG/KG	U	U
TETRACHLOROETHYLENE(PCE)	127-18-4	0.88	4.4	0.88	0.46	UG/KG	U	U
TOLUENE	108-88-3	0.44	4.4	0.44	0.24	UG/KG	U	U
TOTAL 1,2-DICHLOROETHENE	540-59-0	0.88	8.8	0.88	0.67	UG/KG	U	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.88	4.4	0.88	0.47	UG/KG	U	U
TRICHLOROETHYLENE (TCE)	79-01-6	0.44	4.4	0.44	0.37	UG/KG	U	U
VINYL CHLORIDE	75-01-4	0.44	4.4	0.44	0.34	UG/KG	U	U
XYLENES, TOTAL		1.3	8.8	1.3	0.59	UG/KG	U	U

Sample Delivery Group: 240-18297-1

Analysis Method SW8270D

Sample Name 072SB-0001-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ACENAPHTHENE	83-32-9	4.0	8.0	4.0	4.0	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	4.0	8.0	4.0	4.0	UG/KG	U	U	
ANTHRACENE	120-12-7	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(A)PYRENE	50-32-8	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(G,H,I)PERYLENE	191-24-2	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(K)FLUORANTHENE	207-08-9	4.0	8.0	4.0	4.0	UG/KG	U	U	
CHRYSENE	218-01-9	4.0	8.0	4.0	1.3	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	4.0	8.0	4.0	4.0	UG/KG	U	U	
FLUORANTHENE	206-44-0	4.0	8.0	4.0	4.0	UG/KG	U	U	
FLUORENE	86-73-7	4.0	8.0	4.0	4.0	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	4.0	8.0	4.0	4.0	UG/KG	U	U	
NAPHTHALENE	91-20-3	8.9	8.0	4.0	4.0	UG/KG			
PHENANTHRENE	85-01-8	4.0	8.0	4.0	4.0	UG/KG	U	U	
PYRENE	129-00-0	4.0	8.0	4.0	4.0	UG/KG	U	U	

Sample Name 072SB-0012-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ACENAPHTHENE	83-32-9	3.8	7.6	3.8	3.8	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	3.8	7.6	3.8	3.8	UG/KG	U	U	
ANTHRACENE	120-12-7	3.8	7.6	3.8	3.8	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	3.8	7.6	3.8	3.8	UG/KG	U	U	
BENZO(A)PYRENE	50-32-8	3.8	7.6	3.8	3.8	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	3.8	7.6	3.8	3.8	UG/KG	U	U	
BENZO(G,H,I)PERYLENE	191-24-2	3.8	7.6	3.8	3.8	UG/KG	U	U	
BENZO(K)FLUORANTHENE	207-08-9	3.8	7.6	3.8	3.8	UG/KG	U	U	

CHRYSENE	218-01-9	3.8	7.6	3.8	1.3	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	3.8	7.6	3.8	3.8	UG/KG	U	U	
FLUORANTHENE	206-44-0	3.7	7.6	3.8	3.8	UG/KG	U	U	
FLUORENE	86-73-7	3.8	7.6	3.8	3.8	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	3.8	7.6	3.8	3.8	UG/KG	U	U	
NAPHTHALENE	91-20-3	3.8	7.6	3.8	3.8	UG/KG	U	U	
PHENANTHRENE	85-01-8	3.8	7.6	3.8	3.8	UG/KG	U	U	
PYRENE	129-00-0	3.8	7.6	3.8	3.8	UG/KG	U	U	

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	30	56	30	30	UG/KG	U	U	
1,2-DICHLOROBENZENE	95-50-1	30	56	30	11	UG/KG	U	U	
1,3-DICHLOROBENZENE	541-73-1	30	56	30	12	UG/KG	U	U	
1,4-DICHLOROBENZENE	106-46-7	30	56	30	23	UG/KG	U	U	
2,2'-DICHLORODIISOPROPYL ET	39638-32-9	3.7	110	3.7	2.3	UG/KG	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	30	170	30	28	UG/KG	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	90	170	90	90	UG/KG	U	U	
2,4-DICHLOROPHENOL	120-83-2	30	170	30	23	UG/KG	U	U	
2,4-DIMETHYLPHENOL	105-67-9	90	170	90	23	UG/KG	U	U	
2,4-DINITROPHENOL	51-28-5	90	370	90	90	UG/KG	U	UJ	C
2,4-DINITROTOLUENE	121-14-2	30	230	30	30	UG/KG	U	R	D
2,6-DINITROTOLUENE	606-20-2	30	230	30	24	UG/KG	U	R	D
2-CHLORONAPHTHALENE	91-58-7	3.7	56	3.7	3.7	UG/KG	U	U	
2-CHLOROPHENOL	95-57-8	30	56	30	30	UG/KG	U	U	
2-METHYLNAPHTHALENE	91-57-6	3.7	7.5	3.7	3.7	UG/KG	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	90	230	90	90	UG/KG	U	U	
2-NITROANILINE	88-74-4	30	230	30	10	UG/KG	U	U	
2-NITROPHENOL	88-75-5	30	56	30	30	UG/KG	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	90	110	90	20	UG/KG	U	UJ	C
3-NITROANILINE	99-09-2	90	230	90	18	UG/KG	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	90	170	90	90	UG/KG	U	UJ	C

Sample Delivery Group: 240-18297-1

4-BROMOPHENYL PHENYL ETHE	101-55-3	30	56	30	15	UG/KG	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	30	170	30	24	UG/KG	U	U	
4-CHLOROANILINE	106-47-8	30	170	30	19	UG/KG	U	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	30	56	30	15	UG/KG	U	U	
4-NITROANILINE	100-01-6	30	230	30	29	UG/KG	U	R	C
4-NITROPHENOL	100-02-7	90	370	90	90	UG/KG	U	U	
ACENAPHTHENE	83-32-9	3.7	7.5	3.7	3.7	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	3.7	7.5	3.7	3.7	UG/KG	U	U	
ANTHRACENE	120-12-7	3.7	7.5	3.7	3.7	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	3.7	7.5	3.7	3.7	UG/KG	U	U	
BENZO(A)PYRENE	50-32-8	3.7	7.5	3.7	3.7	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	6.7	7.5	3.7	3.7	UG/KG	J M	J	
BENZO(G,H,I)PERYLENE	191-24-2	3.7	7.5	3.7	3.7	UG/KG	U	U	
BENZO(K)FLUORANTHENE	207-08-9	3.7	7.5	3.7	3.7	UG/KG	U	U	
BENZOIC ACID	65-85-0	380	750	380	380	UG/KG	U	U	
BENZYL ALCOHOL	100-51-6	30	370	30	24	UG/KG	U	U	
BENZYL BUTYL PHTHALATE	85-68-7	30	56	30	11	UG/KG	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	30	110	30	25	UG/KG	U	U	
BIS(2-CHLOROISOPROPYL) ETHE	108-60-1	30	110	30	11	UG/KG	U	U	
BIS(2-ETHYLHEXYL) PHTHALAT	117-81-7	56	56	30	21	UG/KG	J	U	B, result from 22
CARBAZOLE	86-74-8	30	56	30	30	UG/KG	U	U	
CHRYSENE	218-01-9	3.7	7.5	3.7	1.2	UG/KG	U	U	
CRESOLS, M & P		90	450	90	23	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	3.7	7.5	3.7	3.7	UG/KG	U	U	
DIBENZOFURAN	132-64-9	3.7	56	3.7	3.7	UG/KG	U	U	
DIETHYL PHTHALATE	84-66-2	30	56	30	18	UG/KG	U	U	
DIMETHYL PHTHALATE	131-11-3	30	56	30	19	UG/KG	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	30	56	30	17	UG/KG	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	30	56	30	30	UG/KG	U	U	
FLUORANTHENE	206-44-0	3.7	7.5	3.7	3.7	UG/KG	U	U	
FLUORENE	86-73-7	3.7	7.5	3.7	3.7	UG/KG	U	U	
HEXACHLOROBENZENE	118-74-1	3.7	7.5	3.7	2.4	UG/KG	U	U	
HEXACHLOROBUTADIENE	87-68-3	30	56	30	30	UG/KG	U	U	

Sample Delivery Group: 240-18297-1

HEXACHLOROCYCLOPENTADIE	77-47-4	30	370	30	30	UG/KG	U	U
HEXACHLOROETHANE	67-72-1	30	56	30	10	UG/KG	U	U
INDENO(1,2,3-C,D)PYRENE	193-39-5	3.7	7.5	3.7	3.7	UG/KG	U	U
ISOPHORONE	78-59-1	30	56	30	15	UG/KG	U	U
NAPHTHALENE	91-20-3	5.4	7.5	3.7	3.7	UG/KG	J	J
NITROBENZENE	98-95-3	3.7	110	3.7	2.5	UG/KG	U	U
N-NITROSODI-N-PROPYLAMINE	621-64-7	30	56	30	30	UG/KG	U	U
N-NITROSODIPHENYLAMINE	86-30-6	30	56	30	24	UG/KG	U	U
PENTACHLOROPHENOL	87-86-5	90	170	90	90	UG/KG	U	U
PHENANTHRENE	85-01-8	3.7	7.5	3.7	3.7	UG/KG	U	U
PHENOL	108-95-2	30	56	30	30	UG/KG	U	U
PYRENE	129-00-0	3.7	7.5	3.7	3.7	UG/KG	U	U

Sample Delivery Group: 240-18297-1

Analysis Method SW8330

Sample Name 072SB-0014-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18297-17 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-TRINITROBENZENE	99-35-4	0.049	0.25	0.049	0.0099	MG/KG	U	U	
1,3-DINITROBENZENE	99-65-0	0.049	0.25	0.049	0.0042	MG/KG	U	U	
2,4,6-TRINITROTOLUENE	118-96-7	0.049	0.25	0.049	0.019	MG/KG	U	U	
2,4-DINITROTOLUENE	121-14-2	0.049	0.25	0.049	0.0052	MG/KG	U	U	
2,6-DINITROTOLUENE	606-20-2	0.049	0.25	0.049	0.0072	MG/KG	U	U	
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	0.049	0.25	0.049	0.012	MG/KG	U	U	
2-NITROTOLUENE	88-72-2	0.049	0.25	0.049	0.013	MG/KG	U	UJ	C
3-NITROTOLUENE	99-08-1	0.049	0.25	0.049	0.015	MG/KG	U	U	
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	0.049	0.25	0.049	0.0099	MG/KG	U	U	
4-NITROTOLUENE	99-99-0	0.049	0.25	0.049	0.018	MG/KG	U	U	
HMX	2691-41-0	0.049	0.25	0.049	0.012	MG/KG	U	U	
NITROBENZENE	98-95-3	0.049	0.25	0.049	0.017	MG/KG	U	R	D
NITROGLYCERIN	55-63-0	0.25	0.49	0.25	0.015	MG/KG	U	U	
NITROGUANIDINE	2691-41-0	0.04	0.25	0.040	0.020	MG/KG	U	U	
PETN	78-11-5	0.25	0.49	0.25	0.025	MG/KG	U	U	
RDX	121-82-4	0.049	0.25	0.049	0.012	MG/KG	U	UJ	C
TETRYL	479-45-8	0.049	0.25	0.049	0.0099	MG/KG	U	U	

Sample Delivery Group: 240-18441-1

Analysis Method M8015D

Sample Name 072SB-0026-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		9.6	17	9.6	9.6	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		9.6	17	9.6	9.6	MG/KG	U	U	

Sample Name 072SB-0030-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		9.7	17	9.7	9.7	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		9.7	17	9.7	9.7	MG/KG	U	U	

Analysis Method M8015V

Sample Name 072SB-0026-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		40	80	40	37	UG/KG	U	U	

Sample Name 072SB-0030-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		42	84	42	39	UG/KG	U	U	

Sample Delivery Group: 240-18441-1

Analysis Method SW6020

Sample Name 072SB-0026-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	6000.0	3.0	0.60	0.29	MG/KG	J	J	
ANTIMONY	7440-36-0	0.10	0.20	0.10	0.046	MG/KG	U J	R	Q
ARSENIC	7440-38-2	0.51	0.10	0.050	0.018	MG/KG		J-	Q
BARIUM	7440-39-3	31.0	1.0	0.020	0.011	MG/KG	Q	J	M
BERYLLIUM	7440-41-7	0.69	0.10	0.010	0.0075	MG/KG			
CADMIUM	7440-43-9	0.19	0.10	0.030	0.013	MG/KG	Q	J+	I
CALCIUM	7440-70-2	750.0	10	2.5	1.3	MG/KG		J-	Q
CHROMIUM	7440-47-3	13.0	0.20	0.040	0.022	MG/KG			
COBALT	7440-48-4	5.5	0.050	0.010	0.0024	MG/KG	Q		
COPPER	7440-50-8	17.0	0.20	0.060	0.033	MG/KG	Q	J-	Q
IRON	7439-89-6	11000.0	5.0	2.0	1.1	MG/KG			
LEAD	7439-92-1	8.7	0.10	0.030	0.015	MG/KG			
MAGNESIUM	7439-95-4	2300.0	10	2.0	1.1	MG/KG			
MANGANESE	7439-96-5	210.0	0.50	0.030	0.016	MG/KG	Q J	J	
NICKEL	7440-02-0	16.0	0.10	0.030	0.011	MG/KG	Q		
POTASSIUM	7440-09-7	1300.0	10	6.0	3.2	MG/KG			
SELENIUM	7782-49-2	0.74	0.50	0.10	0.051	MG/KG		J-	Q
SILVER	7440-22-4	0.03	0.10	0.030	0.011	MG/KG	J	J+	I
SODIUM	7440-23-5	71.0	10	5.0	2.7	MG/KG			
THALLIUM	7440-28-0	0.12	0.10	0.020	0.010	MG/KG	J	J-	Q
VANADIUM	7440-62-2	8.9	0.10	0.060	0.030	MG/KG			
ZINC	7440-66-6	45.0	0.50	0.20	0.065	MG/KG	Q	J	A

Analysis Method SW7471A

Sample Name 072SB-0026-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.032	0.097	0.032	0.014	MG/KG	U	U	

Sample Delivery Group: 240-18441-1

Analysis Method SW8260B

Sample Name 072SB-0026-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	0.51	5.1	0.51	0.24	UG/KG	U	UJ	S
ETHYLBENZENE	100-41-4	0.51	5.1	0.51	0.27	UG/KG	U	UJ	S
TOLUENE	108-88-3	0.51	5.1	0.51	0.28	UG/KG	U	UJ	S
XYLENES, TOTAL		1.5	10	1.5	0.69	UG/KG	U	UJ	S

Sample Name 072SB-0030-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.88	4.4	0.88	0.49	UG/KG	U	UJ	S
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.44	4.4	0.44	0.30	UG/KG	U	UJ	S, I
1,1,2-TRICHLOROETHANE	79-00-5	0.44	4.4	0.44	0.34	UG/KG	U	UJ	S
1,1-DICHLOROETHANE	75-34-3	0.44	4.4	0.44	0.32	UG/KG	U	UJ	S
1,1-DICHLOROETHENE	75-35-4	0.88	4.4	0.88	0.46	UG/KG	U	UJ	S
1,2-DIBROMOETHANE (ETHYLEN	06-93-4	0.88	4.4	0.88	0.44	UG/KG	U	UJ	S
1,2-DICHLOROETHANE	107-06-2	0.44	4.4	0.44	0.30	UG/KG	U	UJ	S
1,2-DICHLOROPROPANE	78-87-5	0.88	4.4	0.88	0.61	UG/KG	U	UJ	S
2-HEXANONE	591-78-6	0.88	18	0.88	0.55	UG/KG	U	UJ	C, S
ACETONE	67-64-1	5.5	18	5.5	5.5	UG/KG	U	UJ	C, S
BENZENE	71-43-2	0.44	4.4	0.44	0.20	UG/KG	U	UJ	S
BROMOCHLOROMETHANE	74-97-5	0.88	4.4	0.88	0.62	UG/KG	U	UJ	S
BROMODICHLOROMETHANE	75-27-4	0.44	4.4	0.44	0.25	UG/KG	U	UJ	S
BROMOFORM	75-25-2	0.44	4.4	0.44	0.29	UG/KG	U	UJ	S
BROMOMETHANE	74-83-9	0.88	4.4	0.88	0.47	UG/KG	U	UJ	S
CARBON DISULFIDE	75-15-0	0.44	4.4	0.44	0.39	UG/KG	U	UJ	S
CARBON TETRACHLORIDE	56-23-5	0.44	4.4	0.44	0.33	UG/KG	U	UJ	S
CHLOROBENZENE	108-90-7	0.44	4.4	0.44	0.29	UG/KG	U	UJ	S
CHLOROETHANE	75-00-3	0.88	4.4	0.88	0.76	UG/KG	U	UJ	S
CHLOROFORM	67-66-3	0.44	4.4	0.44	0.26	UG/KG	U	UJ	S

Sample Delivery Group: 240-18441-1

CHLOROMETHANE	74-87-3	0.44	4.4	0.44	0.36	UG/KG	U	UJ	S
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.44	4.4	0.44	0.30	UG/KG	U	UJ	S
DIBROMOCHLOROMETHANE	124-48-1	0.88	4.4	0.88	0.48	UG/KG	U	UJ	S
ETHYLBENZENE	100-41-4	0.44	4.4	0.44	0.23	UG/KG	U	UJ	S
METHYL ETHYL KETONE (2-BUT	78-93-3	1.8	18	1.8	1.2	UG/KG	U	UJ	S
METHYL ISOBUTYL KETONE (4-	108-10-1	0.88	18	0.88	0.47	UG/KG	U	UJ	S
METHYLENE CHLORIDE	75-09-2	0.88	4.4	0.88	0.59	UG/KG	U	UJ	S
STYRENE	100-42-5	0.44	4.4	0.44	0.13	UG/KG	U	UJ	S
TERT-BUTYL METHYL ETHER	1634-04-4	0.44	4.4	0.44	0.38	UG/KG	U	UJ	S
TETRACHLOROETHYLENE(PCE)	127-18-4	0.88	4.4	0.88	0.46	UG/KG	U	UJ	S
TOLUENE	108-88-3	0.44	4.4	0.44	0.24	UG/KG	U	UJ	S
TOTAL 1,2-DICHLOROETHENE	540-59-0	0.88	8.8	0.88	0.68	UG/KG	U	UJ	S
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.88	4.4	0.88	0.47	UG/KG	U	UJ	S
TRICHLOROETHYLENE (TCE)	79-01-6	0.44	4.4	0.44	0.37	UG/KG	U	UJ	S
VINYL CHLORIDE	75-01-4	0.44	4.4	0.44	0.34	UG/KG	U	UJ	S
XYLENES, TOTAL		1.3	8.8	1.3	0.59	UG/KG	U	UJ	S

Sample Delivery Group: 240-18441-1

Analysis Method SW8270D

Sample Name 072SB-0026-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18441-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ACENAPHTHENE	83-32-9	3.4	6.9	3.4	3.4	UG/KG	U	UJ	S
ACENAPHTHENE	83-32-9	3.5	7.0	3.5	3.5	UG/KG	U H	R	D
ACENAPHTHYLENE	208-96-8	3.4	6.9	3.4	3.4	UG/KG	U	UJ	S
ACENAPHTHYLENE	208-96-8	3.5	7.0	3.5	3.5	UG/KG	U H	R	D
ANTHRACENE	120-12-7	3.4	6.9	3.4	3.4	UG/KG	U	UJ	S
ANTHRACENE	120-12-7	3.5	7.0	3.5	3.5	UG/KG	U H	R	D
BENZO(A)ANTHRACENE	56-55-3	15.0	6.9	3.4	3.4	UG/KG		J	S
BENZO(A)ANTHRACENE	56-55-3	3.5	7.0	3.5	3.5	UG/KG	U H	R	D
BENZO(A)PYRENE	50-32-8	18.0	7.0	3.5	3.5	UG/KG	H	R	D
BENZO(A)PYRENE	50-32-8	18.0	6.9	3.4	3.4	UG/KG		J	S
BENZO(B)FLUORANTHENE	205-99-2	12.0	7.0	3.5	3.5	UG/KG	H	R	D
BENZO(B)FLUORANTHENE	205-99-2	16.0	6.9	3.4	3.4	UG/KG		J	S
BENZO(G,H,I)PERYLENE	191-24-2	130.0	7.0	3.5	3.5	UG/KG	H	R	D
BENZO(G,H,I)PERYLENE	191-24-2	140.0	6.9	3.4	3.4	UG/KG		J	S
BENZO(K)FLUORANTHENE	207-08-9	3.5	7.0	3.5	3.5	UG/KG	U H	R	D
BENZO(K)FLUORANTHENE	207-08-9	5.8	6.9	3.4	3.4	UG/KG	J M	J	S
CHRYSENE	218-01-9	3.5	7.0	3.5	1.2	UG/KG	U H	R	D
CHRYSENE	218-01-9	9.1	6.9	3.4	1.1	UG/KG		J	S
DIBENZ(A,H)ANTHRACENE	53-70-3	3.4	6.9	3.4	3.4	UG/KG	U	UJ	S
DIBENZ(A,H)ANTHRACENE	53-70-3	7.1	7.0	3.5	3.5	UG/KG	H	R	D
FLUORANTHENE	206-44-0	12.0	6.9	3.4	3.4	UG/KG		J	S
FLUORANTHENE	206-44-0	9.5	7.0	3.5	3.5	UG/KG	H	R	D
FLUORENE	86-73-7	10.0	7.0	3.5	3.5	UG/KG	H	R	D
FLUORENE	86-73-7	8.4	6.9	3.4	3.4	UG/KG		J	S
INDENO(1,2,3-C,D)PYRENE	193-39-5	17.0	6.9	3.4	3.4	UG/KG		J	S
INDENO(1,2,3-C,D)PYRENE	193-39-5	18.0	7.0	3.5	3.5	UG/KG	H	R	D
NAPHTHALENE	91-20-3	29.0	6.9	3.4	3.4	UG/KG		J	S
NAPHTHALENE	91-20-3	30.0	7.0	3.5	3.5	UG/KG	H	R	D

Sample Delivery Group: 240-18441-1

PHENANTHRENE	85-01-8	47.0	7.0	3.5	3.5	UG/KG	H	R	D
PHENANTHRENE	85-01-8	50.0	6.9	3.4	3.4	UG/KG		J	S
PYRENE	129-00-0	15.0	7.0	3.5	3.5	UG/KG	H	R	D
PYRENE	129-00-0	16.0	6.9	3.4	3.4	UG/KG		J	S

Sample Delivery Group: 240-18449-1

Analysis Method M8015D

Sample Name 072SB-0039-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18449-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		11	20	11	11	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		11	20	11	11	MG/KG	U	U	

Analysis Method M8015V

Sample Name 072SB-0039-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18449-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		750.0	90	45	41	UG/KG			

Sample Delivery Group: 240-18449-1

Analysis Method SW6020

Sample Name 072SB-0039-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18449-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	12000.0	3.3	0.67	0.32	MG/KG			
ANTIMONY	7440-36-0	0.11	0.22	0.11	0.051	MG/KG	U	R	Q
ARSENIC	7440-38-2	9.4	0.11	0.056	0.020	MG/KG		J-	Q
BARIUM	7440-39-3	50.0	1.1	0.022	0.012	MG/KG	Q	J-	Q, M
BERYLLIUM	7440-41-7	0.64	0.11	0.011	0.0084	MG/KG		J-	Q
CADMIUM	7440-43-9	0.19	0.11	0.033	0.015	MG/KG	Q	J+	I
CALCIUM	7440-70-2	20000.0	11	2.8	1.5	MG/KG			
CHROMIUM	7440-47-3	18.0	0.22	0.045	0.025	MG/KG		J-	Q
COBALT	7440-48-4	8.5	0.056	0.011	0.0027	MG/KG	Q		
COPPER	7440-50-8	18.0	0.22	0.067	0.037	MG/KG	Q		
IRON	7439-89-6	24000.0	5.6	2.2	1.2	MG/KG			
LEAD	7439-92-1	9.7	0.11	0.033	0.017	MG/KG		J+	Q
MAGNESIUM	7439-95-4	6000.0	11	2.2	1.2	MG/KG			
MANGANESE	7439-96-5	270.0	0.56	0.033	0.018	MG/KG	Q		
NICKEL	7440-02-0	24.0	0.11	0.033	0.013	MG/KG	Q	J-	Q
POTASSIUM	7440-09-7	2500.0	11	6.7	3.5	MG/KG		J-	E, Q
SELENIUM	7782-49-2	0.78	0.56	0.11	0.057	MG/KG		J-	Q
SILVER	7440-22-4	0.029	0.11	0.033	0.013	MG/KG	J	J+	I
SODIUM	7440-23-5	84.0	11	5.6	3.0	MG/KG			
THALLIUM	7440-28-0	0.14	0.11	0.022	0.011	MG/KG			
VANADIUM	7440-62-2	20.0	0.11	0.067	0.033	MG/KG		J-	Q
ZINC	7440-66-6	53.0	0.56	0.22	0.072	MG/KG	Q		

Analysis Method SW7471A

Sample Name 072SB-0039-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18449-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.039	0.12	0.039	0.016	MG/KG	U	U	

Sample Delivery Group: 240-18449-1

Analysis Method SW8260B

Sample Name 072SB-0039-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18449-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.98	4.9	0.98	0.55	UG/KG	U	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.49	4.9	0.49	0.33	UG/KG	U	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.49	4.9	0.49	0.38	UG/KG	U	U	
1,1-DICHLOROETHANE	75-34-3	0.49	4.9	0.49	0.35	UG/KG	U	U	
1,1-DICHLOROETHENE	75-35-4	0.98	4.9	0.98	0.51	UG/KG	U	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	0.98	4.9	0.98	0.49	UG/KG	U	U	
1,2-DICHLOROETHANE	107-06-2	0.49	4.9	0.49	0.33	UG/KG	U	U	
1,2-DICHLOROPROPANE	78-87-5	0.98	4.9	0.98	0.68	UG/KG	U	U	
2-HEXANONE	591-78-6	0.98	20	0.98	0.62	UG/KG	U	UJ	C
ACETONE	67-64-1	6.2	20	6.2	6.2	UG/KG	U	U	
BENZENE	71-43-2	0.49	4.9	0.49	0.23	UG/KG	U	U	
BROMOCHLOROMETHANE	74-97-5	0.98	4.9	0.98	0.69	UG/KG	U	U	
BROMODICHLOROMETHANE	75-27-4	0.49	4.9	0.49	0.27	UG/KG	U	U	
BROMOFORM	75-25-2	0.49	4.9	0.49	0.32	UG/KG	U	U	
BROMOMETHANE	74-83-9	0.98	4.9	0.98	0.53	UG/KG	U	U	
CARBON DISULFIDE	75-15-0	0.49	4.9	0.49	0.43	UG/KG	U	U	
CARBON TETRACHLORIDE	56-23-5	0.49	4.9	0.49	0.36	UG/KG	U	U	
CHLOROBENZENE	108-90-7	0.49	4.9	0.49	0.32	UG/KG	U	U	
CHLOROETHANE	75-00-3	0.98	4.9	0.98	0.84	UG/KG	U	U	
CHLOROFORM	67-66-3	0.49	4.9	0.49	0.28	UG/KG	U	U	
CHLOROMETHANE	74-87-3	0.49	4.9	0.49	0.40	UG/KG	U	U	
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.49	4.9	0.49	0.33	UG/KG	U	U	
DIBROMOCHLOROMETHANE	124-48-1	0.98	4.9	0.98	0.54	UG/KG	U	U	
ETHYLBENZENE	100-41-4	0.49	4.9	0.49	0.25	UG/KG	U	U	
METHYL ETHYL KETONE (2-BUT	78-93-3	2.0	20	2.0	1.4	UG/KG	U	U	
METHYL ISOBUTYL KETONE (4-	108-10-1	0.98	20	0.98	0.53	UG/KG	U	U	
METHYLENE CHLORIDE	75-09-2	0.98	4.9	0.98	0.66	UG/KG	U	U	
STYRENE	100-42-5	0.49	4.9	0.49	0.15	UG/KG	U	U	

Sample Delivery Group: 240-18449-1

TERT-BUTYL METHYL ETHER	1634-04-4	0.49	4.9	0.49	0.42	UG/KG	U	U
TETRACHLOROETHYLENE(PCE)	127-18-4	0.98	4.9	0.98	0.51	UG/KG	U	U
TOLUENE	108-88-3	0.79	4.9	0.49	0.26	UG/KG	J	J
TOTAL 1,2-DICHLOROETHENE	540-59-0	0.98	9.8	0.98	0.75	UG/KG	U	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.98	4.9	0.98	0.53	UG/KG	U	U
TRICHLOROETHYLENE (TCE)	79-01-6	0.49	4.9	0.49	0.41	UG/KG	U	U
VINYL CHLORIDE	75-01-4	0.49	4.9	0.49	0.38	UG/KG	U	U
XYLENES, TOTAL		1.5	9.8	1.5	0.66	UG/KG	U	U

Analysis Method SW8270D

Sample Name 072SB-0039-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18449-6 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ACENAPHTHENE	83-32-9	4.0	8.0	4.0	4.0	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	4.0	8.0	4.0	4.0	UG/KG	U	U	
ANTHRACENE	120-12-7	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	5.7	8.0	4.0	4.0	UG/KG	J M	J	
BENZO(A)PYRENE	50-32-8	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	4.3	8.0	4.0	4.0	UG/KG	J M	J	
BENZO(G,H,I)PERYLENE	191-24-2	4.0	8.0	4.0	4.0	UG/KG	U	U	
BENZO(K)FLUORANTHENE	207-08-9	4.0	8.0	4.0	4.0	UG/KG	U	U	
CHRYSENE	218-01-9	7.2	8.0	4.0	1.3	UG/KG	J M	J	
DIBENZ(A,H)ANTHRACENE	53-70-3	4.0	8.0	4.0	4.0	UG/KG	U	U	
FLUORANTHENE	206-44-0	4.0	8.0	4.0	4.0	UG/KG	U	U	
FLUORENE	86-73-7	4.0	8.0	4.0	4.0	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	4.0	8.0	4.0	4.0	UG/KG	U	U	
NAPHTHALENE	91-20-3	5.2	8.0	4.0	4.0	UG/KG	J	J	
PHENANTHRENE	85-01-8	4.0	8.0	4.0	4.0	UG/KG	U	U	
PYRENE	129-00-0	4.0	8.0	4.0	4.0	UG/KG	U	U	

Sample Delivery Group: 240-18544-1

Analysis Method M8015D

Sample Name 072SB-0063-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18544-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		10	19	10	10	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		10	19	10	10	MG/KG	U	U	

Analysis Method M8015V

Sample Name 072SB-0063-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18544-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		44	88	44	40	UG/KG	U	U	

Sample Delivery Group: 240-18544-1

Analysis Method SW6020

Sample Name 072SB-0063-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18544-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	5400.0	3.1	0.62	0.29	MG/KG			
ANTIMONY	7440-36-0	0.069	0.21	0.10	0.047	MG/KG	J	J	I, Q
ARSENIC	7440-38-2	11.0	0.10	0.052	0.019	MG/KG		J-	Q
BARIUM	7440-39-3	21.0	1.0	0.021	0.011	MG/KG	Q	J	M
BERYLLIUM	7440-41-7	0.4	0.10	0.010	0.0078	MG/KG			
CADMIUM	7440-43-9	0.15	0.10	0.031	0.014	MG/KG	Q	J	I, Q
CALCIUM	7440-70-2	1200.0	10	2.6	1.4	MG/KG		J+	Q
CHROMIUM	7440-47-3	9.2	0.21	0.041	0.023	MG/KG		J-	Q
COBALT	7440-48-4	7.7	0.052	0.010	0.0025	MG/KG	Q	J-	Q
COPPER	7440-50-8	15.0	0.21	0.062	0.034	MG/KG	Q	J-	Q
IRON	7439-89-6	17000.0	5.2	2.1	1.1	MG/KG			
LEAD	7439-92-1	11.0	0.10	0.031	0.016	MG/KG			
MAGNESIUM	7439-95-4	1600.0	10	2.1	1.1	MG/KG			
MANGANESE	7439-96-5	270.0	0.52	0.031	0.016	MG/KG	Q	J	E
NICKEL	7440-02-0	16.0	0.10	0.031	0.012	MG/KG	Q		
POTASSIUM	7440-09-7	950.0	10	6.2	3.3	MG/KG		J-	Q
SELENIUM	7782-49-2	0.38	0.52	0.10	0.053	MG/KG	J	J	I, Q
SILVER	7440-22-4	0.024	0.10	0.031	0.012	MG/KG	J	J	I, Q
SODIUM	7440-23-5	32.0	10	5.2	2.7	MG/KG		J-	Q
THALLIUM	7440-28-0	0.12	0.10	0.021	0.011	MG/KG			
VANADIUM	7440-62-2	9.8	0.10	0.062	0.031	MG/KG			
ZINC	7440-66-6	59.0	0.52	0.21	0.067	MG/KG	Q		

Analysis Method SW7471A

Sample Name 072SB-0063-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18544-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.017	0.12	0.041	0.017	MG/KG	J	J	

Sample Delivery Group: 240-18544-1

Analysis Method SW8260B

Sample Name 072SB-0063-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18544-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	0.58	5.8	0.58	0.27	UG/KG	U J	U	
ETHYLBENZENE	100-41-4	0.58	5.8	0.58	0.30	UG/KG	U J	U	
TOLUENE	108-88-3	0.58	5.8	0.58	0.32	UG/KG	U J	U	
XYLENES, TOTAL		1.8	12	1.8	0.78	UG/KG	U J	U	

Analysis Method SW8270D

Sample Name 072SB-0063-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18544-1 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ACENAPHTHENE	83-32-9	3.7	7.6	3.7	3.7	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	3.7	7.6	3.7	3.7	UG/KG	U	U	
ANTHRACENE	120-12-7	3.7	7.6	3.7	3.7	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	3.7	7.6	3.7	3.7	UG/KG	U	U	
BENZO(A)PYRENE	50-32-8	3.7	7.6	3.7	3.7	UG/KG	U	U	
BENZO(B)FLUORANTHENE	205-99-2	3.7	7.6	3.7	3.7	UG/KG	U	U	
BENZO(G,H,I)PERYLENE	191-24-2	3.7	7.6	3.7	3.7	UG/KG	U	U	
BENZO(K)FLUORANTHENE	207-08-9	3.7	7.6	3.7	3.7	UG/KG	U	U	
CHRYSENE	218-01-9	3.7	7.6	3.7	1.2	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	3.7	7.6	3.7	3.7	UG/KG	U	U	
FLUORANTHENE	206-44-0	3.7	7.6	3.7	3.7	UG/KG	U	U	
FLUORENE	86-73-7	3.7	7.6	3.7	3.7	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	3.7	7.6	3.7	3.7	UG/KG	U	U	
NAPHTHALENE	91-20-3	3.7	7.6	3.7	3.7	UG/KG	U	U	
PHENANTHRENE	85-01-8	3.7	7.6	3.7	3.7	UG/KG	U	U	
PYRENE	129-00-0	3.7	7.6	3.7	3.7	UG/KG	U	U	

Sample Delivery Group: 240-18703-1

Analysis Method M8015D

Sample Name 072SB-0083-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18703-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		11	19	11	11	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		11	19	11	11	MG/KG	U	U	

Sample Name 072SB-0085-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18703-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
C10-C20 PETROLEUM HYDROCA		11	20	11	11	MG/KG	U	U	
C20-C34 PETROLEUM HYDROCA		11	20	11	11	MG/KG	U	U	

Analysis Method M8015V

Sample Name 072SB-0083-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18703-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		46	93	46	43	UG/KG	U	U	

Sample Name 072SB-0085-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18703-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PETROLEUM HYDROCARBONS C		63	130	63	58	UG/KG	U	U	

Sample Delivery Group: 240-18703-1

Analysis Method SW8260B

Sample Name 072SB-0083-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18703-9 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	0.47	4.7	0.47	0.22	UG/KG	U	U	
ETHYLBENZENE	100-41-4	0.47	4.7	0.47	0.24	UG/KG	U	U	
TOLUENE	108-88-3	2.7	4.7	0.47	0.25	UG/KG	J	J	
XYLENES, TOTAL		1.4	9.4	1.4	0.63	UG/KG	U	U	

Sample Name 072SB-0085-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18703-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	0.60	6.0	0.60	0.28	UG/KG	U	U	
ETHYLBENZENE	100-41-4	0.60	6.0	0.60	0.31	UG/KG	U	U	
TOLUENE	108-88-3	4.3	6.0	0.60	0.32	UG/KG	J	J	
XYLENES, TOTAL		1.8	12	1.8	0.80	UG/KG	U	U	

Sample Delivery Group: 240-18735-1

Analysis Method SW7196A

Sample Name 076SB-0119-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18735-8 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
CHROMIUM, HEXAVALENT	18540-29-9	0.91	0.91	0.91	0.31	MG/KG	U	UJ	H

Sample Name 076SB-0122-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18735-11 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
CHROMIUM, HEXAVALENT	18540-29-9	0.94	0.94	0.94	0.32	MG/KG	U	UJ	H

Sample Name 076SB-0126-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18735-15 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
CHROMIUM, HEXAVALENT	18540-29-9	0.31	0.89	0.89	0.30	MG/KG	J	J-	H

Sample Name 076SB-0130-0001-SO **AnalysisType:** N

Lab Sample Name: 240-18735-19 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
CHROMIUM, HEXAVALENT	18540-29-9	0.88	0.88	0.88	0.30	MG/KG	U	UJ	H

Validated Sample Result Forms for Sampling : Ravenna Army Ammunition Plant Ravenna, Ohio
Remedial Investigation Compliance Restoration Site: RVAAP-75
George Road Sewer Treatment Plant Mercury Spill

Sample Delivery Group: 240-17467-1

Analysis Method E353.2

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROCELLULOSE	9004-70-0	28	78	28	12	MG/KG	U	U	

Analysis Method SW7471A

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.47	0.15	0.050	0.021	MG/KG	J	J-	Q

Analysis Method SW8082

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PCB-1016 (AROCHLOR 1016)	12674-11-2	40	100	40	34	UG/KG	U	U	
PCB-1221 (AROCHLOR 1221)	11104-28-2	40	80	40	26	UG/KG	U	U	
PCB-1232 (AROCHLOR 1232)	11141-16-5	40	72	40	22	UG/KG	U	U	
PCB-1242 (AROCHLOR 1242)	53469-21-9	40	64	40	21	UG/KG	U	U	
PCB-1248 (AROCHLOR 1248)	12672-29-6	40	88	40	27	UG/KG	U	U	
PCB-1254 (AROCHLOR 1254)	11097-69-1	40	88	40	27	UG/KG	U	U	
PCB-1260 (AROCHLOR 1260)	11096-82-5	40	88	40	27	UG/KG	U	U	

Sample Delivery Group: 240-17467-1

Analysis Method SW8260B

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	1.5	7.6	1.5	0.86	UG/KG	U J	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.76	7.6	0.76	0.52	UG/KG	U J	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.76	7.6	0.76	0.60	UG/KG	U	U	
1,1-DICHLOROETHANE	75-34-3	0.76	7.6	0.76	0.55	UG/KG	U	U	
1,1-DICHLOROETHENE	75-35-4	1.5	7.6	1.5	0.80	UG/KG	U	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	1.5	7.6	1.5	0.76	UG/KG	U	U	
1,2-DICHLOROETHANE	107-06-2	0.76	7.6	0.76	0.52	UG/KG	U	U	
1,2-DICHLOROPROPANE	78-87-5	1.5	7.6	1.5	1.1	UG/KG	U	U	
2-HEXANONE	591-78-6	1.6	31	1.5	0.96	UG/KG	J	J	
ACETONE	67-64-1	9.6	31	9.6	9.6	UG/KG	U	U	
BENZENE	71-43-2	0.76	7.6	0.76	0.35	UG/KG	U	U	
BROMOCHLOROMETHANE	74-97-5	1.5	7.6	1.5	1.1	UG/KG	U	U	
BROMODICHLOROMETHANE	75-27-4	0.76	7.6	0.76	0.43	UG/KG	U J	U	
BROMOFORM	75-25-2	0.76	7.6	0.76	0.50	UG/KG	U	U	
BROMOMETHANE	74-83-9	1.5	7.6	1.5	0.83	UG/KG	U	U	
CARBON DISULFIDE	75-15-0	1.3	7.6	0.76	0.67	UG/KG	J	J	
CARBON TETRACHLORIDE	56-23-5	0.76	7.6	0.76	0.57	UG/KG	U	U	
CHLOROBENZENE	108-90-7	0.76	7.6	0.76	0.50	UG/KG	U J	U	
CHLOROETHANE	75-00-3	1.5	7.6	1.5	1.3	UG/KG	U J	U	
CHLOROFORM	67-66-3	0.76	7.6	0.76	0.44	UG/KG	U	U	
CHLOROMETHANE	74-87-3	0.76	7.6	0.76	0.63	UG/KG	U	U	
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.76	7.6	0.76	0.52	UG/KG	U J	U	
DIBROMOCHLOROMETHANE	124-48-1	1.5	7.6	1.5	0.84	UG/KG	U	U	
ETHYLBENZENE	100-41-4	0.76	7.6	0.76	0.40	UG/KG	U J	U	
METHYL ETHYL KETONE (2-BUT	78-93-3	3.1	31	3.1	2.1	UG/KG	U	U	
METHYL ISOBUTYL KETONE (4-	108-10-1	1.5	31	1.5	0.83	UG/KG	U	U	
METHYLENE CHLORIDE	75-09-2	1.5	7.6	1.5	1.0	UG/KG	U J	U	
STYRENE	100-42-5	7.6	7.6	0.76	0.23	UG/KG	J	U	B, result from 0.31

Sample Delivery Group: 240-17467-1

TERT-BUTYL METHYL ETHER	1634-04-4	0.76	7.6	0.76	0.66	UG/KG	U	U
TETRACHLOROETHYLENE(PCE)	127-18-4	1.5	7.6	1.5	0.80	UG/KG	U J	U
TOLUENE	108-88-3	0.76	7.6	0.76	0.41	UG/KG	U J	U
TOTAL 1,2-DICHLOROETHENE	540-59-0	1.5	15	1.5	1.2	UG/KG	U J	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	1.5	7.6	1.5	0.83	UG/KG	U	U
TRICHLOROETHYLENE (TCE)	79-01-6	0.76	7.6	0.76	0.64	UG/KG	U	U
VINYL CHLORIDE	75-01-4	0.76	7.6	0.76	0.60	UG/KG	U	U
XYLENES, TOTAL		2.3	15	2.3	1.0	UG/KG	U J	U

Sample Delivery Group: 240-17467-1

Analysis Method SW8270D

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	43	80	43	43	UG/KG	U	U	
1,2,4-TRICHLOROBENZENE	120-82-1	43	80	43	43	UG/KG	U H	R	D
1,2-DICHLOROBENZENE	95-50-1	140.0	80	43	15	UG/KG			
1,2-DICHLOROBENZENE	95-50-1	43	80	43	15	UG/KG	U H	R	D
1,3-DICHLOROBENZENE	541-73-1	43	80	43	18	UG/KG	U H	R	D
1,3-DICHLOROBENZENE	541-73-1	43	80	43	18	UG/KG	U	U	
1,4-DICHLOROBENZENE	106-46-7	43	80	43	32	UG/KG	U H	R	D
1,4-DICHLOROBENZENE	106-46-7	50.0	80	43	32	UG/KG	J	J	
2,2'-OXYBIS(1-CHLORO)PROPAN	108-60-1	43	160	43	15	UG/KG	U	U	
2,2'-OXYBIS(1-CHLORO)PROPAN	108-60-1	43	160	43	15	UG/KG	U H J	R	D
2,4,5-TRICHLOROPHENOL	95-95-4	43	240	43	40	UG/KG	U H	R	D
2,4,5-TRICHLOROPHENOL	95-95-4	43	240	43	40	UG/KG	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	130	240	130	130	UG/KG	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	130	240	130	130	UG/KG	U H	R	D
2,4-DICHLOROPHENOL	120-83-2	43	240	43	32	UG/KG	U	U	
2,4-DICHLOROPHENOL	120-83-2	43	240	43	32	UG/KG	U H	R	D
2,4-DIMETHYLPHENOL	105-67-9	130	240	130	32	UG/KG	U	U	
2,4-DIMETHYLPHENOL	105-67-9	130	240	130	32	UG/KG	U H	R	D
2,4-DINITROPHENOL	51-28-5	130	530	130	130	UG/KG	U H	UJ	C
2,4-DINITROPHENOL	51-28-5	130	530	130	130	UG/KG	U	UJ	C
2,4-DINITROTOLUENE	121-14-2	43	320	43	43	UG/KG	U H	R	D
2,4-DINITROTOLUENE	121-14-2	43	320	43	43	UG/KG	U	R	D
2,6-DINITROTOLUENE	606-20-2	43	320	43	33	UG/KG	U	R	D
2,6-DINITROTOLUENE	606-20-2	43	320	43	33	UG/KG	U H	R	D
2-CHLORONAPHTHALENE	91-58-7	5.3	80	5.3	5.3	UG/KG	U H	R	D
2-CHLORONAPHTHALENE	91-58-7	5.3	80	5.3	5.3	UG/KG	U	U	
2-CHLOROPHENOL	95-57-8	43	80	43	43	UG/KG	U H	R	D
2-CHLOROPHENOL	95-57-8	43	80	43	43	UG/KG	U	U	

Sample Delivery Group: 240-17467-1

2-METHYLNAPHTHALENE	91-57-6	18.0	11	5.3	5.3	UG/KG			
2-METHYLNAPHTHALENE	91-57-6	24.0	11	5.3	5.3	UG/KG	H	R	D
2-METHYLPHENOL (O-CRESOL)	95-48-7	130	320	130	130	UG/KG	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	130	320	130	130	UG/KG	U H	R	D
2-NITROANILINE	88-74-4	43	320	43	15	UG/KG	U	U	
2-NITROANILINE	88-74-4	43	320	43	14	UG/KG	U H	R	D
2-NITROPHENOL	88-75-5	43	80	43	43	UG/KG	U	U	
2-NITROPHENOL	88-75-5	43	80	43	43	UG/KG	U H	R	D
3,3'-DICHLOROBENZIDINE	91-94-1	130	160	130	29	UG/KG	U H J	R	D
3,3'-DICHLOROBENZIDINE	91-94-1	130	160	130	29	UG/KG	U J	R	Q
3-NITROANILINE	99-09-2	130	320	130	25	UG/KG	U H J	R	D
3-NITROANILINE	99-09-2	130	320	130	26	UG/KG	U J	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	130	240	130	130	UG/KG	U	UJ	C
4,6-DINITRO-2-METHYLPHENOL	534-52-1	130	240	130	130	UG/KG	U H	UJ	C
4-BROMOPHENYL PHENYL ETHE	101-55-3	43	80	43	21	UG/KG	U H	R	D
4-BROMOPHENYL PHENYL ETHE	101-55-3	43	80	43	21	UG/KG	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	43	240	43	33	UG/KG	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	43	240	43	33	UG/KG	U H	R	D
4-CHLOROANILINE	106-47-8	43	240	43	27	UG/KG	U	U	
4-CHLOROANILINE	106-47-8	43	240	43	27	UG/KG	U H	R	D
4-CHLOROPHENYL PHENYL ETH	7005-72-3	43	80	43	21	UG/KG	U H	R	D
4-CHLOROPHENYL PHENYL ETH	7005-72-3	43	80	43	21	UG/KG	U	U	
4-NITROANILINE	100-01-6	43	320	43	41	UG/KG	U J	UJ	Q
4-NITROANILINE	100-01-6	43	320	43	41	UG/KG	U H J	R	D
4-NITROPHENOL	100-02-7	130	530	130	130	UG/KG	U H	R	D
4-NITROPHENOL	100-02-7	130	530	130	130	UG/KG	U	U	
ACENAPHTHENE	83-32-9	19.0	11	5.3	5.3	UG/KG			
ACENAPHTHENE	83-32-9	27.0	11	5.3	5.3	UG/KG	H	R	D
ACENAPHTHYLENE	208-96-8	13.0	11	5.3	5.3	UG/KG			
ACENAPHTHYLENE	208-96-8	20.0	11	5.3	5.3	UG/KG	H	R	D
ANTHRACENE	120-12-7	57.0	11	5.3	5.3	UG/KG			
ANTHRACENE	120-12-7	77.0	11	5.3	5.3	UG/KG	H	R	D
BENZO(A)ANTHRACENE	56-55-3	140.0	11	5.3	5.3	UG/KG	H	R	D

Sample Delivery Group: 240-17467-1

BENZO(A)ANTHRACENE	56-55-3	230.0	11	5.3	5.3	UG/KG			
BENZO(A)PYRENE	50-32-8	160.0	11	5.3	5.3	UG/KG	H	R	D
BENZO(A)PYRENE	50-32-8	250.0	11	5.3	5.3	UG/KG			
BENZO(B)FLUORANTHENE	205-99-2	200.0	11	5.3	5.3	UG/KG	H	R	D
BENZO(B)FLUORANTHENE	205-99-2	360.0	11	5.3	5.3	UG/KG			
BENZO(G,H,I)PERYLENE	191-24-2	120.0	11	5.3	5.3	UG/KG	J	J	C
BENZO(G,H,I)PERYLENE	191-24-2	85.0	11	5.3	5.3	UG/KG	H	R	D
BENZO(K)FLUORANTHENE	207-08-9	140.0	11	5.3	5.3	UG/KG			
BENZO(K)FLUORANTHENE	207-08-9	83.0	11	5.3	5.3	UG/KG	H	R	D
BENZOIC ACID	65-85-0	530	1100	530	530	UG/KG	U H J	R	D
BENZOIC ACID	65-85-0	530	1100	530	530	UG/KG	U J	U	
BENZYL ALCOHOL	100-51-6	43	530	43	33	UG/KG	U H	R	D
BENZYL ALCOHOL	100-51-6	43	530	43	33	UG/KG	U	U	
BENZYL BUTYL PHTHALATE	85-68-7	43	80	43	16	UG/KG	U H	R	D
BENZYL BUTYL PHTHALATE	85-68-7	43	80	43	16	UG/KG	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	43	160	43	35	UG/KG	U H	R	D
BIS(2-CHLOROETHOXY) METHA	111-91-1	43	160	43	35	UG/KG	U	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	5.3	160	5.3	3.2	UG/KG	U H	R	D
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	5.3	160	5.3	3.2	UG/KG	U	U	
BIS(2-ETHYLHEXYL) PHTHALAT	117-81-7	43	80	43	30	UG/KG	U H	UJ	H
CARBAZOLE	86-74-8	44.0	80	43	43	UG/KG	J	J	
CARBAZOLE	86-74-8	50.0	80	43	43	UG/KG	J H	R	D
CHRYSENE	218-01-9	160.0	11	5.3	1.8	UG/KG	H	R	D
CHRYSENE	218-01-9	270.0	11	5.3	1.8	UG/KG			
CRESOLS, M & P		130	640	130	32	UG/KG	U H	R	D
CRESOLS, M & P		130	640	130	32	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	22.0	11	5.3	5.3	UG/KG	H	R	D
DIBENZ(A,H)ANTHRACENE	53-70-3	5.3	11	5.3	5.3	UG/KG	U	UJ	C
DIBENZOFURAN	132-64-9	17.0	80	5.3	5.3	UG/KG	J	J	
DIBENZOFURAN	132-64-9	39.0	80	5.3	5.3	UG/KG	J H	R	D
DIETHYL PHTHALATE	84-66-2	43	80	43	26	UG/KG	U	U	
DIETHYL PHTHALATE	84-66-2	43	80	43	25	UG/KG	U H	R	D
DIMETHYL PHTHALATE	131-11-3	43	80	43	27	UG/KG	U	U	

Sample Delivery Group: 240-17467-1

DIMETHYL PHTHALATE	131-11-3	43	80	43	27	UG/KG	U H	R	D
DI-N-BUTYL PHTHALATE	84-74-2	43	80	43	24	UG/KG	U H	R	D
DI-N-BUTYL PHTHALATE	84-74-2	43	80	43	24	UG/KG	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	43	80	43	43	UG/KG	U H	R	D
DI-N-OCTYLPHTHALATE	117-84-0	43	80	43	43	UG/KG	U	U	
FLUORANTHENE	206-44-0	390.0	11	5.3	5.3	UG/KG	H	R	D
FLUORANTHENE	206-44-0	510.0	11	5.3	5.3	UG/KG			
FLUORENE	86-73-7	5.3	11	5.3	5.3	UG/KG	U	U	
FLUORENE	86-73-7	54.0	11	5.3	5.3	UG/KG	H	R	D
HEXACHLOROBENZENE	118-74-1	5.3	11	5.3	3.3	UG/KG	U H	R	D
HEXACHLOROBENZENE	118-74-1	5.3	11	5.3	3.3	UG/KG	U	U	
HEXACHLOROBUTADIENE	87-68-3	43	80	43	43	UG/KG	U	U	
HEXACHLOROBUTADIENE	87-68-3	43	80	43	43	UG/KG	U H	R	D
HEXACHLOROCYCLOPENTADIE	77-47-4	43	530	43	43	UG/KG	U H	R	D
HEXACHLOROCYCLOPENTADIE	77-47-4	43	530	43	43	UG/KG	U	U	
HEXACHLOROETHANE	67-72-1	43	80	43	14	UG/KG	U H J	R	D
HEXACHLOROETHANE	67-72-1	43	80	43	14	UG/KG	U J	UJ	C
INDENO(1,2,3-C,D)PYRENE	193-39-5	120.0	11	5.3	5.3	UG/KG		J	C
INDENO(1,2,3-C,D)PYRENE	193-39-5	74.0	11	5.3	5.3	UG/KG	H	R	D
ISOPHORONE	78-59-1	43	80	43	21	UG/KG	U H	R	D
ISOPHORONE	78-59-1	43	80	43	21	UG/KG	U	U	
NAPHTHALENE	91-20-3	18.0	11	5.3	5.3	UG/KG			
NAPHTHALENE	91-20-3	41.0	11	5.3	5.3	UG/KG	H	R	D
NITROBENZENE	98-95-3	5.3	160	5.3	3.5	UG/KG	U H J	R	D
NITROBENZENE	98-95-3	5.3	160	5.3	3.5	UG/KG	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	43	80	43	43	UG/KG	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	43	80	43	43	UG/KG	U H	R	D
N-NITROSODIPHENYLAMINE	86-30-6	43	80	43	33	UG/KG	U	U	
N-NITROSODIPHENYLAMINE	86-30-6	43	80	43	33	UG/KG	U H	R	D
PENTACHLOROPHENOL	87-86-5	130	240	130	130	UG/KG	U	U	
PENTACHLOROPHENOL	87-86-5	130	240	130	130	UG/KG	U H	R	D
PHENANTHRENE	85-01-8	260.0	11	5.3	5.3	UG/KG			
PHENANTHRENE	85-01-8	330.0	11	5.3	5.3	UG/KG	H	R	D

Sample Delivery Group: 240-17467-1

PHENOL	108-95-2	43	80	43	43	UG/KG	U H	R	D
PHENOL	108-95-2	43	80	43	43	UG/KG	U	U	
PYRENE	129-00-0	280.0	11	5.3	5.3	UG/KG	H	R	D
PYRENE	129-00-0	390.0	11	5.3	5.3	UG/KG			

Analysis Method SW8330

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-TRINITROBENZENE	99-35-4	0.049	0.25	0.049	0.0098	MG/KG	U	U	
1,3-DINITROBENZENE	99-65-0	0.049	0.25	0.049	0.0041	MG/KG	U	U	
2,4,6-TRINITROTOLUENE	118-96-7	0.049	0.25	0.049	0.019	MG/KG	U	U	
2,4-DINITROTOLUENE	121-14-2	0.049	0.25	0.049	0.0052	MG/KG	U	U	
2,6-DINITROTOLUENE	606-20-2	0.049	0.25	0.049	0.0072	MG/KG	U	U	
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	0.049	0.25	0.049	0.012	MG/KG	U	U	
2-NITROTOLUENE	88-72-2	0.049	0.25	0.049	0.013	MG/KG	U	UJ	C
3-NITROTOLUENE	99-08-1	0.049	0.25	0.049	0.015	MG/KG	U	U	
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	0.049	0.25	0.049	0.0098	MG/KG	U	U	
4-NITROTOLUENE	99-99-0	0.049	0.25	0.049	0.018	MG/KG	U	U	
HMX	2691-41-0	0.049	0.25	0.049	0.012	MG/KG	U	U	
NITROBENZENE	98-95-3	0.049	0.25	0.049	0.017	MG/KG	U	R	D
NITROGLYCERIN	55-63-0	0.25	0.49	0.25	0.015	MG/KG	U	U	
NITROGUANIDINE	556-88-7	0.039	0.24	0.039	0.019	MG/KG	U J	UJ	Q
PETN	78-11-5	0.25	0.49	0.25	0.025	MG/KG	U	U	
RDX	121-82-4	0.049	0.25	0.049	0.012	MG/KG	U	UJ	C
TETRYL	479-45-8	0.029	0.25	0.049	0.0098	MG/KG	J	NJ	*III

Sample Delivery Group: 240-17467-2

Analysis Method SW6020

Sample Name 075SD-0002-0001-SD **AnalysisType:** N

Lab Sample Name: 240-17467-2 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	12000.0	4.4	0.88	0.42	MG/KG	J	J	E
ANTIMONY	7440-36-0	0.21	0.29	0.15	0.067	MG/KG	J	J-	Q
ARSENIC	7440-38-2	9.5	0.15	0.074	0.027	MG/KG		J-	Q
BARIUM	7440-39-3	110.0	1.5	0.029	0.016	MG/KG	Q	J-	Q
BERYLLIUM	7440-41-7	0.89	0.15	0.015	0.011	MG/KG			
CADMIUM	7440-43-9	0.63	0.15	0.044	0.019	MG/KG			
CALCIUM	7440-70-2	6400.0	15	3.7	1.9	MG/KG	J	J	
CHROMIUM	7440-47-3	15.0	0.29	0.059	0.033	MG/KG		J-	E, Q
COBALT	7440-48-4	9.6	0.074	0.015	0.0035	MG/KG	Q		
COPPER	7440-50-8	17.0	0.29	0.088	0.049	MG/KG	Q		
IRON	7439-89-6	20000.0	7.4	2.9	1.6	MG/KG	J	J	
LEAD	7439-92-1	22.0	0.15	0.044	0.023	MG/KG			
MAGNESIUM	7439-95-4	2800.0	15	2.9	1.6	MG/KG	J	J-	Q
MANGANESE	7439-96-5	2200.0	0.74	0.044	0.023	MG/KG	Q J	J	
NICKEL	7440-02-0	21.0	0.15	0.044	0.017	MG/KG	Q	J-	Q
POTASSIUM	7440-09-7	1400.0	15	8.8	4.6	MG/KG	J	J-	E, Q
SELENIUM	7782-49-2	1.3	0.74	0.15	0.075	MG/KG		J-	Q
SILVER	7440-22-4	1.5	0.15	0.044	0.017	MG/KG			
SODIUM	7440-23-5	75.0	15	7.4	3.9	MG/KG		J	E
THALLIUM	7440-28-0	0.21	0.15	0.029	0.015	MG/KG			
VANADIUM	7440-62-2	20.0	0.15	0.088	0.044	MG/KG		J-	E, Q
ZINC	7440-66-6	140.0	0.74	0.29	0.095	MG/KG	Q J	J	

Validated Sample Result Forms for Sampling : Ravenna Army Ammunition Plant Ravenna, Ohio
Remedial Investigation Compliance Restoration Site: RVAAP-77 Building 1037 Laundry Waste Water Sump

Sample Delivery Group: 240-17525-1_(77-SS)2

Analysis Method E353.2

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROCELLULOSE	9004-70-0	17	45	17	7.1	MG/KG	U	U	

Sample Delivery Group: 240-17525-1_(77-SS)2

Analysis Method SW6020

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	8200	2.5	0.5	0.24	MG/KG			
ANTIMONY	7440-36-0	0.2	0.17	0.083	0.038	MG/KG		J	I, Q
ARSENIC	7440-38-2	12	0.083	0.041	0.015	MG/KG		J-	Q
BARIUM	7440-39-3	49	0.83	0.017	0.0088	MG/KG	Q	J	M
BERYLLIUM	7440-41-7	0.46	0.083	0.008	0.0062	MG/KG			
CADMIUM	7440-43-9	0.19	0.083	0.025	0.011	MG/KG		J	I, Q
CALCIUM	7440-70-2	4500	8.3	2.1	1.1	MG/KG		J	A, E
CHROMIUM	7440-47-3	18	0.17	0.033	0.018	MG/KG			
COBALT	7440-48-4	7.4	0.041	0.008	0.002	MG/KG	Q		
COPPER	7440-50-8	16	0.17	0.05	0.027	MG/KG	Q	J	Q
IRON	7439-89-6	22000	4.1	1.7	0.89	MG/KG			
LEAD	7439-92-1	22	0.083	0.025	0.013	MG/KG			
MAGNESIUM	7439-95-4	2800	8.3	1.7	0.89	MG/KG		J+	Q
MANGANESE	7439-96-5	540	0.41	0.025	0.013	MG/KG	Q		
NICKEL	7440-02-0	24	0.083	0.025	0.0093	MG/KG	Q		
POTASSIUM	7440-09-7	830	8.3	5	2.6	MG/KG		J+	Q
SELENIUM	7782-49-2	0.56	0.41	0.083	0.042	MG/KG		J-	Q
SILVER	7440-22-4	0.027	0.083	0.025	0.0094	MG/KG	J	J+	I
SODIUM	7440-23-5	29	8.3	4.1	2.2	MG/KG		UJ	E, F
THALLIUM	7440-28-0	0.13	0.083	0.017	0.0084	MG/KG			
VANADIUM	7440-62-2	16	0.083	0.05	0.025	MG/KG			
ZINC	7440-66-6	63	0.41	0.17	0.054	MG/KG	Q		

Analysis Method SW7471A

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.045	0.1	0.033	0.014	MG/KG	J	J	

Sample Delivery Group: 240-17525-1_(77-SS)2

Analysis Method SW8081

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALDRIN	309-00-2	13	40	13	12	UG/KG	U	U	
ALPHA BHC (ALPHA HEXACHLO	319-84-6	13	25	13	7.3	UG/KG	U	U	
ALPHA ENDOSULFAN	959-98-8	6.7	17	6.7	5.2	UG/KG	U	U	
ALPHA-CHLORDANE	5103-71-9	13	30	13	9.5	UG/KG	U	U	
BETA BHC (BETA HEXACHLORO	319-85-7	13	35	13	11	UG/KG	U J	U	
BETA ENDOSULFAN	33213-65-9	13	25	13	8.2	UG/KG	U	U	
DELTA BHC (DELTA HEXACHLO	319-86-8	13	40	13	12	UG/KG	U	U	
DIELDRIN	60-57-1	6.7	17	6.7	4.7	UG/KG	U	U	
ENDOSULFAN SULFATE	1031-07-8	13	30	13	8.8	UG/KG	U	U	
ENDRIN	72-20-8	6.7	17	6.7	5	UG/KG	U	U	
ENDRIN ALDEHYDE	7421-93-4	13	30	13	10	UG/KG	U	U	
ENDRIN KETONE	53494-70-5	6.7	20	6.7	6.3	UG/KG	U	U	
GAMMA BHC (LINDANE)	58-89-9	13	25	13	7.4	UG/KG	U	U	
GAMMA-CHLORDANE	5566-34-7	6.7	17	6.7	4.2	UG/KG	U	U	
HEPTACHLOR	76-44-8	13	35	13	11	UG/KG	U	U	
HEPTACHLOR EPOXIDE	1024-57-3	13	25	13	8	UG/KG	U J	U	
METHOXYCHLOR	72-43-5	33	50	33	15	UG/KG	U J	U	
P,P'-DDD	72-54-8	6.7	20	6.7	6.2	UG/KG	U	U	
P,P'-DDE	72-55-9	5.2	17	6.7	3.9	UG/KG	J D	J	
P,P'-DDT	50-29-3	6.7	20	6.7	6.3	UG/KG	U	U	
TOXAPHENE	8001-35-2	200	670	200	190	UG/KG	U	UJ	C

Sample Delivery Group: 240-17525-1_(77-SS)2

Analysis Method SW8082

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PCB-1016 (AROCHLOR 1016)	12674-11-2	25	65	25	21	UG/KG	U	U	
PCB-1221 (AROCHLOR 1221)	11104-28-2	25	50	25	16	UG/KG	U	U	
PCB-1232 (AROCHLOR 1232)	11141-16-5	25	45	25	14	UG/KG	U	U	
PCB-1242 (AROCHLOR 1242)	53469-21-9	25	40	25	13	UG/KG	U	U	
PCB-1248 (AROCHLOR 1248)	12672-29-6	25	55	25	17	UG/KG	U	U	
PCB-1254 (AROCHLOR 1254)	11097-69-1	25	55	25	17	UG/KG	U	U	
PCB-1260 (AROCHLOR 1260)	11096-82-5	25	55	25	17	UG/KG	U	U	

Sample Delivery Group: 240-17525-1_(77-SS)2

Analysis Method SW8260B

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.99	4.9	0.99	0.55	UG/KG	U J	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.51	5.1	0.51	0.35	UG/KG	U	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.51	5.1	0.51	0.4	UG/KG	U J	U	
1,1-DICHLOROETHANE	75-34-3	0.51	5.1	0.51	0.37	UG/KG	U	U	
1,1-DICHLOROETHENE	75-35-4	1	5.1	1	0.54	UG/KG	U J	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	1	5.1	1	0.51	UG/KG	U J	U	
1,2-DICHLOROETHANE	107-06-2	0.51	5.1	0.51	0.35	UG/KG	U J	U	
1,2-DICHLOROPROPANE	78-87-5	1	5.1	1	0.71	UG/KG	U	U	
2-HEXANONE	591-78-6	1	21	1	0.65	UG/KG	U J	U	
ACETONE	67-64-1	6.2	20	6.2	6.2	UG/KG	U J	U	
BENZENE	71-43-2	0.51	5.1	0.51	0.24	UG/KG	U J	U	
BROMOCHLOROMETHANE	74-97-5	1	5.1	1	0.73	UG/KG	U J	U	
BROMODICHLOROMETHANE	75-27-4	0.51	5.1	0.51	0.29	UG/KG	U J	U	
BROMOFORM	75-25-2	0.51	5.1	0.51	0.34	UG/KG	U J	U	
BROMOMETHANE	74-83-9	1	5.1	1	0.56	UG/KG	U J	U	
CARBON DISULFIDE	75-15-0	0.51	5.1	0.51	0.45	UG/KG	U J	U	
CARBON TETRACHLORIDE	56-23-5	0.49	4.9	0.49	0.37	UG/KG	U J	U	
CHLOROBENZENE	108-90-7	0.51	5.1	0.51	0.34	UG/KG	U J	U	
CHLOROETHANE	75-00-3	1	5.1	1	0.89	UG/KG	U	U	
CHLOROFORM	67-66-3	0.51	5.1	0.51	0.3	UG/KG	U	U	
CHLOROMETHANE	74-87-3	0.51	5.1	0.51	0.42	UG/KG	U	U	
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.51	5.1	0.51	0.35	UG/KG	U	U	
DIBROMOCHLOROMETHANE	124-48-1	1	5.1	1	0.57	UG/KG	U J	U	
ETHYLBENZENE	100-41-4	0.51	5.1	0.51	0.27	UG/KG	U J	U	
METHYL ETHYL KETONE (2-BUT	78-93-3	2.1	21	2.1	1.4	UG/KG	U J	U	
METHYL ISOBUTYL KETONE (4-	108-10-1	1	21	1	0.56	UG/KG	U J	U	
METHYLENE CHLORIDE	75-09-2	1	5.1	1	0.69	UG/KG	U J	U	
STYRENE	100-42-5	0.51	5.1	0.51	0.15	UG/KG	U J	U	

Sample Delivery Group: 240-17525-1_(77-SS)2

TERT-BUTYL METHYL ETHER	1634-04-4	0.51	5.1	0.51	0.44	UG/KG	U J	U
TETRACHLOROETHYLENE(PCE)	127-18-4	1	5.1	1	0.54	UG/KG	U J	U
TOLUENE	108-88-3	0.51	5.1	0.51	0.28	UG/KG	U J	U
TOTAL 1,2-DICHLOROETHENE	540-59-0	1	10	1	0.79	UG/KG	U J	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	1	5.1	1	0.56	UG/KG	U J	U
TRICHLOROETHYLENE (TCE)	79-01-6	0.51	5.1	0.51	0.43	UG/KG	U	U
VINYL CHLORIDE	75-01-4	0.51	5.1	0.51	0.4	UG/KG	U J	U
XYLENES, TOTAL		1.5	10	1.5	0.69	UG/KG	U J	U

Sample Delivery Group: 240-17525-1_(77-SS)2

Analysis Method SW8270C

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	110	200	110	110	UG/KG	U	U	
1,2-DICHLOROBENZENE	95-50-1	110	200	110	39	UG/KG	U	U	
1,3-DICHLOROBENZENE	541-73-1	110	200	110	45	UG/KG	U	U	
1,4-DICHLOROBENZENE	106-46-7	110	200	110	81	UG/KG	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	110	610	110	100	UG/KG	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	320	610	320	320	UG/KG	U	U	
2,4-DICHLOROPHENOL	120-83-2	110	610	110	81	UG/KG	U	U	
2,4-DIMETHYLPHENOL	105-67-9	320	610	320	81	UG/KG	U	U	
2,4-DINITROPHENOL	51-28-5	320	1300	320	320	UG/KG	U	U	
2,4-DINITROTOLUENE	121-14-2	110	810	110	110	UG/KG	U	R	D
2,6-DINITROTOLUENE	606-20-2	110	810	110	85	UG/KG	U	R	D
2-CHLORONAPHTHALENE	91-58-7	13	200	13	13	UG/KG	U	U	
2-CHLOROPHENOL	95-57-8	110	200	110	110	UG/KG	U	U	
2-METHYLNAPHTHALENE	91-57-6	54	27	13	13	UG/KG			
2-METHYLPHENOL (O-CRESOL)	95-48-7	320	810	320	320	UG/KG	U	U	
2-NITROANILINE	88-74-4	110	810	110	37	UG/KG	U	U	
2-NITROPHENOL	88-75-5	110	200	110	110	UG/KG	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	320	410	320	73	UG/KG	U	UJ	C
3-NITROANILINE	99-09-2	320	810	320	65	UG/KG	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	320	610	320	320	UG/KG	U	U	
4-BROMOPHENYL PHENYL ETHE	101-55-3	110	200	110	53	UG/KG	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	110	610	110	85	UG/KG	U	U	
4-CHLOROANILINE	106-47-8	110	610	110	69	UG/KG	U	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	110	200	110	53	UG/KG	U	U	
4-NITROANILINE	100-01-6	110	810	110	110	UG/KG	U	U	
4-NITROPHENOL	100-02-7	320	1300	320	320	UG/KG	U	U	
ACENAPHTHENE	83-32-9	13	27	13	13	UG/KG	U	U	
ACENAPHTHYLENE	208-96-8	13	27	13	13	UG/KG	U	U	

Sample Delivery Group: 240-17525-1_(77-SS)2

ANTHRACENE	120-12-7	13	27	13	13	UG/KG	U	U	
BENZO(A)ANTHRACENE	56-55-3	57	27	13	13	UG/KG			
BENZO(A)PYRENE	50-32-8	88	27	13	13	UG/KG			
BENZO(B)FLUORANTHENE	205-99-2	91	27	13	13	UG/KG			
BENZO(G,H,I)PERYLENE	191-24-2	47	27	13	13	UG/KG	M		
BENZO(K)FLUORANTHENE	207-08-9	18	27	13	13	UG/KG	J M	J	
BENZOIC ACID	65-85-0	1400	2700	1400	1400	UG/KG	U	R	Q
BENZYL ALCOHOL	100-51-6	110	1300	110	85	UG/KG	U	U	
BENZYL BUTYL PHTHALATE	85-68-7	110	200	110	41	UG/KG	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	110	410	110	89	UG/KG	U	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	13	410	13	8.1	UG/KG	U	U	
BIS(2-CHLOROISOPROPYL) ETHE	108-60-1	110	410	110	39	UG/KG	U	U	
BIS(2-ETHYLHEXYL) PHTHALAT	117-81-7	110	200	110	77	UG/KG	U	U	
CARBAZOLE	86-74-8	110	200	110	110	UG/KG	U	U	
CHRYSENE	218-01-9	66	27	13	4.5	UG/KG			
CRESOLS, M & P		320	1600	320	81	UG/KG	U	U	
DIBENZ(A,H)ANTHRACENE	53-70-3	13	27	13	13	UG/KG	U	U	
DIBENZOFURAN	132-64-9	14	200	13	13	UG/KG	J	J	
DIETHYL PHTHALATE	84-66-2	110	200	110	65	UG/KG	U	U	
DIMETHYL PHTHALATE	131-11-3	110	200	110	69	UG/KG	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	110	200	110	61	UG/KG	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	110	200	110	110	UG/KG	U	U	
FLUORANTHENE	206-44-0	120	27	13	13	UG/KG			
FLUORENE	86-73-7	13	27	13	13	UG/KG	U	U	
HEXACHLOROBENZENE	118-74-1	13	27	13	8.5	UG/KG	U	U	
HEXACHLOROBUTADIENE	87-68-3	110	200	110	110	UG/KG	U	U	
HEXACHLOROCYCLOPENTADIE	77-47-4	110	1300	110	110	UG/KG	U	U	
HEXACHLOROETHANE	67-72-1	110	200	110	37	UG/KG	U	U	
INDENO(1,2,3-C,D)PYRENE	193-39-5	55	27	13	13	UG/KG			
ISOPHORONE	78-59-1	110	200	110	53	UG/KG	U	U	
NAPHTHALENE	91-20-3	44	27	13	13	UG/KG			
NITROBENZENE	98-95-3	13	410	13	8.9	UG/KG	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	110	200	110	110	UG/KG	U	U	

Sample Delivery Group: 240-17525-1_(77-SS)2

N-NITROSODIPHENYLAMINE	86-30-6	110	200	110	85	UG/KG	U	R	C
PENTACHLOROPHENOL	87-86-5	320	610	320	320	UG/KG	U	U	
PHENANTHRENE	85-01-8	77	27	13	13	UG/KG			
PHENOL	108-95-2	110	200	110	110	UG/KG	U	U	
PYRENE	129-00-0	95	27	13	13	UG/KG			

Analysis Method SW8330B

Sample Name 077SS-0001M-0001-SO **AnalysisType:** N

Lab Sample Name: 240-17525-5 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-TRINITROBENZENE	99-35-4	0.05	0.25	0.05	0.01	MG/KG	U	U	
1,3-DINITROBENZENE	99-65-0	0.05	0.25	0.05	0.0042	MG/KG	U	U	
2,4,6-TRINITROTOLUENE	118-96-7	0.05	0.25	0.05	0.019	MG/KG	U	U	
2,4-DINITROTOLUENE	121-14-2	0.05	0.25	0.05	0.0053	MG/KG	U	U	
2,6-DINITROTOLUENE	606-20-2	0.05	0.25	0.05	0.0073	MG/KG	U	U	
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	0.05	0.25	0.05	0.013	MG/KG	U	U	
2-NITROTOLUENE	88-72-2	0.05	0.25	0.05	0.013	MG/KG	U	UJ	C
3-NITROTOLUENE	99-08-1	0.05	0.25	0.05	0.016	MG/KG	U	U	
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	0.05	0.25	0.05	0.01	MG/KG	U	U	
4-NITROTOLUENE	99-99-0	0.05	0.25	0.05	0.018	MG/KG	U	U	
HEXAHYDRO-1,3,5-TRINITRO-1,3,	121-82-4	0.05	0.25	0.05	0.012	MG/KG	U	UJ	C
NITROBENZENE	98-95-3	0.05	0.25	0.05	0.018	MG/KG	U	R	D
NITROGLYCERIN	55-63-0	0.25	0.5	0.25	0.015	MG/KG	U	U	
NITROGUANIDINE	556-88-7	0.04	0.25	0.04	0.02	MG/KG	U	U	
OCTAHYDRO-1,3,5,7-TETRANITR	2691-41-0	0.05	0.25	0.05	0.012	MG/KG	U	U	
PENTAERYTHRITOL TETRANITR	78-11-5	0.25	0.5	0.25	0.025	MG/KG	U	U	
TETRYL	479-45-8	0.05	0.25	0.05	0.01	MG/KG	U	U	

Validated Sample Result Forms for Sampling : Ravenna Army Ammunition Plant Ravenna, Ohio
Remedial Investigation Compliance Restoration Site: RVAAP-83 Former Buildings 1031 and 1039

Sample Delivery Group: 99211_83_0813

Analysis Method BNASIM

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337818 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
2-METHYLNAPHTHALENE	91-57-6	1.9	1.6	0.85	0.23	ug/kg			
ACENAPHTHENE	83-32-9	0.78	1.6	0.85	0.35	ug/kg	J	J	
ACENAPHTHYLENE	208-96-8	0.85	1.6	0.85	0.25	ug/kg	U	U	
ANTHRACENE	120-12-7	2.1	1.6	0.85	0.33	ug/kg			
BENZO(A)ANTHRACENE	56-55-3	7.3	1.6	0.85	0.34	ug/kg			
BENZO(A)PYRENE	50-32-8	3.2	1.6	0.85	0.3	ug/kg			
BENZO(B)FLUORANTHENE	205-99-2	8.9	1.6	0.85	0.42	ug/kg			
BENZO(G,H,I)PERYLENE	191-24-2	6	1.6	0.85	0.41	ug/kg			
BENZO(K)FLUORANTHENE	207-08-9	1.9	1.6	0.85	0.39	ug/kg			
CHRYSENE	218-01-9	8.3	1.6	0.85	0.37	ug/kg			
DIBENZ(A,H)ANTHRACENE	53-70-3	1.2	1.6	0.85	0.37	ug/kg	J	J	
FLUORANTHENE	206-44-0	10	1.6	0.85	0.38	ug/kg			
FLUORENE	86-73-7	0.93	1.6	0.85	0.38	ug/kg	J	J	
INDENO(1,2,3-C,D)PYRENE	193-39-5	3.6	1.6	0.85	0.38	ug/kg			
NAPHTHALENE	91-20-3	2	1.6	0.85	0.29	ug/kg			
PHENANTHRENE	85-01-8	11	1.6	0.85	0.48	ug/kg			
PYRENE	129-00-0	8.1	1.6	0.85	0.43	ug/kg			

Analysis Method E353.2

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337818 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROCELLULOSE	9004-70-0	100	200	100	33	mg/kg	U	U	

Sample Delivery Group: 99211_83_0813

Analysis Method SW6010C

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N **Validation Leve** IV

Lab Sample Name: 337818

Analyte	CAS No	Result Value	LOQ	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
ALUMINUM	7429-90-5	12500	1.2	mg/kg			
ANTIMONY	7440-36-0	1.2	4.1	mg/kg	JV	J-	Q, *III
ARSENIC	7440-38-2	13.9	4.1	mg/kg		J-	Q
BARIUM	7440-39-3	78.1	0.26	mg/kg	B	J-	A, P, Q, *III
BERYLLIUM	7440-41-7	0.68	0.21	mg/kg		J-	P, Q
CADMIUM	7440-43-9	0.1	0.21	mg/kg	U	UJ	P, Q
CALCIUM	7440-70-2	28900	7.3	mg/kg		J-	P
CHROMIUM	7440-47-3	18.3	0.73	mg/kg		J-	P, Q, *III
COBALT	7440-48-4	11.8	1.2	mg/kg		J-	P, Q
COPPER	7440-50-8	21.3	2.1	mg/kg		J-	Q
IRON	7439-89-6	27200	9.3	mg/kg			
LEAD	7439-92-1	11.8	1.3	mg/kg		J-	P, Q
MAGNESIUM	7439-95-4	7530	4.1	mg/kg		J-	A, P, Q, *III
MANGANESE	7439-96-5	428	0.78	mg/kg			
NICKEL	7440-02-0	29.2	0.62	mg/kg		J-	P, Q, *III
POTASSIUM	7440-09-7	1300	68	mg/kg			
SELENIUM	7782-49-2	0.24	0.41	mg/kg	U	UJ	Q, $, *III
SILVER	7440-22-4	0.12	0.1	mg/kg	U	UJ	Q, $, *III
SODIUM	7440-23-5	55.2	25	mg/kg			
THALLIUM	7440-28-0	0.79	2.5	mg/kg	JV	UJ	B, P, Q, *III
VANADIUM	7440-62-2	18.8	0.41	mg/kg	B	J-	P, Q
ZINC	7440-66-6	70.2	1.6	mg/kg		J-	P, Q, *III

Sample Delivery Group: 99211_83_0813

Analysis Method SW7471B

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337818 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
MERCURY	7439-97-6	0.013	0.009	0.004	0.0023	mg/kg		J+	Q

Analysis Method SW8082

Sample Name 083SB-0012M-0001-SO **AnalysisType:** N

Lab Sample Name: 337828 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
PCB-1016 (AROCHLOR 1016)	12674-11-2	21	31	21	5.2	ug/kg	U	U	
PCB-1221 (AROCHLOR 1221)	11104-28-2	21	31	21	7.2	ug/kg	U	U	
PCB-1232 (AROCHLOR 1232)	11141-16-5	21	31	21	9.3	ug/kg	U	U	
PCB-1242 (AROCHLOR 1242)	53469-21-9	21	31	21	7.2	ug/kg	U	U	
PCB-1248 (AROCHLOR 1248)	12672-29-6	21	31	21	7.2	ug/kg	U	U	
PCB-1254 (AROCHLOR 1254)	11097-69-1	21	31	21	9.3	ug/kg	U	U	
PCB-1260 (AROCHLOR 1260)	11096-82-5	21	31	21	6.2	ug/kg	U	U	
PCB-1262 (AROCHLOR 1262)	37324-23-5	21	31	21	7.2	ug/kg	U	U	
PCB-1268 (AROCHLOR 1268)	11100-14-4	21	31	21	5.2	ug/kg	U	U	

Sample Delivery Group: 99211_83_0813

Analysis Method SW8260C

Sample Name 083SB-0002M-0001-SO **AnalysisType:** N

Lab Sample Name: 338808 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
BENZENE	71-43-2	0.95	1.9	0.95	0.28	ug/kg	U	U	
ETHYLBENZENE	100-41-4	0.95	1.9	0.95	0.38	ug/kg	U	U	
TOLUENE	108-88-3	0.95	1.9	0.95	0.38	ug/kg	U	U	
XYLENES, TOTAL		1.9	3.8	1.9	0.66	ug/kg	U	U	

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337819 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,1,1-TRICHLOROETHANE	71-55-6	0.9	1.8	0.9	0.27	ug/kg	U	U	
1,1,2,2-TETRACHLOROETHANE	79-34-5	0.9	1.8	0.9	0.45	ug/kg	U	U	
1,1,2-TRICHLOROETHANE	79-00-5	0.9	1.8	0.9	0.36	ug/kg	U	U	
1,1-DICHLOROETHANE	75-34-3	0.9	1.8	0.9	0.36	ug/kg	U	U	
1,1-DICHLOROETHENE	75-35-4	0.9	1.8	0.9	0.36	ug/kg	U	U	
1,2-DIBROMOETHANE (ETHYLEN	106-93-4	0.9	1.8	0.9	0.36	ug/kg	U	U	
1,2-DICHLOROETHANE	107-06-2	0.9	1.8	0.9	0.45	ug/kg	U	U	
1,2-DICHLOROPROPANE	78-87-5	0.9	1.8	0.9	0.36	ug/kg	U	U	
2-HEXANONE	591-78-6	18	36	18	9.9	ug/kg	U	U	
ACETONE	67-64-1	9	18	9	9	ug/kg	U	U	
BENZENE	71-43-2	0.9	1.8	0.9	0.27	ug/kg	U	U	
BROMOCHLOROMETHANE	74-97-5	0.9	1.8	0.9	0.36	ug/kg	U	U	
BROMODICHLOROMETHANE	75-27-4	0.9	1.8	0.9	0.36	ug/kg	U	U	
BROMOFORM	75-25-2	0.9	1.8	0.9	0.36	ug/kg	U	U	
BROMOMETHANE	74-83-9	0.9	1.8	0.9	0.63	ug/kg	U	U	
CARBON DISULFIDE	75-15-0	1.8	3.6	1.8	0.81	ug/kg	U	U	
CARBON TETRACHLORIDE	56-23-5	0.9	1.8	0.9	0.27	ug/kg	U	U	
CHLOROBENZENE	108-90-7	0.9	1.8	0.9	0.36	ug/kg	U	U	
CHLOROETHANE	75-00-3	0.9	1.8	0.9	0.45	ug/kg	U	UJ	C
CHLOROFORM	67-66-3	0.9	1.8	0.9	0.36	ug/kg	U	U	

Sample Delivery Group: 99211_83_0813

CHLOROMETHANE	74-87-3	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
CIS-1,2-DICHLOROETHYLENE	156-59-2	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
CIS-1,3-DICHLOROPROPENE	10061-01-5	0.9	1.8	0.9	0.27	ug/kg	U	**U**	
DIBROMOCHLOROMETHANE	124-48-1	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
ETHYLBENZENE	100-41-4	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
M,P-XYLENE (SUM OF ISOMERS)		1.8	3.6	1.8	0.63	ug/kg	U	**R**	**D**
METHYL ETHYL KETONE (2-BUT	78-93-3	9	18	9	9	ug/kg	U	**U**	
METHYL ISOBUTYL KETONE (4-	108-10-1	9	18	9	9	ug/kg	U	**U**	
METHYLENE CHLORIDE	75-09-2	6.0	9	1.8	1.5	ug/kg	J	**U**	**B**
O-XYLENE (1,2-DIMETHYLBENZ	95-47-6	0.9	1.8	0.9	0.36	ug/kg	U	**R**	**D**
STYRENE	100-42-5	0.9	1.8	0.9	0.27	ug/kg	U	**U**	
TETRACHLOROETHYLENE(PCE)	127-18-4	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
TOLUENE	108-88-3	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
TOTAL 1,2-DICHLOROETHENE	540-59-0	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
TRANS-1,2-DICHLOROETHENE	156-60-5	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
TRANS-1,3-DICHLOROPROPENE	10061-02-6	0.9	1.8	0.9	0.36	ug/kg	U	**U**	
TRICHLOROETHYLENE (TCE)	79-01-6	0.9	1.8	0.9	0.27	ug/kg	U	**U**	
VINYL CHLORIDE	75-01-4	0.9	1.8	0.9	0.45	ug/kg	U	**U**	
XYLENES, TOTAL		1.8	3.6	1.8	0.63	ug/kg	U	**U**	

Sample Delivery Group: 99211_83_0813

Analysis Method SW8270D

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337818 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,2,4-TRICHLOROBENZENE	120-82-1	64	130	64	22	ug/kg	U	U	
1,2-DICHLOROBENZENE	95-50-1	64	130	64	25	ug/kg	U	U	
1,3-DICHLOROBENZENE	541-73-1	64	130	64	21	ug/kg	U	U	
1,4-DICHLOROBENZENE	106-46-7	64	130	64	20	ug/kg	U	U	
2,2'-OXYBIS(1-CHLORO)PROPAN	108-60-1	64	130	64	32	ug/kg	U	U	
2,4,5-TRICHLOROPHENOL	95-95-4	320	640	320	140	ug/kg	U	U	
2,4,6-TRICHLOROPHENOL	88-06-2	320	640	320	140	ug/kg	U	U	
2,4-DICHLOROPHENOL	120-83-2	320	640	320	130	ug/kg	U	U	
2,4-DIMETHYLPHENOL	105-67-9	320	640	320	110	ug/kg	U	U	
2,4-DINITROPHENOL	51-28-5	320	1100	320	290	ug/kg	U	U	
2,4-DINITROTOLUENE	121-14-2	64	130	64	25	ug/kg	U	U	
2,6-DINITROTOLUENE	606-20-2	64	130	64	25	ug/kg	U	U	
2-CHLORONAPHTHALENE	91-58-7	64	130	64	24	ug/kg	U	U	
2-CHLOROPHENOL	95-57-8	640	2100	640	360	ug/kg	U	U	
2-METHYLPHENOL (O-CRESOL)	95-48-7	640	2100	640	450	ug/kg	U	U	
2-NITROANILINE	88-74-4	64	130	64	24	ug/kg	U	U	
2-NITROPHENOL	88-75-5	320	1100	320	300	ug/kg	U	U	
3,3'-DICHLOROBENZIDINE	91-94-1	160	530	160	160	ug/kg	U	U	
3-NITROANILINE	99-09-2	64	130	64	23	ug/kg	U	U	
4,6-DINITRO-2-METHYLPHENOL	534-52-1	320	1100	320	290	ug/kg	U	U	
4-BROMOPHENYL PHENYL ETHE	101-55-3	64	130	64	27	ug/kg	U	U	
4-CHLORO-3-METHYLPHENOL	59-50-7	640	2100	640	400	ug/kg	U	U	
4-CHLOROANILINE	106-47-8	64	210	64	41	ug/kg	U	U	
4-CHLOROPHENYL PHENYL ETH	7005-72-3	64	130	64	28	ug/kg	U	U	
4-NITROANILINE	100-01-6	64	130	64	32	ug/kg	U	U	
4-NITROPHENOL	100-02-7	640	2100	640	420	ug/kg	U	U	
BENZOIC ACID	65-85-0	1600	3200	1600	310	ug/kg	U	UJ	C
BENZYL ALCOHOL	100-51-6	130	420	130	88	ug/kg	U	R	C

Sample Delivery Group: 99211_83_0813

BENZYL BUTYL PHTHALATE	85-68-7	130	420	130	77	ug/kg	U	U	
BIS(2-CHLOROETHOXY) METHA	111-91-1	64	130	64	24	ug/kg	U	U	
BIS(2-CHLOROETHYL) ETHER (2	111-44-4	64	130	64	27	ug/kg	U	U	
CARBAZOLE	86-74-8	64	130	64	30	ug/kg	U	U	
CRESOLS, M & P		1100	3800	1100	690	ug/kg	U	U	
DIBENZOFURAN	132-64-9	64	130	64	25	ug/kg	U	U	
DIETHYL PHTHALATE	84-66-2	130	420	130	68	ug/kg	U	U	
DIMETHYL PHTHALATE	131-11-3	130	420	130	67	ug/kg	U	U	
DI-N-BUTYL PHTHALATE	84-74-2	130	420	130	84	ug/kg	U	U	
DI-N-OCTYLPHTHALATE	117-84-0	64	210	64	63	ug/kg	U	U	
HEXACHLOROBENZENE	118-74-1	64	130	64	30	ug/kg	U	U	
HEXACHLOROBUTADIENE	87-68-3	130	420	130	66	ug/kg	U	U	
HEXACHLOROCYCLOPENTADIE	77-47-4	64	210	64	55	ug/kg	U	UJ	C
HEXACHLOROETHANE	67-72-1	64	130	64	35	ug/kg	U	U	
ISOPHORONE	78-59-1	64	210	64	53	ug/kg	U	U	
NITROBENZENE	98-95-3	64	210	64	63	ug/kg	U	U	
N-NITROSODI-N-PROPYLAMINE	621-64-7	130	420	130	74	ug/kg	U	U	
N-NITROSODIPHENYLAMINE	86-30-6	130	250	130	53	ug/kg	U	U	
PENTACHLOROPHENOL	87-86-5	320	1100	320	250	ug/kg	U	U	
PHENOL	108-95-2	320	640	320	170	ug/kg	U	U	

Analysis Method SW8330

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337818 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
NITROGUANIDINE	556-88-7	0.12	0.25	0.12	0.06	mg/kg	U	U	

Sample Delivery Group: 99211_83_0813

Analysis Method SW8330B

Sample Name 083SB-0005M-0001-SO **AnalysisType:** N

Lab Sample Name: 337818 **Validation Level:** IV

Analyte	CAS No	Result Value	LOQ	LOD	DL	Result	Lab Qualifier	Validation Qualifier	Validation Qualifier Code
1,3,5-TRINITROBENZENE	99-35-4	0.3	0.5	0.3	0.13	mg/kg	U	U	
1,3-DINITROBENZENE	99-65-0	0.2	0.3	0.2	0.08	mg/kg	U	U	
2,4,6-TRINITROTOLUENE	118-96-7	0.2	0.5	0.2	0.09	mg/kg	U	U	
2,4-DINITROTOLUENE	121-14-2	0.2	0.3	0.2	0.08	mg/kg	U	R	D
2,6-DINITROTOLUENE	606-20-2	0.2	0.3	0.2	0.07	mg/kg	U	R	D
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	0.2	0.3	0.2	0.09	mg/kg	U	U	
2-NITROTOLUENE	88-72-2	0.2	0.3	0.2	0.09	mg/kg	U	UJ	C
3,5-DINITROANILINE	618-87-1	0.2	0.3	0.2	0.09	mg/kg	U	R	C
3-NITROTOLUENE	99-08-1	0.3	0.5	0.3	0.11	mg/kg	U	U	
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	0.2	0.3	0.2	0.08	mg/kg	U	UJ	C
4-NITROTOLUENE	99-99-0	0.2	0.5	0.2	0.1	mg/kg	U	U	
HEXAHYDRO-1,3,5-TRINITRO-1,3,	121-82-4	0.3	0.5	0.3	0.14	mg/kg	U	U	
NITROBENZENE	98-95-3	0.2	0.5	0.2	0.1	mg/kg	U	R	D
NITROGLYCERIN	55-63-0	1.2	2	1.2	0.5	mg/kg	U	U	
OCTAHYDRO-1,3,5,7-TETRANITR	2691-41-0	0.3	0.5	0.3	0.12	mg/kg	U	U	
PETN	78-11-5	1.2	2	1.2	0.6	mg/kg	U	U	
TETRYL	479-45-8	0.2	0.3	0.2	0.09	mg/kg	U	U	

APPENDIX B

Sample Qualification Summary

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
070SB-044M-0001-SO	BARIUM	64.0	MG/KG	0.98	0.020	J	M
070SB-044M-0001-SO	SELENIUM	0.47	MG/KG	0.49	0.098	J+	I
070SB-044M-0001-SO	MCPA	3300	UG/KG	8000	3300	UJ	C
070SB-044M-0001-SO	MCPP	3300	UG/KG	8000	3300	UJ	C
070SB-044M-0001-SO	1,1,1-TRICHLOROETHANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.57	UG/KG	5.7	0.57	UJ	Q, S
070SB-044M-0001-SO	1,1,2-TRICHLOROETHANE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	1,1-DICHLOROETHANE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	1,1-DICHLOROETHENE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	1,2-DIBROMOETHANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	1,2-DICHLOROETHANE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	1,2-DICHLOROPROPANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	2-HEXANONE	1.8	UG/KG	23	1.1	UJ	B, C, S
070SB-044M-0001-SO	ACETONE	41.0	UG/KG	23	7.2	J	S
070SB-044M-0001-SO	BENZENE	1.3	UG/KG	5.7	0.57	J	S
070SB-044M-0001-SO	BROMOCHLOROMETHANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	BROMODICHLOROMETHANE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	BROMOFORM	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	BROMOMETHANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	CARBON DISULFIDE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	CARBON TETRACHLORIDE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	CHLOROBENZENE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	CHLOROETHANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	CHLOROFORM	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	CHLOROMETHANE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	CIS-1,3-DICHLOROPROPENE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	DIBROMOCHLOROMETHANE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	ETHYLBENZENE	1.8	UG/KG	5.7	0.57	J	S
070SB-044M-0001-SO	METHYL ETHYL KETONE	12.0	UG/KG	23	2.3	J	S
070SB-044M-0001-SO	METHYL ISOBUTYL KETONE	1.3	UG/KG	23	1.1	UJ	B, S
070SB-044M-0001-SO	METHYLENE CHLORIDE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	STYRENE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	TERT-BUTYL METHYL ETHER	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	TETRACHLOROETHYLENE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	TOLUENE	3.3	UG/KG	5.7	0.57	J	S
070SB-044M-0001-SO	TOTAL 1,2-DICHLOROETHENE	1.1	UG/KG	11	1.1	UJ	S
070SB-044M-0001-SO	TRANS-1,3-DICHLOROPROPENE	1.1	UG/KG	5.7	1.1	UJ	S
070SB-044M-0001-SO	TRICHLOROETHYLENE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	VINYL CHLORIDE	0.57	UG/KG	5.7	0.57	UJ	S
070SB-044M-0001-SO	XYLENES, TOTAL	1.7	UG/KG	11	1.7	UJ	S
070SB-044M-0001-SO	2,4-DINITROPHENOL	810	UG/KG	3300	810	UJ	C
070SB-044M-0001-SO	2,4-DINITROTOLUENE	270	UG/KG	2000	270	R	D
070SB-044M-0001-SO	2,6-DINITROTOLUENE	270	UG/KG	2000	270	R	D
070SB-044M-0001-SO	BENZO(G,H,I)PERYLENE	33	UG/KG	67	33	UJ	C
070SB-044M-0001-SO	N-NITROSODIPHENYLAMINE	270	UG/KG	510	270	R	C
070SB-044M-0001-SO	PENTACHLOROPHENOL	810	UG/KG	1500	810	R	D
070SB-044M-0001-SO	2-NITROTOLUENE	0.048	MG/KG	0.24	0.048	UJ	C
070SB-044M-0001-SO	NITROBENZENE	0.048	MG/KG	0.24	0.048	R	D

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
070SB-044M-0001-SO	RDX	0.048	MG/KG	0.24	0.048	UJ	C
070SB-046M-0001-SO	2,4-DINITROPHENOL	800	UG/KG	3300	800	UJ	C
070SB-046M-0001-SO	BENZO(G,H,I)PERYLENE	33	UG/KG	67	33	UJ	C
070SB-046M-0001-SO	N-NITROSODIPHENYLAMINE	270	UG/KG	500	270	R	C
070SS-0003M-0001-SO	2,4-Dinitrophenol	810	ug/kg	3300	810	UJ	C
070SS-0003M-0001-SO	3,3'-Dichlorobenzidine	180	ug/kg	1000	810	UJ	C
070SS-0003M-0001-SO	4,6-Dinitro-2-methylphenol	810	ug/kg	1500	810	UJ	C
070SS-0006M-0001-SO	C6-C12	58.0	UG/KG	92	46	J	C, Q
070SS-0006M-0001-SO	Antimony	1.5	mg/kg	0.19	0.14	J-	Q
070SS-0006M-0001-SO	Cadmium	0.46	mg/kg	0.19	0.0093	J	E
070SS-0006M-0001-SO	Chromium	35	mg/kg	0.46	0.42	J-	E, Q
070SS-0006M-0001-SO	Copper	23	mg/kg	0.37	0.28	J-	A
070SS-0006M-0001-SO	Lead	62	mg/kg	0.28	0.19	J	A, E
070SS-0006M-0001-SO	Nickel	30	mg/kg	0.46	0.23	J	A
070SS-0006M-0001-SO	Potassium	940	mg/kg	93	9.3	J+	Q
070SS-0006M-0001-SO	Selenium	0.99	mg/kg	0.46	0.056	J-	Q, M
070SS-0006M-0001-SO	Sodium	55	mg/kg	93	37	U	F
070SS-0006M-0001-SO	Vanadium	16	mg/kg	0.46	0.093	J+	Q
070SS-0006M-0001-SO	Aroclor-1242	380	ug/kg	200	120	J	Q, *III
070SS-0006M-0001-SO	Dicamba	8.1	ug/kg	40	17	UJ	Q
070SS-0006M-0001-SO	Dichlorprop	37	ug/kg	80	67	UJ	Q
070SS-0006M-0001-SO	MCPA	1600	ug/kg	8000	3300	UJ	C
070SS-0006M-0001-SO	MCPP	1500	ug/kg	8000	3300	UJ	C
070SS-0006M-0001-SO	1,1,1-Trichloroethane	0.97	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	1,1,2,2-Tetrachloroethane	0.59	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	1,1,2-Trichloroethane	0.68	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	1,1-Dichloroethane	0.62	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	1,1-Dichloroethene	0.9	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	1,2-Dibromoethane	0.87	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	1,2-Dichloroethane	0.59	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	1,2-Dichloroethene, Total	1.3	ug/kg	17	1.7	UJ	S
070SS-0006M-0001-SO	1,2-Dichloropropane	1.2	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	2-Butanone (MEK)	2.4	ug/kg	35	3.5	UJ	S
070SS-0006M-0001-SO	2-Hexanone	1.1	ug/kg	35	1.7	UJ	S
070SS-0006M-0001-SO	4-Methyl-2-pentanone (MIBK)	0.94	ug/kg	35	1.7	UJ	S
070SS-0006M-0001-SO	Acetone	11	ug/kg	35	11	UJ	C, S
070SS-0006M-0001-SO	Benzene	0.4	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Bromochloromethane	1.2	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Bromodichloromethane	0.49	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Bromoform	0.57	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Bromomethane	0.94	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Carbon disulfide	0.76	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Carbon tetrachloride	0.64	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Chlorobenzene	0.57	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Chloroethane	1.5	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Chloroform	0.5	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Chloromethane	0.71	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	cis-1,3-Dichloropropene	0.59	ug/kg	8.7	0.87	UJ	S

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
070SS-0006M-0001-SO	Dibromochloromethane	0.95	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Ethylbenzene	0.45	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Methyl tert-butyl ether	0.75	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Methylene Chloride	1.2	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Styrene	0.26	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Tetrachloroethene	0.9	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Toluene	0.47	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	trans-1,3-Dichloropropene	0.94	ug/kg	8.7	1.7	UJ	S
070SS-0006M-0001-SO	Trichloroethene	0.73	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Vinyl chloride	0.68	ug/kg	8.7	0.87	UJ	S
070SS-0006M-0001-SO	Xylenes, Total	1.2	ug/kg	17	2.6	UJ	S
070SS-0006M-0001-SO	2,4-Dinitrophenol	390	ug/kg	1600	390	UJ	C
070SS-0006M-0001-SO	2,4-Dinitrotoluene	130	ug/kg	990	130	R	D
070SS-0006M-0001-SO	2,6-Dinitrotoluene	100	ug/kg	990	130	R	D
070SS-0006M-0001-SO	3,3'-Dichlorobenzidine	89	ug/kg	490	390	R	Q
070SS-0006M-0001-SO	3-Nitroaniline	79	ug/kg	990	390	UJ	Q
070SS-0006M-0001-SO	4,6-Dinitro-2-methylphenol	390	ug/kg	740	390	UJ	C, Q
070SS-0006M-0001-SO	4-Chloroaniline	84	ug/kg	740	130	R	Q
070SS-0006M-0001-SO	4-Nitroaniline	130	ug/kg	990	130	UJ	Q
070SS-0006M-0001-SO	Pentachlorophenol	390	ug/kg	740	390	R	D
070SS-0006M-0001-SO	2-Nitrotoluene	0.013	mg/kg	0.25	0.05	UJ	C
070SS-0006M-0001-SO	Nitrobenzene	0.018	mg/kg	0.25	0.05	R	D
070SS-0006M-0001-SO	Nitroglycerin	0.015	mg/kg	0.5	0.25	UJ	Q
070SS-0006M-0001-SO	RDX	0.012	mg/kg	0.25	0.05	UJ	C

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
071SB-0013M-0001-SO	BENZO(A)ANTHRACENE	0.90	ug/kg	1.5	0.82	U	B
071SB-0013M-0001-SO	PHENANTHRENE	4.0	ug/kg	1.5	0.8	U	B
071SB-0013M-0001-SO	LEAD	9	mg/kg	1.3	0.64	J-	P, Q
071SB-0013M-0001-SO	BROMOMETHANE	0.93	ug/kg	1.9	0.93	UJ	C
071SB-0013M-0001-SO	M,P-XYLENE (SUM OF ISOMERS)	1.9	ug/kg	3.7	1.9	R	D
071SB-0013M-0001-SO	METHYLENE CHLORIDE	9.9	ug/kg	9.3	1.9	UJ	B, C
071SB-0013M-0001-SO	O-XYLENE (1,2-DIMETHYLBENZENE)	0.93	ug/kg	1.9	0.93	R	D
071SB-0013M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	310	ug/kg	1000	310	UJ	C
071SB-0013M-0001-SO	BENZOIC ACID	1500	ug/kg	3100	1500	UJ	C
071SB-0013M-0001-SO	BENZYL ALCOHOL	120	ug/kg	410	120	R	C
071SB-0013M-0001-SO	HEXACHLOROCYCLOPENTADIENE	62	ug/kg	210	62	UJ	C
071SB-0017M-0001-SO	2-NITROTOLUENE	0.2	mg/kg	0.3	0.2	UJ	C
071SB-0017M-0001-SO	4-AMINO-2,6-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	UJ	C
071SB-0018M-0001-SO	BENZO(A)ANTHRACENE	1.2	ug/kg	1.5	0.82	U	B
071SB-0018M-0001-SO	NAPHTHALENE	0.82	ug/kg	1.5	0.82	U	B
071SB-0018M-0001-SO	PHENANTHRENE	4.7	ug/kg	1.5	0.82	U	B
071SB-0018M-0001-SO	LEAD	8.8	mg/kg	1.2	0.62	J-	P, Q
071SB-0018M-0001-SO	BROMOMETHANE	0.86	ug/kg	1.7	0.86	UJ	C
071SB-0018M-0001-SO	M,P-XYLENE (SUM OF ISOMERS)	1.7	ug/kg	3.5	1.7	R	D
071SB-0018M-0001-SO	METHYLENE CHLORIDE	6.3	ug/kg	8.6	1.7	UJ	B, C
071SB-0018M-0001-SO	O-XYLENE (1,2-DIMETHYLBENZENE)	0.86	ug/kg	1.7	0.86	R	D
071SB-0018M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	310	ug/kg	1000	310	UJ	C
071SB-0018M-0001-SO	BENZOIC ACID	1500	ug/kg	3100	1500	UJ	C
071SB-0018M-0001-SO	BENZYL ALCOHOL	120	ug/kg	410	120	R	C
071SB-0018M-0001-SO	HEXACHLOROCYCLOPENTADIENE	61	ug/kg	200	61	UJ	C

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
072SB-0001-0001-SO	C6-C12	320.0	UG/KG	110	55	J	Q
072SB-0001-0001-SO	ANTIMONY	0.075	MG/KG	0.21	0.10	J-	Q
072SB-0001-0001-SO	ARSENIC	14.0	MG/KG	0.10	0.051	J-	Q
072SB-0001-0001-SO	BARIUM	36.0	MG/KG	1.0	0.021	J+	Q
072SB-0001-0001-SO	BERYLLIUM	0.65	MG/KG	0.10	0.010	J-	Q
072SB-0001-0001-SO	CADMIUM	0.15	MG/KG	0.10	0.031	J-	Q
072SB-0001-0001-SO	CALCIUM	2900.0	MG/KG	10	2.6	J+	E, Q
072SB-0001-0001-SO	NICKEL	29.0	MG/KG	0.10	0.031	J-	Q
072SB-0001-0001-SO	POTASSIUM	1900.0	MG/KG	10	6.2	J-	Q
072SB-0001-0001-SO	SELENIUM	0.9	MG/KG	0.51	0.10	J-	Q
072SB-0001-0001-SO	BENZENE	25	UG/KG	250	25	UJ	S
072SB-0001-0001-SO	ETHYLBENZENE	9.9	UG/KG	250	9.9	UJ	S
072SB-0001-0001-SO	TOLUENE	25	UG/KG	250	25	UJ	S
072SB-0001-0001-SO	XYLENES, TOTAL	30	UG/KG	500	30	UJ	S
072SB-0012-0001-SO	ANTIMONY	0.2	MG/KG	0.21	0.11	J-	Q
072SB-0012-0001-SO	ARSENIC	5.6	MG/KG	0.11	0.053	J	E
072SB-0012-0001-SO	BERYLLIUM	0.88	MG/KG	0.11	0.011	J-	Q
072SB-0012-0001-SO	COPPER	31.0	MG/KG	0.21	0.064	J+	Q
072SB-0012-0001-SO	LEAD	20.0	MG/KG	0.11	0.032	J+	Q
072SB-0012-0001-SO	POTASSIUM	1000.0	MG/KG	11	6.4	J-	Q
072SB-0012-0001-SO	SELENIUM	1.0	MG/KG	0.53	0.11	J-	Q
072SB-0012-0001-SO	BENZENE	0.47	UG/KG	4.7	0.47	UJ	S
072SB-0012-0001-SO	ETHYLBENZENE	0.47	UG/KG	4.7	0.47	UJ	S
072SB-0012-0001-SO	TOLUENE	0.47	UG/KG	4.7	0.47	UJ	S
072SB-0012-0001-SO	XYLENES, TOTAL	1.4	UG/KG	9.4	1.4	UJ	S
072SB-0014-0001-SO	ANTIMONY	0.13	MG/KG	0.20	0.10	J-	Q
072SB-0014-0001-SO	ARSENIC	5.6	MG/KG	0.10	0.050	J-	E, Q
072SB-0014-0001-SO	BARIUM	61.0	MG/KG	1.0	0.020	J+	Q
072SB-0014-0001-SO	BERYLLIUM	0.91	MG/KG	0.10	0.010	J-	Q
072SB-0014-0001-SO	CADMIUM	0.26	MG/KG	0.10	0.030	J-	Q
072SB-0014-0001-SO	CALCIUM	430.0	MG/KG	10	2.5	J+	E, Q
072SB-0014-0001-SO	COPPER	34.0	MG/KG	0.20	0.060	J+	Q
072SB-0014-0001-SO	LEAD	23.0	MG/KG	0.10	0.030	J+	Q
072SB-0014-0001-SO	NICKEL	34.0	MG/KG	0.10	0.030	J-	Q
072SB-0014-0001-SO	POTASSIUM	1200.0	MG/KG	10	6.0	J-	Q
072SB-0014-0001-SO	SELENIUM	1.1	MG/KG	0.50	0.10	J-	Q
072SB-0014-0001-SO	ALPHA BHC	1.5	UG/KG	2.9	1.5	UJ	Q
072SB-0014-0001-SO	ALPHA ENDOSULFAN	0.77	UG/KG	1.9	0.77	UJ	Q
072SB-0014-0001-SO	ALPHA-CHLORDANE	1.5	UG/KG	3.4	1.5	UJ	Q
072SB-0014-0001-SO	BETA BHC	1.5	UG/KG	4.0	1.5	UJ	Q
072SB-0014-0001-SO	BETA ENDOSULFAN	1.5	UG/KG	2.9	1.5	UJ	Q
072SB-0014-0001-SO	DELTA BHC	1.5	UG/KG	4.6	1.5	UJ	Q
072SB-0014-0001-SO	DIELDRIN	0.77	UG/KG	1.9	0.77	UJ	Q
072SB-0014-0001-SO	ENDOSULFAN SULFATE	1.5	UG/KG	3.4	1.5	UJ	Q
072SB-0014-0001-SO	ENDRIN	0.77	UG/KG	1.9	0.77	UJ	Q
072SB-0014-0001-SO	ENDRIN ALDEHYDE	1.5	UG/KG	3.4	1.5	UJ	Q
072SB-0014-0001-SO	ENDRIN KETONE	0.77	UG/KG	2.3	0.77	UJ	Q

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
072SB-0014-0001-SO	GAMMA BHC (LINDANE)	1.5	UG/KG	2.9	1.5	UJ	Q
072SB-0014-0001-SO	GAMMA-CHLORDANE	0.77	UG/KG	1.9	0.77	UJ	Q
072SB-0014-0001-SO	HEPTACHLOR	1.5	UG/KG	4.0	1.5	UJ	Q
072SB-0014-0001-SO	HEPTACHLOR EPOXIDE	1.5	UG/KG	2.9	1.5	UJ	Q
072SB-0014-0001-SO	METHOXYCHLOR	3.8	UG/KG	5.7	3.8	UJ	Q
072SB-0014-0001-SO	P,P'-DDD	0.77	UG/KG	2.3	0.77	UJ	Q
072SB-0014-0001-SO	P,P'-DDE	0.77	UG/KG	1.9	0.77	UJ	Q
072SB-0014-0001-SO	TOXAPHENE	23	UG/KG	77	23	UJ	C
072SB-0014-0001-SO	2-HEXANONE	0.88	UG/KG	18	0.88	UJ	C
072SB-0014-0001-SO	ACETONE	5.5	UG/KG	18	5.5	UJ	C
072SB-0014-0001-SO	2,4-DINITROPHENOL	90	UG/KG	370	90	UJ	C
072SB-0014-0001-SO	2,4-DINITROTOLUENE	30	UG/KG	230	30	R	D
072SB-0014-0001-SO	2,6-DINITROTOLUENE	30	UG/KG	230	30	R	D
072SB-0014-0001-SO	3,3'-DICHLOROBENZIDINE	90	UG/KG	110	90	UJ	C
072SB-0014-0001-SO	4,6-DINITRO-2-METHYLPHENOL	90	UG/KG	170	90	UJ	C
072SB-0014-0001-SO	4-NITROANILINE	30	UG/KG	230	30	R	C
072SB-0014-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	56	UG/KG	56	30	U	B
072SB-0014-0001-SO	2-NITROTOLUENE	0.049	MG/KG	0.25	0.049	UJ	C
072SB-0014-0001-SO	NITROBENZENE	0.049	MG/KG	0.25	0.049	R	D
072SB-0014-0001-SO	RDX	0.049	MG/KG	0.25	0.049	UJ	C
072SB-0026-0001-SO	ANTIMONY	0.10	MG/KG	0.20	0.10	R	Q
072SB-0026-0001-SO	ARSENIC	0.51	MG/KG	0.10	0.050	J-	Q
072SB-0026-0001-SO	BARIUM	31.0	MG/KG	1.0	0.020	J	M
072SB-0026-0001-SO	CADMIUM	0.19	MG/KG	0.10	0.030	J+	I
072SB-0026-0001-SO	CALCIUM	750.0	MG/KG	10	2.5	J-	Q
072SB-0026-0001-SO	COPPER	17.0	MG/KG	0.20	0.060	J-	Q
072SB-0026-0001-SO	SELENIUM	0.74	MG/KG	0.50	0.10	J-	Q
072SB-0026-0001-SO	SILVER	0.03	MG/KG	0.10	0.030	J+	I
072SB-0026-0001-SO	THALLIUM	0.12	MG/KG	0.10	0.020	J-	Q
072SB-0026-0001-SO	ZINC	45.0	MG/KG	0.50	0.20	J	A
072SB-0026-0001-SO	BENZENE	0.51	UG/KG	5.1	0.51	UJ	S
072SB-0026-0001-SO	ETHYLBENZENE	0.51	UG/KG	5.1	0.51	UJ	S
072SB-0026-0001-SO	TOLUENE	0.51	UG/KG	5.1	0.51	UJ	S
072SB-0026-0001-SO	XYLENES, TOTAL	1.5	UG/KG	10	1.5	UJ	S
072SB-0026-0001-SO	ACENAPHTHENE	3.4	UG/KG	6.9	3.4	UJ	S
072SB-0026-0001-SO	ACENAPHTHENE	3.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	ACENAPHTHYLENE	3.4	UG/KG	6.9	3.4	UJ	S
072SB-0026-0001-SO	ACENAPHTHYLENE	3.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	ANTHRACENE	3.4	UG/KG	6.9	3.4	UJ	S
072SB-0026-0001-SO	ANTHRACENE	3.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	BENZO(A)ANTHRACENE	15.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	BENZO(A)ANTHRACENE	3.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	BENZO(A)PYRENE	18.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	BENZO(A)PYRENE	18.0	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	BENZO(B)FLUORANTHENE	16.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	BENZO(B)FLUORANTHENE	12.0	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	BENZO(G,H,I)PERYLENE	140.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	BENZO(G,H,I)PERYLENE	130.0	UG/KG	7.0	3.5	R	D

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
072SB-0026-0001-SO	BENZO(K)FLUORANTHENE	5.8	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	BENZO(K)FLUORANTHENE	3.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	CHRYSENE	9.1	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	CHRYSENE	3.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	DIBENZ(A,H)ANTHRACENE	3.4	UG/KG	6.9	3.4	UJ	S
072SB-0026-0001-SO	DIBENZ(A,H)ANTHRACENE	7.1	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	FLUORANTHENE	12.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	FLUORANTHENE	9.5	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	FLUORENE	8.4	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	FLUORENE	10.0	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	INDENO(1,2,3-C,D)PYRENE	17.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	INDENO(1,2,3-C,D)PYRENE	18.0	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	NAPHTHALENE	29.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	NAPHTHALENE	30.0	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	PHENANTHRENE	50.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	PHENANTHRENE	47.0	UG/KG	7.0	3.5	R	D
072SB-0026-0001-SO	PYRENE	16.0	UG/KG	6.9	3.4	J	S
072SB-0026-0001-SO	PYRENE	15.0	UG/KG	7.0	3.5	R	D
072SB-0030-0001-SO	1,1,1-TRICHLOROETHANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.44	UG/KG	4.4	0.44	UJ	S, I
072SB-0030-0001-SO	1,1,2-TRICHLOROETHANE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	1,1-DICHLOROETHANE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	1,1-DICHLOROETHENE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	1,2-DIBROMOETHANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	1,2-DICHLOROETHANE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	1,2-DICHLOROPROPANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	2-HEXANONE	0.88	UG/KG	18	0.88	UJ	C, S
072SB-0030-0001-SO	ACETONE	5.5	UG/KG	18	5.5	UJ	C, S
072SB-0030-0001-SO	BENZENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	BROMOCHLOROMETHANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	BROMODICHLOROMETHANE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	BROMOFORM	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	BROMOMETHANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	CARBON DISULFIDE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	CARBON TETRACHLORIDE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	CHLOROBENZENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	CHLOROETHANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	CHLOROFORM	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	CHLOROMETHANE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	CIS-1,3-DICHLOROPROPENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	DIBROMOCHLOROMETHANE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	ETHYLBENZENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	METHYL ETHYL KETONE	1.8	UG/KG	18	1.8	UJ	S
072SB-0030-0001-SO	METHYL ISOBUTYL KETONE	0.88	UG/KG	18	0.88	UJ	S
072SB-0030-0001-SO	METHYLENE CHLORIDE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	STYRENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	TERT-BUTYL METHYL ETHER	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	TETRACHLOROETHYLENE	0.88	UG/KG	4.4	0.88	UJ	S

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
072SB-0030-0001-SO	TOLUENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	TOTAL 1,2-DICHLOROETHENE	0.88	UG/KG	8.8	0.88	UJ	S
072SB-0030-0001-SO	TRANS-1,3-DICHLOROPROPENE	0.88	UG/KG	4.4	0.88	UJ	S
072SB-0030-0001-SO	TRICHLOROETHYLENE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	VINYL CHLORIDE	0.44	UG/KG	4.4	0.44	UJ	S
072SB-0030-0001-SO	XYLENES, TOTAL	1.3	UG/KG	8.8	1.3	UJ	S
072SB-0039-0001-SO	ANTIMONY	0.11	MG/KG	0.22	0.11	R	Q
072SB-0039-0001-SO	ARSENIC	9.4	MG/KG	0.11	0.056	J-	Q
072SB-0039-0001-SO	BARIUM	50.0	MG/KG	1.1	0.022	J-	Q, M
072SB-0039-0001-SO	BERYLLIUM	0.64	MG/KG	0.11	0.011	J-	Q
072SB-0039-0001-SO	CADMIUM	0.19	MG/KG	0.11	0.033	J+	I
072SB-0039-0001-SO	CHROMIUM	18.0	MG/KG	0.22	0.045	J-	Q
072SB-0039-0001-SO	LEAD	9.7	MG/KG	0.11	0.033	J+	Q
072SB-0039-0001-SO	NICKEL	24.0	MG/KG	0.11	0.033	J-	Q
072SB-0039-0001-SO	POTASSIUM	2500.0	MG/KG	11	6.7	J-	E, Q
072SB-0039-0001-SO	SELENIUM	0.78	MG/KG	0.56	0.11	J-	Q
072SB-0039-0001-SO	SILVER	0.029	MG/KG	0.11	0.033	J+	I
072SB-0039-0001-SO	VANADIUM	20.0	MG/KG	0.11	0.067	J-	Q
072SB-0039-0001-SO	2-HEXANONE	0.98	UG/KG	20	0.98	UJ	C
072SB-0063-0001-SO	ANTIMONY	0.069	MG/KG	0.21	0.10	J	I, Q
072SB-0063-0001-SO	ARSENIC	11.0	MG/KG	0.10	0.052	J-	Q
072SB-0063-0001-SO	BARIUM	21.0	MG/KG	1.0	0.021	J	M
072SB-0063-0001-SO	CADMIUM	0.15	MG/KG	0.10	0.031	J	I, Q
072SB-0063-0001-SO	CALCIUM	1200.0	MG/KG	10	2.6	J+	Q
072SB-0063-0001-SO	CHROMIUM	9.2	MG/KG	0.21	0.041	J-	Q
072SB-0063-0001-SO	COBALT	7.7	MG/KG	0.052	0.010	J-	Q
072SB-0063-0001-SO	COPPER	15.0	MG/KG	0.21	0.062	J-	Q
072SB-0063-0001-SO	MANGANESE	270.0	MG/KG	0.52	0.031	J	E
072SB-0063-0001-SO	POTASSIUM	950.0	MG/KG	10	6.2	J-	Q
072SB-0063-0001-SO	SELENIUM	0.38	MG/KG	0.52	0.10	J	I, Q
072SB-0063-0001-SO	SILVER	0.024	MG/KG	0.10	0.031	J	I, Q
072SB-0063-0001-SO	SODIUM	32.0	MG/KG	10	5.2	J-	Q
076SB-0119-0001-SO	CHROMIUM, HEXAVALENT	0.91	MG/KG	0.91	0.91	UJ	H
076SB-0122-0001-SO	CHROMIUM, HEXAVALENT	0.94	MG/KG	0.94	0.94	UJ	H
076SB-0126-0001-SO	CHROMIUM, HEXAVALENT	0.31	MG/KG	0.89	0.89	J-	H
076SB-0130-0001-SO	CHROMIUM, HEXAVALENT	0.88	MG/KG	0.88	0.88	UJ	H

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
075SD-0002-0001-SD	ALUMINUM	12000.0	MG/KG	4.4	0.88	J	E
075SD-0002-0001-SD	ANTIMONY	0.21	MG/KG	0.29	0.15	J-	Q
075SD-0002-0001-SD	ARSENIC	9.5	MG/KG	0.15	0.074	J-	Q
075SD-0002-0001-SD	BARIUM	110.0	MG/KG	1.5	0.029	J-	Q
075SD-0002-0001-SD	CHROMIUM	15.0	MG/KG	0.29	0.059	J-	E, Q
075SD-0002-0001-SD	MAGNESIUM	2800.0	MG/KG	15	2.9	J-	Q
075SD-0002-0001-SD	NICKEL	21.0	MG/KG	0.15	0.044	J-	Q
075SD-0002-0001-SD	POTASSIUM	1400.0	MG/KG	15	8.8	J-	E, Q
075SD-0002-0001-SD	SELENIUM	1.3	MG/KG	0.74	0.15	J-	Q
075SD-0002-0001-SD	SODIUM	75.0	MG/KG	15	7.4	J	E
075SD-0002-0001-SD	VANADIUM	20.0	MG/KG	0.15	0.088	J-	E, Q
075SD-0002-0001-SD	MERCURY	0.47	MG/KG	0.15	0.050	J-	Q
075SD-0002-0001-SD	STYRENE	7.6	UG/KG	7.6	0.76	U	B
075SD-0002-0001-SD	1,2,4-TRICHLOROBENZENE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	1,2-DICHLOROBENZENE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	1,3-DICHLOROBENZENE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	1,4-DICHLOROBENZENE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	2,2'-OXYBIS(1-CHLORO)PROPANE	43	UG/KG	160	43	R	D
075SD-0002-0001-SD	2,4,5-TRICHLOROPHENOL	43	UG/KG	240	43	R	D
075SD-0002-0001-SD	2,4,6-TRICHLOROPHENOL	130	UG/KG	240	130	R	D
075SD-0002-0001-SD	2,4-DICHLOROPHENOL	43	UG/KG	240	43	R	D
075SD-0002-0001-SD	2,4-DIMETHYLPHENOL	130	UG/KG	240	130	R	D
075SD-0002-0001-SD	2,4-DINITROPHENOL	130	UG/KG	530	130	UJ	C
075SD-0002-0001-SD	2,4-DINITROPHENOL	130	UG/KG	530	130	R	D
075SD-0002-0001-SD	2,4-DINITROTOLUENE	43	UG/KG	320	43	R	D
075SD-0002-0001-SD	2,4-DINITROTOLUENE	43	UG/KG	320	43	R	D
075SD-0002-0001-SD	2,6-DINITROTOLUENE	43	UG/KG	320	43	R	D
075SD-0002-0001-SD	2,6-DINITROTOLUENE	43	UG/KG	320	43	R	D
075SD-0002-0001-SD	2-CHLORONAPHTHALENE	5.3	UG/KG	80	5.3	R	D
075SD-0002-0001-SD	2-CHLOROPHENOL	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	2-METHYLNAPHTHALENE	24.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	2-METHYLPHENOL	130	UG/KG	320	130	R	D
075SD-0002-0001-SD	2-NITROANILINE	43	UG/KG	320	43	R	D
075SD-0002-0001-SD	2-NITROPHENOL	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	3,3'-DICHLOROBENZIDINE	130	UG/KG	160	130	R	Q
075SD-0002-0001-SD	3,3'-DICHLOROBENZIDINE	130	UG/KG	160	130	R	D
075SD-0002-0001-SD	3-NITROANILINE	130	UG/KG	320	130	R	D
075SD-0002-0001-SD	4,6-DINITRO-2-METHYLPHENOL	130	UG/KG	240	130	UJ	C
075SD-0002-0001-SD	4,6-DINITRO-2-METHYLPHENOL	130	UG/KG	240	130	R	D
075SD-0002-0001-SD	4-BROMOPHENYL PHENYL ETHER	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	4-CHLORO-3-METHYLPHENOL	43	UG/KG	240	43	R	D
075SD-0002-0001-SD	4-CHLOROANILINE	43	UG/KG	240	43	R	D
075SD-0002-0001-SD	4-CHLOROPHENYL PHENYL ETHER	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	4-NITROANILINE	43	UG/KG	320	43	UJ	Q
075SD-0002-0001-SD	4-NITROANILINE	43	UG/KG	320	43	R	D
075SD-0002-0001-SD	4-NITROPHENOL	130	UG/KG	530	130	R	D
075SD-0002-0001-SD	ACENAPHTHENE	27.0	UG/KG	11	5.3	R	D

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
075SD-0002-0001-SD	ACENAPHTHYLENE	20.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	ANTHRACENE	77.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	BENZO(A)ANTHRACENE	140.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	BENZO(A)PYRENE	160.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	BENZO(B)FLUORANTHENE	200.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	BENZO(G,H,I)PERYLENE	120.0	UG/KG	11	5.3	J	C
075SD-0002-0001-SD	BENZO(G,H,I)PERYLENE	85.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	BENZO(K)FLUORANTHENE	83.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	BENZOIC ACID	530	UG/KG	1100	530	R	D
075SD-0002-0001-SD	BENZYL ALCOHOL	43	UG/KG	530	43	R	D
075SD-0002-0001-SD	BENZYL BUTYL PHTHALATE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	BIS(2-CHLOROETHOXY) METHANE	43	UG/KG	160	43	R	D
075SD-0002-0001-SD	BIS(2-CHLOROETHYL) ETHER	5.3	UG/KG	160	5.3	R	D
075SD-0002-0001-SD	BIS(2-ETHYLHEXYL) PHTHALATE	43	UG/KG	80	43	UJ	H
075SD-0002-0001-SD	CARBAZOLE	50.0	UG/KG	80	43	R	D
075SD-0002-0001-SD	CHRYSENE	160.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	CRESOLS, M & P	130	UG/KG	640	130	R	D
075SD-0002-0001-SD	DIBENZ(A,H)ANTHRACENE	5.3	UG/KG	11	5.3	UJ	C
075SD-0002-0001-SD	DIBENZ(A,H)ANTHRACENE	22.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	DIBENZOFURAN	39.0	UG/KG	80	5.3	R	D
075SD-0002-0001-SD	DIETHYL PHTHALATE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	DIMETHYL PHTHALATE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	DI-N-BUTYL PHTHALATE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	DI-N-OCTYLPHTHALATE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	FLUORANTHENE	390.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	FLUORENE	54.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	HEXACHLOROBENZENE	5.3	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	HEXACHLOROBUTADIENE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	HEXACHLOROCYCLOPENTADIENE	43	UG/KG	530	43	R	D
075SD-0002-0001-SD	HEXACHLOROETHANE	43	UG/KG	80	43	UJ	C
075SD-0002-0001-SD	HEXACHLOROETHANE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	INDENO(1,2,3-C,D)PYRENE	120.0	UG/KG	11	5.3	J	C
075SD-0002-0001-SD	INDENO(1,2,3-C,D)PYRENE	74.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	ISOPHORONE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	NAPHTHALENE	41.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	NITROBENZENE	5.3	UG/KG	160	5.3	R	D
075SD-0002-0001-SD	N-NITROSODI-N-PROPYLAMINE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	N-NITROSODIPHENYLAMINE	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	PENTACHLOROPHENOL	130	UG/KG	240	130	R	D
075SD-0002-0001-SD	PHENANTHRENE	330.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	PHENOL	43	UG/KG	80	43	R	D
075SD-0002-0001-SD	PYRENE	280.0	UG/KG	11	5.3	R	D
075SD-0002-0001-SD	2-NITROTOLUENE	0.049	MG/KG	0.25	0.049	UJ	C
075SD-0002-0001-SD	NITROBENZENE	0.049	MG/KG	0.25	0.049	R	D
075SD-0002-0001-SD	NITROGUANIDINE	0.039	MG/KG	0.24	0.039	UJ	Q
075SD-0002-0001-SD	RDX	0.049	MG/KG	0.25	0.049	UJ	C
075SD-0002-0001-SD	TETRYL	0.029	MG/KG	0.25	0.049	NJ	*III

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
077SS-0001M-0001-SO	ANTIMONY	0.2	MG/KG	0.17	0.083	J	I, Q
077SS-0001M-0001-SO	ARSENIC	12	MG/KG	0.083	0.041	J-	Q
077SS-0001M-0001-SO	BARIUM	49	MG/KG	0.83	0.017	J	M
077SS-0001M-0001-SO	CADMIUM	0.19	MG/KG	0.083	0.025	J	I, Q
077SS-0001M-0001-SO	CALCIUM	4500	MG/KG	8.3	2.1	J	A, E
077SS-0001M-0001-SO	COPPER	16	MG/KG	0.17	0.05	J	Q
077SS-0001M-0001-SO	MAGNESIUM	2800	MG/KG	8.3	1.7	J+	Q
077SS-0001M-0001-SO	POTASSIUM	830	MG/KG	8.3	5	J+	Q
077SS-0001M-0001-SO	SELENIUM	0.56	MG/KG	0.41	0.083	J-	Q
077SS-0001M-0001-SO	SILVER	0.027	MG/KG	0.083	0.025	J+	I
077SS-0001M-0001-SO	SODIUM	29	MG/KG	8.3	4.1	UJ	E, F
077SS-0001M-0001-SO	TOXAPHENE	200	UG/KG	670	200	UJ	C
077SS-0001M-0001-SO	2,4-DINITROTOLUENE	110	UG/KG	810	110	R	D
077SS-0001M-0001-SO	2,6-DINITROTOLUENE	110	UG/KG	810	110	R	D
077SS-0001M-0001-SO	3,3'-DICHLOROBENZIDINE	320	UG/KG	410	320	UJ	C
077SS-0001M-0001-SO	BENZOIC ACID	0	UG/KG	2700	1400	R	Q
077SS-0001M-0001-SO	N-NITROSODIPHENYLAMINE	110	UG/KG	200	110	R	C
077SS-0001M-0001-SO	2-NITROTOLUENE	0.05	MG/KG	0.25	0.05	UJ	C
077SS-0001M-0001-SO	NITROBENZENE	0.05	MG/KG	0.25	0.05	R	D
077SS-0001M-0001-SO	RDX	0.05	MG/KG	0.25	0.05	UJ	C

Sample	Analyte	Result	Units	LOQ	LOD	Qualifier	Code
083SB-0005M-0001-SO	ANTIMONY	1.2	mg/kg	4.1	2.1	J-	Q
083SB-0005M-0001-SO	ARSENIC	13.9	mg/kg	4.1	2.1	J-	Q
083SB-0005M-0001-SO	BARIUM	78.1	mg/kg	0.26	0.13	J-	A, P, Q, *III
083SB-0005M-0001-SO	BERYLLIUM	0.68	mg/kg	0.21	0.062	J-	P, Q
083SB-0005M-0001-SO	CADMIUM	0.1	mg/kg	0.21	0.1	UJ	P, Q
083SB-0005M-0001-SO	CALCIUM	28900	mg/kg	7.3	3.6	J-	P
083SB-0005M-0001-SO	CHROMIUM	18.3	mg/kg	0.73	0.36	J-	P, Q, *III
083SB-0005M-0001-SO	COBALT	11.8	mg/kg	1.2	0.62	J-	P, Q
083SB-0005M-0001-SO	COPPER	21.3	mg/kg	2.1	1	J-	Q
083SB-0005M-0001-SO	LEAD	11.8	mg/kg	1.3	0.65	J-	P, Q
083SB-0005M-0001-SO	MAGNESIUM	7530	mg/kg	4.1	2.1	J-	A, P, Q, *III
083SB-0005M-0001-SO	NICKEL	29.2	mg/kg	0.62	0.31	J-	P, Q, *III
083SB-0005M-0001-SO	SELENIUM	0.24	mg/kg	0.41	0.24	UJ	Q, $, *III
083SB-0005M-0001-SO	SILVER	0.12	mg/kg	0.1	0.12	UJ	Q, $, *III
083SB-0005M-0001-SO	THALLIUM	0.79	mg/kg	2.5	1.2	UJ	B, P, Q, *III
083SB-0005M-0001-SO	VANADIUM	18.8	mg/kg	0.41	0.21	J-	P, Q
083SB-0005M-0001-SO	ZINC	70.2	mg/kg	1.6	0.78	J-	P, Q, *III
083SB-0005M-0001-SO	MERCURY	0.013	mg/kg	0.0091	0.0046	J+	Q
083SB-0005M-0001-SO	CHLOROETHANE	0.9	ug/kg	1.8	0.9	UJ	C
083SB-0005M-0001-SO	M,P-XYLENE	1.8	ug/kg	3.6	1.8	R	D
083SB-0005M-0001-SO	METHYLENE CHLORIDE	6.0	ug/kg	9	1.8	U	B
083SB-0005M-0001-SO	O-XYLENE	0.9	ug/kg	1.8	0.9	R	D
083SB-0005M-0001-SO	BENZOIC ACID	1600	ug/kg	3200	1600	UJ	C
083SB-0005M-0001-SO	BENZYL ALCOHOL	130	ug/kg	420	130	R	C
083SB-0005M-0001-SO	HEXACHLOROCYCLOPENTADIENE	64	ug/kg	210	64	UJ	C
083SB-0005M-0001-SO	2,4-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	R	D
083SB-0005M-0001-SO	2,6-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	R	D
083SB-0005M-0001-SO	2-NITROTOLUENE	0.2	mg/kg	0.3	0.2	UJ	C
083SB-0005M-0001-SO	3,5-DINITROANILINE	0.2	mg/kg	0.3	0.2	R	C
083SB-0005M-0001-SO	4-AMINO-2,6-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	UJ	C
083SB-0005M-0001-SO	NITROBENZENE	0.2	mg/kg	0.5	0.2	R	D

APPENDIX C

Primary/Field Duplicate Sample Comparisons

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-0042M-0001-SO	C10-C20	370	MG/KG	210		070SB-043M-0001-SO	350	MG/KG	100		N/A	Yes
070SB-0042M-0001-SO	C20-C34	430	MG/KG	210		070SB-043M-0001-SO	400	MG/KG	100		N/A	Yes
070SB-0042M-0001-SO	C6-C12	49	UG/KG	98	U	070SB-043M-0001-SO	980	UG/KG	110		N/A	No
070SB-0042M-0001-SO	1,1,1-TRICHLOROETHANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,1,2-TRICHLOROETHANE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,1-DICHLOROETHANE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,1-DICHLOROETHENE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,2-DIBROMOETHANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,2-DICHLOROETHANE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	1,2-Dichloroethene, Total	0.89	UG/KG	8.9	U	070SB-043M-0001-SO	1.1	UG/KG	11	U	N/A	Yes
070SB-0042M-0001-SO	1,2-DICHLOROPROPANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	2-Butanone (MEK)	6.2	UG/KG	18	J	070SB-043M-0001-SO	5.5	UG/KG	21	J	N/A	Yes
070SB-0042M-0001-SO	2-HEXANONE	0.89	UG/KG	18	U	070SB-043M-0001-SO	1.1	UG/KG	21	U	N/A	Yes
070SB-0042M-0001-SO	4-Methyl-2-pentanone (MIBK)	0.89	UG/KG	18	U	070SB-043M-0001-SO	1.1	UG/KG	21	U	N/A	Yes
070SB-0042M-0001-SO	ACETONE	24	UG/KG	18		070SB-043M-0001-SO	27	UG/KG	21		N/A	Yes
070SB-0042M-0001-SO	BENZENE	0.73	UG/KG	4.5	J	070SB-043M-0001-SO	0.84	UG/KG	5.4	J	N/A	Yes
070SB-0042M-0001-SO	BROMOCHLOROMETHANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	BROMODICHLOROMETHANE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	BROMOFORM	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	BROMOMETHANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CARBON DISULFIDE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CARBON TETRACHLORIDE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CHLOROBENZENE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CHLOROETHANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CHLOROFORM	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CHLOROMETHANE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	CIS-1,3-DICHLOROPROPENE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	DIBROMOCHLOROMETHANE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	ETHYLBENZENE	4.7	UG/KG	4.5		070SB-043M-0001-SO	4.7	UG/KG	5.4	J	N/A	Yes
070SB-0042M-0001-SO	Methyl tert-butyl ether	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	METHYLENE CHLORIDE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.8	UG/KG	5.4	J	N/A	Yes
070SB-0042M-0001-SO	STYRENE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	TETRACHLOROETHYLENE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	TOLUENE	2.7	UG/KG	4.5	J	070SB-043M-0001-SO	1.9	UG/KG	5.4	J	N/A	Yes
070SB-0042M-0001-SO	TRANS-1,3-DICHLOROPROPENE	0.89	UG/KG	4.5	U	070SB-043M-0001-SO	1.1	UG/KG	5.4	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-0042M-0001-SO	Trichloroethene	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	VINYL CHLORIDE	0.45	UG/KG	4.5	U	070SB-043M-0001-SO	0.54	UG/KG	5.4	U	N/A	Yes
070SB-0042M-0001-SO	XYLENES, TOTAL	20	UG/KG	8.9		070SB-043M-0001-SO	20	UG/KG	11		N/A	Yes
070SB-0042M-0001-SO	1,2,4-TRICHLOROBENZENE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	1,2-DICHLOROBENZENE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	1,3-DICHLOROBENZENE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	1,4-DICHLOROBENZENE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	2,4,5-TRICHLOROPHENOL	270	UG/KG	1500	U	070SB-043M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	2,4,6-TRICHLOROPHENOL	790	UG/KG	1500	U	070SB-043M-0001-SO	790	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	2,4-DICHLOROPHENOL	270	UG/KG	1500	U	070SB-043M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	2,4-DIMETHYLPHENOL	790	UG/KG	1500	U	070SB-043M-0001-SO	790	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	2,4-DINITROPHENOL	790	UG/KG	3300	U	070SB-043M-0001-SO	790	UG/KG	3300	U	N/A	Yes
070SB-0042M-0001-SO	2,4-DINITROTOLUENE	270	UG/KG	2000	U	070SB-043M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-0042M-0001-SO	2,6-DINITROTOLUENE	270	UG/KG	2000	U	070SB-043M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-0042M-0001-SO	2-CHLORONAPHTHALENE	33	UG/KG	500	U	070SB-043M-0001-SO	33	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	2-CHLOROPHENOL	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	2-METHYLNAPHTHALENE	680	UG/KG	66		070SB-043M-0001-SO	660	UG/KG	66		3	N/A
070SB-0042M-0001-SO	2-METHYLPHENOL	790	UG/KG	2000	U	070SB-043M-0001-SO	790	UG/KG	2000	U	N/A	Yes
070SB-0042M-0001-SO	2-NITROANILINE	270	UG/KG	2000	U	070SB-043M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-0042M-0001-SO	2-NITROPHENOL	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	3,3'-DICHLOROBENZIDINE	790	UG/KG	990	U	070SB-043M-0001-SO	790	UG/KG	990	U	N/A	Yes
070SB-0042M-0001-SO	3-NITROANILINE	790	UG/KG	2000	U	070SB-043M-0001-SO	790	UG/KG	2000	U	N/A	Yes
070SB-0042M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	790	UG/KG	1500	U	070SB-043M-0001-SO	790	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	4-BROMOPHENYL PHENYL ETHER	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	4-CHLORO-3-METHYLPHENOL	270	UG/KG	1500	U	070SB-043M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	4-CHLOROANILINE	270	UG/KG	1500	U	070SB-043M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	4-NITROANILINE	270	UG/KG	2000	U	070SB-043M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-0042M-0001-SO	4-NITROPHENOL	790	UG/KG	3300	U	070SB-043M-0001-SO	790	UG/KG	3300	U	N/A	Yes
070SB-0042M-0001-SO	ACENAPHTHENE	380	UG/KG	66		070SB-043M-0001-SO	260	UG/KG	66		N/A	No
070SB-0042M-0001-SO	ACENAPHTHYLENE	79	UG/KG	66		070SB-043M-0001-SO	61	UG/KG	66	J	N/A	Yes
070SB-0042M-0001-SO	ANTHRACENE	33	UG/KG	66	U	070SB-043M-0001-SO	33	UG/KG	66	U	N/A	Yes
070SB-0042M-0001-SO	Benzo[a]anthracene	140	UG/KG	66		070SB-043M-0001-SO	150	UG/KG	66		N/A	Yes
070SB-0042M-0001-SO	Benzo[a]pyrene	41	UG/KG	66	J	070SB-043M-0001-SO	51	UG/KG	66	J	N/A	Yes
070SB-0042M-0001-SO	Benzo[b]fluoranthene	34	UG/KG	66	J	070SB-043M-0001-SO	33	UG/KG	66	J	N/A	Yes
070SB-0042M-0001-SO	Benzo[g,h,i]perylene	57	UG/KG	66	J	070SB-043M-0001-SO	33	UG/KG	66	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-0042M-0001-SO	Benzo[k]fluoranthene	33	UG/KG	66	U	070SB-043M-0001-SO	33	UG/KG	66	U	N/A	Yes
070SB-0042M-0001-SO	BENZOIC ACID	3300	UG/KG	6500	U	070SB-043M-0001-SO	3300	UG/KG	6500	U	N/A	Yes
070SB-0042M-0001-SO	BENZYL ALCOHOL	270	UG/KG	3300	U	070SB-043M-0001-SO	270	UG/KG	3300	U	N/A	Yes
070SB-0042M-0001-SO	BENZYL BUTYL PHTHALATE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	270	UG/KG	990	U	070SB-043M-0001-SO	270	UG/KG	990	U	N/A	Yes
070SB-0042M-0001-SO	BIS(2-CHLOROETHYL) ETHER	33	UG/KG	990	U	070SB-043M-0001-SO	33	UG/KG	990	U	N/A	Yes
070SB-0042M-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	270	UG/KG	990	U	070SB-043M-0001-SO	270	UG/KG	990	U	N/A	Yes
070SB-0042M-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	CARBAZOLE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	CHRYSENE	190	UG/KG	66		070SB-043M-0001-SO	98	UG/KG	66		N/A	No
070SB-0042M-0001-SO	CRESOLS, M & P	790	UG/KG	4000	U	070SB-043M-0001-SO	790	UG/KG	3900	U	N/A	Yes
070SB-0042M-0001-SO	DIBENZ(A,H)ANTHRACENE	33	UG/KG	66	U	070SB-043M-0001-SO	33	UG/KG	66	U	N/A	Yes
070SB-0042M-0001-SO	DIBENZOFURAN	250	UG/KG	500	J	070SB-043M-0001-SO	180	UG/KG	490	J	N/A	Yes
070SB-0042M-0001-SO	DIETHYL PHTHALATE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	DIMETHYL PHTHALATE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	DI-N-BUTYL PHTHALATE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	Di-n-octyl phthalate	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	FLUORANTHENE	170	UG/KG	66		070SB-043M-0001-SO	120	UG/KG	66		N/A	Yes
070SB-0042M-0001-SO	FLUORENE	650	UG/KG	66		070SB-043M-0001-SO	500	UG/KG	66		26	N/A
070SB-0042M-0001-SO	HEXACHLOROBENZENE	33	UG/KG	66	U	070SB-043M-0001-SO	33	UG/KG	66	U	N/A	Yes
070SB-0042M-0001-SO	HEXACHLOROBUTADIENE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	HEXACHLOROCYCLOPENTADIENE	270	UG/KG	3300	U	070SB-043M-0001-SO	270	UG/KG	3300	U	N/A	Yes
070SB-0042M-0001-SO	HEXACHLOROETHANE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	Indeno[1,2,3-cd]pyrene	33	UG/KG	66	U	070SB-043M-0001-SO	33	UG/KG	66	U	N/A	Yes
070SB-0042M-0001-SO	ISOPHORONE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	NAPHTHALENE	50	UG/KG	66	J	070SB-043M-0001-SO	51	UG/KG	66	J	N/A	Yes
070SB-0042M-0001-SO	NITROBENZENE	33	UG/KG	990	U	070SB-043M-0001-SO	33	UG/KG	990	U	N/A	Yes
070SB-0042M-0001-SO	N-NITROSODI-N-PROPYLAMINE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	N-NITROSODIPHENYLAMINE	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	PENTACHLOROPHENOL	790	UG/KG	1500	U	070SB-043M-0001-SO	790	UG/KG	1500	U	N/A	Yes
070SB-0042M-0001-SO	PHENANTHRENE	1000	UG/KG	66		070SB-043M-0001-SO	810	UG/KG	66		21	N/A
070SB-0042M-0001-SO	PHENOL	270	UG/KG	500	U	070SB-043M-0001-SO	270	UG/KG	490	U	N/A	Yes
070SB-0042M-0001-SO	PYRENE	1000	UG/KG	66		070SB-043M-0001-SO	730	UG/KG	66		31	N/A
070SB-044M-0001-SO	2,4 DB	33	UG/KG	80	U	070SB-045M-0001-SO	33	UG/KG	79	U	N/A	Yes
070SB-044M-0001-SO	2,4,5-T	8.3	UG/KG	20	U	070SB-045M-0001-SO	8.3	UG/KG	20	U	N/A	Yes
070SB-044M-0001-SO	2,4-D	33	UG/KG	80	U	070SB-045M-0001-SO	33	UG/KG	79	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-044M-0001-SO	DALAPON	17	UG/KG	40	U	070SB-045M-0001-SO	17	UG/KG	40	U	N/A	Yes
070SB-044M-0001-SO	DICAMBA	17	UG/KG	40	U	070SB-045M-0001-SO	17	UG/KG	40	U	N/A	Yes
070SB-044M-0001-SO	Dichlorprop	66	UG/KG	80	U	070SB-045M-0001-SO	66	UG/KG	79	U	N/A	Yes
070SB-044M-0001-SO	DINOSEB	10	UG/KG	12	U	070SB-045M-0001-SO	9.9	UG/KG	12	U	N/A	Yes
070SB-044M-0001-SO	MCPA	3300	UG/KG	8000	UJ	070SB-045M-0001-SO	3300	UG/KG	7900	U	N/A	Yes
070SB-044M-0001-SO	MCPP	3300	UG/KG	8000	UJ	070SB-045M-0001-SO	3300	UG/KG	7900	U	N/A	Yes
070SB-044M-0001-SO	PENTACHLOROPHENOL	8.3	UG/KG	10	U	070SB-045M-0001-SO	8.3	UG/KG	9.9	U	N/A	Yes
070SB-044M-0001-SO	SILVEX (2,4,5-TP)	8.3	UG/KG	20	U	070SB-045M-0001-SO	8.3	UG/KG	20	U	N/A	Yes
070SB-044M-0001-SO	1,2,4-TRICHLOROBENZENE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	1,2-DICHLOROBENZENE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	1,3-DICHLOROBENZENE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	1,4-DICHLOROBENZENE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	2,4,5-TRICHLOROPHENOL	270	UG/KG	1500	U	070SB-045M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	2,4,6-TRICHLOROPHENOL	810	UG/KG	1500	U	070SB-045M-0001-SO	800	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	2,4-DICHLOROPHENOL	270	UG/KG	1500	U	070SB-045M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	2,4-DIMETHYLPHENOL	810	UG/KG	1500	U	070SB-045M-0001-SO	800	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	2,4-DINITROPHENOL	810	UG/KG	3300	UJ	070SB-045M-0001-SO	800	UG/KG	3300	U	N/A	Yes
070SB-044M-0001-SO	2,4-DINITROTOLUENE	270	UG/KG	2000	R	070SB-045M-0001-SO	270	UG/KG	2000	U	N/A	N/A
070SB-044M-0001-SO	2,6-DINITROTOLUENE	270	UG/KG	2000	R	070SB-045M-0001-SO	270	UG/KG	2000	U	N/A	N/A
070SB-044M-0001-SO	2-CHLORONAPHTHALENE	33	UG/KG	510	U	070SB-045M-0001-SO	33	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	2-CHLOROPHENOL	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	2-METHYLNAPHTHALENE	33	UG/KG	67	U	070SB-045M-0001-SO	81	UG/KG	67		N/A	Yes
070SB-044M-0001-SO	2-METHYLPHENOL	810	UG/KG	2000	U	070SB-045M-0001-SO	800	UG/KG	2000	U	N/A	Yes
070SB-044M-0001-SO	2-NITROANILINE	270	UG/KG	2000	U	070SB-045M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-044M-0001-SO	2-NITROPHENOL	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	3,3'-DICHLOROBENZIDINE	810	UG/KG	1000	U	070SB-045M-0001-SO	800	UG/KG	1000	U	N/A	Yes
070SB-044M-0001-SO	3-NITROANILINE	810	UG/KG	2000	U	070SB-045M-0001-SO	800	UG/KG	2000	U	N/A	Yes
070SB-044M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	810	UG/KG	1500	U	070SB-045M-0001-SO	800	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	4-BROMOPHENYL PHENYL ETHER	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	4-CHLORO-3-METHYLPHENOL	270	UG/KG	1500	U	070SB-045M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	4-CHLOROANILINE	270	UG/KG	1500	U	070SB-045M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-044M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	4-NITROANILINE	270	UG/KG	2000	U	070SB-045M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-044M-0001-SO	4-NITROPHENOL	810	UG/KG	3300	U	070SB-045M-0001-SO	800	UG/KG	3300	U	N/A	Yes
070SB-044M-0001-SO	ACENAPHTHENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	ACENAPHTHYLENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-044M-0001-SO	ANTHRACENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	Benzo[a]anthracene	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	Benzo[a]pyrene	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	Benzo[b]fluoranthene	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	Benzo[g,h,i]perylene	33	UG/KG	67	UJ	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	Benzo[k]fluoranthene	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	BENZOIC ACID	3400	UG/KG	6700	U	070SB-045M-0001-SO	3300	UG/KG	6600	U	N/A	Yes
070SB-044M-0001-SO	BENZYL ALCOHOL	270	UG/KG	3300	U	070SB-045M-0001-SO	270	UG/KG	3300	U	N/A	Yes
070SB-044M-0001-SO	BENZYL BUTYL PHTHALATE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	270	UG/KG	1000	U	070SB-045M-0001-SO	270	UG/KG	1000	U	N/A	Yes
070SB-044M-0001-SO	BIS(2-CHLOROETHYL) ETHER	33	UG/KG	1000	U	070SB-045M-0001-SO	33	UG/KG	1000	U	N/A	Yes
070SB-044M-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	270	UG/KG	1000	U	070SB-045M-0001-SO	270	UG/KG	1000	U	N/A	Yes
070SB-044M-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	CARBAZOLE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	CHRYSENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	CRESOLS, M & P	810	UG/KG	4000	U	070SB-045M-0001-SO	800	UG/KG	4000	U	N/A	Yes
070SB-044M-0001-SO	DIBENZ(A,H)ANTHRACENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	DIBENZOFURAN	33	UG/KG	510	U	070SB-045M-0001-SO	33	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	DIETHYL PHTHALATE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	DIMETHYL PHTHALATE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	DI-N-BUTYL PHTHALATE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	Di-n-octyl phthalate	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	FLUORANTHENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	FLUORENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	HEXACHLOROBENZENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	HEXACHLOROBUTADIENE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	HEXACHLOROCYCLOPENTADIENE	270	UG/KG	3300	U	070SB-045M-0001-SO	270	UG/KG	3300	U	N/A	Yes
070SB-044M-0001-SO	HEXACHLOROETHANE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	Indeno[1,2,3-cd]pyrene	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-044M-0001-SO	ISOPHORONE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	NAPHTHALENE	33	UG/KG	67	U	070SB-045M-0001-SO	69	UG/KG	67		N/A	Yes
070SB-044M-0001-SO	NITROBENZENE	33	UG/KG	1000	U	070SB-045M-0001-SO	33	UG/KG	1000	U	N/A	Yes
070SB-044M-0001-SO	N-NITROSODI-N-PROPYLAMINE	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	N-NITROSODIPHENYLAMINE	270	UG/KG	510	R	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	N/A
070SB-044M-0001-SO	PENTACHLOROPHENOL	810	UG/KG	1500	R	070SB-045M-0001-SO	800	UG/KG	1500	U	N/A	N/A
070SB-044M-0001-SO	PHENANTHRENE	33	UG/KG	67	U	070SB-045M-0001-SO	45	UG/KG	67	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-044M-0001-SO	PHENOL	270	UG/KG	510	U	070SB-045M-0001-SO	270	UG/KG	500	U	N/A	Yes
070SB-044M-0001-SO	PYRENE	33	UG/KG	67	U	070SB-045M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	ALUMINUM	6900	MG/KG	2.9		070SB-047M-0001-SO	9700	MG/KG	3		34	N/A
070SB-046M-0001-SO	ANTIMONY	0.097	MG/KG	0.19	U	070SB-047M-0001-SO	0.1	MG/KG	0.2	U	N/A	Yes
070SB-046M-0001-SO	ARSENIC	7.8	MG/KG	0.1		070SB-047M-0001-SO	8.1	MG/KG	0.1		4	N/A
070SB-046M-0001-SO	BARIUM	39	MG/KG	0.97		070SB-047M-0001-SO	55	MG/KG	1		34	N/A
070SB-046M-0001-SO	BERYLLIUM	0.35	MG/KG	0.1		070SB-047M-0001-SO	0.49	MG/KG	0.1		N/A	No
070SB-046M-0001-SO	CADMIUM	0.15	MG/KG	0.1		070SB-047M-0001-SO	0.17	MG/KG	0.1		N/A	Yes
070SB-046M-0001-SO	CALCIUM	1600	MG/KG	9.7		070SB-047M-0001-SO	1500	MG/KG	10		6	N/A
070SB-046M-0001-SO	CHROMIUM	9.8	MG/KG	0.19		070SB-047M-0001-SO	14	MG/KG	0.2		35	N/A
070SB-046M-0001-SO	COBALT	5.5	MG/KG	0.05		070SB-047M-0001-SO	7.6	MG/KG	0.05		32	N/A
070SB-046M-0001-SO	COPPER	14	MG/KG	0.19		070SB-047M-0001-SO	16	MG/KG	0.2		13	N/A
070SB-046M-0001-SO	IRON	16000	MG/KG	4.9		070SB-047M-0001-SO	20000	MG/KG	5		22	N/A
070SB-046M-0001-SO	LEAD	12	MG/KG	0.1		070SB-047M-0001-SO	14	MG/KG	0.1		15	N/A
070SB-046M-0001-SO	MAGNESIUM	1700	MG/KG	9.7		070SB-047M-0001-SO	2500	MG/KG	10		38	N/A
070SB-046M-0001-SO	MANGANESE	220	MG/KG	0.49		070SB-047M-0001-SO	270	MG/KG	0.5		20	N/A
070SB-046M-0001-SO	NICKEL	12	MG/KG	0.1		070SB-047M-0001-SO	17	MG/KG	0.1		34	N/A
070SB-046M-0001-SO	POTASSIUM	630	MG/KG	9.7		070SB-047M-0001-SO	850	MG/KG	10		30	N/A
070SB-046M-0001-SO	SELENIUM	0.31	MG/KG	0.49	J	070SB-047M-0001-SO	0.4	MG/KG	0.5	J	N/A	Yes
070SB-046M-0001-SO	SILVER	0.026	MG/KG	0.1	J	070SB-047M-0001-SO	0.029	MG/KG	0.1	J	N/A	Yes
070SB-046M-0001-SO	SODIUM	69	MG/KG	9.7		070SB-047M-0001-SO	91	MG/KG	10		28	N/A
070SB-046M-0001-SO	THALLIUM	0.098	MG/KG	0.1		070SB-047M-0001-SO	0.13	MG/KG	0.1		N/A	Yes
070SB-046M-0001-SO	VANADIUM	12	MG/KG	0.1		070SB-047M-0001-SO	16	MG/KG	0.1		29	N/A
070SB-046M-0001-SO	ZINC	37	MG/KG	0.49		070SB-047M-0001-SO	45	MG/KG	0.5		20	N/A
070SB-046M-0001-SO	Aroclor-1016	25	UG/KG	65	U	070SB-047M-0001-SO	25	UG/KG	65	U	N/A	Yes
070SB-046M-0001-SO	Aroclor-1221	25	UG/KG	50	U	070SB-047M-0001-SO	25	UG/KG	50	U	N/A	Yes
070SB-046M-0001-SO	Aroclor-1232	25	UG/KG	45	U	070SB-047M-0001-SO	25	UG/KG	45	U	N/A	Yes
070SB-046M-0001-SO	Aroclor-1242	25	UG/KG	40	U	070SB-047M-0001-SO	25	UG/KG	40	U	N/A	Yes
070SB-046M-0001-SO	Aroclor-1248	25	UG/KG	55	U	070SB-047M-0001-SO	25	UG/KG	55	U	N/A	Yes
070SB-046M-0001-SO	Aroclor-1254	25	UG/KG	55	U	070SB-047M-0001-SO	25	UG/KG	55	U	N/A	Yes
070SB-046M-0001-SO	Aroclor-1260	25	UG/KG	55	U	070SB-047M-0001-SO	25	UG/KG	55	U	N/A	Yes
070SB-046M-0001-SO	MERCURY	0.018	MG/KG	0.09	J	070SB-047M-0001-SO	0.021	MG/KG	0.091	J	N/A	Yes
070SB-046M-0001-SO	1,2,4-TRICHLOROBENZENE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	1,2-DICHLOROBENZENE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	1,3-DICHLOROBENZENE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	1,4-DICHLOROBENZENE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-046M-0001-SO	2,4,5-TRICHLOROPHENOL	270	UG/KG	1500	U	070SB-047M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	2,4,6-TRICHLOROPHENOL	800	UG/KG	1500	U	070SB-047M-0001-SO	810	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	2,4-DICHLOROPHENOL	270	UG/KG	1500	U	070SB-047M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	2,4-DIMETHYLPHENOL	800	UG/KG	1500	U	070SB-047M-0001-SO	810	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	2,4-DINITROPHENOL	800	UG/KG	3300	UJ	070SB-047M-0001-SO	810	UG/KG	3300	U	N/A	Yes
070SB-046M-0001-SO	2,4-DINITROTOLUENE	270	UG/KG	2000	U	070SB-047M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-046M-0001-SO	2,6-DINITROTOLUENE	270	UG/KG	2000	U	070SB-047M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-046M-0001-SO	2-CHLORONAPHTHALENE	33	UG/KG	500	U	070SB-047M-0001-SO	33	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	2-CHLOROPHENOL	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	2-METHYLNAPHTHALENE	33	UG/KG	67	U	070SB-047M-0001-SO	34	UG/KG	67	J	N/A	Yes
070SB-046M-0001-SO	2-METHYLPHENOL	800	UG/KG	2000	U	070SB-047M-0001-SO	810	UG/KG	2000	U	N/A	Yes
070SB-046M-0001-SO	2-NITROANILINE	270	UG/KG	2000	U	070SB-047M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-046M-0001-SO	2-NITROPHENOL	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	3,3'-DICHLOROBENZIDINE	800	UG/KG	1000	U	070SB-047M-0001-SO	810	UG/KG	1000	U	N/A	Yes
070SB-046M-0001-SO	3-NITROANILINE	800	UG/KG	2000	U	070SB-047M-0001-SO	810	UG/KG	2000	U	N/A	Yes
070SB-046M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	800	UG/KG	1500	U	070SB-047M-0001-SO	810	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	4-BROMOPHENYL PHENYL ETHER	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	4-CHLORO-3-METHYLPHENOL	270	UG/KG	1500	U	070SB-047M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	4-CHLOROANILINE	270	UG/KG	1500	U	070SB-047M-0001-SO	270	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	4-NITROANILINE	270	UG/KG	2000	U	070SB-047M-0001-SO	270	UG/KG	2000	U	N/A	Yes
070SB-046M-0001-SO	4-NITROPHENOL	800	UG/KG	3300	U	070SB-047M-0001-SO	810	UG/KG	3300	U	N/A	Yes
070SB-046M-0001-SO	ACENAPHTHENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	ACENAPHTHYLENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	ANTHRACENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	Benzo[a]anthracene	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	Benzo[a]pyrene	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	Benzo[b]fluoranthene	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	Benzo[g,h,i]perylene	33	UG/KG	67	UJ	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	Benzo[k]fluoranthene	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	BENZOIC ACID	3300	UG/KG	6600	U	070SB-047M-0001-SO	3400	UG/KG	6700	U	N/A	Yes
070SB-046M-0001-SO	BENZYL ALCOHOL	270	UG/KG	3300	U	070SB-047M-0001-SO	270	UG/KG	3300	U	N/A	Yes
070SB-046M-0001-SO	BENZYL BUTYL PHTHALATE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	270	UG/KG	1000	U	070SB-047M-0001-SO	270	UG/KG	1000	U	N/A	Yes
070SB-046M-0001-SO	BIS(2-CHLOROETHYL) ETHER	33	UG/KG	1000	U	070SB-047M-0001-SO	33	UG/KG	1000	U	N/A	Yes
070SB-046M-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	270	UG/KG	1000	U	070SB-047M-0001-SO	270	UG/KG	1000	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SB-046M-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	CARBAZOLE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	CHRYSENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	CRESOLS, M & P	800	UG/KG	4000	U	070SB-047M-0001-SO	810	UG/KG	4000	U	N/A	Yes
070SB-046M-0001-SO	DIBENZ(A,H)ANTHRACENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	DIBENZOFURAN	33	UG/KG	500	U	070SB-047M-0001-SO	33	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	DIETHYL PHTHALATE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	DIMETHYL PHTHALATE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	DI-N-BUTYL PHTHALATE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	Di-n-octyl phthalate	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	FLUORANTHENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	FLUORENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	HEXACHLOROBENZENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	HEXACHLOROBUTADIENE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	HEXACHLOROCYCLOPENTADIENE	270	UG/KG	3300	U	070SB-047M-0001-SO	270	UG/KG	3300	U	N/A	Yes
070SB-046M-0001-SO	HEXACHLOROETHANE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	Indeno[1,2,3-cd]pyrene	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	ISOPHORONE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	NAPHTHALENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	NITROBENZENE	33	UG/KG	1000	U	070SB-047M-0001-SO	33	UG/KG	1000	U	N/A	Yes
070SB-046M-0001-SO	N-NITROSODI-N-PROPYLAMINE	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	N-NITROSODIPHENYLAMINE	270	UG/KG	500	R	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	N/A
070SB-046M-0001-SO	PENTACHLOROPHENOL	800	UG/KG	1500	U	070SB-047M-0001-SO	810	UG/KG	1500	U	N/A	Yes
070SB-046M-0001-SO	PHENANTHRENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SB-046M-0001-SO	PHENOL	270	UG/KG	500	U	070SB-047M-0001-SO	270	UG/KG	510	U	N/A	Yes
070SB-046M-0001-SO	PYRENE	33	UG/KG	67	U	070SB-047M-0001-SO	33	UG/KG	67	U	N/A	Yes
070SS-0006M-0001-SO	Nitrocellulose	1	mg/kg	5	J	070SS-0007M-0001-SO	0.9	mg/kg	5	J	N/A	Yes
070SS-0006M-0001-SO	Aluminum	9800	mg/kg	9.3		070SS-0007M-0001-SO	9700	mg/kg	9.6		1	N/A
070SS-0006M-0001-SO	Antimony	1.5	mg/kg	0.19	J-	070SS-0007M-0001-SO	1.1	mg/kg	0.19		31	N/A
070SS-0006M-0001-SO	Arsenic	18	mg/kg	0.46		070SS-0007M-0001-SO	19	mg/kg	0.48		5	N/A
070SS-0006M-0001-SO	Barium	71	mg/kg	0.46		070SS-0007M-0001-SO	67	mg/kg	0.48		6	N/A
070SS-0006M-0001-SO	Beryllium	0.75	mg/kg	0.09		070SS-0007M-0001-SO	0.72	mg/kg	0.096		4	N/A
070SS-0006M-0001-SO	Cadmium	0.46	mg/kg	0.19	J	070SS-0007M-0001-SO	0.31	mg/kg	0.19		N/A	Yes
070SS-0006M-0001-SO	Calcium	7000	mg/kg	190		070SS-0007M-0001-SO	4500	mg/kg	190		43	N/A
070SS-0006M-0001-SO	Chromium	35	mg/kg	0.46	J-	070SS-0007M-0001-SO	21	mg/kg	0.48		50	N/A
070SS-0006M-0001-SO	Cobalt	8.6	mg/kg	0.09		070SS-0007M-0001-SO	8.2	mg/kg	0.096		5	N/A

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SS-0006M-0001-SO	Copper	23	mg/kg	0.37	J-	070SS-0007M-0001-SO	22	mg/kg	0.38		4	N/A
070SS-0006M-0001-SO	Iron	23000	mg/kg	46		070SS-0007M-0001-SO	22000	mg/kg	48		4	N/A
070SS-0006M-0001-SO	Lead	62	mg/kg	0.28	J	070SS-0007M-0001-SO	42	mg/kg	0.29		38	N/A
070SS-0006M-0001-SO	Magnesium	2800	mg/kg	93		070SS-0007M-0001-SO	2400	mg/kg	96		15	N/A
070SS-0006M-0001-SO	Manganese	520	mg/kg	2.3		070SS-0007M-0001-SO	430	mg/kg	0.48		19	N/A
070SS-0006M-0001-SO	Nickel	30	mg/kg	0.46	J	070SS-0007M-0001-SO	27	mg/kg	0.48		11	N/A
070SS-0006M-0001-SO	Potassium	940	mg/kg	93	J+	070SS-0007M-0001-SO	1000	mg/kg	96		6	N/A
070SS-0006M-0001-SO	Selenium	0.99	mg/kg	0.46	J-	070SS-0007M-0001-SO	1.2	mg/kg	0.48		N/A	Yes
070SS-0006M-0001-SO	Silver	0.034	mg/kg	0.09	J	070SS-0007M-0001-SO	0.037	mg/kg	0.096	J	N/A	Yes
070SS-0006M-0001-SO	Sodium	55	mg/kg	93	U	070SS-0007M-0001-SO	49	mg/kg	96	J	N/A	Yes
070SS-0006M-0001-SO	Thallium	0.24	mg/kg	0.19		070SS-0007M-0001-SO	0.19	mg/kg	0.19		N/A	Yes
070SS-0006M-0001-SO	Vanadium	16	mg/kg	0.46	J+	070SS-0007M-0001-SO	16	mg/kg	0.48		0	N/A
070SS-0006M-0001-SO	Zinc	110	mg/kg	3.7		070SS-0007M-0001-SO	110	mg/kg	3.8		0	N/A
070SS-0006M-0001-SO	MERCURY	0.05	mg/kg	0.09	J	070SS-0007M-0001-SO	0.067	mg/kg	0.11	J	N/A	Yes
070SS-0006M-0001-SO	C10-C20	23	mg/kg	17		070SS-0007M-0001-SO	30	mg/kg	9.3	9.3	N/A	Yes
070SS-0006M-0001-SO	C20-C34	110	mg/kg	17		070SS-0007M-0001-SO	150	mg/kg	17		N/A	No
070SS-0006M-0001-SO	Aroclor-1016	100	ug/kg	320	U	070SS-0007M-0001-SO	21	ug/kg	66	U	N/A	Yes
070SS-0006M-0001-SO	Aroclor-1221	80	ug/kg	250	U	070SS-0007M-0001-SO	16	ug/kg	51	U	N/A	Yes
070SS-0006M-0001-SO	Aroclor-1232	70	ug/kg	220	U	070SS-0007M-0001-SO	14	ug/kg	45	U	N/A	Yes
070SS-0006M-0001-SO	Aroclor-1242	380	ug/kg	200	J	070SS-0007M-0001-SO	13	ug/kg	40	U	N/A	No
070SS-0006M-0001-SO	Aroclor-1248	85	ug/kg	270	U	070SS-0007M-0001-SO	120	ug/kg	56		N/A	Yes
070SS-0006M-0001-SO	Aroclor-1254	85	ug/kg	270	U	070SS-0007M-0001-SO	17	ug/kg	56	U	N/A	Yes
070SS-0006M-0001-SO	Aroclor-1260	85	ug/kg	270	U	070SS-0007M-0001-SO	43	ug/kg	56	J	N/A	Yes
070SS-0006M-0001-SO	2,4,5-T	3.7	ug/kg	20	U	070SS-0007M-0001-SO	3.8	ug/kg	20	U	N/A	Yes
070SS-0006M-0001-SO	2,4-D	19	ug/kg	80	U	070SS-0007M-0001-SO	19	ug/kg	80	U	N/A	Yes
070SS-0006M-0001-SO	2,4-DB	21	ug/kg	80	U	070SS-0007M-0001-SO	22	ug/kg	80	U	N/A	Yes
070SS-0006M-0001-SO	Dalapon	7.8	ug/kg	40	U	070SS-0007M-0001-SO	7.8	ug/kg	40	U	N/A	Yes
070SS-0006M-0001-SO	Dicamba	8.1	ug/kg	40	UJ	070SS-0007M-0001-SO	8.1	ug/kg	40	U	N/A	Yes
070SS-0006M-0001-SO	Dichlorprop	37	ug/kg	80	UJ	070SS-0007M-0001-SO	37	ug/kg	80	U	N/A	Yes
070SS-0006M-0001-SO	Dinoseb	10	ug/kg	12	U	070SS-0007M-0001-SO	10	ug/kg	12	U	N/A	Yes
070SS-0006M-0001-SO	MCPA	1600	ug/kg	8000	UJ	070SS-0007M-0001-SO	1700	ug/kg	8000	U	N/A	Yes
070SS-0006M-0001-SO	MCPP	1500	ug/kg	8000	UJ	070SS-0007M-0001-SO	1500	ug/kg	8000	U	N/A	Yes
070SS-0006M-0001-SO	Pentachlorophenol	4.3	ug/kg	10	U	070SS-0007M-0001-SO	4.3	ug/kg	10	U	N/A	Yes
070SS-0006M-0001-SO	Silvex (2,4,5-TP)	4.1	ug/kg	20	U	070SS-0007M-0001-SO	4.1	ug/kg	20	U	N/A	Yes
070SS-0006M-0001-SO	1,3,5-Trinitrobenzene	0.01	mg/kg	0.25	U	070SS-0007M-0001-SO	0.01	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	1,3-Dinitrobenzene	0.004	mg/kg	0.25	U	070SS-0007M-0001-SO	0.0042	mg/kg	0.25	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SS-0006M-0001-SO	2,4,6-Trinitrotoluene	0.019	mg/kg	0.25	U	070SS-0007M-0001-SO	0.019	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	2,4-Dinitrotoluene	0.005	mg/kg	0.25	U	070SS-0007M-0001-SO	0.0053	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	2,6-Dinitrotoluene	0.007	mg/kg	0.25	U	070SS-0007M-0001-SO	0.0073	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	2-Amino-4,6-dinitrotoluene	0.012	mg/kg	0.25	U	070SS-0007M-0001-SO	0.013	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	2-Nitrotoluene	0.013	mg/kg	0.25	UJ	070SS-0007M-0001-SO	0.013	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	3-Nitrotoluene	0.015	mg/kg	0.25	U	070SS-0007M-0001-SO	0.016	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	4-Amino-2,6-dinitrotoluene	0.01	mg/kg	0.25	U	070SS-0007M-0001-SO	0.01	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	4-Nitrotoluene	0.018	mg/kg	0.25	U	070SS-0007M-0001-SO	0.018	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	HMX	0.012	mg/kg	0.25	U	070SS-0007M-0001-SO	0.012	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	Nitrobenzene	0.018	mg/kg	0.25	R	070SS-0007M-0001-SO	0.018	mg/kg	0.25	U	N/A	N/A
070SS-0006M-0001-SO	Nitroglycerin	0.015	mg/kg	0.5	UJ	070SS-0007M-0001-SO	0.015	mg/kg	0.5	U	N/A	Yes
070SS-0006M-0001-SO	PETN	0.025	mg/kg	0.5	U	070SS-0007M-0001-SO	0.025	mg/kg	0.5	U	N/A	Yes
070SS-0006M-0001-SO	RDX	0.012	mg/kg	0.25	UJ	070SS-0007M-0001-SO	0.012	mg/kg	0.25	U	N/A	Yes
070SS-0006M-0001-SO	Tetryl	0.01	mg/kg	0.25	U	070SS-0007M-0001-SO	0.029	mg/kg	0.25	J	N/A	Yes
070SS-0006M-0001-SO	1,1,1-Trichloroethane	0.97	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.82	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,1,2,2-Tetrachloroethane	0.59	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.5	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,1,2-Trichloroethane	0.68	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.57	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,1-Dichloroethane	0.62	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.53	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,1-Dichloroethene	0.9	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.77	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,2-Dibromoethane	0.87	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.74	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,2-Dichloroethane	0.59	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.5	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	1,2-Dichloroethene, Total	1.3	ug/kg	17	UJ	070SS-0007M-0001-SO	1.1	ug/kg	15	U	N/A	Yes
070SS-0006M-0001-SO	1,2-Dichloropropane	1.2	ug/kg	8.7	UJ	070SS-0007M-0001-SO	1	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	2-Butanone (MEK)	2.4	ug/kg	35	UJ	070SS-0007M-0001-SO	2.1	ug/kg	29	U	N/A	Yes
070SS-0006M-0001-SO	2-Hexanone	1.1	ug/kg	35	UJ	070SS-0007M-0001-SO	0.93	ug/kg	29	U	N/A	Yes
070SS-0006M-0001-SO	4-Methyl-2-pentanone (MIBK)	0.94	ug/kg	35	UJ	070SS-0007M-0001-SO	0.8	ug/kg	29	U	N/A	Yes
070SS-0006M-0001-SO	Acetone	11	ug/kg	35	UJ	070SS-0007M-0001-SO	28	ug/kg	29	J	N/A	Yes
070SS-0006M-0001-SO	Benzene	0.4	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.34	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Bromochloromethane	1.2	ug/kg	8.7	UJ	070SS-0007M-0001-SO	1	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Bromodichloromethane	0.49	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.41	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Bromoform	0.57	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.49	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Bromomethane	0.94	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.8	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Carbon disulfide	0.76	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.65	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Carbon tetrachloride	0.64	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.54	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Chlorobenzene	0.57	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.49	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Chloroethane	1.5	ug/kg	8.7	UJ	070SS-0007M-0001-SO	1.3	ug/kg	7.4	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SS-0006M-0001-SO	Chloroform	0.5	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.43	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Chloromethane	0.71	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.6	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	cis-1,3-Dichloropropene	0.59	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.5	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Dibromochloromethane	0.95	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.81	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Ethylbenzene	0.45	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.38	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Methyl tert-butyl ether	0.75	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.63	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Methylene Chloride	1.2	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.99	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Styrene	0.26	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.22	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Tetrachloroethene	0.9	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.77	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Toluene	0.47	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.4	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	trans-1,3-Dichloropropene	0.94	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.8	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Trichloroethene	0.73	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.62	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Vinyl chloride	0.68	ug/kg	8.7	UJ	070SS-0007M-0001-SO	0.57	ug/kg	7.4	U	N/A	Yes
070SS-0006M-0001-SO	Xylenes, Total	1.2	ug/kg	17	UJ	070SS-0007M-0001-SO	0.99	ug/kg	15	U	N/A	Yes
070SS-0006M-0001-SO	1,2,4-Trichlorobenzene	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	1,2-Dichlorobenzene	48	ug/kg	250	U	070SS-0007M-0001-SO	48	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	1,3-Dichlorobenzene	54	ug/kg	250	U	070SS-0007M-0001-SO	55	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	1,4-Dichlorobenzene	99	ug/kg	250	U	070SS-0007M-0001-SO	99	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	2,4,5-Trichlorophenol	120	ug/kg	740	U	070SS-0007M-0001-SO	120	ug/kg	750	U	N/A	Yes
070SS-0006M-0001-SO	2,4,6-Trichlorophenol	390	ug/kg	740	U	070SS-0007M-0001-SO	400	ug/kg	750	U	N/A	Yes
070SS-0006M-0001-SO	2,4-Dichlorophenol	99	ug/kg	740	U	070SS-0007M-0001-SO	99	ug/kg	750	U	N/A	Yes
070SS-0006M-0001-SO	2,4-Dimethylphenol	99	ug/kg	740	U	070SS-0007M-0001-SO	99	ug/kg	750	U	N/A	Yes
070SS-0006M-0001-SO	2,4-Dinitrophenol	390	ug/kg	1600	UJ	070SS-0007M-0001-SO	400	ug/kg	1600	U	N/A	Yes
070SS-0006M-0001-SO	2,4-Dinitrotoluene	130	ug/kg	990	R	070SS-0007M-0001-SO	130	ug/kg	990	U	N/A	N/A
070SS-0006M-0001-SO	2,6-Dinitrotoluene	100	ug/kg	990	R	070SS-0007M-0001-SO	100	ug/kg	990	U	N/A	N/A
070SS-0006M-0001-SO	2-Chloronaphthalene	16	ug/kg	250	U	070SS-0007M-0001-SO	16	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	2-Chlorophenol	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	2-Methylnaphthalene	280	ug/kg	33		070SS-0007M-0001-SO	260	ug/kg	33		7	N/A
070SS-0006M-0001-SO	2-Methylphenol	390	ug/kg	990	U	070SS-0007M-0001-SO	400	ug/kg	990	U	N/A	Yes
070SS-0006M-0001-SO	2-Nitroaniline	45	ug/kg	990	U	070SS-0007M-0001-SO	45	ug/kg	990	U	N/A	Yes
070SS-0006M-0001-SO	2-Nitrophenol	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	3 & 4 Methylphenol	99	ug/kg	2000	U	070SS-0007M-0001-SO	99	ug/kg	2000	U	N/A	Yes
070SS-0006M-0001-SO	3,3'-Dichlorobenzidine	89	ug/kg	490	R	070SS-0007M-0001-SO	90	ug/kg	500	U	N/A	N/A
070SS-0006M-0001-SO	3-Nitroaniline	79	ug/kg	990	UJ	070SS-0007M-0001-SO	80	ug/kg	990	U	N/A	Yes
070SS-0006M-0001-SO	4,6-Dinitro-2-methylphenol	390	ug/kg	740	UJ	070SS-0007M-0001-SO	400	ug/kg	750	U	N/A	Yes
070SS-0006M-0001-SO	4-Bromophenyl phenyl ether	64	ug/kg	250	U	070SS-0007M-0001-SO	65	ug/kg	250	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SS-0006M-0001-SO	4-Chloro-3-methylphenol	100	ug/kg	740	U	070SS-0007M-0001-SO	100	ug/kg	750	U	N/A	Yes
070SS-0006M-0001-SO	4-Chloroaniline	84	ug/kg	740	R	070SS-0007M-0001-SO	85	ug/kg	750	U	N/A	N/A
070SS-0006M-0001-SO	4-Chlorophenyl phenyl ether	64	ug/kg	250	U	070SS-0007M-0001-SO	65	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	4-Nitroaniline	130	ug/kg	990	UJ	070SS-0007M-0001-SO	130	ug/kg	990	U	N/A	Yes
070SS-0006M-0001-SO	4-Nitrophenol	390	ug/kg	1600	U	070SS-0007M-0001-SO	400	ug/kg	1600	U	N/A	Yes
070SS-0006M-0001-SO	Acenaphthene	40	ug/kg	33		070SS-0007M-0001-SO	68	ug/kg	33		N/A	Yes
070SS-0006M-0001-SO	Acenaphthylene	16	ug/kg	33	U	070SS-0007M-0001-SO	16	ug/kg	33	U	N/A	Yes
070SS-0006M-0001-SO	Anthracene	79	ug/kg	33		070SS-0007M-0001-SO	110	ug/kg	33		N/A	Yes
070SS-0006M-0001-SO	Benzo[a]anthracene	160	ug/kg	33		070SS-0007M-0001-SO	230	ug/kg	33		N/A	No
070SS-0006M-0001-SO	Benzo[a]pyrene	130	ug/kg	33		070SS-0007M-0001-SO	190	ug/kg	33		N/A	No
070SS-0006M-0001-SO	Benzo[b]fluoranthene	200	ug/kg	33		070SS-0007M-0001-SO	300	ug/kg	33		40	N/A
070SS-0006M-0001-SO	Benzo[g,h,i]perylene	130	ug/kg	33		070SS-0007M-0001-SO	190	ug/kg	33		N/A	No
070SS-0006M-0001-SO	Benzo[k]fluoranthene	91	ug/kg	33		070SS-0007M-0001-SO	120	ug/kg	33		N/A	Yes
070SS-0006M-0001-SO	Benzoic acid	1600	ug/kg	3300	U	070SS-0007M-0001-SO	1700	ug/kg	3300	U	N/A	Yes
070SS-0006M-0001-SO	Benzyl alcohol	100	ug/kg	1600	U	070SS-0007M-0001-SO	100	ug/kg	1600	U	N/A	Yes
070SS-0006M-0001-SO	bis (2-chloroisopropyl) ether	47	ug/kg	490	U	070SS-0007M-0001-SO	47	ug/kg	500	U	N/A	Yes
070SS-0006M-0001-SO	Bis(2-chloroethoxy)methane	110	ug/kg	490	U	070SS-0007M-0001-SO	110	ug/kg	500	U	N/A	Yes
070SS-0006M-0001-SO	Bis(2-chloroethyl)ether	9.9	ug/kg	490	U	070SS-0007M-0001-SO	9.9	ug/kg	500	U	N/A	Yes
070SS-0006M-0001-SO	Bis(2-ethylhexyl) phthalate	94	ug/kg	250	U	070SS-0007M-0001-SO	94	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Butyl benzyl phthalate	49	ug/kg	250	U	070SS-0007M-0001-SO	50	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Carbazole	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Chrysene	200	ug/kg	33		070SS-0007M-0001-SO	270	ug/kg	33		30	N/A
070SS-0006M-0001-SO	Dibenz(a,h)anthracene	16	ug/kg	33	U	070SS-0007M-0001-SO	16	ug/kg	33	U	N/A	Yes
070SS-0006M-0001-SO	Dibenzofuran	88	ug/kg	250	J	070SS-0007M-0001-SO	100	ug/kg	250	J	N/A	Yes
070SS-0006M-0001-SO	Diethyl phthalate	79	ug/kg	250	U	070SS-0007M-0001-SO	80	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Dimethyl phthalate	84	ug/kg	250	U	070SS-0007M-0001-SO	85	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Di-n-butyl phthalate	74	ug/kg	250	U	070SS-0007M-0001-SO	75	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Di-n-octyl phthalate	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Fluoranthene	370	ug/kg	33		070SS-0007M-0001-SO	610	ug/kg	33		49	N/A
070SS-0006M-0001-SO	Fluorene	38	ug/kg	33		070SS-0007M-0001-SO	77	ug/kg	33		N/A	No
070SS-0006M-0001-SO	Hexachlorobenzene	10	ug/kg	33	U	070SS-0007M-0001-SO	10	ug/kg	33	U	N/A	Yes
070SS-0006M-0001-SO	Hexachlorobutadiene	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Hexachlorocyclopentadiene	130	ug/kg	1600	U	070SS-0007M-0001-SO	130	ug/kg	1600	U	N/A	Yes
070SS-0006M-0001-SO	Hexachloroethane	44	ug/kg	250	U	070SS-0007M-0001-SO	45	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Indeno[1,2,3-cd]pyrene	90	ug/kg	33		070SS-0007M-0001-SO	110	ug/kg	33		N/A	Yes
070SS-0006M-0001-SO	Isophorone	64	ug/kg	250	U	070SS-0007M-0001-SO	65	ug/kg	250	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	Qual	Sample	Result	Units	LOQ	Qual	RPD	W/In LOQ
070SS-0006M-0001-SO	Naphthalene	220	ug/kg	33		070SS-0007M-0001-SO	220	ug/kg	33		0	N/A
070SS-0006M-0001-SO	Nitrobenzene	11	ug/kg	490	U	070SS-0007M-0001-SO	11	ug/kg	500	U	N/A	Yes
070SS-0006M-0001-SO	N-Nitrosodi-n-propylamine	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	N-Nitrosodiphenylamine	100	ug/kg	250	U	070SS-0007M-0001-SO	100	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Pentachlorophenol	390	ug/kg	740	R	070SS-0007M-0001-SO	400	ug/kg	750	U	N/A	N/A
070SS-0006M-0001-SO	Phenanthrene	420	ug/kg	33		070SS-0007M-0001-SO	650	ug/kg	33		43	N/A
070SS-0006M-0001-SO	Phenol	130	ug/kg	250	U	070SS-0007M-0001-SO	130	ug/kg	250	U	N/A	Yes
070SS-0006M-0001-SO	Pyrene	280	ug/kg	33		070SS-0007M-0001-SO	480	ug/kg	33		53	N/A
070SS-0006M-0001-SO	Nitroguanidine	0.019	mg/kg	0.24	U	070SS-0007M-0001-SO	0.019	mg/kg	0.24	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
071SB-0013M-0001-SO	Diesel	20	mg/kg	41	15	J	071SB-0014M-0001-SO	21	41	15	J	N/A	Yes
071SB-0013M-0001-SO	Gasoline	2.6	mg/kg	5.3	2.6	U	071SB-0014M-0001-SO	2.8	5.6	2.8	U	N/A	Yes
071SB-0013M-0001-SO	LEAD	9	mg/kg	1.3	0.64	J-	071SB-0014M-0001-SO	11	1.3	0.65		20	N/A
071SB-0013M-0001-SO	1,1,1-TRICHLOROETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,1,2-TRICHLOROETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,1-DICHLOROETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,1-DICHLOROETHENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,2-DIBROMOETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,2-DICHLOROETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,2-Dichloroethene, Total	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	1,2-DICHLOROPROPANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	2-Butanone (MEK)	9.3	ug/kg	19	9.3	U	071SB-0014M-0001-SO	9.3	19	9.3	U	N/A	Yes
071SB-0013M-0001-SO	2-HEXANONE	19	ug/kg	37	19	U	071SB-0014M-0001-SO	19	37	19	U	N/A	Yes
071SB-0013M-0001-SO	4-Methyl-2-pentanone (MIBK)	9.3	ug/kg	19	9.3	U	071SB-0014M-0001-SO	9.3	19	9.3	U	N/A	Yes
071SB-0013M-0001-SO	ACETONE	9.3	ug/kg	19	9.3	U	071SB-0014M-0001-SO	9.3	19	9.3	U	N/A	Yes
071SB-0013M-0001-SO	BENZENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	BROMOCHLOROMETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	BROMODICHLOROMETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	BROMOFORM	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	BROMOMETHANE	0.93	ug/kg	1.9	0.93	UJ	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CARBON DISULFIDE	1.9	ug/kg	3.7	1.9	U	071SB-0014M-0001-SO	1.9	3.7	1.9	U	N/A	Yes
071SB-0013M-0001-SO	CARBON TETRACHLORIDE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CHLOROBENZENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CHLOROETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CHLOROFORM	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CHLOROMETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CIS-1,2-DICHLOROETHYLENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	CIS-1,3-DICHLOROPROPENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	DIBROMOCHLOROMETHANE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	ETHYLBENZENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	Methyl tert-butyl ether	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	METHYLENE CHLORIDE	9.9	ug/kg	9.9	1.9	UJ	071SB-0014M-0001-SO	1.9	9.3	1.9	J	N/A	Yes
071SB-0013M-0001-SO	STYRENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	TETRACHLOROETHYLENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	TOLUENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
071SB-0013M-0001-SO	TRANS-1,2-DICHLOROETHENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	TRANS-1,3-DICHLOROPROPENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	TRICHLOROETHYLENE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	VINYL CHLORIDE	0.93	ug/kg	1.9	0.93	U	071SB-0014M-0001-SO	0.93	1.9	0.93	U	N/A	Yes
071SB-0013M-0001-SO	Xylenes, Total	1.9	ug/kg	3.7	1.9	U	071SB-0014M-0001-SO	1.9	3.7	1.9	U	N/A	Yes
071SB-0013M-0001-SO	1,2,4-TRICHLOROBENZENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	1,2-DICHLOROBENZENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	1,3-DICHLOROBENZENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	1,4-DICHLOROBENZENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	2,2'-OXYBIS(1-CHLORO)PROPANE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	2,4,5-TRICHLOROPHENOL	310	ug/kg	620	310	U	071SB-0014M-0001-SO	310	620	310	U	N/A	Yes
071SB-0013M-0001-SO	2,4,6-TRICHLOROPHENOL	310	ug/kg	620	310	U	071SB-0014M-0001-SO	310	620	310	U	N/A	Yes
071SB-0013M-0001-SO	2,4-DICHLOROPHENOL	310	ug/kg	620	310	U	071SB-0014M-0001-SO	310	620	310	U	N/A	Yes
071SB-0013M-0001-SO	2,4-DIMETHYLPHENOL	310	ug/kg	620	310	U	071SB-0014M-0001-SO	310	620	310	U	N/A	Yes
071SB-0013M-0001-SO	2,4-DINITROPHENOL	310	ug/kg	1000	310	U	071SB-0014M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0013M-0001-SO	2,4-DINITROTOLUENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	2,6-DINITROTOLUENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	2-CHLORONAPHTHALENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	2-CHLOROPHENOL	620	ug/kg	2100	620	U	071SB-0014M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0013M-0001-SO	2-METHYLNAPHTHALENE	2.9	ug/kg	1.5	0.82		071SB-0014M-0001-SO	3.2	1.5	0.82		N/A	Yes
071SB-0013M-0001-SO	2-METHYLPHENOL	620	ug/kg	2100	620	U	071SB-0014M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0013M-0001-SO	2-NITROANILINE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	2-NITROPHENOL	310	ug/kg	1000	310	U	071SB-0014M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0013M-0001-SO	3 & 4 Methylphenol	1100	ug/kg	3700	1100	U	071SB-0014M-0001-SO	1100	3700	1100	U	N/A	Yes
071SB-0013M-0001-SO	3,3'-DICHLOROBENZIDINE	150	ug/kg	510	150	U	071SB-0014M-0001-SO	150	510	150	U	N/A	Yes
071SB-0013M-0001-SO	3-NITROANILINE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	310	ug/kg	1000	310	UJ	071SB-0014M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0013M-0001-SO	4-BROMOPHENYL PHENYL ETHER	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	4-CHLORO-3-METHYLPHENOL	620	ug/kg	2100	620	U	071SB-0014M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0013M-0001-SO	4-CHLOROANILINE	62	ug/kg	210	62	U	071SB-0014M-0001-SO	62	210	62	U	N/A	Yes
071SB-0013M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	4-NITROANILINE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	4-NITROPHENOL	620	ug/kg	2100	620	U	071SB-0014M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0013M-0001-SO	ACENAPHTHENE	1	ug/kg	1.5	0.82	J	071SB-0014M-0001-SO	1.1	1.5	0.82	J	N/A	Yes
071SB-0013M-0001-SO	ACENAPHTHYLENE	0.82	ug/kg	1.5	0.82	U	071SB-0014M-0001-SO	0.82	1.5	0.82	U	N/A	Yes
071SB-0013M-0001-SO	ANTHRACENE	0.82	ug/kg	1.5	0.82	U	071SB-0014M-0001-SO	0.82	1.5	0.82	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
071SB-0013M-0001-SO	Benzo[a]anthracene	0.90	ug/kg	1.5	0.90	U	071SB-0014M-0001-SO	1.2	1.5	0.82	J	N/A	Yes
071SB-0013M-0001-SO	Benzo[a]pyrene	0.29	ug/kg	1.5	0.82	J	071SB-0014M-0001-SO	0.52	1.5	0.82	J	N/A	Yes
071SB-0013M-0001-SO	Benzo[b]fluoranthene	2.3	ug/kg	1.5	0.82		071SB-0014M-0001-SO	2.8	1.5	0.82		N/A	Yes
071SB-0013M-0001-SO	Benzo[g,h,i]perylene	1.8	ug/kg	1.5	0.82		071SB-0014M-0001-SO	2.2	1.5	0.82		N/A	Yes
071SB-0013M-0001-SO	Benzo[k]fluoranthene	0.82	ug/kg	1.5	0.82	U	071SB-0014M-0001-SO	1.7	1.5	0.82		N/A	Yes
071SB-0013M-0001-SO	BENZOIC ACID	1500	ug/kg	3100	1500	UJ	071SB-0014M-0001-SO	1500	3100	1500	U	N/A	Yes
071SB-0013M-0001-SO	BENZYL ALCOHOL	120	ug/kg	410	120	R	071SB-0014M-0001-SO	120	410	120	U	N/A	N/A
071SB-0013M-0001-SO	BENZYL BUTYL PHTHALATE	120	ug/kg	410	120	U	071SB-0014M-0001-SO	120	410	120	U	N/A	Yes
071SB-0013M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	BIS(2-CHLOROETHYL) ETHER	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	CARBAZOLE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	CHRYSENE	4.3	ug/kg	1.5	0.82		071SB-0014M-0001-SO	5.1	1.5	0.82		N/A	Yes
071SB-0013M-0001-SO	DIBENZ(A,H)ANTHRACENE	0.82	ug/kg	1.5	0.82	U	071SB-0014M-0001-SO	0.82	1.5	0.82	U	N/A	Yes
071SB-0013M-0001-SO	DIBENZOFURAN	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	DIETHYL PHTHALATE	120	ug/kg	410	120	U	071SB-0014M-0001-SO	120	410	120	U	N/A	Yes
071SB-0013M-0001-SO	DIMETHYL PHTHALATE	120	ug/kg	410	120	U	071SB-0014M-0001-SO	120	410	120	U	N/A	Yes
071SB-0013M-0001-SO	DI-N-BUTYL PHTHALATE	120	ug/kg	410	120	U	071SB-0014M-0001-SO	120	410	120	U	N/A	Yes
071SB-0013M-0001-SO	DI-N-OCTYLPHTHALATE	62	ug/kg	210	62	U	071SB-0014M-0001-SO	62	210	62	U	N/A	Yes
071SB-0013M-0001-SO	FLUORANTHENE	0.82	ug/kg	1.5	0.82	J	071SB-0014M-0001-SO	1.2	1.5	0.82	J	N/A	Yes
071SB-0013M-0001-SO	FLUORENE	0.93	ug/kg	1.5	0.82	J	071SB-0014M-0001-SO	1.1	1.5	0.82	J	N/A	Yes
071SB-0013M-0001-SO	HEXACHLOROBENZENE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	HEXACHLOROBUTADIENE	120	ug/kg	410	120	U	071SB-0014M-0001-SO	120	410	120	U	N/A	Yes
071SB-0013M-0001-SO	HEXACHLOROCYCLOPENTADIENE	62	ug/kg	210	62	UJ	071SB-0014M-0001-SO	62	210	62	U	N/A	Yes
071SB-0013M-0001-SO	HEXACHLOROETHANE	62	ug/kg	120	62	U	071SB-0014M-0001-SO	62	120	62	U	N/A	Yes
071SB-0013M-0001-SO	Indeno[1,2,3-cd]pyrene	0.52	ug/kg	1.5	0.82	J	071SB-0014M-0001-SO	0.71	1.5	0.82	J	N/A	Yes
071SB-0013M-0001-SO	ISOPHORONE	62	ug/kg	210	62	U	071SB-0014M-0001-SO	62	210	62	U	N/A	Yes
071SB-0013M-0001-SO	NAPHTHALENE	3.7	ug/kg	1.5	0.82		071SB-0014M-0001-SO	0.82	1.5	0.82	J	N/A	No
071SB-0013M-0001-SO	NITROBENZENE	62	ug/kg	210	62	U	071SB-0014M-0001-SO	62	210	62	U	N/A	Yes
071SB-0013M-0001-SO	N-NITROSODI-N-PROPYLAMINE	120	ug/kg	410	120	U	071SB-0014M-0001-SO	120	410	120	U	N/A	Yes
071SB-0013M-0001-SO	N-NITROSODIPHENYLAMINE	120	ug/kg	250	120	U	071SB-0014M-0001-SO	120	250	120	U	N/A	Yes
071SB-0013M-0001-SO	PENTACHLOROPHENOL	310	ug/kg	1000	310	U	071SB-0014M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0013M-0001-SO	PHENANTHRENE	4.0	ug/kg	1.5	4.0	U	071SB-0014M-0001-SO	4.1	1.5	0.82		N/A	Yes
071SB-0013M-0001-SO	PHENOL	310	ug/kg	620	310	U	071SB-0014M-0001-SO	310	620	310	U	N/A	Yes
071SB-0013M-0001-SO	PYRENE	1.2	ug/kg	1.5	0.82	J	071SB-0014M-0001-SO	1.4	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	Diesel	19	mg/kg	41	15	J	071SB-0019M-0001-SO	22	41	15	J	N/A	Yes
071SB-0018M-0001-SO	Gasoline	2.6	mg/kg	5.3	2.6	U	071SB-0019M-0001-SO	2.8	5.7	2.8	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
071SB-0018M-0001-SO	LEAD	8.8	mg/kg	1.2	0.62	J-	071SB-0019M-0001-SO	8.2	0.25	0.13		N/A	Yes
071SB-0018M-0001-SO	1,1,1-TRICHLOROETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,1,2-TRICHLOROETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,1-DICHLOROETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,1-DICHLOROETHENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,2-DIBROMOETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,2-DICHLOROETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,2-Dichloroethene, Total	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	1,2-DICHLOROPROPANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	2-Butanone (MEK)	8.6	ug/kg	17	8.6	U	071SB-0019M-0001-SO	9.7	19	9.7	U	N/A	Yes
071SB-0018M-0001-SO	2-HEXANONE	17	ug/kg	35	17	U	071SB-0019M-0001-SO	19	39	19	U	N/A	Yes
071SB-0018M-0001-SO	4-Methyl-2-pentanone (MIBK)	8.6	ug/kg	17	8.6	U	071SB-0019M-0001-SO	9.7	19	9.7	U	N/A	Yes
071SB-0018M-0001-SO	ACETONE	8.6	ug/kg	17	8.6	U	071SB-0019M-0001-SO	9.7	19	9.7	U	N/A	Yes
071SB-0018M-0001-SO	BENZENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	BROMOCHLOROMETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	BROMODICHLOROMETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	BROMOFORM	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	BROMOMETHANE	0.86	ug/kg	1.7	0.86	UJ	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CARBON DISULFIDE	1.7	ug/kg	3.5	1.7	U	071SB-0019M-0001-SO	1.9	3.9	1.9	U	N/A	Yes
071SB-0018M-0001-SO	CARBON TETRACHLORIDE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CHLOROBENZENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CHLOROETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CHLOROFORM	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CHLOROMETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CIS-1,2-DICHLOROETHYLENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	CIS-1,3-DICHLOROPROPENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	DIBROMOCHLOROMETHANE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	ETHYLBENZENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	Methyl tert-butyl ether	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	METHYLENE CHLORIDE	6.3	ug/kg	8.6	1.7	UJ	071SB-0019M-0001-SO	1.9	9.7	1.9	J	N/A	Yes
071SB-0018M-0001-SO	STYRENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	TETRACHLOROETHYLENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	TOLUENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	TRANS-1,2-DICHLOROETHENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	TRANS-1,3-DICHLOROPROPENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
071SB-0018M-0001-SO	TRICHLOROETHYLENE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	VINYL CHLORIDE	0.86	ug/kg	1.7	0.86	U	071SB-0019M-0001-SO	0.97	1.9	0.97	U	N/A	Yes
071SB-0018M-0001-SO	Xylenes, Total	1.7	ug/kg	3.5	1.7	U	071SB-0019M-0001-SO	1.9	3.9	1.9	U	N/A	Yes
071SB-0018M-0001-SO	1,2,4-TRICHLOROBENZENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	1,2-DICHLOROBENZENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	1,3-DICHLOROBENZENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	1,4-DICHLOROBENZENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	2,2'-OXYBIS(1-CHLORO)PROPANE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	2,4,5-TRICHLOROPHENOL	310	ug/kg	610	310	U	071SB-0019M-0001-SO	310	620	310	U	N/A	Yes
071SB-0018M-0001-SO	2,4,6-TRICHLOROPHENOL	310	ug/kg	610	310	U	071SB-0019M-0001-SO	310	620	310	U	N/A	Yes
071SB-0018M-0001-SO	2,4-DICHLOROPHENOL	310	ug/kg	610	310	U	071SB-0019M-0001-SO	310	620	310	U	N/A	Yes
071SB-0018M-0001-SO	2,4-DIMETHYLPHENOL	310	ug/kg	610	310	U	071SB-0019M-0001-SO	310	620	310	U	N/A	Yes
071SB-0018M-0001-SO	2,4-DINITROPHENOL	310	ug/kg	1000	310	U	071SB-0019M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0018M-0001-SO	2,4-DINITROTOLUENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	2,6-DINITROTOLUENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	2-CHLORONAPHTHALENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	2-CHLOROPHENOL	610	ug/kg	2000	610	U	071SB-0019M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0018M-0001-SO	2-METHYLNAPHTHALENE	3	ug/kg	1.5	0.82		071SB-0019M-0001-SO	3.9	1.5	0.82		N/A	Yes
071SB-0018M-0001-SO	2-METHYLPHENOL	610	ug/kg	2000	610	U	071SB-0019M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0018M-0001-SO	2-NITROANILINE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	2-NITROPHENOL	310	ug/kg	1000	310	U	071SB-0019M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0018M-0001-SO	3 & 4 Methylphenol	1100	ug/kg	3700	1100	U	071SB-0019M-0001-SO	1100	3700	1100	U	N/A	Yes
071SB-0018M-0001-SO	3,3'-DICHLOROBENZIDINE	150	ug/kg	510	150	U	071SB-0019M-0001-SO	150	510	150	U	N/A	Yes
071SB-0018M-0001-SO	3-NITROANILINE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	310	ug/kg	1000	310	UJ	071SB-0019M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0018M-0001-SO	4-BROMOPHENYL PHENYL ETHER	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	4-CHLORO-3-METHYLPHENOL	610	ug/kg	2000	610	U	071SB-0019M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0018M-0001-SO	4-CHLOROANILINE	61	ug/kg	200	61	U	071SB-0019M-0001-SO	62	210	62	U	N/A	Yes
071SB-0018M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	4-NITROANILINE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	4-NITROPHENOL	610	ug/kg	2000	610	U	071SB-0019M-0001-SO	620	2100	620	U	N/A	Yes
071SB-0018M-0001-SO	ACENAPHTHENE	0.62	ug/kg	1.5	0.82	J	071SB-0019M-0001-SO	0.82	1.5	0.82	U	N/A	Yes
071SB-0018M-0001-SO	ACENAPHTHYLENE	0.82	ug/kg	1.5	0.82	U	071SB-0019M-0001-SO	0.82	1.5	0.82	U	N/A	Yes
071SB-0018M-0001-SO	ANTHRACENE	0.82	ug/kg	1.5	0.82	U	071SB-0019M-0001-SO	0.82	1.5	0.82	U	N/A	Yes
071SB-0018M-0001-SO	Benzo[a]anthracene	1.2	ug/kg	1.5	1.2	U	071SB-0019M-0001-SO	1.3	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	Benzo[a]pyrene	0.42	ug/kg	1.5	0.82	J	071SB-0019M-0001-SO	0.51	1.5	0.82	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
071SB-0018M-0001-SO	Benzo[b]fluoranthene	2.9	ug/kg	1.5	0.82		071SB-0019M-0001-SO	3.2	1.5	0.82		N/A	Yes
071SB-0018M-0001-SO	Benzo[g,h,i]perylene	1.5	ug/kg	1.5	0.82		071SB-0019M-0001-SO	2.1	1.5	0.82		N/A	Yes
071SB-0018M-0001-SO	Benzo[k]fluoranthene	0.82	ug/kg	1.5	0.82	U	071SB-0019M-0001-SO	0.4	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	BENZOIC ACID	1500	ug/kg	3100	1500	UJ	071SB-0019M-0001-SO	1500	3100	1500	U	N/A	Yes
071SB-0018M-0001-SO	BENZYL ALCOHOL	120	ug/kg	410	120	R	071SB-0019M-0001-SO	120	410	120	U	N/A	N/A
071SB-0018M-0001-SO	BENZYL BUTYL PHTHALATE	120	ug/kg	410	120	U	071SB-0019M-0001-SO	120	410	120	U	N/A	Yes
071SB-0018M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	BIS(2-CHLOROETHYL) ETHER	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	CARBAZOLE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	CHRYSENE	4.8	ug/kg	1.5	0.82		071SB-0019M-0001-SO	5.5	1.5	0.82		N/A	Yes
071SB-0018M-0001-SO	DIBENZ(A,H)ANTHRACENE	0.82	ug/kg	1.5	0.82	U	071SB-0019M-0001-SO	0.36	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	DIBENZOFURAN	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	DIETHYL PHTHALATE	120	ug/kg	410	120	U	071SB-0019M-0001-SO	120	410	120	U	N/A	Yes
071SB-0018M-0001-SO	DIMETHYL PHTHALATE	120	ug/kg	410	120	U	071SB-0019M-0001-SO	120	410	120	U	N/A	Yes
071SB-0018M-0001-SO	DI-N-BUTYL PHTHALATE	120	ug/kg	410	120	U	071SB-0019M-0001-SO	120	410	120	U	N/A	Yes
071SB-0018M-0001-SO	DI-N-OCTYLPHTHALATE	61	ug/kg	200	61	U	071SB-0019M-0001-SO	62	210	62	U	N/A	Yes
071SB-0018M-0001-SO	FLUORANTHENE	1.4	ug/kg	1.5	0.82	J	071SB-0019M-0001-SO	1.4	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	FLUORENE	1.1	ug/kg	1.5	0.82	J	071SB-0019M-0001-SO	0.82	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	HEXACHLOROBENZENE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	HEXACHLOROBUTADIENE	120	ug/kg	410	120	U	071SB-0019M-0001-SO	120	410	120	U	N/A	Yes
071SB-0018M-0001-SO	HEXACHLOROCYCLOPENTADIENE	61	ug/kg	200	61	UJ	071SB-0019M-0001-SO	62	210	62	U	N/A	Yes
071SB-0018M-0001-SO	HEXACHLOROETHANE	61	ug/kg	120	61	U	071SB-0019M-0001-SO	62	120	62	U	N/A	Yes
071SB-0018M-0001-SO	Indeno[1,2,3-cd]pyrene	0.61	ug/kg	1.5	0.82	J	071SB-0019M-0001-SO	0.69	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	ISOPHORONE	61	ug/kg	200	61	U	071SB-0019M-0001-SO	62	210	62	U	N/A	Yes
071SB-0018M-0001-SO	NAPHTHALENE	0.35	ug/kg	1.5	0.82	U	071SB-0019M-0001-SO	0.82	1.5	0.82	J	N/A	Yes
071SB-0018M-0001-SO	NITROBENZENE	61	ug/kg	200	61	U	071SB-0019M-0001-SO	62	210	62	U	N/A	Yes
071SB-0018M-0001-SO	N-NITROSODI-N-PROPYLAMINE	120	ug/kg	410	120	U	071SB-0019M-0001-SO	120	410	120	U	N/A	Yes
071SB-0018M-0001-SO	N-NITROSODIPHENYLAMINE	120	ug/kg	250	120	U	071SB-0019M-0001-SO	120	250	120	U	N/A	Yes
071SB-0018M-0001-SO	PENTACHLOROPHENOL	310	ug/kg	1000	310	U	071SB-0019M-0001-SO	310	1000	310	U	N/A	Yes
071SB-0018M-0001-SO	PHENANTHRENE	4.7	ug/kg	1.5	4.7	U	071SB-0019M-0001-SO	4.8	1.5	0.82		N/A	Yes
071SB-0018M-0001-SO	PHENOL	310	ug/kg	610	310	U	071SB-0019M-0001-SO	310	620	310	U	N/A	Yes
071SB-0018M-0001-SO	PYRENE	1.4	ug/kg	1.5	0.82	J	071SB-0019M-0001-SO	1.4	1.5	0.82	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0001-0001-SO	ALUMINUM	12000	MG/KG	3.1	0.62	J	072SB-0002-0001-SO	12000	2.9	0.58		0	N/A
072SB-0001-0001-SO	ANTIMONY	0.075	MG/KG	0.21	0.1	J-	072SB-0002-0001-SO	0.083	0.19	0.096	J	N/A	Yes
072SB-0001-0001-SO	ARSENIC	14	MG/KG	0.1	0.051	J-	072SB-0002-0001-SO	7.8	0.096	0.048		35	N/A
072SB-0001-0001-SO	BARIUM	36	MG/KG	1	0.021	J+	072SB-0002-0001-SO	87	0.96	0.019		64	N/A
072SB-0001-0001-SO	BERYLLIUM	0.65	MG/KG	0.1	0.01	J-	072SB-0002-0001-SO	0.6	0.096	0.0096		5	N/A
072SB-0001-0001-SO	CADMIUM	0.15	MG/KG	0.1	0.031	J-	072SB-0002-0001-SO	0.19	0.096	0.029		N/A	Yes
072SB-0001-0001-SO	CALCIUM	2900	MG/KG	10	2.6	J+	072SB-0002-0001-SO	28000	9.6	2.4		149	N/A
072SB-0001-0001-SO	CHROMIUM	18	MG/KG	0.21	0.041		072SB-0002-0001-SO	19	0.19	0.039		4	N/A
072SB-0001-0001-SO	COBALT	12	MG/KG	0.051	0.01		072SB-0002-0001-SO	9.6	0.048	0.0096		14	N/A
072SB-0001-0001-SO	COPPER	16	MG/KG	0.21	0.062		072SB-0002-0001-SO	17	0.19	0.058		4	N/A
072SB-0001-0001-SO	IRON	28000	MG/KG	5.1	2.1	J	072SB-0002-0001-SO	26000	4.8	1.9		5	N/A
072SB-0001-0001-SO	LEAD	11	MG/KG	0.1	0.031		072SB-0002-0001-SO	10	0.096	0.029		6	N/A
072SB-0001-0001-SO	MAGNESIUM	6000	MG/KG	10	2.1		072SB-0002-0001-SO	8100	9.6	1.9		21	N/A
072SB-0001-0001-SO	MANGANESE	190	MG/KG	0.51	0.031	J	072SB-0002-0001-SO	270	0.48	0.029		25	N/A
072SB-0001-0001-SO	NICKEL	29	MG/KG	0.1	0.031	J-	072SB-0002-0001-SO	25	0.096	0.029		10	N/A
072SB-0001-0001-SO	POTASSIUM	1900	MG/KG	10	6.2	J-	072SB-0002-0001-SO	2100	9.6	5.8		7	N/A
072SB-0001-0001-SO	SELENIUM	0.9	MG/KG	0.51	0.1	J-	072SB-0002-0001-SO	0.9	0.48	0.096		N/A	Yes
072SB-0001-0001-SO	SILVER	0.033	MG/KG	0.1	0.031	J	072SB-0002-0001-SO	0.034	0.096	0.029	J	N/A	Yes
072SB-0001-0001-SO	SODIUM	85	MG/KG	10	5.1		072SB-0002-0001-SO	100	9.6	4.8		11	N/A
072SB-0001-0001-SO	THALLIUM	0.18	MG/KG	0.1	0.021		072SB-0002-0001-SO	0.15	0.096	0.019		N/A	Yes
072SB-0001-0001-SO	VANADIUM	17	MG/KG	0.1	0.062		072SB-0002-0001-SO	20	0.096	0.058		11	N/A
072SB-0001-0001-SO	ZINC	59	MG/KG	0.51	0.21		072SB-0002-0001-SO	52	0.48	0.19		8	N/A
072SB-0001-0001-SO	C10-C20	11	MG/KG	20	11	U	072SB-0002-0001-SO	11	19	11	U	N/A	Yes
072SB-0001-0001-SO	C20-C34	11	MG/KG	20	11	U	072SB-0002-0001-SO	11	19	11	U	N/A	Yes
072SB-0001-0001-SO	C6-C12	320	UG/KG	110	55	J	072SB-0002-0001-SO	180	100	50		N/A	No
072SB-0001-0001-SO	MERCURY	0.039	MG/KG	0.12	0.039	U	072SB-0002-0001-SO	0.034	0.1	0.034	U	N/A	Yes
072SB-0001-0001-SO	BENZENE	25	UG/KG	250	25	UJ	072SB-0002-0001-SO	24	240	24	U	N/A	Yes
072SB-0001-0001-SO	ETHYLBENZENE	9.9	UG/KG	250	9.9	UJ	072SB-0002-0001-SO	9.5	240	9.5	U	N/A	Yes
072SB-0001-0001-SO	TOLUENE	25	UG/KG	250	25	UJ	072SB-0002-0001-SO	24	240	24	U	N/A	Yes
072SB-0001-0001-SO	XYLENES, TOTAL	30	UG/KG	500	30	UJ	072SB-0002-0001-SO	29	480	29	U	N/A	Yes
072SB-0001-0001-SO	ACENAPHTHENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	ACENAPHTHYLENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	ANTHRACENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	Benzo[a]anthracene	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	Benzo[a]pyrene	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	Benzo[b]fluoranthene	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0001-0001-SO	Benzo[g,h,i]perylene	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	Benzo[k]fluoranthene	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	CHRYSENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	DIBENZ(A,H)ANTHRACENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	FLUORANTHENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	FLUORENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	Indeno[1,2,3-cd]pyrene	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	NAPHTHALENE	8.9	UG/KG	8	4		072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	PHENANTHRENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0001-0001-SO	PYRENE	4	UG/KG	8	4	U	072SB-0002-0001-SO	3.9	7.8	3.9	U	N/A	Yes
072SB-0012-0001-SO	ALUMINUM	8500	MG/KG	3.2	0.64	J	072SB-0013-0001-SO	9600	3	0.59		8	N/A
072SB-0012-0001-SO	ANTIMONY	0.2	MG/KG	0.21	0.11	J-	072SB-0013-0001-SO	0.14	0.2	0.099	J	N/A	Yes
072SB-0012-0001-SO	ARSENIC	5.6	MG/KG	0.11	0.053	J	072SB-0013-0001-SO	4.7	0.099	0.049		11	N/A
072SB-0012-0001-SO	BARIUM	55	MG/KG	1.1	0.021		072SB-0013-0001-SO	53	0.99	0.02		2	N/A
072SB-0012-0001-SO	BERYLLIUM	0.88	MG/KG	0.11	0.011	J-	072SB-0013-0001-SO	0.81	0.099	0.0099		5	N/A
072SB-0012-0001-SO	CADMIUM	0.2	MG/KG	0.11	0.032		072SB-0013-0001-SO	0.23	0.099	0.03		N/A	Yes
072SB-0012-0001-SO	CALCIUM	400	MG/KG	11	2.7		072SB-0013-0001-SO	450	9.9	2.5		8	N/A
072SB-0012-0001-SO	CHROMIUM	18	MG/KG	0.21	0.042		072SB-0013-0001-SO	20	0.2	0.039		7	N/A
072SB-0012-0001-SO	COBALT	18	MG/KG	0.053	0.011		072SB-0013-0001-SO	17	0.049	0.0099		4	N/A
072SB-0012-0001-SO	COPPER	31	MG/KG	0.21	0.064	J+	072SB-0013-0001-SO	33	0.2	0.059		4	N/A
072SB-0012-0001-SO	IRON	37000	MG/KG	5.3	2.1	J	072SB-0013-0001-SO	36000	4.9	2		2	N/A
072SB-0012-0001-SO	LEAD	20	MG/KG	0.11	0.032	J+	072SB-0013-0001-SO	17	0.099	0.03		11	N/A
072SB-0012-0001-SO	MAGNESIUM	4000	MG/KG	11	2.1		072SB-0013-0001-SO	4300	9.9	2		5	N/A
072SB-0012-0001-SO	MANGANESE	910	MG/KG	0.53	0.032	J	072SB-0013-0001-SO	700	0.49	0.03		17	N/A
072SB-0012-0001-SO	NICKEL	31	MG/KG	0.11	0.032		072SB-0013-0001-SO	32	0.099	0.03		2	N/A
072SB-0012-0001-SO	POTASSIUM	1000	MG/KG	11	6.4	J-	072SB-0013-0001-SO	1200	9.9	5.9		13	N/A
072SB-0012-0001-SO	SELENIUM	1	MG/KG	0.53	0.11	J-	072SB-0013-0001-SO	1.1	0.49	0.099		N/A	Yes
072SB-0012-0001-SO	SILVER	0.032	MG/KG	0.11	0.032	J	072SB-0013-0001-SO	0.037	0.099	0.03	J	N/A	Yes
072SB-0012-0001-SO	SODIUM	60	MG/KG	11	5.3		072SB-0013-0001-SO	66	9.9	4.9		6	N/A
072SB-0012-0001-SO	THALLIUM	0.14	MG/KG	0.11	0.021		072SB-0013-0001-SO	0.11	0.099	0.02		N/A	Yes
072SB-0012-0001-SO	VANADIUM	17	MG/KG	0.11	0.064		072SB-0013-0001-SO	18	0.099	0.059		4	N/A
072SB-0012-0001-SO	ZINC	69	MG/KG	0.53	0.21		072SB-0013-0001-SO	80	0.49	0.2		10	N/A
072SB-0012-0001-SO	C10-C20	10	MG/KG	19	10	U	072SB-0013-0001-SO	10	18	10	U	N/A	Yes
072SB-0012-0001-SO	C20-C34	10	MG/KG	19	10	U	072SB-0013-0001-SO	10	18	10	U	N/A	Yes
072SB-0012-0001-SO	C6-C12	47	UG/KG	93	47	U	072SB-0013-0001-SO	48	96	48	U	N/A	Yes
072SB-0012-0001-SO	MERCURY	0.04	MG/KG	0.1	0.034	J	072SB-0013-0001-SO	0.021	0.097	0.032	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0012-0001-SO	BENZENE	0.47	UG/KG	4.7	0.47	UJ	072SB-0013-0001-SO	0.45	4.5	0.45	U	N/A	Yes
072SB-0012-0001-SO	ETHYLBENZENE	0.47	UG/KG	4.7	0.47	UJ	072SB-0013-0001-SO	0.45	4.5	0.45	U	N/A	Yes
072SB-0012-0001-SO	TOLUENE	0.47	UG/KG	4.7	0.47	UJ	072SB-0013-0001-SO	0.45	4.5	0.45	U	N/A	Yes
072SB-0012-0001-SO	XYLENES, TOTAL	1.4	UG/KG	9.4	1.4	UJ	072SB-0013-0001-SO	1.3	8.9	1.3	U	N/A	Yes
072SB-0012-0001-SO	ACENAPHTHENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	ACENAPHTHYLENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	ANTHRACENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	Benzo[a]anthracene	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	Benzo[a]pyrene	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	Benzo[b]fluoranthene	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	4.4	7.3	3.6	J	N/A	Yes
072SB-0012-0001-SO	Benzo[g,h,i]perylene	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	Benzo[k]fluoranthene	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	CHRYSENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	DIBENZ(A,H)ANTHRACENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	FLUORANTHENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	FLUORENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	Indeno[1,2,3-cd]pyrene	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	NAPHTHALENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	PHENANTHRENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0012-0001-SO	PYRENE	3.8	UG/KG	7.6	3.8	U	072SB-0013-0001-SO	3.6	7.3	3.6	U	N/A	Yes
072SB-0026-0001-SO	ALUMINUM	6000	MG/KG	3	0.6	J	072SB-0027-0001-SO	5900	3.1	0.61		1	N/A
072SB-0026-0001-SO	ANTIMONY	0.1	MG/KG	0.2	0.1	R	072SB-0027-0001-SO	0.082	0.2	0.1	J	N/A	N/A
072SB-0026-0001-SO	ARSENIC	0.51	MG/KG	0.1	0.05	J-	072SB-0027-0001-SO	1.1	0.1	0.051		56	N/A
072SB-0026-0001-SO	BARIUM	31	MG/KG	1	0.02	J	072SB-0027-0001-SO	16	1	0.02		38	N/A
072SB-0026-0001-SO	BERYLLIUM	0.69	MG/KG	0.1	0.01		072SB-0027-0001-SO	0.58	0.1	0.01		11	N/A
072SB-0026-0001-SO	CADMIUM	0.19	MG/KG	0.1	0.03	J+	072SB-0027-0001-SO	0.15	0.1	0.031		N/A	Yes
072SB-0026-0001-SO	CALCIUM	750	MG/KG	10	2.5	J-	072SB-0027-0001-SO	710	10	2.6		4	N/A
072SB-0026-0001-SO	CHROMIUM	13	MG/KG	0.2	0.04		072SB-0027-0001-SO	13	0.2	0.041		0	N/A
072SB-0026-0001-SO	COBALT	5.5	MG/KG	0.05	0.01		072SB-0027-0001-SO	6.2	0.051	0.01		8	N/A
072SB-0026-0001-SO	COPPER	17	MG/KG	0.2	0.06	J-	072SB-0027-0001-SO	17	0.2	0.061		0	N/A
072SB-0026-0001-SO	IRON	11000	MG/KG	5	2		072SB-0027-0001-SO	12000	5.1	2		6	N/A
072SB-0026-0001-SO	LEAD	8.7	MG/KG	0.1	0.03		072SB-0027-0001-SO	10	0.1	0.031		9	N/A
072SB-0026-0001-SO	MAGNESIUM	2300	MG/KG	10	2		072SB-0027-0001-SO	2100	10	2		6	N/A
072SB-0026-0001-SO	MANGANESE	210	MG/KG	0.5	0.03		072SB-0027-0001-SO	84	0.51	0.031		50	N/A
072SB-0026-0001-SO	NICKEL	16	MG/KG	0.1	0.03		072SB-0027-0001-SO	25	0.1	0.031		32	N/A
072SB-0026-0001-SO	POTASSIUM	1300	MG/KG	10	6		072SB-0027-0001-SO	1100	10	6.1		11	N/A

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0026-0001-SO	SELENIUM	0.74	MG/KG	0.5	0.1	J-	072SB-0027-0001-SO	0.68	0.51	0.1		N/A	Yes
072SB-0026-0001-SO	SILVER	0.03	MG/KG	0.1	0.03	J+	072SB-0027-0001-SO	0.061	0.1	0.031	J	N/A	Yes
072SB-0026-0001-SO	SODIUM	71	MG/KG	10	5		072SB-0027-0001-SO	69	10	5.1		2	N/A
072SB-0026-0001-SO	THALLIUM	0.12	MG/KG	0.1	0.02	J-	072SB-0027-0001-SO	0.11	0.1	0.02		N/A	Yes
072SB-0026-0001-SO	VANADIUM	8.9	MG/KG	0.1	0.06		072SB-0027-0001-SO	9.7	0.1	0.061		6	N/A
072SB-0026-0001-SO	ZINC	45	MG/KG	0.5	0.2	J	072SB-0027-0001-SO	33	0.51	0.2		20	N/A
072SB-0026-0001-SO	C10-C20	9.6	MG/KG	17	9.6	U	072SB-0027-0001-SO	9.6	17	9.6	U	N/A	Yes
072SB-0026-0001-SO	C20-C34	9.6	MG/KG	17	9.6	U	072SB-0027-0001-SO	9.6	17	9.6	U	N/A	Yes
072SB-0026-0001-SO	C6-C12	40	UG/KG	80	40	U	072SB-0027-0001-SO	48	97	48	U	N/A	Yes
072SB-0026-0001-SO	MERCURY	0.032	MG/KG	0.097	0.032	U	072SB-0027-0001-SO	0.022	0.1	0.033	J	N/A	Yes
072SB-0026-0001-SO	BENZENE	0.51	UG/KG	5.1	0.51	UJ	072SB-0027-0001-SO	0.44	4.4	0.44	U	N/A	Yes
072SB-0026-0001-SO	ETHYLBENZENE	0.51	UG/KG	5.1	0.51	UJ	072SB-0027-0001-SO	0.44	4.4	0.44	U	N/A	Yes
072SB-0026-0001-SO	TOLUENE	0.51	UG/KG	5.1	0.51	UJ	072SB-0027-0001-SO	0.44	4.4	0.44	U	N/A	Yes
072SB-0026-0001-SO	XYLENES, TOTAL	1.5	UG/KG	10	1.5	UJ	072SB-0027-0001-SO	1.3	8.8	1.3	U	N/A	Yes
072SB-0026-0001-SO	ACENAPHTHENE	3.4	UG/KG	6.9	3.4	UJ	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	Yes
072SB-0026-0001-SO	ACENAPHTHYLENE	3.4	UG/KG	6.9	3.4	UJ	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	Yes
072SB-0026-0001-SO	ANTHRACENE	3.4	UG/KG	6.9	3.4	UJ	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	Yes
072SB-0026-0001-SO	BENZO(A)ANTHRACENE	15	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	4.4	6.9	3.4	J	N/A	No
072SB-0026-0001-SO	BENZO(A)PYRENE	18	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	No
072SB-0026-0001-SO	BENZO(B)FLUORANTHENE	16	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	15	6.9	3.4		N/A	Yes
072SB-0026-0001-SO	BENZO(G,H,I)PERYLENE	140	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	42	6.9	3.4		61	N/A
072SB-0026-0001-SO	BENZO(K)FLUORANTHENE	5.8	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	Yes
072SB-0026-0001-SO	CHRYSENE	9.1	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	9.1	6.9	3.4		N/A	Yes
072SB-0026-0001-SO	DIBENZ(A,H)ANTHRACENE	3.4	UG/KG	6.9	3.4	UJ	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	Yes
072SB-0026-0001-SO	FLUORANTHENE	12	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	10	6.9	3.4		N/A	Yes
072SB-0026-0001-SO	FLUORENE	8.4	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	3.4	6.9	3.4	U	N/A	Yes
072SB-0026-0001-SO	INDENO(1,2,3-C,D)PYRENE	17	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	12	6.9	3.4		N/A	Yes
072SB-0026-0001-SO	NAPHTHALENE	29	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	14	6.9	3.4		N/A	No
072SB-0026-0001-SO	PHENANTHRENE	50	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	36	6.9	3.4		21	N/A
072SB-0026-0001-SO	PYRENE	16	UG/KG	6.9	3.4	J	072SB-0027-0001-SO	7.1	6.9	3.4		N/A	No
072SB-0035-0001-SO	ALUMINUM	11000	MG/KG	3.3	0.66	J	072SB-0036-0001-SO	9600	3.4	0.68		9	N/A
072SB-0035-0001-SO	ANTIMONY	0.11	MG/KG	0.22	0.11	J	072SB-0036-0001-SO	0.11	0.23	0.11	U	N/A	Yes
072SB-0035-0001-SO	ARSENIC	13	MG/KG	0.11	0.055		072SB-0036-0001-SO	15	0.11	0.056		10	N/A
072SB-0035-0001-SO	BARIUM	27	MG/KG	1.1	0.022		072SB-0036-0001-SO	23	1.1	0.023		10	N/A
072SB-0035-0001-SO	BERYLLIUM	0.58	MG/KG	0.11	0.011		072SB-0036-0001-SO	0.56	0.11	0.011		2	N/A
072SB-0035-0001-SO	CADMIUM	0.15	MG/KG	0.11	0.033		072SB-0036-0001-SO	0.15	0.11	0.034		N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0035-0001-SO	CALCIUM	7500	MG/KG	11	2.8		072SB-0036-0001-SO	6300	11	2.8		11	N/A
072SB-0035-0001-SO	CHROMIUM	16	MG/KG	0.22	0.044		072SB-0036-0001-SO	14	0.23	0.045		9	N/A
072SB-0035-0001-SO	COBALT	11	MG/KG	0.055	0.011		072SB-0036-0001-SO	9.9	0.056	0.011		7	N/A
072SB-0035-0001-SO	COPPER	18	MG/KG	0.22	0.066		072SB-0036-0001-SO	16	0.23	0.068		8	N/A
072SB-0035-0001-SO	IRON	26000	MG/KG	5.5	2.2	J	072SB-0036-0001-SO	25000	5.6	2.3		3	N/A
072SB-0035-0001-SO	LEAD	11	MG/KG	0.11	0.033		072SB-0036-0001-SO	9.1	0.11	0.034		12	N/A
072SB-0035-0001-SO	MAGNESIUM	6000	MG/KG	11	2.2		072SB-0036-0001-SO	5200	11	2.3		9	N/A
072SB-0035-0001-SO	MANGANESE	290	MG/KG	0.55	0.033		072SB-0036-0001-SO	280	0.56	0.034		2	N/A
072SB-0035-0001-SO	NICKEL	26	MG/KG	0.11	0.033		072SB-0036-0001-SO	24	0.11	0.034		5	N/A
072SB-0035-0001-SO	POTASSIUM	2300	MG/KG	11	6.6		072SB-0036-0001-SO	1800	11	6.8		16	N/A
072SB-0035-0001-SO	SELENIUM	0.28	MG/KG	0.55	0.11	J	072SB-0036-0001-SO	0.71	0.56	0.11		N/A	Yes
072SB-0035-0001-SO	SILVER	0.036	MG/KG	0.11	0.033	J	072SB-0036-0001-SO	0.031	0.11	0.034	J	N/A	Yes
072SB-0035-0001-SO	SODIUM	97	MG/KG	11	5.5		072SB-0036-0001-SO	78	11	5.6		14	N/A
072SB-0035-0001-SO	THALLIUM	0.15	MG/KG	0.11	0.022		072SB-0036-0001-SO	0.11	0.11	0.023		N/A	Yes
072SB-0035-0001-SO	VANADIUM	18	MG/KG	0.11	0.066		072SB-0036-0001-SO	14	0.11	0.068		16	N/A
072SB-0035-0001-SO	ZINC	54	MG/KG	0.55	0.22		072SB-0036-0001-SO	67	0.56	0.23		15	N/A
072SB-0035-0001-SO	C10-C20	17	MG/KG	20	11	J	072SB-0036-0001-SO	20	19	10		N/A	Yes
072SB-0035-0001-SO	C20-C34	30	MG/KG	20	11		072SB-0036-0001-SO	27	19	10		N/A	Yes
072SB-0035-0001-SO	C6-C12	48	UG/KG	96	48	U	072SB-0036-0001-SO	65	130	65	U	N/A	Yes
072SB-0035-0001-SO	MERCURY	0.045	MG/KG	0.14	0.045	U	072SB-0036-0001-SO	0.036	0.11	0.036	U	N/A	Yes
072SB-0035-0001-SO	BENZENE	0.52	UG/KG	5.2	0.52	U	072SB-0036-0001-SO	0.48	4.8	0.48	U	N/A	Yes
072SB-0035-0001-SO	ETHYLBENZENE	0.52	UG/KG	5.2	0.52	U	072SB-0036-0001-SO	0.48	4.8	0.48	U	N/A	Yes
072SB-0035-0001-SO	Methyl tert-butyl ether	0.52	UG/KG	5.2	0.52	U	072SB-0036-0001-SO	0.48	4.8	0.48	U	N/A	Yes
072SB-0035-0001-SO	TOLUENE	0.52	UG/KG	5.2	0.52	U	072SB-0036-0001-SO	0.48	4.8	0.48	U	N/A	Yes
072SB-0035-0001-SO	Xylenes, Total	1.6	UG/KG	10	1.6	U	072SB-0036-0001-SO	1.4	9.6	1.4	U	N/A	Yes
072SB-0035-0001-SO	1,2,4-TRICHLOROBENZENE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	1,2-DICHLOROBENZENE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	1,3-DICHLOROBENZENE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	1,4-DICHLOROBENZENE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	2,2'-Dichlorodiisopropyl ether	4	UG/KG	120	4	U	072SB-0036-0001-SO	3.8	110	3.8	U	N/A	Yes
072SB-0035-0001-SO	2,4,5-TRICHLOROPHENOL	32	UG/KG	180	32	U	072SB-0036-0001-SO	31	170	31	U	N/A	Yes
072SB-0035-0001-SO	2,4,6-TRICHLOROPHENOL	96	UG/KG	180	96	U	072SB-0036-0001-SO	92	170	92	U	N/A	Yes
072SB-0035-0001-SO	2,4-DICHLOROPHENOL	32	UG/KG	180	32	U	072SB-0036-0001-SO	31	170	31	U	N/A	Yes
072SB-0035-0001-SO	2,4-DIMETHYLPHENOL	96	UG/KG	180	96	U	072SB-0036-0001-SO	92	170	92	U	N/A	Yes
072SB-0035-0001-SO	2,4-DINITROPHENOL	96	UG/KG	400	96	U	072SB-0036-0001-SO	92	380	92	U	N/A	Yes
072SB-0035-0001-SO	2,4-DINITROTOLUENE	32	UG/KG	240	32	U	072SB-0036-0001-SO	31	230	31	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0035-0001-SO	2,6-DINITROTOLUENE	32	UG/KG	240	32	U	072SB-0036-0001-SO	31	230	31	U	N/A	Yes
072SB-0035-0001-SO	2-CHLORONAPHTHALENE	4	UG/KG	60	4	U	072SB-0036-0001-SO	3.8	57	3.8	U	N/A	Yes
072SB-0035-0001-SO	2-CHLOROPHENOL	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	2-METHYLNAPHTHALENE	13	UG/KG	8	4		072SB-0036-0001-SO	27	7.6	3.8		N/A	No
072SB-0035-0001-SO	2-Methylphenol	96	UG/KG	240	96	U	072SB-0036-0001-SO	92	230	92	U	N/A	Yes
072SB-0035-0001-SO	2-NITROANILINE	32	UG/KG	240	32	U	072SB-0036-0001-SO	31	230	31	U	N/A	Yes
072SB-0035-0001-SO	2-NITROPHENOL	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	3 & 4 Methylphenol	96	UG/KG	480	96	U	072SB-0036-0001-SO	92	460	92	U	N/A	Yes
072SB-0035-0001-SO	3,3'-DICHLOROBENZIDINE	96	UG/KG	120	96	U	072SB-0036-0001-SO	92	110	92	U	N/A	Yes
072SB-0035-0001-SO	3-NITROANILINE	96	UG/KG	240	96	U	072SB-0036-0001-SO	92	230	92	U	N/A	Yes
072SB-0035-0001-SO	4,6-DINITRO-2-METHYLPHENOL	96	UG/KG	180	96	U	072SB-0036-0001-SO	92	170	92	U	N/A	Yes
072SB-0035-0001-SO	4-BROMOPHENYL PHENYL ETHER	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	4-CHLORO-3-METHYLPHENOL	32	UG/KG	180	32	U	072SB-0036-0001-SO	31	170	31	U	N/A	Yes
072SB-0035-0001-SO	4-CHLOROANILINE	32	UG/KG	180	32	U	072SB-0036-0001-SO	31	170	31	U	N/A	Yes
072SB-0035-0001-SO	4-CHLOROPHENYL PHENYL ETHER	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	4-NITROANILINE	32	UG/KG	240	32	U	072SB-0036-0001-SO	31	230	31	U	N/A	Yes
072SB-0035-0001-SO	4-NITROPHENOL	96	UG/KG	400	96	U	072SB-0036-0001-SO	92	380	92	U	N/A	Yes
072SB-0035-0001-SO	ACENAPHTHENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	ACENAPHTHYLENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	ANTHRACENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	Benzo[a]anthracene	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	Benzo[a]pyrene	4	UG/KG	8	4	U	072SB-0036-0001-SO	13	7.6	3.8		N/A	No
072SB-0035-0001-SO	Benzo[b]fluoranthene	4.9	UG/KG	8	4	J	072SB-0036-0001-SO	7.8	7.6	3.8		N/A	Yes
072SB-0035-0001-SO	Benzo[g,h,i]perylene	11	UG/KG	8	4		072SB-0036-0001-SO	17	7.6	3.8		N/A	Yes
072SB-0035-0001-SO	Benzo[k]fluoranthene	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	BENZOIC ACID	400	UG/KG	790	400	U	072SB-0036-0001-SO	380	760	380	U	N/A	Yes
072SB-0035-0001-SO	BENZYL ALCOHOL	32	UG/KG	400	32	U	072SB-0036-0001-SO	31	380	31	U	N/A	Yes
072SB-0035-0001-SO	BENZYL BUTYL PHTHALATE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	BIS(2-CHLOROETHOXY) METHANE	32	UG/KG	120	32	U	072SB-0036-0001-SO	31	110	31	U	N/A	Yes
072SB-0035-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	32	UG/KG	120	32	U	072SB-0036-0001-SO	31	110	31	U	N/A	Yes
072SB-0035-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	43	UG/KG	60	32	J	072SB-0036-0001-SO	30	57	31	J	N/A	Yes
072SB-0035-0001-SO	CARBAZOLE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	CHRYSENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	DIBENZ(A,H)ANTHRACENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	DIBENZOFURAN	8.4	UG/KG	60	4		072SB-0036-0001-SO	20	57	3.8	J	N/A	Yes
072SB-0035-0001-SO	DIETHYL PHTHALATE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0035-0001-SO	DIMETHYL PHTHALATE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	DI-N-BUTYL PHTHALATE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	DI-N-OCTYLPHTHALATE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	FLUORANTHENE	6.4	UG/KG	8	4	J	072SB-0036-0001-SO	6.5	7.6	3.8	J	N/A	Yes
072SB-0035-0001-SO	FLUORENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	7.2	7.6	3.8	J	N/A	Yes
072SB-0035-0001-SO	HEXACHLOROBENZENE	4	UG/KG	8	4	U	072SB-0036-0001-SO	3.8	7.6	3.8	U	N/A	Yes
072SB-0035-0001-SO	HEXACHLOROBUTADIENE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	HEXACHLOROCYCLOPENTADIENE	32	UG/KG	400	32	U	072SB-0036-0001-SO	31	380	31	U	N/A	Yes
072SB-0035-0001-SO	HEXACHLOROETHANE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	Indeno[1,2,3-cd]pyrene	4	UG/KG	8	4	U	072SB-0036-0001-SO	9.8	7.6	3.8		N/A	Yes
072SB-0035-0001-SO	ISOPHORONE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	NAPHTHALENE	7	UG/KG	8	4	J	072SB-0036-0001-SO	9.8	7.6	3.8		N/A	Yes
072SB-0035-0001-SO	NITROBENZENE	4	UG/KG	120	4	U	072SB-0036-0001-SO	3.8	110	3.8	U	N/A	Yes
072SB-0035-0001-SO	N-NITROSODI-N-PROPYLAMINE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	N-NITROSODIPHENYLAMINE	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	PENTACHLOROPHENOL	96	UG/KG	180	96	U	072SB-0036-0001-SO	92	170	92	U	N/A	Yes
072SB-0035-0001-SO	PHENANTHRENE	13	UG/KG	8	4		072SB-0036-0001-SO	32	7.6	3.8		N/A	No
072SB-0035-0001-SO	PHENOL	32	UG/KG	60	32	U	072SB-0036-0001-SO	31	57	31	U	N/A	Yes
072SB-0035-0001-SO	PYRENE	10	UG/KG	8	4		072SB-0036-0001-SO	10	7.6	3.8		N/A	Yes
072SB-0063-0001-SO	ALUMINUM	5400	MG/KG	3.1	0.62		072SB-0064-0001-SO	5500	2.7	0.54		1	N/A
072SB-0063-0001-SO	ANTIMONY	0.069	MG/KG	0.21	0.1	J	072SB-0064-0001-SO	0.061	0.18	0.09	J	N/A	Yes
072SB-0063-0001-SO	ARSENIC	11	MG/KG	0.1	0.052	J-	072SB-0064-0001-SO	10	0.09	0.045		6	N/A
072SB-0063-0001-SO	BARIUM	21	MG/KG	1	0.021	J	072SB-0064-0001-SO	23	0.9	0.018		6	N/A
072SB-0063-0001-SO	BERYLLIUM	0.4	MG/KG	0.1	0.01		072SB-0064-0001-SO	0.38	0.09	0.009		N/A	Yes
072SB-0063-0001-SO	CADMIUM	0.15	MG/KG	0.1	0.031	J	072SB-0064-0001-SO	0.19	0.09	0.027		N/A	Yes
072SB-0063-0001-SO	CALCIUM	1200	MG/KG	10	2.6	J+	072SB-0064-0001-SO	1100	9	2.2		6	N/A
072SB-0063-0001-SO	CHROMIUM	9.2	MG/KG	0.21	0.041	J-	072SB-0064-0001-SO	9	0.18	0.036		1	N/A
072SB-0063-0001-SO	COBALT	7.7	MG/KG	0.052	0.01	J-	072SB-0064-0001-SO	7.6	0.045	0.009		1	N/A
072SB-0063-0001-SO	COPPER	15	MG/KG	0.21	0.062	J-	072SB-0064-0001-SO	14	0.18	0.054		5	N/A
072SB-0063-0001-SO	IRON	17000	MG/KG	5.2	2.1		072SB-0064-0001-SO	18000	4.5	1.8		4	N/A
072SB-0063-0001-SO	LEAD	11	MG/KG	0.1	0.031		072SB-0064-0001-SO	9.7	0.09	0.027		8	N/A
072SB-0063-0001-SO	MAGNESIUM	1600	MG/KG	10	2.1		072SB-0064-0001-SO	1700	9	1.8		4	N/A
072SB-0063-0001-SO	MANGANESE	270	MG/KG	0.52	0.031	J	072SB-0064-0001-SO	420	0.45	0.027		31	N/A
072SB-0063-0001-SO	NICKEL	16	MG/KG	0.1	0.031		072SB-0064-0001-SO	19	0.09	0.027		12	N/A
072SB-0063-0001-SO	POTASSIUM	950	MG/KG	10	6.2	J-	072SB-0064-0001-SO	960	9	5.4		1	N/A
072SB-0063-0001-SO	SELENIUM	0.38	MG/KG	0.52	0.1	J	072SB-0064-0001-SO	0.21	0.45	0.09	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0063-0001-SO	SILVER	0.024	MG/KG	0.1	0.031	J	072SB-0064-0001-SO	0.028	0.09	0.027	J	N/A	Yes
072SB-0063-0001-SO	SODIUM	32	MG/KG	10	5.2	J-	072SB-0064-0001-SO	27	9	4.5		N/A	Yes
072SB-0063-0001-SO	THALLIUM	0.12	MG/KG	0.1	0.021		072SB-0064-0001-SO	0.13	0.09	0.018		N/A	Yes
072SB-0063-0001-SO	VANADIUM	9.8	MG/KG	0.1	0.062		072SB-0064-0001-SO	9.6	0.09	0.054		1	N/A
072SB-0063-0001-SO	ZINC	59	MG/KG	0.52	0.21		072SB-0064-0001-SO	52	0.45	0.18		8	N/A
072SB-0063-0001-SO	C10-C20	10	MG/KG	19	10	U	072SB-0064-0001-SO	10	18	10	U	N/A	Yes
072SB-0063-0001-SO	C20-C34	10	MG/KG	19	10	U	072SB-0064-0001-SO	10	18	10	U	N/A	Yes
072SB-0063-0001-SO	C6-C12	44	UG/KG	88	44	U	072SB-0064-0001-SO	42	83	42	U	N/A	Yes
072SB-0063-0001-SO	MERCURY	0.017	MG/KG	0.12	0.041	J	072SB-0064-0001-SO	0.024	0.12	0.04	J	N/A	Yes
072SB-0063-0001-SO	BENZENE	0.58	UG/KG	5.8	0.58	U	072SB-0064-0001-SO	0.42	4.2	0.42	U	N/A	Yes
072SB-0063-0001-SO	ETHYLBENZENE	0.58	UG/KG	5.8	0.58	U	072SB-0064-0001-SO	0.42	4.2	0.42	U	N/A	Yes
072SB-0063-0001-SO	TOLUENE	0.58	UG/KG	5.8	0.58	U	072SB-0064-0001-SO	0.94	4.2	0.42	J	N/A	Yes
072SB-0063-0001-SO	XYLENES, TOTAL	1.8	UG/KG	12	1.8	U	072SB-0064-0001-SO	1.3	8.4	1.3	U	N/A	Yes
072SB-0063-0001-SO	ACENAPHTHENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	ACENAPHTHYLENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	ANTHRACENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	BENZO(A)ANTHRACENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	BENZO(A)PYRENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	BENZO(B)FLUORANTHENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	BENZO(G,H,I)PERYLENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	BENZO(K)FLUORANTHENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	CHRYSENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	DIBENZ(A,H)ANTHRACENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	FLUORANTHENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	FLUORENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	INDENO(1,2,3-C,D)PYRENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	NAPHTHALENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	PHENANTHRENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0063-0001-SO	PYRENE	3.7	UG/KG	7.6	3.7	U	072SB-0064-0001-SO	3.7	7.4	3.7	U	N/A	Yes
072SB-0076-0001-SO	ALUMINUM	12000	MG/KG	3.3	0.66		072SB-0077-0001-SO	11000	3.3	0.67		6	N/A
072SB-0076-0001-SO	ANTIMONY	0.11	MG/KG	0.22	0.11	U	072SB-0077-0001-SO	0.11	0.22	0.11	U	N/A	Yes
072SB-0076-0001-SO	ARSENIC	14	MG/KG	0.11	0.055		072SB-0077-0001-SO	15	0.11	0.055		5	N/A
072SB-0076-0001-SO	BARIUM	56	MG/KG	1.1	0.022		072SB-0077-0001-SO	95	1.1	0.022		38	N/A
072SB-0076-0001-SO	BERYLLIUM	0.55	MG/KG	0.11	0.011		072SB-0077-0001-SO	0.56	0.11	0.011		N/A	Yes
072SB-0076-0001-SO	CADMIUM	0.18	MG/KG	0.11	0.033		072SB-0077-0001-SO	0.22	0.11	0.033		N/A	Yes
072SB-0076-0001-SO	CALCIUM	1300	MG/KG	11	2.7		072SB-0077-0001-SO	1400	11	2.8		5	N/A

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0076-0001-SO	CHROMIUM	14	MG/KG	0.22	0.044		072SB-0077-0001-SO	13	0.22	0.044		5	N/A
072SB-0076-0001-SO	COBALT	9.2	MG/KG	0.055	0.011		072SB-0077-0001-SO	15	0.055	0.011		35	N/A
072SB-0076-0001-SO	COPPER	14	MG/KG	0.22	0.066		072SB-0077-0001-SO	9.9	0.22	0.067		22	N/A
072SB-0076-0001-SO	IRON	24000	MG/KG	5.5	2.2		072SB-0077-0001-SO	24000	5.5	2.2		0	N/A
072SB-0076-0001-SO	LEAD	20	MG/KG	0.11	0.033		072SB-0077-0001-SO	19	0.11	0.033		3	N/A
072SB-0076-0001-SO	MAGNESIUM	2600	MG/KG	11	2.2		072SB-0077-0001-SO	2000	11	2.2		17	N/A
072SB-0076-0001-SO	MANGANESE	330	MG/KG	0.55	0.033		072SB-0077-0001-SO	1700	0.55	0.033		116	N/A
072SB-0076-0001-SO	NICKEL	19	MG/KG	0.11	0.033		072SB-0077-0001-SO	15	0.11	0.033		15	N/A
072SB-0076-0001-SO	POTASSIUM	1200	MG/KG	11	6.6		072SB-0077-0001-SO	820	11	6.7		24	N/A
072SB-0076-0001-SO	SELENIUM	0.56	MG/KG	0.55	0.11		072SB-0077-0001-SO	0.7	0.55	0.11		N/A	Yes
072SB-0076-0001-SO	SILVER	0.037	MG/KG	0.11	0.033	J	072SB-0077-0001-SO	0.045	0.11	0.033	J	N/A	Yes
072SB-0076-0001-SO	SODIUM	45	MG/KG	11	5.5		072SB-0077-0001-SO	36	11	5.5		N/A	Yes
072SB-0076-0001-SO	THALLIUM	0.15	MG/KG	0.11	0.022		072SB-0077-0001-SO	0.16	0.11	0.022		N/A	Yes
072SB-0076-0001-SO	VANADIUM	19	MG/KG	0.11	0.066		072SB-0077-0001-SO	21	0.11	0.067		7	N/A
072SB-0076-0001-SO	ZINC	52	MG/KG	0.55	0.22		072SB-0077-0001-SO	45	0.55	0.22		9	N/A
072SB-0076-0001-SO	C10-C20	11	MG/KG	20	11	U	072SB-0077-0001-SO	11	20	11	U	N/A	Yes
072SB-0076-0001-SO	C20-C34	11	MG/KG	20	11	U	072SB-0077-0001-SO	11	20	11	U	N/A	Yes
072SB-0076-0001-SO	C6-C12	70	UG/KG	94	47	J	072SB-0077-0001-SO	2900	5000	2500	J	N/A	Yes
072SB-0076-0001-SO	2,4 DB	40	UG/KG	95	40	U	072SB-0077-0001-SO	40	96	40	U	N/A	Yes
072SB-0076-0001-SO	2,4,5-T	9.9	UG/KG	24	9.9	U	072SB-0077-0001-SO	10	24	10	U	N/A	Yes
072SB-0076-0001-SO	2,4-D	40	UG/KG	95	40	U	072SB-0077-0001-SO	40	96	40	U	N/A	Yes
072SB-0076-0001-SO	DALAPON	20	UG/KG	48	20	U	072SB-0077-0001-SO	20	48	20	U	N/A	Yes
072SB-0076-0001-SO	DICAMBA	20	UG/KG	48	20	U	072SB-0077-0001-SO	20	48	20	U	N/A	Yes
072SB-0076-0001-SO	DICHLOROPROP	79	UG/KG	95	79	U	072SB-0077-0001-SO	80	96	80	U	N/A	Yes
072SB-0076-0001-SO	DINOSEB	12	UG/KG	14	12	U	072SB-0077-0001-SO	12	14	12	U	N/A	Yes
072SB-0076-0001-SO	MCPA	4000	UG/KG	9500	4000	U	072SB-0077-0001-SO	4000	9600	4000	U	N/A	Yes
072SB-0076-0001-SO	MCPP	4000	UG/KG	9500	4000	U	072SB-0077-0001-SO	4000	9600	4000	U	N/A	Yes
072SB-0076-0001-SO	PENTACHLOROPHENOL	9.9	UG/KG	12	9.9	U	072SB-0077-0001-SO	10	12	10	U	N/A	Yes
072SB-0076-0001-SO	SILVEX (2,4,5-TP)	9.9	UG/KG	24	9.9	U	072SB-0077-0001-SO	10	24	10	U	N/A	Yes
072SB-0076-0001-SO	MERCURY	0.045	MG/KG	0.14	0.045	U	072SB-0077-0001-SO	0.044	0.13	0.044	U	N/A	Yes
072SB-0076-0001-SO	BENZENE	9.9	UG/KG	4	0.4		072SB-0077-0001-SO	1.8	4.6	0.46	J	N/A	No
072SB-0076-0001-SO	ETHYLBENZENE	22	UG/KG	4	0.4		072SB-0077-0001-SO	0.71	4.6	0.46	J	N/A	No
072SB-0076-0001-SO	Methyl tert-butyl ether	0.4	UG/KG	4	0.4	U	072SB-0077-0001-SO	0.46	4.6	0.46	U	N/A	Yes
072SB-0076-0001-SO	TOLUENE	52	UG/KG	4	0.4		072SB-0077-0001-SO	6.7	4.6	0.46		N/A	No
072SB-0076-0001-SO	Xylenes, Total	150	UG/KG	8	1.2		072SB-0077-0001-SO	5.4	9.2	1.4	J	N/A	No
072SB-0076-0001-SO	1,2,4-TRICHLOROBENZENE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0076-0001-SO	1,2-DICHLOROBENZENE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	1,3-DICHLOROBENZENE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	1,4-DICHLOROBENZENE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	2,4,5-TRICHLOROPHENOL	32	UG/KG	180	32	U	072SB-0077-0001-SO	33	180	33	U	N/A	Yes
072SB-0076-0001-SO	2,4,6-TRICHLOROPHENOL	95	UG/KG	180	95	U	072SB-0077-0001-SO	98	180	98	U	N/A	Yes
072SB-0076-0001-SO	2,4-DICHLOROPHENOL	32	UG/KG	180	32	U	072SB-0077-0001-SO	33	180	33	U	N/A	Yes
072SB-0076-0001-SO	2,4-DIMETHYLPHENOL	95	UG/KG	180	95	U	072SB-0077-0001-SO	98	180	98	U	N/A	Yes
072SB-0076-0001-SO	2,4-DINITROPHENOL	95	UG/KG	390	95	U	072SB-0077-0001-SO	98	410	98	U	N/A	Yes
072SB-0076-0001-SO	2,4-DINITROTOLUENE	32	UG/KG	240	32	U	072SB-0077-0001-SO	33	250	33	U	N/A	Yes
072SB-0076-0001-SO	2,6-DINITROTOLUENE	32	UG/KG	240	32	U	072SB-0077-0001-SO	33	250	33	U	N/A	Yes
072SB-0076-0001-SO	2-CHLORONAPHTHALENE	3.9	UG/KG	59	3.9	U	072SB-0077-0001-SO	4.1	61	4.1	U	N/A	Yes
072SB-0076-0001-SO	2-CHLOROPHENOL	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	2-METHYLNAPHTHALENE	3.9	UG/KG	7.9	3.9	U	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	2-Methylphenol	95	UG/KG	240	95	U	072SB-0077-0001-SO	98	250	98	U	N/A	Yes
072SB-0076-0001-SO	2-NITROANILINE	32	UG/KG	240	32	U	072SB-0077-0001-SO	33	250	33	U	N/A	Yes
072SB-0076-0001-SO	2-NITROPHENOL	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	3 & 4 Methylphenol	95	UG/KG	480	95	U	072SB-0077-0001-SO	98	490	98	U	N/A	Yes
072SB-0076-0001-SO	3,3'-DICHLOROBENZIDINE	95	UG/KG	120	95	U	072SB-0077-0001-SO	98	120	98	U	N/A	Yes
072SB-0076-0001-SO	3-NITROANILINE	95	UG/KG	240	95	U	072SB-0077-0001-SO	98	250	98	U	N/A	Yes
072SB-0076-0001-SO	4,6-DINITRO-2-METHYLPHENOL	95	UG/KG	180	95	U	072SB-0077-0001-SO	98	180	98	U	N/A	Yes
072SB-0076-0001-SO	4-BROMOPHENYL PHENYL ETHER	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	4-CHLORO-3-METHYLPHENOL	32	UG/KG	180	32	U	072SB-0077-0001-SO	33	180	33	U	N/A	Yes
072SB-0076-0001-SO	4-CHLOROANILINE	32	UG/KG	180	32	U	072SB-0077-0001-SO	33	180	33	U	N/A	Yes
072SB-0076-0001-SO	4-CHLOROPHENYL PHENYL ETHER	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	4-NITROANILINE	32	UG/KG	240	32	U	072SB-0077-0001-SO	33	250	33	U	N/A	Yes
072SB-0076-0001-SO	4-NITROPHENOL	95	UG/KG	390	95	U	072SB-0077-0001-SO	98	410	98	U	N/A	Yes
072SB-0076-0001-SO	ACENAPHTHENE	3.9	UG/KG	7.9	3.9	U	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	ACENAPHTHYLENE	7.6	UG/KG	7.9	3.9	J	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	ANTHRACENE	5.8	UG/KG	7.9	3.9	J	072SB-0077-0001-SO	4.8	8.2	4.1	J	N/A	Yes
072SB-0076-0001-SO	Benzo[a]anthracene	55	UG/KG	7.9	3.9		072SB-0077-0001-SO	24	8.2	4.1		N/A	No
072SB-0076-0001-SO	Benzo[a]pyrene	40	UG/KG	7.9	3.9		072SB-0077-0001-SO	16	8.2	4.1		N/A	No
072SB-0076-0001-SO	Benzo[b]fluoranthene	65	UG/KG	7.9	3.9		072SB-0077-0001-SO	22	8.2	4.1		N/A	No
072SB-0076-0001-SO	Benzo[g,h,i]perylene	34	UG/KG	7.9	3.9		072SB-0077-0001-SO	20	8.2	4.1		N/A	No
072SB-0076-0001-SO	Benzo[k]fluoranthene	22	UG/KG	7.9	3.9		072SB-0077-0001-SO	8.9	8.2	4.1		N/A	No
072SB-0076-0001-SO	BENZOIC ACID	400	UG/KG	780	400	U	072SB-0077-0001-SO	410	810	410	U	N/A	Yes
072SB-0076-0001-SO	BENZYL ALCOHOL	32	UG/KG	390	32	U	072SB-0077-0001-SO	33	410	33	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0076-0001-SO	BENZYL BUTYL PHTHALATE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	BIS(2-CHLOROETHOXY) METHANE	32	UG/KG	120	32	U	072SB-0077-0001-SO	33	120	33	U	N/A	Yes
072SB-0076-0001-SO	BIS(2-CHLOROETHYL) ETHER	3.9	UG/KG	120	3.9	U	072SB-0077-0001-SO	4.1	120	4.1	U	N/A	Yes
072SB-0076-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	32	UG/KG	120	32	U	072SB-0077-0001-SO	33	120	33	U	N/A	Yes
072SB-0076-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	24	UG/KG	59	32	J	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	CARBAZOLE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	CHRYSENE	41	UG/KG	7.9	3.9		072SB-0077-0001-SO	17	8.2	4.1		N/A	No
072SB-0076-0001-SO	DIBENZ(A,H)ANTHRACENE	3.9	UG/KG	7.9	3.9	U	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	DIBENZOFURAN	3.9	UG/KG	59	3.9	U	072SB-0077-0001-SO	4.1	61	4.1	U	N/A	Yes
072SB-0076-0001-SO	DIETHYL PHTHALATE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	DIMETHYL PHTHALATE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	DI-N-BUTYL PHTHALATE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	DI-N-OCTYLPHTHALATE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	FLUORANTHENE	96	UG/KG	7.9	3.9		072SB-0077-0001-SO	34	8.2	4.1		N/A	No
072SB-0076-0001-SO	FLUORENE	3.9	UG/KG	7.9	3.9	U	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	HEXACHLOROBENZENE	3.9	UG/KG	7.9	3.9	U	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	HEXACHLOROBUTADIENE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	HEXACHLOROCYCLOPENTADIENE	32	UG/KG	390	32	U	072SB-0077-0001-SO	33	410	33	U	N/A	Yes
072SB-0076-0001-SO	HEXACHLOROETHANE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	Indeno[1,2,3-cd]pyrene	22	UG/KG	7.9	3.9		072SB-0077-0001-SO	10	8.2	4.1		N/A	No
072SB-0076-0001-SO	ISOPHORONE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	NAPHTHALENE	3.9	UG/KG	7.9	3.9	U	072SB-0077-0001-SO	4.1	8.2	4.1	U	N/A	Yes
072SB-0076-0001-SO	NITROBENZENE	3.9	UG/KG	120	3.9	U	072SB-0077-0001-SO	4.1	120	4.1	U	N/A	Yes
072SB-0076-0001-SO	N-NITROSODI-N-PROPYLAMINE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	N-NITROSODIPHENYLAMINE	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	PENTACHLOROPHENOL	95	UG/KG	180	95	U	072SB-0077-0001-SO	98	180	98	U	N/A	Yes
072SB-0076-0001-SO	PHENANTHRENE	47	UG/KG	7.9	3.9		072SB-0077-0001-SO	21	8.2	4.1		N/A	No
072SB-0076-0001-SO	PHENOL	32	UG/KG	59	32	U	072SB-0077-0001-SO	33	61	33	U	N/A	Yes
072SB-0076-0001-SO	PYRENE	77	UG/KG	7.9	3.9		072SB-0077-0001-SO	26	8.2	4.1		N/A	No
072SB-0085-0001-SO	C10-C20	11	MG/KG	20	11	U	072SB-0086-0001-SO	11	19	11	U	N/A	Yes
072SB-0085-0001-SO	C20-C34	11	MG/KG	20	11	U	072SB-0086-0001-SO	11	19	11	U	N/A	Yes
072SB-0085-0001-SO	C6-C12	63	UG/KG	130	63	U	072SB-0086-0001-SO	43	87	43	U	N/A	Yes
072SB-0085-0001-SO	BENZENE	0.6	UG/KG	6	0.6	U	072SB-0086-0001-SO	0.48	4.8	0.48	U	N/A	Yes
072SB-0085-0001-SO	ETHYLBENZENE	0.6	UG/KG	6	0.6	U	072SB-0086-0001-SO	0.48	4.8	0.48	U	N/A	Yes
072SB-0085-0001-SO	TOLUENE	4.3	UG/KG	6	0.6	J	072SB-0086-0001-SO	2.6	4.8	0.48	J	N/A	Yes
072SB-0085-0001-SO	XYLENES, TOTAL	1.8	UG/KG	12	1.8	U	072SB-0086-0001-SO	1.4	9.6	1.4	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0086-0001-SO	ALUMINUM	8900	MG/KG	3	0.61		072SB-0085-0001-SO	9600	3.4	0.68		5	N/A
072SB-0086-0001-SO	ANTIMONY	0.1	MG/KG	0.2	0.1	U	072SB-0085-0001-SO	0.077	0.23	0.11	J	N/A	Yes
072SB-0086-0001-SO	ARSENIC	13	MG/KG	0.1	0.051		072SB-0085-0001-SO	18	0.11	0.056		23	N/A
072SB-0086-0001-SO	BARIUM	27	MG/KG	1	0.02		072SB-0085-0001-SO	32	1.1	0.023		12	N/A
072SB-0086-0001-SO	BERYLLIUM	0.35	MG/KG	0.1	0.01		072SB-0085-0001-SO	0.44	0.11	0.011		N/A	Yes
072SB-0086-0001-SO	CADMIUM	0.092	MG/KG	0.1	0.03	J	072SB-0085-0001-SO	0.13	0.11	0.034		N/A	Yes
072SB-0086-0001-SO	CALCIUM	5200	MG/KG	10	2.5		072SB-0085-0001-SO	8400	11	2.8		34	N/A
072SB-0086-0001-SO	CHROMIUM	11	MG/KG	0.2	0.04		072SB-0085-0001-SO	13	0.23	0.045		11	N/A
072SB-0086-0001-SO	COBALT	8.5	MG/KG	0.051	0.01		072SB-0085-0001-SO	11	0.056	0.011		18	N/A
072SB-0086-0001-SO	COPPER	15	MG/KG	0.2	0.061		072SB-0085-0001-SO	19	0.23	0.068		16	N/A
072SB-0086-0001-SO	IRON	22000	MG/KG	5.1	2		072SB-0085-0001-SO	25000	5.6	2.3		9	N/A
072SB-0086-0001-SO	LEAD	9.3	MG/KG	0.1	0.03		072SB-0085-0001-SO	13	0.11	0.034		23	N/A
072SB-0086-0001-SO	MAGNESIUM	4200	MG/KG	10	2		072SB-0085-0001-SO	5300	11	2.3		16	N/A
072SB-0086-0001-SO	MANGANESE	260	MG/KG	0.51	0.03		072SB-0085-0001-SO	380	0.56	0.034		27	N/A
072SB-0086-0001-SO	NICKEL	19	MG/KG	0.1	0.03		072SB-0085-0001-SO	23	0.11	0.034		13	N/A
072SB-0086-0001-SO	POTASSIUM	1400	MG/KG	10	6.1		072SB-0085-0001-SO	1600	11	6.8		9	N/A
072SB-0086-0001-SO	SELENIUM	0.4	MG/KG	0.51	0.1	J	072SB-0085-0001-SO	0.46	0.56	0.11	J	N/A	Yes
072SB-0086-0001-SO	SILVER	0.022	MG/KG	0.1	0.03	J	072SB-0085-0001-SO	0.03	0.11	0.034	J	N/A	Yes
072SB-0086-0001-SO	SODIUM	63	MG/KG	10	5.1		072SB-0085-0001-SO	72	11	5.6		9	N/A
072SB-0086-0001-SO	THALLIUM	0.1	MG/KG	0.1	0.02		072SB-0085-0001-SO	0.14	0.11	0.023		N/A	Yes
072SB-0086-0001-SO	VANADIUM	13	MG/KG	0.1	0.061		072SB-0085-0001-SO	15	0.11	0.068		10	N/A
072SB-0086-0001-SO	ZINC	44	MG/KG	0.51	0.2		072SB-0085-0001-SO	52	0.56	0.23		11	N/A
072SB-0086-0001-SO	MERCURY	0.04	MG/KG	0.12	0.04	U	072SB-0085-0001-SO	0.044	0.13	0.044	U	N/A	Yes
072SB-0086-0001-SO	1,2,4-TRICHLOROBENZENE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	1,2-DICHLOROBENZENE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	1,3-DICHLOROBENZENE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	1,4-DICHLOROBENZENE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	2,4,5-TRICHLOROPHENOL	31	UG/KG	170	31	U	072SB-0085-0001-SO	32	180	32		N/A	Yes
072SB-0086-0001-SO	2,4,6-TRICHLOROPHENOL	92	UG/KG	170	92	U	072SB-0085-0001-SO	94	180	94		N/A	Yes
072SB-0086-0001-SO	2,4-DICHLOROPHENOL	31	UG/KG	170	31	U	072SB-0085-0001-SO	32	180	32		N/A	Yes
072SB-0086-0001-SO	2,4-DIMETHYLPHENOL	92	UG/KG	170	92	U	072SB-0085-0001-SO	94	180	94		N/A	Yes
072SB-0086-0001-SO	2,4-DINITROPHENOL	92	UG/KG	380	92	U	072SB-0085-0001-SO	94	390	94		N/A	Yes
072SB-0086-0001-SO	2,4-DINITROTOLUENE	31	UG/KG	230	31	U	072SB-0085-0001-SO	32	230	32		N/A	Yes
072SB-0086-0001-SO	2,6-DINITROTOLUENE	31	UG/KG	230	31	U	072SB-0085-0001-SO	32	230	32		N/A	Yes
072SB-0086-0001-SO	2-CHLORONAPHTHALENE	3.8	UG/KG	58	3.8	U	072SB-0085-0001-SO	3.9	58	3.9		N/A	Yes
072SB-0086-0001-SO	2-CHLOROPHENOL	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0086-0001-SO	2-METHYLNAPHTHALENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	2-Methylphenol	92	UG/KG	230	92	U	072SB-0085-0001-SO	94	230	94		N/A	Yes
072SB-0086-0001-SO	2-NITROANILINE	31	UG/KG	230	31	U	072SB-0085-0001-SO	32	230	32		N/A	Yes
072SB-0086-0001-SO	2-NITROPHENOL	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	3 & 4 Methylphenol	92	UG/KG	460	92	U	072SB-0085-0001-SO	94	470	94		N/A	Yes
072SB-0086-0001-SO	3,3'-DICHLOROBENZIDINE	92	UG/KG	120	92	U	072SB-0085-0001-SO	94	120	94		N/A	Yes
072SB-0086-0001-SO	3-NITROANILINE	92	UG/KG	230	92	U	072SB-0085-0001-SO	94	230	94		N/A	Yes
072SB-0086-0001-SO	4,6-DINITRO-2-METHYLPHENOL	92	UG/KG	170	92	U	072SB-0085-0001-SO	94	180	94		N/A	Yes
072SB-0086-0001-SO	4-BROMOPHENYL PHENYL ETHER	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	4-CHLORO-3-METHYLPHENOL	31	UG/KG	170	31	U	072SB-0085-0001-SO	32	180	32		N/A	Yes
072SB-0086-0001-SO	4-CHLOROANILINE	31	UG/KG	170	31	U	072SB-0085-0001-SO	32	180	32		N/A	Yes
072SB-0086-0001-SO	4-CHLOROPHENYL PHENYL ETHER	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	4-NITROANILINE	31	UG/KG	230	31	U	072SB-0085-0001-SO	32	230	32		N/A	Yes
072SB-0086-0001-SO	4-NITROPHENOL	92	UG/KG	380	92	U	072SB-0085-0001-SO	94	390	94		N/A	Yes
072SB-0086-0001-SO	ACENAPHTHENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	ACENAPHTHYLENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	ANTHRACENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	Benzo[a]anthracene	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	Benzo[a]pyrene	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	Benzo[b]fluoranthene	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	Benzo[g,h,i]perylene	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	Benzo[k]fluoranthene	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	BENZOIC ACID	380	UG/KG	760	380	U	072SB-0085-0001-SO	390	770	390		N/A	Yes
072SB-0086-0001-SO	BENZYL ALCOHOL	31	UG/KG	380	31	U	072SB-0085-0001-SO	32	390	32		N/A	Yes
072SB-0086-0001-SO	BENZYL BUTYL PHTHALATE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	BIS(2-CHLOROETHOXY) METHANE	31	UG/KG	120	31	U	072SB-0085-0001-SO	32	120	32		N/A	Yes
072SB-0086-0001-SO	BIS(2-CHLOROETHYL) ETHER	3.8	UG/KG	120	3.8	U	072SB-0085-0001-SO	3.9	120	3.9		N/A	Yes
072SB-0086-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	31	UG/KG	120	31	U	072SB-0085-0001-SO	32	120	32		N/A	Yes
072SB-0086-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	CARBAZOLE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	CHRYSENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	DIBENZ(A,H)ANTHRACENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	DIBENZOFURAN	3.8	UG/KG	58	3.8	U	072SB-0085-0001-SO	3.9	58	3.9		N/A	Yes
072SB-0086-0001-SO	DIETHYL PHTHALATE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	DIMETHYL PHTHALATE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	DI-N-BUTYL PHTHALATE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
072SB-0086-0001-SO	DI-N-OCTYLPHTHALATE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	FLUORANTHENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	FLUORENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	HEXACHLOROBENZENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	HEXACHLOROBUTADIENE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	HEXACHLOROCYCLOPENTADIENE	31	UG/KG	380	31	U	072SB-0085-0001-SO	32	390	32		N/A	Yes
072SB-0086-0001-SO	HEXACHLOROETHANE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	Indeno[1,2,3-cd]pyrene	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	ISOPHORONE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	NAPHTHALENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	NITROBENZENE	3.8	UG/KG	120	3.8	U	072SB-0085-0001-SO	3.9	120	3.9		N/A	Yes
072SB-0086-0001-SO	N-NITROSODI-N-PROPYLAMINE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	N-NITROSODIPHENYLAMINE	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	PENTACHLOROPHENOL	92	UG/KG	170	92	U	072SB-0085-0001-SO	94	180	94		N/A	Yes
072SB-0086-0001-SO	PHENANTHRENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
072SB-0086-0001-SO	PHENOL	31	UG/KG	58	31	U	072SB-0085-0001-SO	32	58	32		N/A	Yes
072SB-0086-0001-SO	PYRENE	3.8	UG/KG	7.7	3.8	U	072SB-0085-0001-SO	3.9	7.8	3.9		N/A	Yes
076SB-0126-0001-SO	Hexavalent chromium	0.31	MG/KG	0.89	0.89	J-	076SB-0127-0001-SO	0.89	0.89	0.89	U	N/A	Yes
076SB-0076-0001-SO	Hexavalent chromium	0.33	MG/KG	0.8	0.8	J	076SB-0089-0001-SO	0.45	0.8	0.8	J	N/A	Yes
076SB-0132-0001-SO	Hexavalent chromium	0.99	MG/KG	0.99	0.99	U	076SB-0133-0001-SO	0.39	0.98	0.98	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
075SD-0002-0001-SD	NITROCELLULOSE	28	MG/KG	78	28		075SD-0003-0001-SD	28	76	28	U	N/A	Yes
075SD-0002-0001-SD	ALUMINUM	12000	MG/KG	4.4	0.88	J	075SD-0003-0001-SD	16000	4.6	0.91		29	N/A
075SD-0002-0001-SD	ANTIMONY	0.21	MG/KG	0.29	0.15	J-	075SD-0003-0001-SD	0.43	0.3	0.15		N/A	Yes
075SD-0002-0001-SD	ARSENIC	9.5	MG/KG	0.15	0.074	J-	075SD-0003-0001-SD	9	0.15	0.076		5	N/A
075SD-0002-0001-SD	BARIUM	110	MG/KG	1.5	0.029	J-	075SD-0003-0001-SD	130	1.5	0.03		17	N/A
075SD-0002-0001-SD	BERYLLIUM	0.89	MG/KG	0.15	0.015		075SD-0003-0001-SD	1.7	0.15	0.015		63	N/A
075SD-0002-0001-SD	CADMIUM	0.63	MG/KG	0.15	0.044		075SD-0003-0001-SD	0.76	0.15	0.046		N/A	Yes
075SD-0002-0001-SD	CALCIUM	6400	MG/KG	15	3.7		075SD-0003-0001-SD	50000	15	3.8		155	N/A
075SD-0002-0001-SD	CHROMIUM	15	MG/KG	0.29	0.059	J-	075SD-0003-0001-SD	21	0.3	0.061		33	N/A
075SD-0002-0001-SD	COBALT	9.6	MG/KG	0.074	0.015		075SD-0003-0001-SD	11	0.076	0.015		14	N/A
075SD-0002-0001-SD	COPPER	17	MG/KG	0.29	0.088		075SD-0003-0001-SD	21	0.3	0.091		21	N/A
075SD-0002-0001-SD	IRON	20000	MG/KG	7.4	2.9		075SD-0003-0001-SD	19000	7.6	3		5	N/A
075SD-0002-0001-SD	LEAD	22	MG/KG	0.15	0.044		075SD-0003-0001-SD	32	0.15	0.046		37	N/A
075SD-0002-0001-SD	MAGNESIUM	2800	MG/KG	15	2.9	J-	075SD-0003-0001-SD	5600	15	3		67	N/A
075SD-0002-0001-SD	MANGANESE	2200	MG/KG	0.74	0.044		075SD-0003-0001-SD	4100	7.6	0.46		60	N/A
075SD-0002-0001-SD	NICKEL	21	MG/KG	0.15	0.044	J-	075SD-0003-0001-SD	21	0.15	0.046		0	N/A
075SD-0002-0001-SD	POTASSIUM	1400	MG/KG	15	8.8	J-	075SD-0003-0001-SD	1200	15	9.1		15	N/A
075SD-0002-0001-SD	SELENIUM	1.3	MG/KG	0.74	0.15	J-	075SD-0003-0001-SD	1.4	0.76	0.15		N/A	Yes
075SD-0002-0001-SD	SILVER	1.5	MG/KG	0.15	0.044		075SD-0003-0001-SD	2.3	0.15	0.046		42	N/A
075SD-0002-0001-SD	SODIUM	75	MG/KG	15	7.4	J	075SD-0003-0001-SD	310	15	7.6		N/A	No
075SD-0002-0001-SD	THALLIUM	0.21	MG/KG	0.15	0.029		075SD-0003-0001-SD	0.15	0.15	0.03		N/A	Yes
075SD-0002-0001-SD	VANADIUM	20	MG/KG	0.15	0.088	J-	075SD-0003-0001-SD	15	0.15	0.091		29	N/A
075SD-0002-0001-SD	ZINC	140	MG/KG	0.74	0.29		075SD-0003-0001-SD	130	0.76	0.3		7	N/A
075SD-0002-0001-SD	ALDRIN	42	UG/KG	130	42		075SD-0003-0001-SD	21	63	21	U	N/A	Yes
075SD-0002-0001-SD	ALPHA BHC	42	UG/KG	80	42		075SD-0003-0001-SD	21	39	21	U	N/A	Yes
075SD-0002-0001-SD	ALPHA ENDOSULFAN	21	UG/KG	54	21		075SD-0003-0001-SD	10	27	10	U	N/A	Yes
075SD-0002-0001-SD	ALPHA-CHLORDANE	42	UG/KG	96	42		075SD-0003-0001-SD	21	47	21	U	N/A	Yes
075SD-0002-0001-SD	BETA BHC	42	UG/KG	110	42		075SD-0003-0001-SD	21	55	21	U	N/A	Yes
075SD-0002-0001-SD	BETA ENDOSULFAN	42	UG/KG	80	42		075SD-0003-0001-SD	21	39	21	U	N/A	Yes
075SD-0002-0001-SD	DELTA BHC	42	UG/KG	130	42		075SD-0003-0001-SD	21	63	21	U	N/A	Yes
075SD-0002-0001-SD	DIELDRIN	21	UG/KG	54	21		075SD-0003-0001-SD	10	27	10	U	N/A	Yes
075SD-0002-0001-SD	ENDOSULFAN SULFATE	42	UG/KG	96	42		075SD-0003-0001-SD	21	47	21	U	N/A	Yes
075SD-0002-0001-SD	ENDRIN	21	UG/KG	54	21		075SD-0003-0001-SD	10	27	10	U	N/A	Yes
075SD-0002-0001-SD	ENDRIN ALDEHYDE	42	UG/KG	96	42		075SD-0003-0001-SD	21	47	21	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
075SD-0002-0001-SD	ENDRIN KETONE	21	UG/KG	64	21		075SD-0003-0001-SD	10	31	10	U	N/A	Yes
075SD-0002-0001-SD	GAMMA BHC (LINDANE)	42	UG/KG	80	42		075SD-0003-0001-SD	21	39	21	U	N/A	Yes
075SD-0002-0001-SD	GAMMA-CHLORDANE	21	UG/KG	54	21		075SD-0003-0001-SD	10	27	10	U	N/A	Yes
075SD-0002-0001-SD	HEPTACHLOR	42	UG/KG	110	42		075SD-0003-0001-SD	21	55	21	U	N/A	Yes
075SD-0002-0001-SD	HEPTACHLOR EPOXIDE	42	UG/KG	80	42		075SD-0003-0001-SD	21	39	21	U	N/A	Yes
075SD-0002-0001-SD	METHOXYCHLOR	110	UG/KG	160	110		075SD-0003-0001-SD	52	78	52	U	N/A	Yes
075SD-0002-0001-SD	P,P'-DDD	21	UG/KG	64	21		075SD-0003-0001-SD	10	31	10	U	N/A	Yes
075SD-0002-0001-SD	P,P'-DDE	13	UG/KG	54	21		075SD-0003-0001-SD	10	27	10	U	N/A	Yes
075SD-0002-0001-SD	P,P'-DDT	29	UG/KG	64	21		075SD-0003-0001-SD	10	31	10	U	N/A	Yes
075SD-0002-0001-SD	TOXAPHENE	640	UG/KG	2100	640		075SD-0003-0001-SD	310	1000	310	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1016	40	UG/KG	100	40	U	075SD-0003-0001-SD	39	100	39	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1221	40	UG/KG	80	40	U	075SD-0003-0001-SD	39	78	39	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1232	40	UG/KG	72	40	U	075SD-0003-0001-SD	39	70	39	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1242	40	UG/KG	64	40	U	075SD-0003-0001-SD	39	63	39	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1248	40	UG/KG	88	40	U	075SD-0003-0001-SD	39	86	39	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1254	40	UG/KG	88	40	U	075SD-0003-0001-SD	39	86	39	U	N/A	Yes
075SD-0002-0001-SD	Aroclor-1260	40	UG/KG	88	40	U	075SD-0003-0001-SD	39	86	39	U	N/A	Yes
075SD-0002-0001-SD	1,3,5-TRINITROBENZENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	1,3-DINITROBENZENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	2,4,6-TRINITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	2,4-DINITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	2,6-DINITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	2-AMINO-4,6-DINITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	2-NITROTOLUENE	0.049	MG/KG	0.25	0.049	UJ	075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	3-NITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	4-AMINO-2,6-DINITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	4-NITROTOLUENE	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	HMX	0.049	MG/KG	0.25	0.049		075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	NITROBENZENE	0.049	MG/KG	0.25	0.049	R	075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	N/A
075SD-0002-0001-SD	NITROGLYCERIN	0.25	MG/KG	0.49	0.25		075SD-0003-0001-SD	0.25	0.5	0.25	U	N/A	Yes
075SD-0002-0001-SD	PETN	0.25	MG/KG	0.49	0.25		075SD-0003-0001-SD	0.25	0.5	0.25	U	N/A	Yes
075SD-0002-0001-SD	RDX	0.049	MG/KG	0.25	0.049	UJ	075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	TETRYL	0.029	MG/KG	0.25	0.049	NJ	075SD-0003-0001-SD	0.05	0.25	0.05	U	N/A	Yes
075SD-0002-0001-SD	MERCURY	0.47	MG/KG	0.15	0.05	J-	075SD-0003-0001-SD	1.1	0.16	0.054		N/A	No

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
075SD-0002-0001-SD	1,1,1-TRICHLOROETHANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	1,1,2,2-TETRACHLOROETHANE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	1,1,2-TRICHLOROETHANE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	1,1-DICHLOROETHANE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	1,1-DICHLOROETHENE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	1,2-DIBROMOETHANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	1,2-DICHLOROETHANE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	1,2-DICHLOROETHENE, total	1.5	UG/KG	15	1.5	U	075SD-0003-0001-SD	1.6	16	1.6	U	N/A	Yes
075SD-0002-0001-SD	1,2-DICHLOROPROPANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	2-BUTANONE (MEK)	3.1	UG/KG	31	3.1	U	075SD-0003-0001-SD	3.2	32	3.2	U	N/A	Yes
075SD-0002-0001-SD	2-HEXANONE	1.6	UG/KG	31	1.5	J	075SD-0003-0001-SD	1.6	32	1.6	U	N/A	Yes
075SD-0002-0001-SD	4-METHYL-2-PENTANONE (MIBK)	1.5	UG/KG	31	1.5	U	075SD-0003-0001-SD	1.6	32	1.6	J	N/A	Yes
075SD-0002-0001-SD	ACETONE	9.6	UG/KG	31	9.6	U	075SD-0003-0001-SD	10	32	10	U	N/A	Yes
075SD-0002-0001-SD	BENZENE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	BROMOCHLOROMETHANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	BROMODICHLOROMETHANE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	BROMOFORM	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	BROMOMETHANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	CARBON DISULFIDE	1.3	UG/KG	7.6	0.76	J	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	CARBON TETRACHLORIDE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	CHLOROBENZENE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	CHLOROETHANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	CHLOROFORM	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	CHLOROMETHANE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	CIS-1,3-DICHLOROPROPENE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	DIBROMOCHLOROMETHANE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	ETHYLBENZENE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	Methyl tert-butyl ether	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	METHYLENE CHLORIDE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	4.1	8	1.6	J	N/A	Yes
075SD-0002-0001-SD	STYRENE	7.6	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	J	N/A	Yes
075SD-0002-0001-SD	TETRACHLOROETHYLENE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	TOLUENE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	TRANS-1,3-DICHLOROPROPENE	1.5	UG/KG	7.6	1.5	U	075SD-0003-0001-SD	1.6	8	1.6	U	N/A	Yes
075SD-0002-0001-SD	TRICHLOROETHYLENE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
075SD-0002-0001-SD	VINYL CHLORIDE	0.76	UG/KG	7.6	0.76	U	075SD-0003-0001-SD	0.8	8	0.8	U	N/A	Yes
075SD-0002-0001-SD	XYLENES, TOTAL	2.3	UG/KG	15	2.3	U	075SD-0003-0001-SD	2.4	16	2.4	U	N/A	Yes
075SD-0002-0001-SD	1,2,4-TRICHLOROBENZENE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	1,2-DICHLOROBENZENE	140	UG/KG	80	43		075SD-0003-0001-SD	42	78	42	J	N/A	No
075SD-0002-0001-SD	1,3-DICHLOROBENZENE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	1,4-DICHLOROBENZENE	50	UG/KG	80	43	J	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	2,4,5-TRICHLOROPHENOL	43	UG/KG	240	43	U	075SD-0003-0001-SD	42	240	42	U	N/A	Yes
075SD-0002-0001-SD	2,4,6-TRICHLOROPHENOL	130	UG/KG	240	130	U	075SD-0003-0001-SD	130	240	130	U	N/A	Yes
075SD-0002-0001-SD	2,4-DICHLOROPHENOL	43	UG/KG	240	43	U	075SD-0003-0001-SD	42	240	42	U	N/A	Yes
075SD-0002-0001-SD	2,4-DIMETHYLPHENOL	130	UG/KG	240	130	U	075SD-0003-0001-SD	130	240	130	U	N/A	Yes
075SD-0002-0001-SD	2,4-DINITROPHENOL	130	UG/KG	530	130	UJ	075SD-0003-0001-SD	130	520	130	U	N/A	Yes
075SD-0002-0001-SD	2,4-DINITROTOLUENE	43	UG/KG	320	43	R	075SD-0003-0001-SD	42	310	42	U	N/A	N/A
075SD-0002-0001-SD	2,6-DINITROTOLUENE	43	UG/KG	320	43	R	075SD-0003-0001-SD	42	310	42	U	N/A	N/A
075SD-0002-0001-SD	2-CHLORONAPHTHALENE	5.3	UG/KG	80	5.3	U	075SD-0003-0001-SD	5.2	78	5.2	U	N/A	Yes
075SD-0002-0001-SD	2-CHLOROPHENOL	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	2-METHYLNAPHTHALENE	18	UG/KG	11	5.3		075SD-0003-0001-SD	15	10	5.2		N/A	Yes
075SD-0002-0001-SD	2-METHYLPHENOL	130	UG/KG	320	130	U	075SD-0003-0001-SD	130	310	130	U	N/A	Yes
075SD-0002-0001-SD	2-NITROANILINE	43	UG/KG	320	43	U	075SD-0003-0001-SD	42	310	42	U	N/A	Yes
075SD-0002-0001-SD	2-NITROPHENOL	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	3 & 4 Methylphenol	130	UG/KG	640	130	U	075SD-0003-0001-SD	130	630	130	U	N/A	Yes
075SD-0002-0001-SD	3,3'-DICHLOROBENZIDINE	130	UG/KG	160	130	R	075SD-0003-0001-SD	130	160	130	U	N/A	N/A
075SD-0002-0001-SD	3-NITROANILINE	130	UG/KG	320	130	U	075SD-0003-0001-SD	130	310	130	U	N/A	Yes
075SD-0002-0001-SD	4,6-DINITRO-2-METHYLPHENOL	130	UG/KG	240	130	UJ	075SD-0003-0001-SD	130	240	130	U	N/A	Yes
075SD-0002-0001-SD	4-BROMOPHENYL PHENYL ETHER	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	4-CHLORO-3-METHYLPHENOL	43	UG/KG	240	43	U	075SD-0003-0001-SD	42	240	42	U	N/A	Yes
075SD-0002-0001-SD	4-CHLOROANILINE	43	UG/KG	240	43	U	075SD-0003-0001-SD	42	240	42	U	N/A	Yes
075SD-0002-0001-SD	4-CHLOROPHENYL PHENYL ETHER	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	4-NITROANILINE	43	UG/KG	320	43	UJ	075SD-0003-0001-SD	42	310	42	U	N/A	Yes
075SD-0002-0001-SD	4-NITROPHENOL	130	UG/KG	530	130	U	075SD-0003-0001-SD	130	520	130	U	N/A	Yes
075SD-0002-0001-SD	ACENAPHTHENE	19	UG/KG	11	5.3		075SD-0003-0001-SD	14	10	5.2		N/A	Yes
075SD-0002-0001-SD	ACENAPHTHYLENE	13	UG/KG	11	5.3		075SD-0003-0001-SD	12	10	5.2		N/A	Yes
075SD-0002-0001-SD	ANTHRACENE	57	UG/KG	11	5.3		075SD-0003-0001-SD	33	10	5.2		N/A	No
075SD-0002-0001-SD	Benzo[a]anthracene	230	UG/KG	11	5.3		075SD-0003-0001-SD	150	10	5.2		42	N/A
075SD-0002-0001-SD	Benzo[a]pyrene	250	UG/KG	11	5.3		075SD-0003-0001-SD	160	10	5.2		44	N/A

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
075SD-0002-0001-SD	Benzo[b]fluoranthene	360	UG/KG	11	5.3		075SD-0003-0001-SD	210	10	5.2		53	N/A
075SD-0002-0001-SD	Benzo[g,h,i]perylene	120	UG/KG	11	5.3	J	075SD-0003-0001-SD	80	10	5.2		40	N/A
075SD-0002-0001-SD	Benzo[k]fluoranthene	140	UG/KG	11	5.3		075SD-0003-0001-SD	100	10	5.2		33	N/A
075SD-0002-0001-SD	BENZOIC ACID	530	UG/KG	1100	530	U	075SD-0003-0001-SD	520	1000	520	U	N/A	Yes
075SD-0002-0001-SD	BENZYL ALCOHOL	43	UG/KG	530	43	U	075SD-0003-0001-SD	34	520	42	J	N/A	Yes
075SD-0002-0001-SD	BENZYL BUTYL PHTHALATE	43	UG/KG	80	43	U	075SD-0003-0001-SD	41	78	42	J	N/A	Yes
075SD-0002-0001-SD	BIS(2-CHLOROETHOXY) METHANE	43	UG/KG	160	43	U	075SD-0003-0001-SD	42	160	42	U	N/A	Yes
075SD-0002-0001-SD	BIS(2-CHLOROETHYL) ETHER	5.3	UG/KG	160	5.3	U	075SD-0003-0001-SD	5.2	160	5.2	U	N/A	Yes
075SD-0002-0001-SD	BIS(2-ETHYLHEXYL) PHTHALATE	43	UG/KG	80	43	UJ	075SD-0003-0001-SD	41	78	42	J	N/A	Yes
075SD-0002-0001-SD	CARBAZOLE	44	UG/KG	80	43	J	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	CHRYSENE	270	UG/KG	11	5.3		075SD-0003-0001-SD	160	10	5.2		51	N/A
075SD-0002-0001-SD	DIBENZ(A,H)ANTHRACENE	5.3	UG/KG	11	5.3	UJ	075SD-0003-0001-SD	5.2	10	5.2	U	N/A	Yes
075SD-0002-0001-SD	DIBENZOFURAN	17	UG/KG	80	5.3	J	075SD-0003-0001-SD	15	78	5.2	J	N/A	Yes
075SD-0002-0001-SD	DIETHYL PHTHALATE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	DIMETHYL PHTHALATE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	DI-N-BUTYL PHTHALATE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	DI-N-OCTYLPHTHALATE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	FLUORANTHENE	510	UG/KG	11	5.3		075SD-0003-0001-SD	310	10	5.2		49	N/A
075SD-0002-0001-SD	FLUORENE	5.3	UG/KG	11	5.3	U	075SD-0003-0001-SD	17	10	5.2		N/A	No
075SD-0002-0001-SD	HEXACHLOROBENZENE	5.3	UG/KG	11	5.3	U	075SD-0003-0001-SD	5.2	10	5.2	U	N/A	Yes
075SD-0002-0001-SD	HEXACHLOROBUTADIENE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	HEXACHLOROCYCLOPENTADIENE	43	UG/KG	530	43	U	075SD-0003-0001-SD	42	520	42	U	N/A	Yes
075SD-0002-0001-SD	HEXACHLOROETHANE	43	UG/KG	80	43	UJ	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	Indeno[1,2,3-cd]pyrene	120	UG/KG	11	5.3	J	075SD-0003-0001-SD	77	10	5.2		44	N/A
075SD-0002-0001-SD	ISOPHORONE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	NAPHTHALENE	18	UG/KG	11	5.3		075SD-0003-0001-SD	12	10	5.2		N/A	Yes
075SD-0002-0001-SD	NITROBENZENE	5.3	UG/KG	160	5.3	U	075SD-0003-0001-SD	5.2	160	5.2	U	N/A	Yes
075SD-0002-0001-SD	N-NITROSODI-N-PROPYLAMINE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	N-NITROSODIPHENYLAMINE	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	PENTACHLOROPHENOL	130	UG/KG	240	130	U	075SD-0003-0001-SD	130	240	130	U	N/A	Yes
075SD-0002-0001-SD	PHENANTHRENE	260	UG/KG	11	5.3		075SD-0003-0001-SD	140	10	5.2		60	N/A
075SD-0002-0001-SD	PHENOL	43	UG/KG	80	43	U	075SD-0003-0001-SD	42	78	42	U	N/A	Yes
075SD-0002-0001-SD	PYRENE	390	UG/KG	11	5.3		075SD-0003-0001-SD	240	10	5.2		48	N/A
075SD-0002-0001-SD	NITROGUANIDINE	0.039	MG/KG	0.24	0.039	UJ	075SD-0003-0001-SD	0.039	0.25	0.039	U	N/A	Yes
075TR-0002-0001-SO	MERCURY	0.046	MG/KG	0.14	0.046	U	075TR-0003-0001-SO	0.046	0.14	0.046	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
077SS-0001M-0001-SO	NITROCELLULOSE	17	MG/KG	45	17	UJ	077SS-0002M-0001-SO	18	49	18	U	N/A	Yes
077SS-0001M-0001-SO	ALUMINUM	8200	MG/KG	2.5	0.5		077SS-0002M-0001-SO	7700	2.7	0.54		2	N/A
077SS-0001M-0001-SO	ANTIMONY	0.2	MG/KG	0.17	0.083	J	077SS-0002M-0001-SO	0.17	0.18	0.089	J	N/A	Yes
077SS-0001M-0001-SO	ARSENIC	12	MG/KG	0.08	0.041	J-	077SS-0002M-0001-SO	14	0.09	0.045		4	N/A
077SS-0001M-0001-SO	BARIUM	49	MG/KG	0.83	0.017	J	077SS-0002M-0001-SO	48	0.89	0.018		1	N/A
077SS-0001M-0001-SO	BERYLLIUM	0.46	MG/KG	0.08	0.008		077SS-0002M-0001-SO	0.42	0.09	0.009		N/A	Yes
077SS-0001M-0001-SO	CADMIUM	0.19	MG/KG	0.08	0.025	J	077SS-0002M-0001-SO	0.2	0.09	0.027		N/A	Yes
077SS-0001M-0001-SO	CALCIUM	4500	MG/KG	8.3	2.1	J	077SS-0002M-0001-SO	5200	8.9	2.2		4	N/A
077SS-0001M-0001-SO	CHROMIUM	18	MG/KG	0.17	0.033		077SS-0002M-0001-SO	15	0.18	0.036		5	N/A
077SS-0001M-0001-SO	COBALT	7.4	MG/KG	0.04	0.008		077SS-0002M-0001-SO	7.7	0.05	0.009		1	N/A
077SS-0001M-0001-SO	COPPER	16	MG/KG	0.17	0.05	J	077SS-0002M-0001-SO	17	0.18	0.054		2	N/A
077SS-0001M-0001-SO	IRON	22000	MG/KG	4.1	1.7		077SS-0002M-0001-SO	20000	4.5	1.8		2	N/A
077SS-0001M-0001-SO	LEAD	22	MG/KG	0.08	0.025		077SS-0002M-0001-SO	21	0.09	0.027		1	N/A
077SS-0001M-0001-SO	MAGNESIUM	2800	MG/KG	8.3	1.7	J+	077SS-0002M-0001-SO	2700	8.9	1.8		1	N/A
077SS-0001M-0001-SO	MANGANESE	540	MG/KG	0.41	0.025		077SS-0002M-0001-SO	520	0.45	0.027		1	N/A
077SS-0001M-0001-SO	NICKEL	24	MG/KG	0.08	0.025		077SS-0002M-0001-SO	28	0.09	0.027		4	N/A
077SS-0001M-0001-SO	POTASSIUM	830	MG/KG	8.3	5	J+	077SS-0002M-0001-SO	740	8.9	5.4		3	N/A
077SS-0001M-0001-SO	SELENIUM	0.56	MG/KG	0.41	0.083	J-	077SS-0002M-0001-SO	0.53	0.45	0.089		N/A	Yes
077SS-0001M-0001-SO	SILVER	0.027	MG/KG	0.08	0.025	J+	077SS-0002M-0001-SO	0.03	0.09	0.027	J	N/A	Yes
077SS-0001M-0001-SO	SODIUM	29	MG/KG	8.3	4.1	UJ	077SS-0002M-0001-SO	32	8.9	4.5		N/A	Yes
077SS-0001M-0001-SO	THALLIUM	0.13	MG/KG	0.08	0.017		077SS-0002M-0001-SO	0.14	0.09	0.018		N/A	Yes
077SS-0001M-0001-SO	VANADIUM	16	MG/KG	0.08	0.05		077SS-0002M-0001-SO	15	0.09	0.054		2	N/A
077SS-0001M-0001-SO	ZINC	63	MG/KG	0.41	0.17		077SS-0002M-0001-SO	62	0.45	0.18		0	N/A
077SS-0001M-0001-SO	ALDRIN	13	UG/KG	40	13	U	077SS-0002M-0001-SO	13	39	13	U	N/A	Yes
077SS-0001M-0001-SO	ALPHA BHC	13	UG/KG	25	13	U	077SS-0002M-0001-SO	13	25	13	U	N/A	Yes
077SS-0001M-0001-SO	ALPHA ENDOSULFAN	6.7	UG/KG	17	6.7	U	077SS-0002M-0001-SO	6.6	17	6.6	U	N/A	Yes
077SS-0001M-0001-SO	ALPHA-CHLORDANE	13	UG/KG	30	13	U	077SS-0002M-0001-SO	13	30	13	U	N/A	Yes
077SS-0001M-0001-SO	BETA BHC	13	UG/KG	35	13	U	077SS-0002M-0001-SO	13	34	13	U	N/A	Yes
077SS-0001M-0001-SO	BETA ENDOSULFAN	13	UG/KG	13	17	U	077SS-0002M-0001-SO	13	25	13	U	N/A	Yes
077SS-0001M-0001-SO	DELTA BHC	13	UG/KG	40	13	U	077SS-0002M-0001-SO	13	39	13	U	N/A	Yes
077SS-0001M-0001-SO	DIELDRIN	6.7	UG/KG	17	6.7	U	077SS-0002M-0001-SO	6.6	17	6.6	U	N/A	Yes
077SS-0001M-0001-SO	ENDOSULFAN SULFATE	13	UG/KG	30	13	U	077SS-0002M-0001-SO	13	30	13	U	N/A	Yes
077SS-0001M-0001-SO	ENDRIN	6.7	UG/KG	17	6.7	U	077SS-0002M-0001-SO	6.6	17	6.6	U	N/A	Yes
077SS-0001M-0001-SO	ENDRIN ALDEHYDE	13	UG/KG	30	13	U	077SS-0002M-0001-SO	13	30	13	U	N/A	Yes
077SS-0001M-0001-SO	ENDRIN KETONE	6.7	UG/KG	20	6.7	U	077SS-0002M-0001-SO	6.6	20	6.6	U	N/A	Yes
077SS-0001M-0001-SO	GAMMA BHC (LINDANE)	13	UG/KG	25	13	U	077SS-0002M-0001-SO	13	25	13	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
077SS-0001M-0001-SO	GAMMA-CHLORDANE	6.7	UG/KG	17	6.7	U	077SS-0002M-0001-SO	6.6	17	6.6	U	N/A	Yes
077SS-0001M-0001-SO	HEPTACHLOR	13	UG/KG	35	13	U	077SS-0002M-0001-SO	13	34	13	U	N/A	Yes
077SS-0001M-0001-SO	HEPTACHLOR EPOXIDE	31.7	UG/KG	25	13	U	077SS-0002M-0001-SO	13	25	13	U	N/A	Yes
077SS-0001M-0001-SO	METHOXYCHLOR	33	UG/KG	50	33	U	077SS-0002M-0001-SO	32	49	32	U	N/A	Yes
077SS-0001M-0001-SO	P,P'-DDD	6.7	UG/KG	20	6.7	U	077SS-0002M-0001-SO	6.6	20	6.6	U	N/A	Yes
077SS-0001M-0001-SO	P,P'-DDE	5.2	UG/KG	17	6.7	J	077SS-0002M-0001-SO	8.6	17	6.6		N/A	Yes
077SS-0001M-0001-SO	P,P'-DDT	6.7	UG/KG	20	6.7	U	077SS-0002M-0001-SO	6.6	20	6.6	U	N/A	Yes
077SS-0001M-0001-SO	TOXAPHENE	200	UG/KG	670	200	UJ	077SS-0002M-0001-SO	200	660	200	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1016	25	UG/KG	65	25	U	077SS-0002M-0001-SO	24	64	24	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1221	25	UG/KG	50	25	U	077SS-0002M-0001-SO	24	49	24	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1232	25	UG/KG	45	25	U	077SS-0002M-0001-SO	24	44	24	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1242	25	UG/KG	40	25	U	077SS-0002M-0001-SO	24	39	24	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1248	25	UG/KG	55	25	U	077SS-0002M-0001-SO	24	54	24	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1254	25	UG/KG	55	25	U	077SS-0002M-0001-SO	24	54	24	U	N/A	Yes
077SS-0001M-0001-SO	Aroclor-1260	25	UG/KG	55	25	U	077SS-0002M-0001-SO	24	54	24	U	N/A	Yes
077SS-0001M-0001-SO	1,3,5-TRINITROBENZENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	1,3-DINITROBENZENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	2,4,6-TRINITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	2,4-DINITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	2,6-DINITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	2-AMINO-4,6-DINITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	2-NITROTOLUENE	0.05	MG/KG	0.25	0.05	UJ	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	3-NITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	4-AMINO-2,6-DINITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	4-NITROTOLUENE	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	HMX	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	NITROBENZENE	0.05	MG/KG	0.25	0.05	R	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	NITROGLYCERIN	0.25	MG/KG	0.5	0.25	U	077SS-0002M-0001-SO	0.083	0.5	0.25	J	N/A	Yes
077SS-0001M-0001-SO	PETN	0.25	MG/KG	0.5	0.25	U	077SS-0002M-0001-SO	0.25	0.5	0.25	U	N/A	Yes
077SS-0001M-0001-SO	RDX	0.05	MG/KG	0.25	0.05	UJ	077SS-0002M-0001-SO	0.05	0.25	0.05	U	N/A	Yes
077SS-0001M-0001-SO	TETRYL	0.05	MG/KG	0.25	0.05	U	077SS-0002M-0001-SO	0.028	0.25	0.05	J	N/A	Yes
077SS-0001M-0001-SO	MERCURY	0.045	MG/KG	0.1	0.033	J	077SS-0002M-0001-SO	0.041	0.1	0.032	J	N/A	Yes
077SS-0001M-0001-SO	1,1,1-TRICHLOROETHANE	0.99	UG/KG	4.9	0.99	U	077SS-0002M-0001-SO	0.75	3.7	0.75	U	N/A	Yes
077SS-0001M-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	1,1,2-TRICHLOROETHANE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	1,1-DICHLOROETHANE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
077SS-0001M-0001-SO	1,1-DICHLOROETHENE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	1,2-DIBROMOETHANE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	1,2-DICHLOROETHANE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	1,2-Dichloroethene, Total	1	UG/KG	10	1	U	077SS-0002M-0001-SO	0.92	9.2	0.92	U	N/A	Yes
077SS-0001M-0001-SO	1,2-DICHLOROPROPANE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	2-Butanone (MEK)	2.1	UG/KG	21	2.1	U	077SS-0002M-0001-SO	1.8	18	1.8	U	N/A	Yes
077SS-0001M-0001-SO	2-HEXANONE	1	UG/KG	21	1	U	077SS-0002M-0001-SO	0.92	18	0.92	J	N/A	Yes
077SS-0001M-0001-SO	4-Methyl-2-pentanone (MIBK)	1	UG/KG	21	1	U	077SS-0002M-0001-SO	0.9	18	0.92	J	N/A	Yes
077SS-0001M-0001-SO	ACETONE	6.2	UG/KG	20	6.2	U	077SS-0002M-0001-SO	4.7	15	4.7	U	N/A	Yes
077SS-0001M-0001-SO	BENZENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	BROMOCHLOROMETHANE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	BROMODICHLOROMETHANE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	BROMOFORM	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	BROMOMETHANE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	CARBON DISULFIDE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	CARBON TETRACHLORIDE	0.49	UG/KG	4.9	0.49	U	077SS-0002M-0001-SO	0.37	3.7	0.37	U	N/A	Yes
077SS-0001M-0001-SO	CHLOROBENZENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	CHLOROETHANE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	CHLOROFORM	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	CHLOROMETHANE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	CIS-1,3-DICHLOROPROPENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	DIBROMOCHLOROMETHANE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	ETHYLBENZENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	METHYLENE CHLORIDE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	STYRENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	Methyl tert-butyl ether	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	TETRACHLOROETHYLENE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	TOLUENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	TRANS-1,3-DICHLOROPROPENE	1	UG/KG	5.1	1	U	077SS-0002M-0001-SO	0.92	4.6	0.92	U	N/A	Yes
077SS-0001M-0001-SO	TRICHLOROETHYLENE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	VINYL CHLORIDE	0.51	UG/KG	5.1	0.51	U	077SS-0002M-0001-SO	0.46	4.6	0.46	U	N/A	Yes
077SS-0001M-0001-SO	XYLENES, TOTAL	1.5	UG/KG	10	1.5	U	077SS-0002M-0001-SO	1.4	9.2	1.4	U	N/A	Yes
077SS-0001M-0001-SO	1,2,4-TRICHLOROBENZENE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	1,2-DICHLOROBENZENE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	1,3-DICHLOROBENZENE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	1,4-DICHLOROBENZENE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
077SS-0001M-0001-SO	2,4,5-TRICHLOROPHENOL	110	UG/KG	610	110	U	077SS-0002M-0001-SO	67	370	67	U	N/A	Yes
077SS-0001M-0001-SO	2,4,6-TRICHLOROPHENOL	320	UG/KG	610	320	U	077SS-0002M-0001-SO	200	370	200	U	N/A	Yes
077SS-0001M-0001-SO	2,4-DICHLOROPHENOL	110	UG/KG	610	110	U	077SS-0002M-0001-SO	67	370	67	U	N/A	Yes
077SS-0001M-0001-SO	2,4-DIMETHYLPHENOL	320	UG/KG	610	320	U	077SS-0002M-0001-SO	200	370	200	U	N/A	Yes
077SS-0001M-0001-SO	2,4-DINITROPHENOL	320	UG/KG	1300	320	U	077SS-0002M-0001-SO	200	820	200	U	N/A	Yes
077SS-0001M-0001-SO	2,4-DINITROTOLUENE	110	UG/KG	810	110	R	077SS-0002M-0001-SO	67	500	67	U	N/A	N/A
077SS-0001M-0001-SO	2,6-DINITROTOLUENE	110	UG/KG	810	110	R	077SS-0002M-0001-SO	67	500	67	U	N/A	N/A
077SS-0001M-0001-SO	2-CHLORONAPHTHALENE	13	UG/KG	200	13	U	077SS-0002M-0001-SO	8.2	120	8.2	U	N/A	Yes
077SS-0001M-0001-SO	2-CHLOROPHENOL	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	2-METHYLNAPHTHALENE	54	UG/KG	27	13		077SS-0002M-0001-SO	60	17	8.2		N/A	Yes
077SS-0001M-0001-SO	2-METHYLPHENOL	320	UG/KG	810	320	U	077SS-0002M-0001-SO	200	500	200	U	N/A	Yes
077SS-0001M-0001-SO	2-NITROANILINE	110	UG/KG	810	110	U	077SS-0002M-0001-SO	67	500	67	U	N/A	Yes
077SS-0001M-0001-SO	2-NITROPHENOL	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	3 & 4 Methylphenol	320	UG/KG	1600	320	U	077SS-0002M-0001-SO	200	1000	200	U	N/A	Yes
077SS-0001M-0001-SO	3,3'-DICHLOROBENZIDINE	320	UG/KG	410	320	UJ	077SS-0002M-0001-SO	200	250	200	U	N/A	Yes
077SS-0001M-0001-SO	3-NITROANILINE	320	UG/KG	810	320	U	077SS-0002M-0001-SO	200	500	200	U	N/A	Yes
077SS-0001M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	320	UG/KG	610	320	U	077SS-0002M-0001-SO	200	370	200	U	N/A	Yes
077SS-0001M-0001-SO	4-BROMOPHENYL PHENYL ETHER	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	4-CHLORO-3-METHYLPHENOL	110	UG/KG	610	110	U	077SS-0002M-0001-SO	67	370	67	U	N/A	Yes
077SS-0001M-0001-SO	4-CHLOROANILINE	110	UG/KG	610	110	U	077SS-0002M-0001-SO	67	370	67	U	N/A	Yes
077SS-0001M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	4-NITROANILINE	110	UG/KG	810	110	U	077SS-0002M-0001-SO	67	500	67	U	N/A	Yes
077SS-0001M-0001-SO	4-NITROPHENOL	320	UG/KG	1300	320	U	077SS-0002M-0001-SO	200	820	200	U	N/A	Yes
077SS-0001M-0001-SO	ACENAPHTHENE	13	UG/KG	27	13	U	077SS-0002M-0001-SO	8.2	17	8.2	U	N/A	Yes
077SS-0001M-0001-SO	ACENAPHTHYLENE	13	UG/KG	27	13	U	077SS-0002M-0001-SO	8.2	17	8.2	U	N/A	Yes
077SS-0001M-0001-SO	ANTHRACENE	13	UG/KG	27	13	U	077SS-0002M-0001-SO	11	17	8.2	J	N/A	Yes
077SS-0001M-0001-SO	Benzo[a]anthracene	57	UG/KG	27	13		077SS-0002M-0001-SO	48	17	8.2		N/A	Yes
077SS-0001M-0001-SO	Benzo[a]pyrene	88	UG/KG	27	13		077SS-0002M-0001-SO	65	17	8.2		N/A	Yes
077SS-0001M-0001-SO	Benzo[b]fluoranthene	91	UG/KG	27	13		077SS-0002M-0001-SO	81	17	8.2		N/A	Yes
077SS-0001M-0001-SO	Benzo[g,h,i]perylene	47	UG/KG	27	13		077SS-0002M-0001-SO	37	17	8.2		N/A	Yes
077SS-0001M-0001-SO	Benzo[k]fluoranthene	18	UG/KG	27	13	J	077SS-0002M-0001-SO	17	17	8.2		N/A	Yes
077SS-0001M-0001-SO	BENZOIC ACID	1400	UG/KG	2700	1400	R	077SS-0002M-0001-SO	830	1600	830	U	N/A	N/A
077SS-0001M-0001-SO	BENZYL ALCOHOL	110	UG/KG	1300	110	U	077SS-0002M-0001-SO	67	820	67	U	N/A	Yes
077SS-0001M-0001-SO	BENZYL BUTYL PHTHALATE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	110	UG/KG	410	110	U	077SS-0002M-0001-SO	67	250	67	U	N/A	Yes
077SS-0001M-0001-SO	BIS(2-CHLOROETHYL) ETHER	13	UG/KG	410	13	U	077SS-0002M-0001-SO	8.2	250	8.2	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
077SS-0001M-0001-SO	BIS(2-CHLOROISOPROPYL) ETHER	110	UG/KG	410	110	U	077SS-0002M-0001-SO	67	250	67	U	N/A	Yes
077SS-0001M-0001-SO	BIS(2-ETHYLHEXYL) PHTHALATE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	J	N/A	Yes
077SS-0001M-0001-SO	CARBAZOLE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	CHRYSENE	66	UG/KG	27	13		077SS-0002M-0001-SO	57	17	8.2		N/A	Yes
077SS-0001M-0001-SO	DIBENZ(A,H)ANTHRACENE	13	UG/KG	27	13	U	077SS-0002M-0001-SO	8.2	17	8.2	U	N/A	Yes
077SS-0001M-0001-SO	DIBENZOFURAN	14	UG/KG	200	13	J	077SS-0002M-0001-SO	14	120	8.2		N/A	Yes
077SS-0001M-0001-SO	DIETHYL PHTHALATE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	DIMETHYL PHTHALATE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	DI-N-BUTYL PHTHALATE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	DI-N-OCTYLPHTHALATE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	FLUORANTHENE	120	UG/KG	27	13		077SS-0002M-0001-SO	99	17	8.2		N/A	Yes
077SS-0001M-0001-SO	FLUORENE	13	UG/KG	27	13	U	077SS-0002M-0001-SO	9.6	17	8.2		N/A	Yes
077SS-0001M-0001-SO	HEXACHLOROBENZENE	13	UG/KG	27	13	U	077SS-0002M-0001-SO	8.2	17	8.2	U	N/A	Yes
077SS-0001M-0001-SO	HEXACHLOROBUTADIENE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	HEXACHLOROCYCLOPENTADIENE	110	UG/KG	1300	110	U	077SS-0002M-0001-SO	67	820	67	U	N/A	Yes
077SS-0001M-0001-SO	HEXACHLOROETHANE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	Indeno[1,2,3-cd]pyrene	55	UG/KG	27	13		077SS-0002M-0001-SO	44	17	8.2		N/A	Yes
077SS-0001M-0001-SO	ISOPHORONE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	NAPHTHALENE	44	UG/KG	27	13		077SS-0002M-0001-SO	54	17	8.2		N/A	Yes
077SS-0001M-0001-SO	NITROBENZENE	13	UG/KG	410	13	U	077SS-0002M-0001-SO	8.2	250	8.2	U	N/A	Yes
077SS-0001M-0001-SO	N-NITROSODI-N-PROPYLAMINE	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	N-NITROSODIPHENYLAMINE	110	UG/KG	200	110	R	077SS-0002M-0001-SO	67	120	67	U	N/A	N/A
077SS-0001M-0001-SO	PENTACHLOROPHENOL	320	UG/KG	610	320	U	077SS-0002M-0001-SO	200	370	200	U	N/A	Yes
077SS-0001M-0001-SO	PHENANTHRENE	77	UG/KG	27	13		077SS-0002M-0001-SO	64	17	8.2		N/A	Yes
077SS-0001M-0001-SO	PHENOL	110	UG/KG	200	110	U	077SS-0002M-0001-SO	67	120	67	U	N/A	Yes
077SS-0001M-0001-SO	PYRENE	95	UG/KG	27	13		077SS-0002M-0001-SO	74	17	8.2		N/A	Yes
077SS-0001M-0001-SO	NITROGUANIDINE	0.04	MG/KG	0.25	0.04	U	077SS-0002M-0001-SO	0.055	0.24	0.039	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
083SB-0005M-0001-SO	NITROCELLULOSE	100	mg/kg	200	100	U	083SB-0006M-0001-SO	100	200	100	U	N/A	Yes
083SB-0005M-0001-SO	1,3,5-TRINITROBENZENE	0.3	mg/kg	0.5	0.3	U	083SB-0006M-0001-SO	0.3	0.5	0.3	U	N/A	Yes
083SB-0005M-0001-SO	1,3-DINITROBENZENE	0.2	mg/kg	0.3	0.2	U	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	Yes
083SB-0005M-0001-SO	2,4,6-TRINITROTOLUENE	0.2	mg/kg	0.5	0.2	U	083SB-0006M-0001-SO	0.2	0.5	0.2	U	N/A	Yes
083SB-0005M-0001-SO	2,4-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	R	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	N/A
083SB-0005M-0001-SO	2,6-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	R	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	N/A
083SB-0005M-0001-SO	2-AMINO-4,6-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	U	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	Yes
083SB-0005M-0001-SO	2-NITROTOLUENE	0.2	mg/kg	0.3	0.2	UJ	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	Yes
083SB-0005M-0001-SO	3,5-DINITROANILINE	0.2	mg/kg	0.3	0.2	R	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	N/A
083SB-0005M-0001-SO	3-NITROTOLUENE	0.3	mg/kg	0.5	0.3	U	083SB-0006M-0001-SO	0.3	0.5	0.3	U	N/A	Yes
083SB-0005M-0001-SO	4-AMINO-2,6-DINITROTOLUENE	0.2	mg/kg	0.3	0.2	UJ	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	Yes
083SB-0005M-0001-SO	4-NITROTOLUENE	0.2	mg/kg	0.5	0.2	U	083SB-0006M-0001-SO	0.2	0.5	0.2	U	N/A	Yes
083SB-0005M-0001-SO	HMX	0.3	mg/kg	0.5	0.3	U	083SB-0006M-0001-SO	0.3	0.5	0.3	U	N/A	Yes
083SB-0005M-0001-SO	NITROBENZENE	0.2	mg/kg	0.5	0.2	R	083SB-0006M-0001-SO	0.2	0.5	0.2	U	N/A	N/A
083SB-0005M-0001-SO	NITROGLYCERIN	1.2	mg/kg	2	1.2	U	083SB-0006M-0001-SO	1.2	2	1.2	U	N/A	Yes
083SB-0005M-0001-SO	PETN	1.2	mg/kg	2	1.2	U	083SB-0006M-0001-SO	1.2	2	1.2	U	N/A	Yes
083SB-0005M-0001-SO	RDX	0.3	mg/kg	0.5	0.3	U	083SB-0006M-0001-SO	0.3	0.5	0.3	U	N/A	Yes
083SB-0005M-0001-SO	TETRYL	0.2	mg/kg	0.3	0.2	U	083SB-0006M-0001-SO	0.2	0.3	0.2	U	N/A	Yes
083SB-0005M-0001-SO	ALUMINUM	12500	mg/kg	1.2	0.62		083SB-0006M-0001-SO	10800	1.2	0.59		4	N/A
083SB-0005M-0001-SO	ANTIMONY	1.2	mg/kg	4.1	2.1	J-	083SB-0006M-0001-SO	1	4	2	J	N/A	Yes
083SB-0005M-0001-SO	ARSENIC	13.9	mg/kg	4.1	2.1	J-	083SB-0006M-0001-SO	12.6	4	2		N/A	Yes
083SB-0005M-0001-SO	BARIUM	78.1	mg/kg	0.26	0.13	J-	083SB-0006M-0001-SO	70.2	0.25	0.12		3	N/A
083SB-0005M-0001-SO	BERYLLIUM	0.68	mg/kg	0.21	0.062	J-	083SB-0006M-0001-SO	0.61	0.2	0.059		N/A	Yes
083SB-0005M-0001-SO	CADMIUM	0.1	mg/kg	0.21	0.1	UJ	083SB-0006M-0001-SO	0.046	0.2	0.099	J	N/A	Yes
083SB-0005M-0001-SO	CALCIUM	28900	mg/kg	7.3	3.6	J-	083SB-0006M-0001-SO	24400	6.9	3.5		4	N/A
083SB-0005M-0001-SO	CHROMIUM	18.3	mg/kg	0.73	0.36	J-	083SB-0006M-0001-SO	16.2	0.69	0.35		3	N/A
083SB-0005M-0001-SO	COBALT	11.8	mg/kg	1.2	0.62	J-	083SB-0006M-0001-SO	11	1.2	0.59		2	N/A
083SB-0005M-0001-SO	COPPER	21.3	mg/kg	2.1	1	J-	083SB-0006M-0001-SO	19.9	2	0.99		2	N/A
083SB-0005M-0001-SO	IRON	27200	mg/kg	9.3	4.7		083SB-0006M-0001-SO	23800	8.9	4.5		3	N/A
083SB-0005M-0001-SO	LEAD	11.8	mg/kg	1.3	0.65	J-	083SB-0006M-0001-SO	10.8	1.2	0.62		2	N/A
083SB-0005M-0001-SO	MAGNESIUM	7530	mg/kg	4.1	2.1	J-	083SB-0006M-0001-SO	6660	4	2		3	N/A
083SB-0005M-0001-SO	MANGANESE	428	mg/kg	0.78	0.39		083SB-0006M-0001-SO	380	0.74	0.37		3	N/A
083SB-0005M-0001-SO	NICKEL	29.2	mg/kg	0.62	0.31	J-	083SB-0006M-0001-SO	27	0.59	0.3		2	N/A
083SB-0005M-0001-SO	POTASSIUM	1300	mg/kg	68	34		083SB-0006M-0001-SO	1250	65	33		1	N/A
083SB-0005M-0001-SO	SELENIUM	0.24	mg/kg	0.41	0.24	UJ	083SB-0006M-0001-SO	0.2	0.4	0.2	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
083SB-0005M-0001-SO	SILVER	0.12	mg/kg	0.1	0.12	UJ	083SB-0006M-0001-SO	0.05	0.099	0.05	U	N/A	Yes
083SB-0005M-0001-SO	SODIUM	55.2	mg/kg	25	12		083SB-0006M-0001-SO	53.7	24	12		N/A	Yes
083SB-0005M-0001-SO	THALLIUM	0.79	mg/kg	2.5	1.2	UJ	083SB-0006M-0001-SO	0.24	0.48	0.24	U	N/A	Yes
083SB-0005M-0001-SO	VANADIUM	18.8	mg/kg	0.41	0.21	J-	083SB-0006M-0001-SO	16.7	0.4	0.2		3	N/A
083SB-0005M-0001-SO	ZINC	70.2	mg/kg	1.6	0.78	J-	083SB-0006M-0001-SO	64.1	1.5	0.74		2	N/A
083SB-0005M-0001-SO	MERCURY	0.013	mg/kg	0.009	0.005	J+	083SB-0006M-0001-SO	0.012	0.009	0.004		N/A	Yes
083SB-0005M-0001-SO	1,1,1-TRICHLOROETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,1,2,2-TETRACHLOROETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,1,2-TRICHLOROETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,1-DICHLOROETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,1-DICHLOROETHENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,2-DIBROMOETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,2-DICHLOROETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,2-Dichloroethene, Total	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	1,2-DICHLOROPROPANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	2-BUTANONE (MEK)	9	ug/kg	18	9	U	083SB-0006M-0001-SO	9.1	18	9.1	U	N/A	Yes
083SB-0005M-0001-SO	2-HEXANONE	18	ug/kg	36	18	U	083SB-0006M-0001-SO	18	36	18	U	N/A	Yes
083SB-0005M-0001-SO	4-Methyl-2-pentanone (MIBK)	9	ug/kg	18	9	U	083SB-0006M-0001-SO	9.1	18	9.1	U	N/A	Yes
083SB-0005M-0001-SO	ACETONE	9	ug/kg	18	9	U	083SB-0006M-0001-SO	9.1	18	9.1	U	N/A	Yes
083SB-0005M-0001-SO	BENZENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	BROMOCHLOROMETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	BROMODICHLOROMETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	BROMOFORM	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	BROMOMETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CARBON DISULFIDE	1.8	ug/kg	3.6	1.8	U	083SB-0006M-0001-SO	1.8	3.6	1.8	U	N/A	Yes
083SB-0005M-0001-SO	CARBON TETRACHLORIDE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CHLOROBENZENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CHLOROETHANE	0.9	ug/kg	1.8	0.9	UJ	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CHLOROFORM	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CHLOROMETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CIS-1,2-DICHLOROETHYLENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	CIS-1,3-DICHLOROPROPENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	DIBROMOCHLOROMETHANE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	ETHYLBENZENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	METHYLENE CHLORIDE	6.0	ug/kg	9	1.8	U	083SB-0006M-0001-SO	1.8	9.1	1.8	J	N/A	Yes
083SB-0005M-0001-SO	STYRENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
083SB-0005M-0001-SO	TETRACHLOROETHYLENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	TOLUENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	TRANS-1,2-DICHLOROETHENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	TRANS-1,3-DICHLOROPROPENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	TRICHLOROETHYLENE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	VINYL CHLORIDE	0.9	ug/kg	1.8	0.9	U	083SB-0006M-0001-SO	0.91	1.8	0.91	U	N/A	Yes
083SB-0005M-0001-SO	XYLENES, TOTAL	1.8	ug/kg	3.6	1.8	U	083SB-0006M-0001-SO	1.8	3.6	1.8	U	N/A	Yes
083SB-0005M-0001-SO	1,2,4-TRICHLOROBENZENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	1,2-DICHLOROBENZENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	1,3-DICHLOROBENZENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	1,4-DICHLOROBENZENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	2,2'-OXYBIS(1-CHLORO)PROPANE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	2,4,5-TRICHLOROPHENOL	320	ug/kg	640	320	U	083SB-0006M-0001-SO	310	620	310	U	N/A	Yes
083SB-0005M-0001-SO	2,4,6-TRICHLOROPHENOL	320	ug/kg	640	320	U	083SB-0006M-0001-SO	310	620	310	U	N/A	Yes
083SB-0005M-0001-SO	2,4-DICHLOROPHENOL	320	ug/kg	640	320	U	083SB-0006M-0001-SO	310	620	310	U	N/A	Yes
083SB-0005M-0001-SO	2,4-DIMETHYLPHENOL	320	ug/kg	640	320	U	083SB-0006M-0001-SO	310	620	310	U	N/A	Yes
083SB-0005M-0001-SO	2,4-DINITROPHENOL	320	ug/kg	1100	320	U	083SB-0006M-0001-SO	310	1000	310	U	N/A	Yes
083SB-0005M-0001-SO	2,4-DINITROTOLUENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	2,6-DINITROTOLUENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	2-CHLORONAPHTHALENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	2-CHLOROPHENOL	640	ug/kg	2100	640	U	083SB-0006M-0001-SO	620	2100	620	U	N/A	Yes
083SB-0005M-0001-SO	2-METHYLNAPHTHALENE	1.9	ug/kg	1.6	0.85		083SB-0006M-0001-SO	2	1.5	0.82		N/A	Yes
083SB-0005M-0001-SO	2-METHYLPHENOL	640	ug/kg	2100	640	U	083SB-0006M-0001-SO	620	2100	620	U	N/A	Yes
083SB-0005M-0001-SO	2-NITROANILINE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	2-NITROPHENOL	320	ug/kg	1100	320	U	083SB-0006M-0001-SO	310	1000	310	U	N/A	Yes
083SB-0005M-0001-SO	3 & 4 Methylphenol	1100	ug/kg	3800	1100	U	083SB-0006M-0001-SO	1100	3700	1100	U	N/A	Yes
083SB-0005M-0001-SO	3,3'-DICHLOROBENZIDINE	160	ug/kg	530	160	U	083SB-0006M-0001-SO	150	520	150	U	N/A	Yes
083SB-0005M-0001-SO	3-NITROANILINE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	4,6-DINITRO-2-METHYLPHENOL	320	ug/kg	1100	320	U	083SB-0006M-0001-SO	310	1000	310	U	N/A	Yes
083SB-0005M-0001-SO	4-BROMOPHENYL PHENYL ETHER	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	4-CHLORO-3-METHYLPHENOL	640	ug/kg	2100	640	U	083SB-0006M-0001-SO	620	2100	620	U	N/A	Yes
083SB-0005M-0001-SO	4-CHLOROANILINE	64	ug/kg	210	64	U	083SB-0006M-0001-SO	62	210	62	U	N/A	Yes
083SB-0005M-0001-SO	4-CHLOROPHENYL PHENYL ETHER	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	4-NITROANILINE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	4-NITROPHENOL	640	ug/kg	2100	640	U	083SB-0006M-0001-SO	620	2100	620	U	N/A	Yes
083SB-0005M-0001-SO	ACENAPHTHENE	0.78	ug/kg	1.6	0.85	J	083SB-0006M-0001-SO	0.71	1.5	0.82	J	N/A	Yes

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
083SB-0005M-0001-SO	ACENAPHTHYLENE	0.85	ug/kg	1.6	0.85	U	083SB-0006M-0001-SO	0.82	1.5	0.82	U	N/A	Yes
083SB-0005M-0001-SO	ANTHRACENE	2.1	ug/kg	1.6	0.85		083SB-0006M-0001-SO	7.5	1.5	0.82		N/A	No
083SB-0005M-0001-SO	Benzo[a]anthracene	7.3	ug/kg	1.6	0.85		083SB-0006M-0001-SO	11	1.5	0.82		N/A	No
083SB-0005M-0001-SO	Benzo[a]pyrene	3.2	ug/kg	1.6	0.85		083SB-0006M-0001-SO	1.4	1.5	0.82	J	N/A	No
083SB-0005M-0001-SO	Benzo[b]fluoranthene	8.9	ug/kg	1.6	0.85		083SB-0006M-0001-SO	5.1	1.5	0.82		N/A	No
083SB-0005M-0001-SO	Benzo[g,h,i]perylene	0.85	ug/kg	1.6	0.85		083SB-0006M-0001-SO	3.8	1.5	0.82		N/A	No
083SB-0005M-0001-SO	Benzo[k]fluoranthene	1.9	ug/kg	1.6	0.85		083SB-0006M-0001-SO	0.98	1.5	0.82	J	N/A	Yes
083SB-0005M-0001-SO	BENZOIC ACID	1600	ug/kg	3200	1600	UJ	083SB-0006M-0001-SO	1500	3100	1500	U	N/A	Yes
083SB-0005M-0001-SO	BENZYL ALCOHOL	130	ug/kg	420	130	R	083SB-0006M-0001-SO	120	410	120	U	N/A	N/A
083SB-0005M-0001-SO	BENZYL BUTYL PHTHALATE	130	ug/kg	420	130	U	083SB-0006M-0001-SO	120	410	120	U	N/A	Yes
083SB-0005M-0001-SO	BIS(2-CHLOROETHOXY) METHANE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	BIS(2-CHLOROETHYL) ETHER	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	CARBAZOLE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	CHRYSENE	8.3	ug/kg	1.6	0.85		083SB-0006M-0001-SO	8.3	1.5	0.82		0	N/A
083SB-0005M-0001-SO	DIBENZ(A,H)ANTHRACENE	1.2	ug/kg	1.6	0.85	J	083SB-0006M-0001-SO	0.75	1.5	0.82	J	N/A	Yes
083SB-0005M-0001-SO	DIBENZOFURAN	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	DIETHYL PHTHALATE	130	ug/kg	420	130	U	083SB-0006M-0001-SO	120	410	120	U	N/A	Yes
083SB-0005M-0001-SO	DIMETHYL PHTHALATE	130	ug/kg	420	130	U	083SB-0006M-0001-SO	120	410	120	U	N/A	Yes
083SB-0005M-0001-SO	DI-N-BUTYL PHTHALATE	130	ug/kg	420	130	U	083SB-0006M-0001-SO	120	410	120	U	N/A	Yes
083SB-0005M-0001-SO	DI-N-OCTYLPHTHALATE	64	ug/kg	210	64	U	083SB-0006M-0001-SO	62	210	62	U	N/A	Yes
083SB-0005M-0001-SO	FLUORANTHENE	10	ug/kg	1.6	0.85		083SB-0006M-0001-SO	4.1	1.5	0.82		N/A	No
083SB-0005M-0001-SO	FLUORENE	0.93	ug/kg	1.6	0.85	J	083SB-0006M-0001-SO	0.74	1.5	0.82	J	N/A	Yes
083SB-0005M-0001-SO	HEXACHLOROBENZENE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	HEXACHLOROBUTADIENE	130	ug/kg	420	130	U	083SB-0006M-0001-SO	120	410	120	U	N/A	Yes
083SB-0005M-0001-SO	HEXACHLOROCYCLOPENTADIENE	64	ug/kg	210	64	UJ	083SB-0006M-0001-SO	62	210	62	U	N/A	Yes
083SB-0005M-0001-SO	HEXACHLOROETHANE	64	ug/kg	130	64	U	083SB-0006M-0001-SO	62	120	62	U	N/A	Yes
083SB-0005M-0001-SO	Indeno[1,2,3-cd]pyrene	3.6	ug/kg	1.6	0.85		083SB-0006M-0001-SO	1.8	1.5	0.82		N/A	No
083SB-0005M-0001-SO	ISOPHORONE	64	ug/kg	210	64	U	083SB-0006M-0001-SO	62	210	62	U	N/A	Yes
083SB-0005M-0001-SO	NAPHTHALENE	2	ug/kg	1.6	0.85		083SB-0006M-0001-SO	2.6	1.5	0.82		N/A	Yes
083SB-0005M-0001-SO	NITROBENZENE	64	ug/kg	210	64	U	083SB-0006M-0001-SO	62	210	62	U	N/A	Yes
083SB-0005M-0001-SO	N-NITROSODI-N-PROPYLAMINE	130	ug/kg	420	130	U	083SB-0006M-0001-SO	120	410	120	U	N/A	Yes
083SB-0005M-0001-SO	N-NITROSODIPHENYLAMINE	130	ug/kg	250	130	U	083SB-0006M-0001-SO	120	250	120	U	N/A	Yes
083SB-0005M-0001-SO	PENTACHLOROPHENOL	320	ug/kg	1100	320	U	083SB-0006M-0001-SO	310	1000	310	U	N/A	Yes
083SB-0005M-0001-SO	PHENANTHRENE	11	ug/kg	1.6	0.85		083SB-0006M-0001-SO	7.7	1.5	0.82		9	N/A
083SB-0005M-0001-SO	PHENOL	320	ug/kg	640	320	U	083SB-0006M-0001-SO	310	620	310	U	N/A	Yes
083SB-0005M-0001-SO	PYRENE	8.1	ug/kg	1.6	0.85		083SB-0006M-0001-SO	3.6	1.5	0.82		N/A	No

Sample	Analyte	Result	Units	LOQ	LOD	Qual	Sample	Result	LOQ	LOD	Qual	RPD	W/In LOQ
083SB-0005M-0001-SO	NITROGUANIDINE	0.12	mg/kg	0.25	0.12	U	083SB-0006M-0001-SO	0.12	0.25	0.12	U	N/A	Yes

APPENDIX D

Validator Checklists

NITROAROMATICS & NITRAMINE DATA ANALYSIS (EXPLOSIVE RESIDUES) CHECKLIST

07055-0006M-0001-SO +prep -6

0705B-044M-0001-SO -3

Project Name: RVAAP CR Site 70

Laboratory: TA

Batch Number(s): _____

Sample Delivery Group: 240-17230, 18581-1

	Yes	No
1. Holding Time: Were samples analyzed within holding time?	[N]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[N]	[ ]
• Did the RSD meet the criteria ≤ 20% for each individual Calibration Compound or r ≥ 0.99?	[ ]	[N]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[N]	[ ]
• Was the manual integration necessary?	[ ]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[N]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[N]	[ ]
• Was the percentage "D" for QC/MRL ≤ 30%?	[N]	[ ]
5. Initial Calibration Verification (ICV):	[N]	[ ]

	Yes	No
• Was the ICV made of a 2nd source?	N	[ ]
• Was the mid level (2nd source) recovery within 85 - 115%?		
6. Continuing Calibration Verification (CCV): {Daily calibration}		
• Was midpoint calibration standard conducted at the beginning of the day?	N	[ ]
• Was midpoint calibration standard conducted every ten samples or every twelve hours?	N	[ ]
• Was midpoint calibration standard conducted after the last sample of the day?	N	[ ]
• Did the CCV meet the minimum requirements (D ≤ 15% with a maximum D ≤ 20% for a specific compound if the mean D ≤ 15%)?	N	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	N	[ ]
• Were all identified hits, above the initial calibration curve, diluted and reanalyzed? N/A	[ ]	[ ]
• Were all identified hits confirmed on a second column?	N	[ ]
• Was RPD of target analyte confirmation ≤ 40? N/A	[ ]	[ ]
• Was there a shoulder on the 2,4,6-TNT peak? N/A	[ ]	[ ]
If the answer is "Yes", then tetryl decomposition is suspected. Peak height rather than peak area should be used for calculating TNT concentration. If teryl was identified in aqueous samples, was pH adjusted to <3? If the answer is "No", then check for tetryl decomposition, and qualify hits with **"J"** accordingly.	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	N	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	N	[ ]

	Yes	No
• MS/MSD: Were the percent recoveries within limits?	[ ]	[N]
Were the RPDs within control limits?		
• System Monitoring Compounds (Surrogates): Were surrogate recoveries within QC limits?	[N]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeks Date: 3/12/13

Name: Patti Meeks

MS/D 0006M for Nitroguanidine w/in lab limits 72-121%
+ EX 4-amino ↑ 124/135% 80-125%
~~NG~~ NG ↓ 63/62 lab limits 76-116%
~~tetryl~~ ↓ ~~43/46~~ w/in QSM

~~044M for nitroguanidine - OK~~
~~EX - OK~~

8330B 1° ICAL RDX %RSD 20%
2NT 16%
} 006M + 044M

NITROAROMATICS & NITRAMINE DATA ANALYSIS (EXPLOSIVE RESIDUES) CHECKLIST

~~0835B-0005m-0001-~~
0715B-0017m-0001-50

Project Name: RVAAP on Site 71

Laboratory: CT

Batch Number(s): _____

Sample Delivery Group: 899236

	Yes	No	
1. Holding Time: Were samples analyzed within holding time?	[Y]	[ ]	
2. Initial Calibration:			
• Did the initial calibration consist of five standards?	[Y]	[ ]	
• Did the RSD meet the criteria ≤ 20% for each individual Calibration Compound or r ≥ 0.99?	[N]	[ ]	
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[N]	[ ]	
• Was the manual integration necessary?	[N]	[ ]	
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**			
3. QCMDL:			
• Was MDL Check performed?	[Y]	[ ]	all detected
4. QCMRL:			
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[Y]	[ ]	
• Was the percentage "D" for QC/MRL ≤ 30%?	[ ]	[N]	
5. Initial Calibration Verification (ICV):	[N]	[ ]	

	Yes	No
• Was the ICV made of a 2nd source?	[ ]	[ ]
• Was the mid level (2nd source) recovery within 85 - 115%?		
6. Continuing Calibration Verification (CCV): {Daily calibration}		
• Was midpoint calibration standard conducted at the beginning of the day?	[ ]	[ ]
• Was midpoint calibration standard conducted every ten samples or every twelve hours?	[ ]	[ ]
• Was midpoint calibration standard conducted after the last sample of the day?	[ ]	[ ]
• Did the CCV meet the minimum requirements (D ≤ 15% with a maximum D ≤ 20% for a specific compound if the mean D ≤ 15%)?	[ ]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[ ] no detects	[ ]
• Were all identified hits, above the initial calibration curve, diluted and reanalyzed?	[ ]	[ ]
• Were all identified hits confirmed on a second column?	[ ]	[ ]
• Was RPD of target analyte confirmation ≤ 40?	[ ]	[ ]
• Was there a shoulder on the 2,4,6-TNT peak?	[ ]	[ ]
If the answer is "Yes", then tetryl decomposition is suspected. Peak height rather than peak area should be used for calculating TNT concentration. If teryl was identified in aqueous samples, was pH adjusted to <3? If the answer is "No", then check for tetryl decomposition, and qualify hits with **"J"** accordingly.	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[ ]	[ ]

	Yes	No
• MS/MSD: Were the percent recoveries within limits? none	[ ]	[ ]
Were the RPDs within control limits?		
• System Monitoring Compounds (Surrogates): Were surrogate recoveries within QC limits?	[N]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeks Date: 4/7/14

Name: Patti Meeks

MRL 8/27 9:49
4-amino 68%/60% (8/27 19:36)
2-NT 57%

3,5 DNA not usual analyte
MDL 0.044

NITROAROMATICS & NITRAMINE DATA ANALYSIS (EXPLOSIVE RESIDUES) CHECKLIST

0725B-6014-0001

Project Name: RVAAP GR Site 72

Laboratory: TA - N Canton

Batch Number(s): _____

Sample Delivery Group: 240+8297

	Yes	No
1. Holding Time: Were samples analyzed within holding time?	[N]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[N]	[ ]
• Did the RSD meet the criteria ≤ 20% for each individual Calibration Compound or r ≥ 0.99?	[ ]	[N]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[N]	[ ]
• Was the manual integration necessary?	[N]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[N]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[N]	[ ]
• Was the percentage "D" for QC/MRL ≤ 30%?	[NA]	[N]
5. Initial Calibration Verification (ICV):	[N]	[ ]

- Was the ICV made of a 2nd source? [ ] [ ]

- Was the mid level (2nd source) recovery within 85 - 115%?

6. Continuing Calibration Verification (CCV):
{Daily calibration}
   - Was midpoint calibration standard conducted at the beginning of the day? [ ] [ ]

   - Was midpoint calibration standard conducted every ten samples or every twelve hours? [ ] [ ]

   - Was midpoint calibration standard conducted after the last sample of the day? [ ] [ ]

   - Did the CCV meet the minimum requirements (D ≤ 15% with a maximum D ≤ 20% for a specific compound if the mean D ≤ 15%)? [ ] [ ]

7. Sample Analysis:
   - Was the RRT of an identified component within the retention time window created as SW-846 requires? [ ] [ ] N/A

   - Were all identified hits, above the initial calibration curve, diluted and reanalyzed? [ ] [ ]

   - Were all identified hits confirmed on a second column? [ ] [ ]

   - Was RPD of target analyte confirmation ≤ 40? [ ] [ ]

   - Was there a shoulder on the 2,4,6-TNT peak? [ ] [ ]

   If the answer is "Yes", then tetryl decomposition is suspected. Peak height rather than peak area should be used for calculating TNT concentration. If teryl was identified in aqueous samples, was pH adjusted to <3? [ ] [ ]
   If the answer is "No", then check for tetryl decomposition, and qualify hits with "**J**" accordingly.

8. Sample Quality Control:
   - Method Blanks: Were target analytes ≤ 1/2 MRL? [ ] [ ]

   - LCS: Were the percent recoveries for LCS within the limits? [ ] [ ]

	Yes	No
• MS/MSD: Were the percent recoveries within limits? none	[ ]	[ ]
Were the RPDs within control limits? ↓		
• System Monitoring Compounds (Surrogates): Were surrogate recoveries within QC limits?	[-]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeks Date: 3/24/14

Name: Patti Meeks

8330 1° %RSD
20% RDX
16% 2-NT

Nitrocell
ICV 82% but ND

NITROAROMATICS & NITRAMINE DATA ANALYSIS (EXPLOSIVE RESIDUES) CHECKLIST

67550-0002-0001-SD

Project Name: RVAAP CR Site 75

Laboratory: TA N Canton

Batch Number(s): _____

Sample Delivery Group: 240-17467-1

	Yes	No
1. Holding Time: Were samples analyzed within holding time?	[X]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[X]	[ ]
• Did the RSD meet the criteria ≤ 20% for each individual Calibration Compound or r ≥ 0.99?	[ ]	[X]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[X]	[ ]
• Was the manual integration necessary?	[X]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[X]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[X]	[ ]
• Was the percentage "D" for QC/MRL ≤ 30%?	[X]	[ ]
5. Initial Calibration Verification (ICV):	[X]	[ ]

	Yes	No
• Was the ICV made of a 2nd source?	[N]	[ ]
• Was the mid level (2nd source) recovery within 85 - 115%?		
6. Continuing Calibration Verification (CCV): {Daily calibration}		
• Was midpoint calibration standard conducted at the beginning of the day?	[N]	[ ]
• Was midpoint calibration standard conducted every ten samples or every twelve hours?	[N]	[ ]
• Was midpoint calibration standard conducted after the last sample of the day?	[N]	[ ]
• Did the CCV meet the minimum requirements (D ≤ 15% with a maximum D ≤ 20% for a specific compound if the mean D ≤ 15%)?	[N]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[N]	[ ]
• Were all identified hits, above the initial calibration curve, diluted and reanalyzed?	[N]	[ ]
• Were all identified hits confirmed on a second column?	[N]	[ ]
• Was RPD of target analyte confirmation ≤ 40?	[ ]	[N]
• Was there a shoulder on the 2,4,6-TNT peak?	[ ]	[N]
If the answer is "Yes", then tetryl decomposition is suspected. Peak height rather than peak area should be used for calculating TNT concentration. If teryl was identified in aqueous samples, was pH adjusted to <3? If the answer is "No", then check for tetryl decomposition, and qualify hits with **"J"** accordingly.	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[N]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[N]	[ ]

	Yes	No
• MS/MSD: Were the percent recoveries within limits? Were the RPDs within control limits?	[ ]	[N]
• System Monitoring Compounds (Surrogates): Were surrogate recoveries within QC limits?	[ ]	[N]

↑ but w/ NDs

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeks Date: 3/24/14

Name: Patti Meeks

Nitroguan MS/D
56/58% limits 72-121% "UJ"
EX MSD
~~Hmx 79/78%~~ ok NG limits 76-116%
Ex conf surr 310% used for 246 + NB
Tetryl intercdun 105%
1° ICAL %RSD RDX = 20%
2-NT = 16%

NC ICV
187%
but ND
MS/D w/in 34-115

No custody seals
Temps OK
overwritten, lined out, some initialed, none dated

NITROAROMATICS & NITRAMINE DATA ANALYSIS (EXPLOSIVE RESIDUES) CHECKLIST

07755-0001m-0001-SO

Project Name: RVAAP SR Site 77

Laboratory: TA-N Canton

Batch Number(s): _____

Sample Delivery Group: 240-17525

	Yes	No
1. Holding Time: Were samples analyzed within holding time?	[Y]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[Y]	[ ]
• Did the RSD meet the criteria ≤ 20% for each individual Calibration Compound or r ≥ 0.99?	[ ]	[N]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[N]	[ ]
• Was the manual integration necessary?	[ ]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[ ]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[Y]	[ ]
• Was the percentage "D" for QC/MRL ≤ 30%?	[Y]	[ ]
5. Initial Calibration Verification (ICV):	[Y]	[ ]

	Yes	No
• Was the ICV made of a 2nd source?	[N]	[ ]
• Was the mid level (2nd source) recovery within 85 - 115%?		
6. Continuing Calibration Verification (CCV): {Daily calibration}		
• Was midpoint calibration standard conducted at the beginning of the day?	[N]	[ ]
• Was midpoint calibration standard conducted every ten samples or every twelve hours?	[N]	[ ]
• Was midpoint calibration standard conducted after the last sample of the day?	[N]	[ ]
• Did the CCV meet the minimum requirements (D ≤ 15% with a maximum D ≤ 20% for a specific compound if the mean D ≤ 15%)?	[N]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires? N/A	[ ]	[ ]
• Were all identified hits, above the initial calibration curve, diluted and reanalyzed?	[ ]	[ ]
• Were all identified hits confirmed on a second column?	[ ]	[ ]
• Was RPD of target analyte confirmation ≤ 40?	[ ]	[ ]
• Was there a shoulder on the 2,4,6-TNT peak?	[ ]	[ ]
If the answer is "Yes", then tetryl decomposition is suspected. Peak height rather than peak area should be used for calculating TNT concentration. If teryl was identified in aqueous samples, was pH adjusted to <3? If the answer is "No", then check for tetryl decomposition, and qualify hits with **"J"** accordingly.	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[N]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[N]	[ ]

	Yes	No
• MS/MSD: Were the percent recoveries within limits?	[ ]	[ ]
Were the RPDs within control limits?		
• System Monitoring Compounds (Surrogates): Were surrogate recoveries within QC limits?	[ ]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meek Date: 3/26/14

Name: Patti Meek

MS/D on 0001M

%RSD RDX (20%), 2-NT (16%)

Custody Seals used
0002m - no VO on COC - listed on sep

some T ↓ VERSION 5 June 2002
overwritten
no init or date

U.S. Army Corps of Engineers Louisville District - LCG

NITROAROMATICS & NITRAMINE DATA ANALYSIS (EXPLOSIVE RESIDUES) CHECKLIST

083 SB-0005m-0001

Project Name: RVAAP CR Site 83

Laboratory: CT

Batch Number(s): _____

Sample Delivery Group: 9921

	Yes	No
1. Holding Time: Were samples analyzed within holding time?	[X]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[X]	[ ]
• Did the RSD meet the criteria ≤ 20% for each individual Calibration Compound or r ≥ 0.99?	[X]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[X]	[ ]
• Was the manual integration necessary?	[N]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[N]	[ ]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[N]	[ ]
• Was the percentage "D" for QC/MRL ≤ 30%?	[N]	[ ]
5. Initial Calibration Verification (ICV):	[X]	[ ]

	Yes	No
• Was the ICV made of a 2nd source?	[ ]	[ ]
• Was the mid level (2nd source) recovery within 85 - 115%?		
6. Continuing Calibration Verification (CCV): {Daily calibration}		
• Was midpoint calibration standard conducted at the beginning of the day?	[ ]	[ ]
• Was midpoint calibration standard conducted every ten samples or every twelve hours?	[ ]	[ ]
• Was midpoint calibration standard conducted after the last sample of the day?	[ ]	[ ]
• Did the CCV meet the minimum requirements (D ≤ 15% with a maximum D ≤ 20% for a specific compound if the mean D ≤ 15%)?	[ ]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires? N/A	[ ]	[ ]
• Were all identified hits, above the initial calibration curve, diluted and reanalyzed?	[ ]	[ ]
• Were all identified hits confirmed on a second column?	[ ]	[ ]
• Was RPD of target analyte confirmation ≤ 40?	[ ]	[ ]
• Was there a shoulder on the 2,4,6-TNT peak?	[ ]	[ ]
If the answer is "Yes", then tetryl decomposition is suspected. Peak height rather than peak area should be used for calculating TNT concentration. If teryl was identified in aqueous samples, was pH adjusted to <3? If the answer is "No", then check for tetryl decomposition, and qualify hits with **"J"** accordingly.	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[ ]	[ ]

	Yes	No
• MS/MSD: Were the percent recoveries within limits? none	[ ]	[ ]
Were the RPDs within control limits?		
• System Monitoring Compounds (Surrogates): Were surrogate recoveries within QC limits?	[ ]	[ ] 64% w/in lab 50-150% 125% w/in lab 74-134% NG

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeks Date: 3/31/14

Name: Patti Meeks

MRL 4-amino 68% ±60%
2-NT 57%

~~POLY CHLORINATED BIPHENYLS (PCB/AROCLORS)~~ Herbicides CHECKLIST

MC

Project Name: RVAAP CR Site 70

Laboratory: TA - North Canton

Batch Number(s): 64956, 69221

Sample Delivery Group: 17230, 18581

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• ~~Did Aroclors 1016 and 1260 meet the~~ RSD ≤ 20% or the r ≥ 0.99? MC	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R MC	[✓]	
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 – 115%~~ QSM ±20%?	[ ]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ≤ 15% from the initial calibration with a maximum %D < 20% for a specific compound?	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	N/A [ ]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[ ]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[ ]	[ ]
• Was RPD of target analyte conformation ≤ 40?	N/A [ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? see comments	[ ]	[✓]
Were the RPDs within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):
See attached MRL and MS/SD qual. tables

Validated/Reviewed by:

Signature: M Calvin

Date: 3.18.2014

Name: L.S. Calvin

- MRL standard recoveries affecting sample data were within the reasonable control limit of ±30%, with exceptions noted in the table below. The sample results, all nondetects, were qualified as estimated, "UJ," and coded with a "C" qualification code.

Samples qualified for MRL %Recovery outliers		
Analyte	**%Recoveries**	**Qualified Samples**
MCPP	42% / 59%	070SS-0006M-0001-SO
MCPA	48% / 62%	
MCPP	53%	070SB-0044M-0001-SO
MCPA	56%	

- Blanks: The method blanks associated with the validated samples had no target compound detects above the control limit listed in the DoD QSM Table F-2 of one-half the RL.

- Blank Spikes and Laboratory Control Samples: Recoveries were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-9, or within laboratory-established control limits when no QSM limits were prescribed. Spiked analytes utilizing laboratory established control limits included dalapon (30-122%) and MCPA (25-132%). The reviewer noted MCPP and pentachlorophenol were not included in the LCS.

- Surrogate Recovery: Recoveries were within the laboratory-established control limits, as no QSM limits were prescribed.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on samples 070SS-0006M-0001-SO and 070SB-0044M-0001-SO. Recoveries affecting sample data were within the control limits listed in DoD QSM Tables G-2 (poor performers) and G-9, or within laboratory-established control limits when no QSM limits were prescribed (see Blank Spikes and Laboratory Control Samples section). Exceptions are noted in the table below. RPDs were within the control limit listed in the DoD QSM Table F-2 of ≤30%. The nondetected parent sample results for the outliers were qualified as estimated, "UJ," and coded with a "Q" qualification code.

Samples qualified for MS/MSD %Recovery outliers			
Analyte	**%Recoveries**	**Recovery Limits**	**Qualified Sample(s)**
Dicamba	45% / 51%	55-110%	070SS-0006M-0001-SO
Dichlorprop	57% / 66%	75-140%	

- Compound Identification: Compound identification was verified for the validated samples. Review of the sample chromatograms, standards, and retention times indicated no problems with target compound identification.

- Compound Quantification and Reported Detection Limits: Compound quantification was verified for the validated samples. The LOQs were supported by the low point of the

ICP METALS ANALYSIS ~~(6010)~~ 6020 + 7471A CHECKLIST

Project Name: RVAAP CR Site 70

Laboratory: TA North Canton

Batch Number(s): _____

Sample Delivery Group: 240-17230-1 and 240-18581-1

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[✓]	[ ]
three calibration standards and a blank?	[ ]	[ ]
• Was R ≥ 0.995	[✓]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	[✓]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 90 - 110%?	[✓]	[ ]
5. Initial Calibration Blank (ICP):		

	Yes	No
• Were analytes in the blank ≤ 1/2 MRL?	[ ]	[Y] but okay

6. Interelement Check Standard:

• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	[Y]	[ ]
• Was ICS-AB results within QC limits (80-120)?	[Y]	[ ]

7. Continuing calibration Blank (CCB):

• Was CCB conducted every 10 samples?	[Y]	[ ]
• Was CCB conducted at end of the analytical sequence?	[Y]	[ ]
• Were analytes ≤ 1/2 MRL?	[ ]	[Y] but okay

8. Continuing Calibration Verification (CCV):

• Was CCV conducted every 10 samples?	[Y]	[ ]
• Was CCV conducted at end of the analytical sequence?	[Y]	[ ]
• Was the %R between 90-110?	[Y]	[ ]

9. Sample Analysis:

• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[Y] Mn (5x)	[ ]

10. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[Y] but okay
• LCS: Were the percent recoveries for LCS within the limits?	[Y]	[ ]
• MS: Were the percent recoveries within limits?	[ ]	[Y]
• MD: Were the RPDs within control limits?	[ ] N/A	[ ]

11. Serial Dilution:

• Was serial dilution (1:4) conducted when needed?	[Y]	[ ]

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	[ ]	[ ]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect (R ≥ 0.995)?	[ ] N/A	[ ]

13. Comments (attach additional sheets if necessary):

07055-0006M-0001-SO (0.66g : 0.1L and 1.08g : 6.1L)

07058-044M-0001-SO (0.54 : 0.1L and 1.03g : 6.1L)

Tune RSD for ^{78}Se = 20.43%

Tune RSD for ^{137}Ba = 24.31%
^{138}Ba = 9.85%

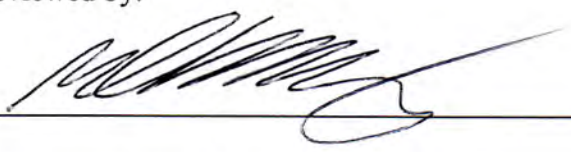
Dup outliers: (Cr, 42%) (Cd, 41%) (Pb, 94%)

Se in ICSA at 1.15 µg/L

MS outliers: (Sb, 19%) (Cr, 72%) (K, 136%) (Se, 199%) (V, 130%)

SD outliers: (Cu, 15%) (Pb, 12%) (Ni, 11%)

Validated/Reviewed by:

Signature: 

Date: 3/30/14

Name: Michael Cherny

ICP METALS ANALYSIS (6010)C CHECKLIST

Project Name: RVAAP Cr Site 71

Laboratory: CT Laboratories

Batch Number(s): _____

Sample Delivery Group: 99236

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[✓]	[ ]
three calibration standards and a blank?	[✓]	[ ]
• Was $R \geq 0.995$	[✓]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
	[✓]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	[✓]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 90 - 110%?		
5. Initial Calibration Blank (ICP):		

	Yes	No
• Were analytes in the blank ≤ 1/2 MRL?	[Y]	[ ]

6. Interelement Check Standard:

• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	[Y]	[ ]
• Was ICS-AB results within QC limits (80-120)?	[Y]	[ ]

7. Continuing calibration Blank (CCB):

• Was CCB conducted every 10 samples?	[Y]	[ ]
• Was CCB conducted at end of the analytical sequence?	[Y]	[ ]
• Were analytes ≤ 1/2 MRL?	[Y]	[ ]

8. Continuing Calibration Verification (CCV):

• Was CCV conducted every 10 samples?	[Y]	[ ]
• Was CCV conducted at end of the analytical sequence?	[Y]	[ ]
• Was the %R between 90-110?	[Y]	[ ]

9. Sample Analysis:

• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[Y] 5x	[ ]

10. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[Y]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[Y]	[ ]
• MS: Were the percent recoveries within limits?	[ ]	[Y]
• MD: Were the RPDs within control limits?	[Y]	[ ]

11. Serial Dilution:

• Was serial dilution (1:4) conducted when needed?	[Y]	[ ]

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	[✓]	[ ]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect (R ≥ 0.995)?	[ ]	N/A	[ ]

13. Comments (attach additional sheets if necessary):

0715B-0018M-0001-SO 97.6% solid 5x dilution
0715B-0013M-0001-SO 97.5% solid .052±2.05g

MS/D outliers
-0003M-0001 (67%, 58%)
-0010M-0001 (57%, 60%)

PDS outliers
-0003M-0001 (74%)
-0010M-0001 (58%)

Validated/Reviewed by:

Signature: [signature]

Date: 4/14/14

Name: Michael Cherny

ICP METALS ANALYSIS (6010) CHECKLIST

0725B-0001 (0.61:100, 1.16:100) 83.8%
0725B-0012 (0.66:100, 1.06:100) 88.8%
0725B-0014 (0.69:100, 1.13:100) 88.7%

Project Name: RVAAP CR Site 72

Laboratory: TA-N Canton

Batch Number(s): _____

Sample Delivery Group: 240-18297

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[Y]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[Y]	[ ]
three calibration standards and a blank?	[ ]	[ ]
• Was R ≥ 0.995	[Y]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[Y]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[Y]	[ ]
	[ ]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	[ ]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 90 - 110%?		
5. Initial Calibration Blank (ICP):		

	Yes	No
• Were analytes in the blank ≤ 1/2 MRL?	[ ]	~~[N]~~ insuff
6. Interelement Check Standard:		
• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	~~[N]~~	[ ]
• Was ICS-AB results within QC limits (80-120)?	~~[N]~~	[ ]
7. Continuing calibration Blank (CCB):		
• Was CCB conducted every 10 samples?	~~[N]~~	[ ]
• Was CCB conducted at end of the analytical sequence?	~~[N]~~	[ ]
• Were analytes ≤ 1/2 MRL?	[ ]	~~[N]~~ insuff
8. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 10 samples?	~~[N]~~	[ ]
• Was CCV conducted at end of the analytical sequence?	~~[N]~~	[ ]
• Was the %R between 90-110?	~~[N]~~	[ ]
9. Sample Analysis:		
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
10. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	PM ~~[N]~~	~~[N]~~ insuff
• LCS: Were the percent recoveries for LCS within the limits?	~~[N]~~	[ ]
• MS: Were the percent recoveries within limits?	[ ]	~~[N]~~
• MD: Were the RPDs within control limits?	[ ]	~~[N]~~
11. Serial Dilution:		
• Was serial dilution (1:4) conducted when needed?	~~[N]~~	[ ]

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	~~[ ]~~	[ ]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect (R ≥ 0.995)? N/A	[ ]	[ ]

13. Comments (attach additional sheets if necessary):

MS/~~D~~ 0725B-0001 As (77), Ba (127), Be (79), Ca (298), Cd (79), Ni (69), Sb (24), K (55), Se (68)
0725B-0012 Be (78), Cu (123), Pb (122), Sb (18), ~~K~~ (71), Se (74)

PDS - " OK

Dup 0725B-0001 Ca (28)
0725B-0012 As (29)

SD " OK

~~MB + Se = -0.983 w -0.0943 mg/kg J-~~

ICSA - ins off

Validated/Reviewed by:

Signature: Patti Meek Date: 3/25/14

Name: Patti Meek

ICP METALS ANALYSIS (~~6010~~) 6020+7471A CHECKLIST

Project Name: RVAAP CR Site 72

Laboratory: TA North Canton

Batch Number(s): _____

Sample Delivery Group: 240-18441-1, 240-18449-1 and 240-18544-1

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[Y]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[Y]	[ ]
three calibration standards and a blank?	[ ]	[ ]
• Was R ≥ 0.995	[Y]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[Y]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[Y]	[ ]
	[Y]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	[Y]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 90 - 110%?		
5. Initial Calibration Blank (ICP):		

	Yes	No
• Were analytes in the blank ≤ 1/2 MRL?	[Y]	[ ]

6. Interelement Check Standard:

• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	[Y]	[ ]
• Was ICS-AB results within QC limits (80-120)?	[Y]	[ ]

7. Continuing calibration Blank (CCB):

• Was CCB conducted every 10 samples?	[Y]	[ ]
• Was CCB conducted at end of the analytical sequence?	[Y]	[ ]
• Were analytes ≤ 1/2 MRL?	[ ]	[Y] but okay

8. Continuing Calibration Verification (CCV):

• Was CCV conducted every 10 samples?	[Y]	[ ]
• Was CCV conducted at end of the analytical sequence?	[Y]	[ ]
• Was the %R between 90-110?	[Y]	[ ]

9. Sample Analysis:

• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[ ] N/A	[ ]

10. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[Y] but okay
• LCS: Were the percent recoveries for LCS within the limits?	[Y]	[ ]
• MS: Were the percent recoveries within limits?	[ ]	[Y]
• MD: Were the RPDs within control limits?	[ ] N/A	[ ]

11. Serial Dilution:

• Was serial dilution (1:4) conducted when needed?	[Y]	[ ]

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	[ ]	[✓]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect (R ≥ 0.995)?	[ ] N/A	[ ]

13. Comments (attach additional sheets if necessary):

-SDG 240-18441-1 0725B-0026-0001-SO
.64g : .1L : 1.03g 96.8% solid
Tune RSD for ^{137}Ba = 35.981%
ICSA detects: Cd @ 0.315 µg/L
As @ 0.098 µg/L
MS outliers: (As, 69%) (Ca, 74%) (Cu, 75%) (Sb, 20%)* (Tl, 75%) (Se, 73%)
SD outliers: (Zn, 11%)

-SDG 240-18449-1
0725B-0039-0001-SO
.61g : .1L : 1.07g 83.7% solid
Same ICSA detects ↑ Same Tune RSD ↑
Dup outlier: (K, 24%) MS outliers: (As, 64%) (Ba, 32%) (Be, 76%) (Cr, 73%) (Ni, 79%) (Pb, 159%) *(Sb, 23%) (U, 61%) (K, 5%) (Se, 68%)
↳ Sample: 0725B-0035-0001
(see next page)

Validated/Reviewed by:

Signature: [signature]

Date: 4/2/14

Name: Michael Cheny

SDG 240-18544-1

072SB-0063-0001-SO

.55g : .1L : 1.09g 88.8% solid

Tune RSD outliers : (^{137}Ba, 19.32%)
(^{138}Ba, 7.81%)

Dup outlier : (Mn, 36%)

MS outliers : (Ag, 39%), (~~As~~, 0%),
(Ca, 193%), (Cd, 60%),
(Cr, 79%), (Co, 52%),
(Cu, 16%), (Na, 39%),
(Sb, 28%), (K, 70%),
(Sc, 25%)

ICSA detects : (Sb, 0.32 µg/L)
(Cd, 0.385 ")
(Se, 0.912 ")
(Ag, 0.15 ")

There were a few matching MS outliers in other spiked samples in this SDG.

ICP METALS ANALYSIS (6010) CHECKLIST

0755D-0002-0001

Project Name: RVAAP CR Site 75

Laboratory: TA-N Canton

Batch Number(s): _____

Sample Delivery Group: ~~20~~ 240-17467-1

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[N]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[ ]	[ ]
three calibration standards and a blank?	[ ]	[ ]
• Was $R \geq 0.995$	[ ]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[ ]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[ ]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	[ ]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 90 - 110%?	[ ]	[ ]
5. Initial Calibration Blank (ICP):		

	Yes	No	
• Were analytes in the blank ≤ 1/2 MRL?	[ ]	[N]	insuff
6. Interelement Check Standard:			
• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	[N]	[ ]	
• Was ICS-AB results within QC limits (80-120)?	[N]	[ ]	
7. Continuing calibration Blank (CCB):			
• Was CCB conducted every 10 samples?	[N]	[ ]	
• Was CCB conducted at end of the analytical sequence?	[N]	[ ]	
• Were analytes ≤ 1/2 MRL?	[ ]	[N]	insuff
8. Continuing Calibration Verification (CCV):			
• Was CCV conducted every 10 samples?	[N]	[ ]	
• Was CCV conducted at end of the analytical sequence?	[ ]	[ ]	
• Was the %R between 90-110?	[ ]	[ ]	
9. Sample Analysis:			
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]	
10. Sample Quality Control:			
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[N]	but insuff.
• LCS: Were the percent recoveries for LCS within the limits?	[N]	[ ]	
• MS: Were the percent recoveries within limits?	[ ]	[N]	
• MD: Were the RPDs within control limits?	[ ]	[N]	
11. Serial Dilution:			
• Was serial dilution (1:4) conducted when needed?	[N]	[ ]	

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	[ ]	[ ]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect ($R \geq 0.995$)? N/A	[ ]	[ ]

13. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeker Date: 3/24/14

Name: Patti Meeker

MS PDS Dup SD
As (76,) OK Al (26) OK
Ba (57,)
Cr (73,) Cr (21)
Mg (69,) Na (32)
Ni (77,) V (24)
Sb (25,) K (42)
V (66,)
K (56,)
Se (74

MS
ltg = 60%
dup OK

ICP METALS ANALYSIS (~~6010~~) CHECKLIST 6020 + 7471A

Project Name: RVAAP CR Site 77

Laboratory: TA North Canton

Batch Number(s): _____

Sample Delivery Group: 240-17525-1/2

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[✓]	[ ]
three calibration standards and a blank?	[ ]	[ ]
• Was $R \geq 0.995$	[✓]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
	[✓]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	[✓]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2^{nd} source) recovery within 90 - 110%?		
5. Initial Calibration Blank (ICP):		

	Yes	No
• Were analytes in the blank ≤ 1/2 MRL?	[✓]	[ ]

6. Interelement Check Standard:

• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	[✓]	[ ]
• Was ICS-AB results within QC limits (80-120)?	[✓]	[ ]

7. Continuing calibration Blank (CCB):

• Was CCB conducted every 10 samples?	[✓]	[ ]
• Was CCB conducted at end of the analytical sequence?	[✓]	[ ]
• Were analytes ≤ 1/2 MRL?	[✓]	[ ]

8. Continuing Calibration Verification (CCV):

• Was CCV conducted every 10 samples?	[✓]	[ ]
• Was CCV conducted at end of the analytical sequence?	[✓]	[ ]
• Was the %R between 90-110?	[✓]	[ ]

9. Sample Analysis:

• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[ ]	N/A	[ ]

10. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS: Were the percent recoveries within limits?	[ ]	[✓]
• MD: Were the RPDs within control limits?	[ ] N/A	[ ]

11. Serial Dilution:

• Was serial dilution (1:4) conducted when needed?	[✓]	[ ]

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	[ ]	[✓]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect (R ≥ 0.995)?	[ ]	N/A	[ ]

13. Comments (attach additional sheets if necessary):

0775S-0001M-0001-SD
0.6g : 0.1L : 1.21g Tune RSD outliers: ^{137}Ba - 15.47%

Detects in ICSA:
Sb - 0.259 µg/L
Cd - 0.249 "
Ag - 0.095 "

Dup outliers:
(Ca, 21%) - 0695S-0001M
(Ca, 21%) (Na 7±1QQ) > 0775S-0001M

MS outliers
(As, 72%) (Cd, 79%), (Cu, 75%),
(Sb, 22%) (Se, 64%) - 0695S-0001

(As, 78%) (Cd, 79%) (Cu, 317%)
(Mg, 132%) (Sb, 21%) (K, 172%)
(Se, 72%) - 0775S-0001M

SD outliers:
(Ca, 11%) - 0695S-0001M
(Ca, 12%) - 0775S-0001M

Validated/Reviewed by:

Signature: [signature] Date: 4/7/14

Name: Michael Cherny

ICP METALS ANALYSIS (6010) + 7471B CHECKLIST

Project Name: RVAAP Cr site 83

Laboratory: CT Laboratories

Batch Number(s): _____

Sample Delivery Group: 99211

	Yes	No
1. Holding Time:		
• Were samples analyzed within holding time (6-Months)?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of		
One calibration standard and a blank?	[✓]	[ ]
three calibration standards and a blank?	[✓]	[ ]
• Was R ≥ 0.995	[✓]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
	[✓]	[ ]
• Was the QC/MRL between 70-130% R? Common Elements can be between the MRL and 2X MRL level (Fe, Al, Mg and Ca)	> 10x LOQ	
	[✓]	[ ]
4. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 90 - 110%?		
5. Initial Calibration Blank (ICP):		

	Yes	No
• Were analytes in the blank ≤ 1/2 MRL?	[Y]	[ ]

6. Interelement Check Standard:

• Was ICS-A (interferents only) conducted at the beginning of analytical sequence?	[Y]	[ ]
• Was ICS-AB results within QC limits (80-120)?	[Y]	[ ]

7. Continuing calibration Blank (CCB):

• Was CCB conducted every 10 samples?	[Y]	[ ]
• Was CCB conducted at end of the analytical sequence?	[Y]	[ ]
• Were analytes ≤ 1/2 MRL?	[Y]	[ ]

8. Continuing Calibration Verification (CCV):

• Was CCV conducted every 10 samples?	[Y]	[ ]
• Was CCV conducted at end of the analytical sequence?	[Y]	[ ]
• Was the %R between 90-110?	[Y]	[ ]

9. Sample Analysis:

• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[Y] 5X	[ ]

10. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[Y]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[Y]	[ ]
• MS: Were the percent recoveries within limits?	[ ]	[Y]
• MD: Were the RPDs within control limits?	[ ]	[Y]

11. Serial Dilution:

• Was serial dilution (1:4) conducted when needed?	[Y]	[ ]

	Yes	No
• Was there an agreement between diluted and undiluted results (<10%)?	[ ]	[✓]

12. Method of Standard Addition (MSA):

• Was MSA performed on samples suspected of matrix effect (R ≥ 0.995)?	[ ]	N/A	[ ]

13. Comments (attach additional sheets if necessary):

0835B-0005M-0001-SO 94.1% solid
Hg -> 0.58g & 0.025L MT -> 2.05g & 0.05L

MS/MSD outliers: -0835B-0004M
(As, 72%, 65%), (Ba, 74%, 56%), (Be, 75%, 64%),
(Cr, 64%, 47%), (Co, 68%, 54%), (Cu, 77%, 65%),
(Pb, 61%, 51%), (Mg, 78%, 54%), (Ni, 71%, 57%),
(V, 66%, 57%), (Zn, 73%, 56%), (Sb, 27%, 5%),
(Se, 400%, 79%), (Ag, 43%, OK), (Cd, 62%, 59%),
(Hg, 123%, OK), (Tl, 68%, 53%)

PDS outliers: -0835B-0004M
(Ba, 66%), (Be, 71%), (Ca, 0%) (Cr, 55%),
(Co, 70%), (Pd, 64%), (Mg, 0%), (Ni, 72%),
(V, 67%), (Zn, 68%), (Cd, 68%), (Tl, 61%)

SD outliers: -0835B-0004M
(Ba, 13%), (Mg, 40%)

Negative sample Results:
As: -4.60µg/L
Se: -9.18µg/L

Validated/Reviewed by:

Signature: [signature] Date: 4/7/14

Name: Michael Cherny

POLY CHLORINATED BIPHENYLS (PCB/AROCLORS) CHECKLIST

Project Name: RVAAP CR Site 70

Laboratory: TA North Canton

Batch Number(s): 165555, 169415

Sample Delivery Group: 17230, 18581

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary? If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**	[✓]	[ ]
3. QCMDL:		
• Was MDL Check performed?	DIC [✓]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV): Is the mid level (2nd source) recovery within ~~85 - 115%~~ QSM ± 20%?	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
QSM ≤20%		
• Was Drift or D~~≤ 15%~~ from the initial calibration with a maximum %D < 20% for a specific compound?	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[✓]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[✓]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[✓]	[ ]
• Was RPD of target analyte conformation ≤ 40? Av. 1242 44.1% J/*M	[ ]	[✓]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? Av. 1016 155/149% (40-140) -000QM	[ ]	[✓]
Were the RPDs within control limits? Av. 1242 J/Q	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):
Sample 07055-00016M-0001-50/5X dilution

Validated/Reviewed by:

Signature: L S Calvin

Date: 3.19.2014

Name: L.S. Calvin

POLY CHLORINATED BIPHENYLS (PCB/AROCLORS) CHECKLIST

Project Name: RVAAP CR Site 71

Laboratory: CT Labs

Batch Number(s): 44519

Sample Delivery Group: 99236

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[ ]	[✓]
• Was the manual integration necessary? N/A	[ ]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 - 115%~~ RSM ± 20%?	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ~~≤ 15%~~ from the initial calibration with a maximum %D < 20% for a specific compound? (DOC QSM ≤ 20%)	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[✓]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[✓]	[ ]
• Was RPD of target analyte conformation ≤ 40? (QC)	[✓]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL? ND	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? N/A	[ ]	[ ]
Were the RPDs within control limits? ↓	[ ]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: L.S. Calvin

Date: 4.7.2014

Name: L.S. Calvin

POLY CHLORINATED BIPHENYLS (PCB/AROCLORS) CHECKLIST

Project Name: RVAAP CR Site 72 0725B-0014-0001

Laboratory: TA-N Canton

Batch Number(s): _____

Sample Delivery Group: 240-18297

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[N]	[ ]
(b) Were samples analyzed within holding time?	[ ]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[N]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[ ]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[ ]	[ ]
• Was the manual integration necessary?	[ ]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[N]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[ ]	[ ]
• Was the QC/MRL between 70-130% R	[N]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within 85 - 115%?	[N]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[N]	[ ]
• Was Drift or D ≤ 15% from the initial calibration with a maximum %D < 20% for a specific compound?	[ ]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires? NA	[ ]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[ ]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[N]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[ ]	[ ]
• Was RPD of target analyte conformation ≤ 40? N/A	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[ ]	[ ]
• MS/MSD: Were the percent recoveries within limits? 10 of 12	[ ]	[ ]
Were the RPDs within control limits?	[ ]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[N]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meek

Date: 3/24/14

Name: Patti Meeks

POLY CHLORINATED BIPHENYLS (PCB/AROCLORS) CHECKLIST

Project Name: RVAAP CR Site 75

Laboratory: TA-North Canton

Batch Number(s): 45753

Sample Delivery Group: 17467

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary? If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**	[✓]	[ ]
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 - 115%~~ QSM ± 20%?	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours? QSM ≤ 20%	[✓]	[ ]
• Was Drift or D ~~≤ 15%~~ from the initial calibration with a maximum %D < 20% for a specific compound?	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
• Were identified Aroclors confirmed on a second GC column? sample ND N/A	[ ]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[✓]	[ ]
• Was RPD of target analyte conformation ≤ 40? N/A	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPDs within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: D A Calvin Date: 3-20-2014

Name: D.S. Calvin

POLY CHLORINATED BIPHENYLS (PCB/AROCLORS) CHECKLIST

Project Name: RVAAP CR Site 77

Laboratory: TA - N. Canton

Batch Number(s): 165753

Sample Delivery Group: 17525

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 – 115%~~ 'QSM ±20%?	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ≤ 15% from the initial calibration with a maximum %D < 20% for a specific compound?	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[✓]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[✓]	[ ]
• Was RPD of target analyte conformation ≤ 40? (MS/MSD) Sample ND	[✓]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL? ND	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPDs within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: [signature] Date: 3.28.2014

Name: L.S. Calvin

POLY CHLORINATED BIPHENYLS (PCB/AROCLORS) CHECKLIST

Project Name: RVAAP CR Site 83

Laboratory: CT Labs

Batch Number(s): 45487

Sample Delivery Group: 99211

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 - 115%?~~ @SM ± 20%	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ~~≤ 15%~~ QSM ≤ 20% from the initial calibration with a maximum %D < 20% for a specific compound? NC	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	N/A [ ]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[ ]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[✓]	[ ]
• Was RPD of target analyte conformation ≤ 40? (LCS)	[✓]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL? N/D	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? NC N/A	[✓]	[ ]
Were the RPDs within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: L.S. Calvin

Date: 4.4.2014 ~~4.4~~ MC

Name: L.S. Calvin

ORGANOCHLORINE PESTICIDES ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 72 07258-0014-0001

Laboratory: TA- N. Canton

Batch Number(s): _____

Sample Delivery Group: 240-18297

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[X]	[ ]
(b) Were samples analyzed within holding time?	[X]	[ ]
2. DDT/Endrin Breakdown:		
• Was breakdown ≤ 15%?	[X]	[ ]
3. Initial Calibration:		
• Did the initial calibration consist of five standards?	[X]	[ ]
• Did all compounds meet the RSD ≤ 20% or r ≥ 0.99?	[X]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[X]	[ ]
• Was the manual integration necessary? If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**	[X]	[ ]
4. QCMDL:		
• Was MDL Check performed?	[ ]	[X]
5. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[X]	[ ]
• Was the QC/MRL between 70-130% R	[X]	[ ]

	Yes	No
6. Initial Calibration Verification (ICV):		
• Is the mid level (2nd source) recovery within 85 - 115%?	[ ]	[N]
7. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[N]	[ ]
• Was Drift or D ≤ 15% from the initial calibration with a maximum D ≤ 20% for a specific compound?	[ ]	[ ]
8. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires? N/A	[ ]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed?	[ ]	[ ]
• Were identified compounds confirmed on a second GC column?	[ ]	[ ]
• Was RPD of target analyte confirmation ≤ 40?	[ ]	[ ]
9. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[N]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[N]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[ ]	[N]
Were the RPD within control limits?	[ ]	[N]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[N]	[ ]

10. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: Patti Meeks

Date: 3/25/14

Name: Patti Meeks

MS/D on 0014 limits

DDE (66%, 45) 70-125%

Sulfate (57, 39) 60-135%

γ BHC (58%, 39) 60-125%

δ-ch (62%, 41%) 65-125%

methoxy (55%, 40%) 55-145%

MSD out: DDT (40, 45-140)
α-BHC (44, 60-125)

ICV CLP-1
Tox -43.2, -24.2, 49.8 + 2 ok

ICV CLP-2
Tox -39.1, -32.9 + 30%

ORGANOCHLORINE PESTICIDES ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 77

Laboratory: TA-North Canton

Batch Number(s): 165753

Sample Delivery Group: 17525

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[ ] ✓	[ ]
2. DDT/Endrin Breakdown:		
• Was breakdown ≤ 15%?	[✓]	[ ]
3. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did all compounds meet the RSD ≤ 20% or r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary? If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**	[✓]	[ ]
4. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
5. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R (those affecting sa sample data)	[✓]	[ ]

	Yes	No
6. Initial Calibration Verification (ICV): QSM ± 20 % • Is the mid level (2nd source) recovery within ~~85 - 115%~~?	[✓]	[ ]
7. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ≤ 15% from the initial calibration with a maximum D ≤ 20% for a specific compound?	[ ]	[✓]

toxaphene CLP1 -20.9/53.7 CLP2 -34.0/88.2 UJ/C

8. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
• Were identified compounds confirmed on a second GC column?	[✓]	[ ]
• Was RPD of target analyte confirmation ≤ 40?	[✓]	[ ]
9. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL? N/D	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? N/A (not evaluated at 10X dilution)	[ ]	[ ]
Were the RPD within control limits?	[ ]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits? not evaluated @ 10X dilution	[ ]	[ ]

10. Comments (attach additional sheets if necessary):
10X dilution – sample matrix

Validated/Reviewed by:

Signature: L.A Calvin

Date: 3.28.2014

Name: L.S. Calvin

SEMIVOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 70

Laboratory: TA- North Canton

Batch Number(s): 65169, 69432

Sample Delivery Group: 17230, 18548

	Yes	No
1. Sample Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Instrument Tuning:		
Was the DFTPP tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Ion Mass Assignments:		
Was mass assignment based on m/z 198?	[✓]	[ ]
4. Ion Abundance:		
Indicate if DFTPP ions abundance relative to m/z 198 base peak met the ions abundance criteria:		
m/z — Acceptance Criteria		
51 — 30.0 - 60.0 %	[✓]	[ ]
68 — < 2% of mass 69	[✓]	[ ]
70 — < 2% of mass 69	[✓]	[ ]
127 — 40-60%	[✓]	[ ]
197 — < 1%	[✓]	[ ]
198 — 100%, Base peak	[✓]	[ ]
199 — 5-9%	[✓]	[ ]
275 — 10 - 30%	[✓]	[ ]
365 — > 1%	[✓]	[ ]
441 — present but < mass 443	[✓]	[ ]
442 — > 40%	[✓]	[ ]
443 — 17-23% of mass 442	[✓]	[ ]

		Yes	No
5.0 Initial Calibration:			
• Did the initial calibration consist of five or more standards?	5-stds more	[ ] [✓]	[ ] [ ]
If the calibration curve consists of 5-standards, check validity of the calibration model.			
Was the linear model applied?		[✓]	[ ]
• Did the followings System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?			
	RF		
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for the followings each individual Calibration Check Compound (CCC)?			
Base/Neutral Fraction:			
Acenaphthene		[✓]	[ ]
1,4-Dichlorobenzene		[✓]	[ ]
Hexachlorobutadiene		[✓]	[ ]
Diphenylamine		[✓]	[ ]
Di-n-octylphthalate		[✓]	[ ]
Fluoranthene		[✓]	[ ]
Benzo(a)pyrene		[✓]	[ ]
Acid Fraction:			
4-Chloro-3-methylphenol		[✓]	[ ]
2,4-Dichlorophenol		[✓]	[ ]
2-Nitrophenol		[✓]	[ ]
Phenol		[✓]	[ ]
Pentachlorophenol		[✓]	[ ]
2,4,6-Trichlorophenol		[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15%?		[✓]	[ ]
• If the answer is "No", are the mean RSDs ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 30%?		N/A [ ] ↓ [ ]	[ ] [ ]

	Yes	No
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.		
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		

6. QCMDL:

• Was MDL Check performed?	[ ]	[✓]

7. QCMRL:

• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R see comments	[ ]	[✓]
• For the non-contaminants of concern was the QC/MRL between 50-150% (Sporadic Marginal Failure)? N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

• Is the mid level (2nd source) recovery within ~~70-130%~~ @SM ±20% for contaminants of concern ? 3,3'-DCB 73.5% ULJ/C in 0003 M	[ ]	[✓]
• Is the mid level (2nd source) recovery within 50-150% for non-contaminants of concern (Sporadic Marginal Failure)? N/A	[ ]	[ ]

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did any of SPCC meet the minimum RF values?	[✓]	[ ]

		Yes	No
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]

- Did the CCC meet the minimum requirements (D ≤ 20%) for the followings?

Base/Neutral Fraction:

Acenaphthene	[✓]	[ ]
1,4-Dichlorobenzene	[✓]	[ ]
Hexachlorobutadiene	[✓]	[ ]
Diphenylamine	[✓]	[ ]
Di-n-octylphthalate	[✓]	[ ]
Fluoranthene	[✓]	[ ]
Benzo(a)pyrene	[✓]	[ ]

Acid Fraction:

4-Chloro-3-methylphenol	[✓]	[ ]
2,4-Dichlorophenol	[✓]	[ ]
2-Nitrophenol	[✓]	[ ]
Phenol	[✓]	[ ]
Pentachlorophenol	[✓]	[ ]
2,4,6-Trichlorophenol	[✓]	[ ]

- Primary Evaluation: Was Drift or D ≤ 20% calculated from the initial calibration? [✓] [ ]
- Alternative Evaluation: Maximum allowable Drift/D for each target analyte is ≤ 30%. N/A [ ] [ ]

10. Sample Analysis:

- Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? [✓] [ ]
- Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra? [✓] [ ]
- Were the internal standard areas within the QC limits (from -50% to +200%)? [✓] [ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[ ]	[✓]
Were the RPD within control limits? see comments ↓	[ ]	[✓]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

Pentachlorophenol R/D - reported from 8151 analysis (8270 R/D) ↓
2,4-DNT and 2,6-DNT reported from 8330 analysis
MS/MSD 0006M: 4-CA and 3,3-DCB not recovered R/Q
3-NA ↓ 16%, 13% (25-110%) UJ/Q
RPDs: 4&2NP, 4NA (200%) UJ/Q
0004
-0006M 5X DL | all 2 ml final extract volume
remaining 10X ↓
MRL outliers: see attached

Validated/Reviewed by:

Signature: M Calvin Date: 3.17.2014

Name: L.S. Calvin

SV

Samples qualified for MRL %R outliers		
Analyte	**%R**	**Qualified Samples**
2,4-dinitrophenol	42%	070SS-0003M-0001-SO
4,6-dinitro-2-methylphenol	47%	070SS-0006M-0001-SO
2,4-dinitrophenol	57%	070SB-0044M-0001-SO 070SB-0046M-0001-SO
benzo(g,h,i)perylene	62%	
n-nitrosodiphenylamine	**0%**	

All UJ/C in affected samples.

SEMIVOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 71

Laboratory: CT Labs

Batch Number(s): 45514, 45513

Sample Delivery Group: 99236

	Yes	No
1. Sample Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Instrument Tuning: Was the DFTPP tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Ion Mass Assignments: Was mass assignment based on m/z 198?	[✓]	[ ]
4. Ion Abundance: Indicate if DFTPP ions abundance relative to m/z 198 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
51	30.0 - 60.0 %	[✓]	[ ]
68	< 2% of mass 69	[✓]	[ ]
70	< 2% of mass 69	[✓]	[ ]
127	40-60%	[✓]	[ ]
197	< 1%	[✓]	[ ]
198	**100%, Base peak**	[✓]	[ ]
199	5-9%	[✓]	[ ]
275	10 - 30%	[✓]	[ ]
365	> 1%	[✓]	[ ]
441	present but < mass 443	[✓]	[ ]
442	> 40%	[✓]	[ ]
443	17-23% of mass 442	[✓]	[ ]

		Yes	No
5.0 Initial Calibration:			
• Did the initial calibration consist of five or more standards?	5-stds	[✓]	[ ]
	more	[ ]	[ ]
If the calibration curve consists of 5-standards, check validity of the calibration model.			
Was the linear model applied?		[✓]	[ ]
• Did the followings System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?			
	RF		
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for the followings each individual Calibration Check Compound (CCC)?			
Base/Neutral Fraction:			
Acenaphthene		[✓]	[ ]
1,4-Dichlorobenzene		[✓]	[ ]
Hexachlorobutadiene		[✓]	[ ]
Diphenylamine		[✓]	[ ]
Di-n-octylphthalate		[✓]	[ ]
Fluoranthene		[✓]	[ ]
Benzo(a)pyrene		[✓]	[ ]
Acid Fraction:			
4-Chloro-3-methylphenol		[✓]	[ ]
2,4-Dichlorophenol		[✓]	[ ]
2-Nitrophenol		[✓]	[ ]
Phenol		[✓]	[ ]
Pentachlorophenol		[✓]	[ ]
2,4,6-Trichlorophenol		[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15%? see comments		[ ]	[✓]
• If the answer is "No", are the mean RSDs ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 30%?	N/A	[ ]	[ ]
		[ ]	[ ]

	Yes	No
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.		
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		

6. QCMDL:

• Was MDL Check performed?	[ ]	[✓]

7. QCMRL:

• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R see comments	[ ]	[✓]
• For the non-contaminants of concern was the QC/MRL between 50-150% (Sporadic Marginal Failure)? N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

• Is the mid level (2nd source) recovery within ~~70-130%~~ QSM ±20% for contaminants of concern ?	[✓]	[ ]
• Is the mid level (2nd source) recovery within 50-150% for non-contaminants of concern (Sporadic Marginal Failure)? N/A	[ ]	[ ]

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did any of SPCC meet the minimum RF values?	[✓]	[ ]

		Yes	No
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]

- Did the CCC meet the minimum requirements (D ≤ 20%) for the followings?

Base/Neutral Fraction:

Acenaphthene	[✓]	[ ]
1,4-Dichlorobenzene	[✓]	[ ]
Hexachlorobutadiene	[✓]	[ ]
Diphenylamine	[✓]	[ ]
Di-n-octylphthalate	[✓]	[ ]
Fluoranthene	[✓]	[ ]
Benzo(a)pyrene	[✓]	[ ]

Acid Fraction:

4-Chloro-3-methylphenol	[✓]	[ ]
2,4-Dichlorophenol	[✓]	[ ]
2-Nitrophenol	[✓]	[ ]
Phenol	[✓]	[ ]
Pentachlorophenol	[✓]	[ ]
2,4,6-Trichlorophenol	[✓]	[ ]

- Primary Evaluation: Was Drift or D ≤ 20% calculated from the initial calibration? ~~see comments~~ ✓ YES [X] JAC [X] JAC
- Alternative Evaluation: Maximum allowable Drift/D for each target analyte is ≤ 30%. N/A [ ] [ ]

10. Sample Analysis:

- Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? [✓] [ ]
- Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra? [✓] [ ]
- Were the internal standard areas within the QC limits (from -50% to +200%)? [✓] [ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? ND	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits? ~~(those affecting~~ MC	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? N/A	[ ]	[ ]
Were the RPD within control limits?	[ ]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

R/C MRLs: benzyl alcohol 0%
NJ/C 4,6DN-2-MP 60%

ICAL %RSD: benzyl alcohol 15.2
benzoic acid 17.7 NJ/C
hexachlorocyclopentadiene 15.5
(benzyl alcohol not retained - MRL)

Validated/Reviewed by:

Signature: M A Calvin Date: 04.08.2014

Name: L.S. Calvin

SEMIVOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 72

Laboratory: TA - North Canton

Batch Number(s): 68168, 68363, 69035, 69176, 69432

Sample Delivery Group: 18297, 18441, 18449, 18544

		Yes	No
1.	Sample Holding Time:		
	(a) Were samples extracted within holding time?	[✓]	[ ]
	(b) Were samples analyzed within holding time?	[✓]	[ ]
2.	Instrument Tuning:		
	Was the DFTPP tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3.	Ion Mass Assignments:		
	Was mass assignment based on m/z 198?	[✓]	[ ]
4.	Ion Abundance:		
	Indicate if DFTPP ions abundance relative to m/z 198 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
51	30.0 - 60.0 %	[✓]	[ ]
68	< 2% of mass 69	[✓]	[ ]
70	< 2% of mass 69	[✓]	[ ]
127	40-60%	[✓]	[ ]
197	< 1%	[✓]	[ ]
198	**100%, Base peak**	[✓]	[ ]
199	5-9%	[✓]	[ ]
275	10 - 30%	[✓]	[ ]
365	> 1%	[✓]	[ ]
441	present but < mass 443	[✓]	[ ]
442	> 40%	[✓]	[ ]
443	17-23% of mass 442	[✓]	[ ]

		Yes	No
5.0 Initial Calibration:			
• Did the initial calibration consist of five or more standards?	5-stds	[✓]	[ ]
	more	[ ]	[ ]
If the calibration curve consists of 5-standards, check validity of the calibration model.			
Was the linear model applied?		[✓]	[ ]
• Did the followings System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?			
	RF		
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for the followings each individual Calibration Check Compound (CCC)?			
Base/Neutral Fraction:			
Acenaphthene		[✓]	[ ]
1,4-Dichlorobenzene		[✓]	[ ]
Hexachlorobutadiene		[✓]	[ ]
Diphenylamine		[✓]	[ ]
Di-n-octylphthalate		[✓]	[ ]
Fluoranthene		[✓]	[ ]
Benzo(a)pyrene		[✓]	[ ]
Acid Fraction:			
4-Chloro-3-methylphenol		[✓]	[ ]
2,4-Dichlorophenol		[✓]	[ ]
2-Nitrophenol		[✓]	[ ]
Phenol		[✓]	[ ]
Pentachlorophenol		[✓]	[ ]
2,4,6-Trichlorophenol		[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15%?		[✓]	[ ]
• If the answer is "No", are the mean RSDs ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 30%?		N/A [ ]	[ ]
		↓ [ ]	[ ]

	Yes	No
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.		
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		

6. QCMDL:

• Was MDL Check performed?	[✓]	[ ]

7. QCMRL:

• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R see comments	[ ]	[✓]
• For the non-contaminants of concern was the QC/MRL between 50-150% (Sporadic Marginal Failure)? N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

• Is the mid level (2nd source) recovery within ~~70-130%~~ QSM ± 20% for contaminants of concern ? 3,3'-DCB-21.1% UJ/C in-0014	[ ]	[✓]
• Is the mid level (2nd source) recovery within 50-150% for non-contaminants of concern (Sporadic Marginal Failure)? N/A	[ ]	[ ]

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did any of SPCC meet the minimum RF values?	[✓]	[ ]

		Yes	No
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[ ]	[ ]

- Did the CCC meet the minimum requirements (D ≤ 20%) for the followings?

Base/Neutral Fraction:

Acenaphthene	[✓]	[ ]
1,4-Dichlorobenzene	[✓]	[ ]
Hexachlorobutadiene	[✓]	[ ]
Diphenylamine	[✓]	[ ]
Di-n-octylphthalate	[✓]	[ ]
Fluoranthene	[✓]	[ ]
Benzo(a)pyrene	[✓]	[ ]

Acid Fraction:

4-Chloro-3-methylphenol	[✓]	[ ]
2,4-Dichlorophenol	[✓]	[ ]
2-Nitrophenol	[✓]	[ ]
Phenol	[✓]	[ ]
Pentachlorophenol	[✓]	[ ]
2,4,6-Trichlorophenol	[✓]	[ ]

- Primary Evaluation: Was Drift or D ≤ 20% calculated from the initial calibration? [✓] [ ]
- Alternative Evaluation: Maximum allowable Drift/D for each target analyte is ≤ 30%. N/A [ ] [ ]

10. Sample Analysis:

- Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? [✓] [ ]
- Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra? [✓] [ ]
- Were the internal standard areas within the QC limits (from -50% to +200%)? [✓] [ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? bis 19.2J u/B @ RL 54 in-0014	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPD within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[ ]	[ ]

2-Fluorobiphenyl 44% (45-105) in-0026
Re-extr. out of HT. RB R/D, orig J, UJ/S

12. Comments (attach additional sheets if necessary):

MRL assoc w/ full list - 0014 4-NA 0% R/C
24DN2MP 69% } UJ/C
24DNP 55% }

- 2,4- and 2,6-dinitrotoluene rejected R/D (reported only from 5330B analysis)

Validated/Reviewed by:

Signature: L A Calvin Date: 3-21-2014

Name: Lisa Calvin

SEMIVOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 75

Laboratory: TA - North Canton

Batch Number(s): 65933, 67436 (re-extr.)

Sample Delivery Group: 17467

		Yes	No
1.	Sample Holding Time: RE out / bis UJ/H		
	(a) Were samples extracted within holding time?	[✓]	[ ]
	(b) Were samples analyzed within holding time?	[✓]	[ ]
2.	Instrument Tuning:		
	Was the DFTPP tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3.	Ion Mass Assignments:		
	Was mass assignment based on m/z 198?	[✓]	[ ]
4.	Ion Abundance:		
	Indicate if DFTPP ions abundance relative to m/z 198 base peak met the ions abundance criteria:		
	m/z — Acceptance Criteria		
	51 — 30.0 - 60.0 %	[✓]	[ ]
	68 — < 2% of mass 69	[✓]	[ ]
	70 — < 2% of mass 69	[✓]	[ ]
	127 — 40-60%	[✓]	[ ]
	197 — < 1%	[✓]	[ ]
	198 — 100%, Base peak	[✓]	[ ]
	199 — 5-9%	[✓]	[ ]
	275 — 10 - 30%	[✓]	[ ]
	365 — > 1%	[✓]	[ ]
	441 — present but < mass 443	[✓]	[ ]
	442 — > 40%	[✓]	[ ]
	443 — 17-23% of mass 442	[✓]	[ ]

		Yes	No
5.0 Initial Calibration:			
• Did the initial calibration consist of five or more standards?	5-stds	[✓]	[ ]
	more	[✓]	[ ]
If the calibration curve consists of 5-standards, check validity of the calibration model.			
Was the linear model applied?		[✓]	[ ]
• Did the followings System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?			
	RF		
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for the followings each individual Calibration Check Compound (CCC)?			
Base/Neutral Fraction:			
Acenaphthene		[✓]	[ ]
1,4-Dichlorobenzene		[✓]	[ ]
Hexachlorobutadiene		[✓]	[ ]
Diphenylamine		[✓]	[ ]
Di-n-octylphthalate		[✓]	[ ]
Fluoranthene		[✓]	[ ]
Benzo(a)pyrene		[✓]	[ ]
Acid Fraction:			
4-Chloro-3-methylphenol		[✓]	[ ]
2,4-Dichlorophenol		[✓]	[ ]
2-Nitrophenol		[✓]	[ ]
Phenol		[✓]	[ ]
Pentachlorophenol		[✓]	[ ]
2,4,6-Trichlorophenol		[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15%? (those affecting sample data)		[✓]	[ ]
• If the answer is "No", are the mean RSDs ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 30%?		N/A [ ]	[ ]

	Yes	No
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.		
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		

6. QCMDL:

• Was MDL Check performed?	[ ]	[✓]

7. QCMRL:

• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R see comments	[ ]	[✓]
• For the non-contaminants of concern was the QC/MRL between 50-150% (Sporadic Marginal Failure)? N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

• Is the mid level (2nd source) recovery within ~~70-130%~~ QSM ±20% for contaminants of concern ?	[✓]	[ ]
• Is the mid level (2nd source) recovery within 50-150% for non-contaminants of concern (Sporadic Marginal Failure)? N/A	[ ]	[ ]

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did any of SPCC meet the minimum RF values?	[✓]	[ ]

		Yes	No
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]

- Did the CCC meet the minimum requirements (D ≤ 20%) for the followings?

Base/Neutral Fraction:

Acenaphthene	[✓]	[ ]
1,4-Dichlorobenzene	[✓]	[ ]
Hexachlorobutadiene	[✓]	[ ]
Diphenylamine	[✓]	[ ]
Di-n-octylphthalate	[✓]	[ ]
Fluoranthene	[✓]	[ ]
Benzo(a)pyrene	[✓]	[ ]

Acid Fraction:

4-Chloro-3-methylphenol	[✓]	[ ]
2,4-Dichlorophenol	[✓]	[ ]
2-Nitrophenol	[✓]	[ ]
Phenol	[✓]	[ ]
Pentachlorophenol	[✓]	[ ]
2,4,6-Trichlorophenol	[✓]	[ ]

- Primary Evaluation: Was Drift or D ≤ 20% calculated from the initial calibration? [✓] [ ]
- Alternative Evaluation: Maximum allowable Drift/D for each target analyte is ≤ 30%. N/A [ ] [ ]

10. Sample Analysis:

- Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? [✓] [ ]
- Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra? [ ] [✓]
- Were the internal standard areas within the QC limits (from -50% to +200%)? [✓] [ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? see comments	[ ]	[✓]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? (R/Q) 3,3' DCB 5%/Q, +- N/A 30/25% (35-115) (UJ/Q)	[ ]	[✓]
Were the RPD within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

- Original MS: bis-2(ethylhexyl) phthalate >10Q @ 90.1 ug/kg RE for bis only. Bis reported out of HT from re-extr.
- 2,4-DNT and 2,6-DNT reported from 8330 analysis

MRLs

benzo(g,h,i)perylene	58%	J/C
dibenz(a,h)anthracene	68%	UJ/C
4,6-dinitro-2-methylphenol	46%	UJ/C
2,4-dinitrophenol	37%	UJ/C
hexachloroethane	58%	UJ/C
indeno(1,2,3-cd)pyrene	167%	J/C

Validated/Reviewed by:

Signature: L.S. Calvin Date: 3·20·2014

Name: L.S. Calvin

SEMIVOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 77

Laboratory: TA - North Canton

Batch Number(s): 465931

Sample Delivery Group: 17525

		Yes	No
1.	Sample Holding Time:		
	(a) Were samples extracted within holding time?	[✓]	[ ]
	(b) Were samples analyzed within holding time?	[✓]	[ ]
2.	Instrument Tuning:		
	Was the DFTPP tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3.	Ion Mass Assignments:		
	Was mass assignment based on m/z 198?	[✓]	[ ]
4.	Ion Abundance:		
	Indicate if DFTPP ions abundance relative to m/z 198 base peak met the ions abundance criteria:		
	m/z — Acceptance Criteria		
	51 — 30.0 - 60.0 %	[✓]	[ ]
	68 — < 2% of mass 69	[✓]	[ ]
	70 — < 2% of mass 69	[✓]	[ ]
	127 — 40-60%	[✓]	[ ]
	197 — < 1%	[✓]	[ ]
	198 — 100%, Base peak	[✓]	[ ]
	199 — 5-9%	[✓]	[ ]
	275 — 10 - 30%	[✓]	[ ]
	365 — > 1%	[✓]	[ ]
	441 — present but < mass 443	[✓]	[ ]
	442 — > 40%	[✓]	[ ]
	443 — 17-23% of mass 442	[✓]	[ ]

		Yes	No
5.0 Initial Calibration:			
• Did the initial calibration consist of five or more standards?	5-stds	[✓]	[ ]
	more	[✓]	[ ]
If the calibration curve consists of 5-standards, check validity of the calibration model.			
Was the linear model applied?		[✓]	[ ]
• Did the followings System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?			
	RF		
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for the followings each individual Calibration Check Compound (CCC)?			
Base/Neutral Fraction:			
Acenaphthene		[✓]	[ ]
1,4-Dichlorobenzene		[✓]	[ ]
Hexachlorobutadiene		[✓]	[ ]
Diphenylamine		[✓]	[ ]
Di-n-octylphthalate		[✓]	[ ]
Fluoranthene		[✓]	[ ]
Benzo(a)pyrene		[✓]	[ ]
Acid Fraction:			
4-Chloro-3-methylphenol		[✓]	[ ]
2,4-Dichlorophenol		[✓]	[ ]
2-Nitrophenol		[✓]	[ ]
Phenol		[✓]	[ ]
Pentachlorophenol		[✓]	[ ]
2,4,6-Trichlorophenol		[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15%?		[✓]	[ ]
• If the answer is "No", are the mean RSDs ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 30%?		N/A [ ]	[ ]
		[ ]	[ ]

	Yes	No
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.		
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		

6. QCMDL:

• Was MDL Check performed?	[ ]	[✓]

7. QCMRL:

• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130%R	[ ]	[✓]
N-nitrosodiphenylamine not recovered/closing R/C		
• For the non-contaminants of concern was the QC/MRL between 50-150% (Sporadic Marginal Failure)?	N/A [ ]	[ ]

8. Initial Calibration Verification (ICV):

	[✓] NC	[✓]
QSM ±20%		
• Is the mid level (2nd source) recovery within ~~70-130%~~ for contaminants of concern ? 3,3'-DCB -21.1 NC		
• Is the mid level (2nd source) recovery within 50-150% for non-contaminants of concern (Sporadic Marginal Failure)? N/A	[ ]	[ ]

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did any of SPCC meet the minimum RF values?	[✓]	[ ]

		Yes	No
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]

- Did the CCC meet the minimum requirements (D ≤ 20%) for the followings?

Base/Neutral Fraction:

Acenaphthene	[✓]	[ ]
1,4-Dichlorobenzene	[✓]	[ ]
Hexachlorobutadiene	[✓]	[ ]
Diphenylamine	[✓]	[ ]
Di-n-octylphthalate	[✓]	[ ]
Fluoranthene	[✓]	[ ]
Benzo(a)pyrene	[✓]	[ ]

Acid Fraction:

4-Chloro-3-methylphenol	[✓]	[ ]
2,4-Dichlorophenol	[✓]	[ ]
2-Nitrophenol	[✓]	[ ]
Phenol	[✓]	[ ]
Pentachlorophenol	[✓]	[ ]
2,4,6-Trichlorophenol	[✓]	[ ]

- Primary Evaluation: Was Drift or D ≤ 20% calculated from the initial calibration? [✓] [ ]
- Alternative Evaluation: Maximum allowable Drift/D for each target analyte is ≤ 30%. N/A [ ] [ ]

10. Sample Analysis:

- Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? [✓] [ ]
- Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra? [✓] [ ]
- Were the internal standard areas within the QC limits (from -50% to +200%)? [✓] [ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? bis 30.7J / ND in sample	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? benzoic acid not recovered R/Q	[ ]	[✓]
Were the RPD within control limits?	[✓]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: M Calvin Date: 3·28·2014

Name: L.S. Calvin

SEMIVOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 83

Laboratory: CT Labs

Batch Number(s): 45489, 45490

Sample Delivery Group: 99211

	Yes	No
1. Sample Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Instrument Tuning:		
Was the DFTPP tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Ion Mass Assignments:		
Was mass assignment based on m/z 198?	[✓]	[ ]
4. Ion Abundance:		
Indicate if DFTPP ions abundance relative to m/z 198 base peak met the ions abundance criteria:		
m/z — Acceptance Criteria		
51 — 30.0 - 60.0 %	[✓]	[ ]
68 — < 2% of mass 69	[✓]	[ ]
70 — < 2% of mass 69	[✓]	[ ]
127 — 40-60%	[✓]	[ ]
197 — < 1%	[✓]	[ ]
198 — 100%, Base peak	[✓]	[ ]
199 — 5-9%	[✓]	[ ]
275 — 10 - 30%	[✓]	[ ]
365 — > 1%	[✓]	[ ]
441 — present but < mass 443	[✓]	[ ]
442 — > 40%	[✓]	[ ]
443 — 17-23% of mass 442	[✓]	[ ]

		Yes	No
5.0 Initial Calibration:			
• Did the initial calibration consist of five or more standards?	5-stds	[✓]	[ ]
	more	[✓]	[ ]
If the calibration curve consists of 5-standards, check validity of the calibration model.			
Was the linear model applied?		[✓]	[ ]
• Did the followings System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?			
	RF		
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for the followings each individual Calibration Check Compound (CCC)?			
Base/Neutral Fraction:			
Acenaphthene		[✓]	[ ]
1,4-Dichlorobenzene		[✓]	[ ]
Hexachlorobutadiene		[✓]	[ ]
Diphenylamine		[✓]	[ ]
Di-n-octylphthalate		[✓]	[ ]
Fluoranthene		[✓]	[ ]
Benzo(a)pyrene		[✓]	[ ]
Acid Fraction:			
4-Chloro-3-methylphenol		[✓]	[ ]
2,4-Dichlorophenol		[✓]	[ ]
2-Nitrophenol		[✓]	[ ]
Phenol		[✓]	[ ]
Pentachlorophenol		[✓]	[ ]
2,4,6-Trichlorophenol		[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15%? see comments		[ ]	[✓]
• If the answer is "No", are the mean RSDs ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 30%? yes		[ ] N/A	[ ]

	Yes	No
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.		
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		

6. QCMDL:

• Was MDL Check performed?	[ ]	[✓]

7. QCMRL:

• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R (see comments)	[ ]	[✓]
• For the non-contaminants of concern was the QC/MRL between 50-150% (Sporadic Marginal Failure)?	N/A [ ]	[ ]

8. Initial Calibration Verification (ICV):

	[✓]	[ ]
• Is the mid level (2nd source) recovery within 70-130% for contaminants of concern ?		
• Is the mid level (2nd source) recovery within 50-150% for non-contaminants of concern (Sporadic Marginal Failure)?	N/A [ ]	[ ]

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did any of SPCC meet the minimum RF values?	[✓]	[ ]

		Yes	No
N-nitroso-di-n-propylamine	0.05	[✓]	[ ]
Hexachlorocyclopentadiene	0.05	[✓]	[ ]
2,4-dinitrophenol	0.05	[✓]	[ ]
4-nitrophenol	0.05	[✓]	[ ]

- Did the CCC meet the minimum requirements (D ≤ 20%) for the followings?

Base/Neutral Fraction:

Acenaphthene	[✓]	[ ]
1,4-Dichlorobenzene	[✓]	[ ]
Hexachlorobutadiene	[✓]	[ ]
Diphenylamine	[✓]	[ ]
Di-n-octylphthalate	[✓]	[ ]
Fluoranthene	[✓]	[ ]
Benzo(a)pyrene	[✓]	[ ]

Acid Fraction:

4-Chloro-3-methylphenol	[✓]	[ ]
2,4-Dichlorophenol	[✓]	[ ]
2-Nitrophenol	[✓]	[ ]
Phenol	[✓]	[ ]
Pentachlorophenol	[✓]	[ ]
2,4,6-Trichlorophenol	[✓]	[ ]

- Primary Evaluation: Was Drift or D ≤ 20% calculated from the initial calibration? [✓] [ ]
- Alternative Evaluation: Maximum allowable Drift/D for each target analyte is ≤ 30%. N/A [ ] [ ]

10. Sample Analysis:

- Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? [✓] [ ]
- Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra? [✓] [ ]
- Were the internal standard areas within the QC limits (from -50% to +200%)? [✓] [ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? ND	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[ ] ✓	[ ]
• MS/MSD: Were the percent recoveries within limits? N/A	[ ]	[ ]
Were the RPD within control limits?	[ ]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

MRL: benzyl alcohol, not recovered/beg+end R/C
hexachlorocyclopentadiene 69%/ending ~~R/NC~~ UJ/C

ICAL RSDs: benzyl alcohol 15.2 UJ/C
benzoic acid 17.7 (R/C for MRL)
hexachlorocyclopentadiene 15.5 UJ/C

NC ~~{2,4-dinitrotoluene 2,6-dinitrotoluene} reported from 8330/RPD in 8270C~~

Validated/Reviewed by:

Signature: A.S. Calvin Date: 4.4.2014

Name: L.S. Calvin

~~Total Petroleum Hydrocarbons (TPH)~~ ~~POLY CHLORINATED BIPHENYLS (PCB/AROCLORS)~~ CHECKLIST

Project Name: RVAAP CR Site 70

Laboratory: TA - North Canton

Batch Number(s): ~~65273, 69738~~ / 65134, 70013

Sample Delivery Group: ~~17230, 17317, 18581, 18735~~

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
NC • ~~Did Aroclors 1016 and 1260 meet the~~ RSD ≤ 20% or the r ≥ 0.99?	[ ]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents. TET - CARO	[✓]	[X] NC
• Was the manual integration necessary? NC A/A	[✓]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[ ]	[✓]
C4-C12 133% T/C in-0006M		
5. Initial Calibration Verification (ICV): QSM ±20%		
Is the mid level (2nd source) recovery within ~~85 - 115%?~~	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours? QSM ≤20%	[✓]	[ ]
• Was Drift or D ~~≤ 15%~~ from the initial calibration with a maximum %D < 20% for a specific compound?	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? 10X -0042M / DRO	[✓]	[ ]
• Were identified Aroclors confirmed on a second GC column?	N/A [ ]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[ ]	[ ]
• Was RPD of target analyte conformation ≤ 40?	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPDs within control limits? -0004M 35% (≤30%) J/Q	[ ]	[✓]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: L S Calvin Date: 3-19-2014

Name: L.S. Calvin

Total Petroleum Hydrocarbons (TPH) ~~POLY CHLORINATED BIPHENYLS (PCB/AROCLORS)~~ CHECKLIST

Project Name: RVAAP CR Site 71

Laboratory: CT Labs

Batch Number(s): 45509, 45515

Sample Delivery Group: 99236

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did Aroclors 1016 and 1260 meet the RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[ ]	[✓]
• Was the manual integration necessary? N/A	[ ]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 - 115%~~ QSM ±20% JC	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ~~≤ 15%~~ QSM ≥ 20% from the initial calibration with a maximum %D < 20% for a specific compound? NC	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
• Were identified Aroclors confirmed on a second GC column? N/A	[ ]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.)	[ ]	[ ]
• Was RPD of target analyte conformation ≤ 40? N/A	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL? ND	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? N/A	[ ]	[ ]
Were the RPDs within control limits?	[ ]	[ ]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

Validated/Reviewed by:

Signature: L.S. Calvin Date: 4.7.2014

Name: L.S. Calvin

Total Petroleum Hydrocarbons (TPH) ~~POLY CHLORINATED BIPHENYLS~~ DRO ~~(PCB/AROCLORS)~~ CHECKLIST

Project Name: RVAAP CR Site 72

Laboratory: TA-North Canton

Batch Number(s): DRO: 68154, 68574, 69161, 69020
GRO: ~~68246, 68680~~, 69142, 69738

Sample Delivery Group: 18297, 18441, 18449, 18544, 18703

	Yes	No
1. Holding Time:		
(a) Were samples extracted within holding time?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• ~~Did Aroclors 1016 and 1260 meet the~~ RSD ≤ 20% or the r ≥ 0.99?	[✓]	[ ]
• Was manual integration "M" performed? If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "no", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
3. QCMDL:		
• Was MDL Check performed?	[ ]	[✓]
4. QCMRL:		
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours??	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
5. Initial Calibration Verification (ICV):		
Is the mid level (2nd source) recovery within ~~85 - 115%~~ QSM ±20%?	[✓]	[ ]

	Yes	No
6. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Was Drift or D ≤ 15% from the initial calibration with a maximum %D < 20% for a specific compound? those detecting sample data	[✓]	[ ]
7. Sample Analysis:		
• Was the RRT of an identified component within the retention time window created as SW-846 requires?	[✓]	[ ]
• Were samples with levels higher than the calibration range (E), diluted and re-analyzed? N/A	[ ]	[ ]
• Were identified Aroclors confirmed on a second GC column?	[ ]	[ ]
• Were individual Aroclor standards used to determine the pattern of the peaks? (Individual Aroclors are 1221, 1232, 1242, 1248, and 1254. Both Aroclor 1016, and 1260 can be used from the mixed calibration standards.) N/A	[ ]	[ ]
• Was RPD of target analyte conformation ≤ 40?	[ ]	[ ]
8. Sample Quality Control:		
• Method Blanks: Were target analytes ≤ 1/2 MRL? (ND)	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPDs within control limits? C_6-C_{12} 49% -0001 / 61% 0026	[ ]	[✓]
• System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits?	[✓]	[ ]

9. Comments (attach additional sheets if necessary):

One MPI + CCV had high recoveries due to sample carryover; however, associated samples were ND and not affected.

Validated/Reviewed by:

Signature: LS Calvin

Date: 3.25.2014

Name: LS Calvin

VERSION 5
June 2002

U.S. Army Corps of Engineers Louisville District - LCG

VOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 70

Laboratory: TA - North Canton

Batch Number(s): 168897, 168905

Sample Delivery Group (SDG): 17230, 18581

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Was mass assignment based on m/z 95?	[✓]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[✓]	[ ]
75	30.0 - 66.0 %	[✓]	[ ]
95	**100%, Base Peak**	[✓]	[ ]
96	5.0 - 9.0%	[✓]	[ ]
173	<2.0% of m/z 174	[✓]	[ ]
174	>50%	[✓]	[ ]
175	5.0 - 9.0% of mass 174	[✓]	[ ]
176	95.0 - 101.0% of m/z 174	[✓]	[ ]
177	5.0 - 9.0% of m/z 176	[✓]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
RF		
Chloromethane 0.1	[✓]	[ ]
1,1-Dichloroethane 0.1	[✓]	[ ]
Bromoform 0.1	[✓]	[ ]
Chlorobenzene 0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane 0.3	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[✓]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%? N/A	[ ]	[ ]
• Was manual integration "M" performed?	[ ]	[✓]
If the answer is "Yes", check for supporting documents. N/A	[ ]	[ ]
• Was the manual integration necessary?	[ ]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		
6. QCMDL:	[ ]	[✓]
• Was MDL Check performed?		
7. QCMRL:	[✓]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R acetone 58% 0705-0006M-0001-SO 2-Hexanone 68% 0705B-0044M-0001-SO	[ ]	[✓] - WJ/C
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure) N/A	[ ]	[ ]
8. Initial Calibration Verification (ICV):	[✓]	[ ]
• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ?		
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)?		
9. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did SPCC meet the RF values?	[✓]	[ ]
RF		
Chloromethane 0.1	[✓]	[ ]
1,1-Dichloroethane 0.1	[✓]	[ ]
Bromoform 0.1	[✓]	[ ]
Chlorobenzene 0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane 0.3	[✓]	[ ]
• Did the CCC meet the minimum requirements (D ≤ 20%)?	[✓]	[ ]
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration?	[✓]	[ ]
• Alternative Evaluation: Maximum allowable Drift/D for		

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%? N/A	[ ]	[ ]

10. Sample Analysis:

• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component?	[✓]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[✓]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[✓]	[ ]

11. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL? 2-hexanone, MIBK / U @ 2QQ in 0006M	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? (those affecting sample data	[✓]	[ ]
Were the RPD within control limits? 1,1,2,2,-TCA 51% UJ/Q in 0044M	[ ]	[✓]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits (50-150%)?	[ ]	[✓]

12. Comments (attach additional sheets if necessary):

BFB ↓ 75% (0006M) and 72% (0044M) results J or UJ/Q

Validated/Reviewed by:
Signature: L.S. Calvin

Date: 3.12.2014

Name: L.S. Calvin

VOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 71

Laboratory: CT Labs

Batch Number(s): 45500

Sample Delivery Group (SDG): 992316

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Was mass assignment based on m/z 95?	[✓]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[✓]	[ ]
75	30.0 - 66.0 %	[✓]	[ ]
95	**100%, Base Peak**	[✓]	[ ]
96	5.0 - 9.0%	[✓]	[ ]
173	<2.0% of m/z 174	[✓]	[ ]
174	>50%	[✓]	[ ]
175	5.0 - 9.0% of mass 174	[✓]	[ ]
176	95.0 - 101.0% of m/z 174	[✓]	[ ]
177	5.0 - 9.0% of m/z 176	[✓]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
RF		
Chloromethane 0.1	[✓]	[ ]
1,1-Dichloroethane 0.1	[✓]	[ ]
Bromoform 0.1	[✓]	[ ]
Chlorobenzene 0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane 0.3	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[✓]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%?	N/A [ ]	[ ]
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.		
6. QCMDL:	[ ]	[✓]
• Was MDL Check performed?		
7. QCMRL:	[✓]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R (applicable)	[✓]	[ ]
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure) N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ?	[✓]	[ ]
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)? N/A		

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?		[✓]	[ ]
• Did SPCC meet the RF values?		[✓]	[ ]
RF			
Chloromethane	0.1	[✓]	[ ]
1,1-Dichloroethane	0.1	[✓]	[ ]
Bromoform	0.1	[✓]	[ ]
Chlorobenzene	0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane	0.3	[✓]	[ ]
• Did the CCC meet the minimum requirements (D ≤ 20%)?		[✓]	[ ]
1,1-Dichloroethene		[✓]	[ ]
Chloroform		[✓]	[ ]
1,2-Dichloropropane		[✓]	[ ]
Toluene		[✓]	[ ]
Ethylbenzene		[✓]	[ ]
Vinyl chloride		[✓]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration? ↓ bromomethane 20.3, methylene chloride 44.8	[ ]	[✓]	
• Alternative Evaluation: Maximum allowable Drift/D for			

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%? N/A	[ ]	[ ]

10. Sample Analysis:

• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component?	[✓]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[✓]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[✓]	[ ]

11. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL? ND	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits? N/A	[ ]	[ ]
Were the RPD within control limits? ↓	[ ]	[ ]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits (50-150%)?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

Validated/Reviewed by:
Signature: M Calvin

Date: 4.8.2014

Name: L.S. Calvin

VOLATILE ORGANIC ANALYSIS CHECKLIST

07280-0001
-0012
-0014

Project Name: RVAAP CR Site 72

Laboratory: TA - N Canton

Batch Number(s): _____

Sample Delivery Group (SDG): 240-18291

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[Y]	[ ]
(b) Were samples analyzed within holding time?	[Y]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[Y]	[ ]
3. Was mass assignment based on m/z 95?	[Y]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[Y]	[ ]
75	30.0 - 66.0 %	[Y]	[ ]
95	**100%, Base Peak**	[Y]	[ ]
96	5.0 - 9.0%	[Y]	[ ]
173	<2.0% of m/z 174	[Y]	[ ]
174	>50%	[Y]	[ ]
175	5.0 - 9.0% of mass 174	[Y]	[ ]
176	95.0 - 101.0% of m/z 174	[Y]	[ ]
177	5.0 - 9.0% of m/z 176	[Y]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[ ]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
Chloromethane (RF 0.1)	[ ]	[ ]
1,1-Dichloroethane (RF 0.1)	[ ]	[ ]
Bromoform (RF 0.1)	[ ]	[ ]
Chlorobenzene (RF 0.3)	[ ]	[ ]
1,1,2,2-Tetrachloroethane (RF 0.3)	[ ]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[ ]	[ ]
Chloroform	[ ]	[ ]
1,2-Dichloropropane	[ ]	[ ]
Toluene	[ ]	[ ]
Ethylbenzene	[ ]	[ ]
Vinyl chloride	[ ]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[ ]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%?	[ ]	[ ]
• Was manual integration "M" performed?	[ ]	[ ]
If the answer is "Yes", check for supporting documents.	[ ]	
• Was the manual integration necessary?		
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**	[ ]	[ ]
6. QCMDL:		
• Was MDL Check performed?	[ ]	[ ]
7. QCMRL:	[ ]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[Y]	[ ]
• Was the QC/MRL between 70-130% R	[ ]	[N]
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure)	[N]	[ ]

8. Initial Calibration Verification (ICV):

• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ?	[N]	[ ]
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)?		

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[Y]	[ ]
• Did SPCC meet the RF values?	[Y]	[ ]

RF

Chloromethane	0.1	[Y]	[ ]
1,1-Dichloroethane	0.1	[Y]	[ ]
Bromoform	0.1	[Y]	[ ]
Chlorobenzene	0.3	[N]	[ ]
1,1,2,2-Tetrachloroethane	0.3	[Y]	[ ]

• Did the CCC meet the minimum requirements (D ≤ 20%)?	[N]	[ ]
1,1-Dichloroethene	[Y]	[ ]
Chloroform	[Y]	[ ]
1,2-Dichloropropane	[Y]	[ ]
Toluene	[Y]	[ ]
Ethylbenzene	[N]	[ ]
Vinyl chloride	[Y]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration?	[N]	[ ]
• Alternative Evaluation: Maximum allowable Drift/D for		

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%?	[ ]	[ ]

10. Sample Analysis:

• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component? N/A	[ ]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[ ]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[N]	[ ]

11. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[N] Sample ND
• LCS: Were the percent recoveries for LCS within the limits?	[N]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[N]	[ ]
Were the RPD within control limits?	[N]	[ ]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits (50-150%)?	[ ]	[N]

12. Comments (attach additional sheets if necessary):

Surr: -0001 BFB 72% (85-120)
Tol-d8 73% (85-115%
-0012 BFB 76%

MB: 2-hex, but sample ND
TB: acetone, but " "

MS/D -0001
-0012 OK

MRL: acetone 61, 28
2-hex 65

Validated/Reviewed by:
Signature: Patti Meeks

Date: 3/25/14

Name: Patti Meeks

VOLATILE ORGANIC ANALYSIS CHECKLIST

-026
-030
~~-029~~
-039
-063
-083
-085

Project Name: RVAAP CR Site 72

Laboratory: TA-N Canton

Batch Number(s): _____

Sample Delivery Group (SDG): 240-18441-1, 18449, 18544, 18703

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[ ]	[ ]
(b) Were samples analyzed within holding time?	[X]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[X]	[ ]
3. Was mass assignment based on m/z 95?	[X]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[X]	[ ]
75	30.0 - 66.0 %	[X]	[ ]
95	**100%, Base Peak**	[X]	[ ]
96	5.0 - 9.0%	[X]	[ ]
173	<2.0% of m/z 174	[X]	[ ]
174	>50%	[X]	[ ]
175	5.0 - 9.0% of mass 174	[X]	[ ]
176	95.0 - 101.0% of m/z 174	[X]	[ ]
177	5.0 - 9.0% of m/z 176	[X]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[ ]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
Chloromethane (RF 0.1)	[ ]	[ ]
1,1-Dichloroethane (RF 0.1)	[ ]	[ ]
Bromoform (RF 0.1)	[ ]	[ ]
Chlorobenzene (RF 0.3)	[ ]	[ ]
1,1,2,2-Tetrachloroethane (RF 0.3)	[ ]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[ ]	[ ]
Chloroform	[ ]	[ ]
1,2-Dichloropropane	[ ]	[ ]
Toluene	[ ]	[ ]
Ethylbenzene	[ ]	[ ]
Vinyl chloride	[ ]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[ ]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%?	[ ]	[ ]
• Was manual integration "M" performed?	[ ]	[ ]
If the answer is "Yes", check for supporting documents.	[ ]	[ ]
• Was the manual integration necessary?	[ ]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
6. QCMDL:	[ ]	[ ]
• Was MDL Check performed?		
7. QCMRL:	[ ]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[ ]	[ ]
• Was the QC/MRL between 70-130% R	[ ]	[ ]
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure)	[ ]	[ ]
8. Initial Calibration Verification (ICV):	[ ]	[ ]
• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ?		
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)?		
9. Continuing Calibration Verification (CCV):		
• Was CCV conducted every 12 hours?	[ ]	[ ]
• Did SPCC meet the RF values?	[ ]	[ ]

RF

Chloromethane	0.1	[ ]	[ ]
1,1-Dichloroethane	0.1	[ ]	[ ]
Bromoform	0.1	[ ]	[ ]
Chlorobenzene	0.3	[ ]	[ ]
1,1,2,2-Tetrachloroethane	0.3	[ ]	[ ]

• Did the CCC meet the minimum requirements (D ≤ 20%)?	[ ]	[ ]
1,1-Dichloroethene	[ ]	[ ]
Chloroform	[ ]	[ ]
1,2-Dichloropropane	[ ]	[ ]
Toluene	[ ]	[ ]
Ethylbenzene	[ ]	[ ]
Vinyl chloride	[ ]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration?	[ ]	[ ]
• Alternative Evaluation: Maximum allowable Drift/D for		

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%?	[ ]	[ ]

10. Sample Analysis:

• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component?	[ ]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[ ]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[ ]	[ ]

11. Sample Quality Control:

• Method Blanks: Were target analytes ≤ 1/2 MRL?	[ ]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[ ]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[ ]	[ ]
Were the RPD within control limits?	[ ]	[ ]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits (50-150%)?	[ ]	[ ]

12. Comments (attach additional sheets if necessary):

Surr:
BFB 47%, Td8 73% (-026)
BFB 58% (-030)
MS/D 0725B-0026-0001 ok
MRL acetone (61 + 28%) } -030
2-hex (65%)

IS DCB ↑ 41% in -30
~~CCV bromomethane -31%D~~

MRL (039)
2-hex 63%
~~4-methyl-2 69%~~

Validated/Reviewed by:
Signature:

Patti Meeks

Date: 3/26/14

Name: Patti Meeks

MS/D 0725B-0063-0001 ok - RPDs out, but diff spike amounts used

VOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 75

Laboratory: TA- North Canton

Batch Number(s): 65171

Sample Delivery Group (SDG): 17467

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Was mass assignment based on m/z 95?	[✓]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[✓]	[ ]
75	30.0 - 66.0 %	[✓]	[ ]
95	**100%, Base Peak**	[✓]	[ ]
96	5.0 - 9.0%	[✓]	[ ]
173	<2.0% of m/z 174	[✓]	[ ]
174	>50%	[✓]	[ ]
175	5.0 - 9.0% of mass 174	[✓]	[ ]
176	95.0 - 101.0% of m/z 174	[✓]	[ ]
177	5.0 - 9.0% of m/z 176	[✓]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
RF		
Chloromethane 0.1	[✓]	[ ]
1,1-Dichloroethane 0.1	[✓]	[ ]
Bromoform 0.1	[✓]	[ ]
Chlorobenzene 0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane 0.3	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Are the RSDs for the remaining target analytes ~~≤ 15%~~ or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[✓]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%? N/A	[ ]	[ ]
• Was manual integration "M" performed?	[ ]	[✓]
If the answer is "Yes", check for supporting documents. N/A	[ ]	[ ]
• Was the manual integration necessary?	[ ]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
6. QCMDL:	[ ]	[✓]
• Was MDL Check performed?		
7. QCMRL:	[✓]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R	[✓]	[ ]
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure) N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

	[✓]	[ ]
• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ?		
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)? N/A		

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did SPCC meet the RF values?	[✓]	[ ]

RF

Chloromethane	0.1	[✓]	[ ]
1,1-Dichloroethane	0.1	[✓]	[ ]
Bromoform	0.1	[✓]	[ ]
Chlorobenzene	0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane	0.3	[✓]	[ ]

• Did the CCC meet the minimum requirements (D ≤ 20%)?	[✓]	[ ]
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration?	[✓]	[ ]
• Alternative Evaluation: Maximum allowable Drift/D for		

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%? N/A	[ ]	[ ]

10. Sample Analysis:

	Yes	No
• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component?	[✓]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[✓]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[✓]	[ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? Styrene 0.151J / U/B@20Q in sample	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPD within control limits?	[✓]	[ ]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits ~~(50-150%)?~~ QSM limits	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

Validated/Reviewed by:
Signature: L.S. Calvin

Date: 3.20.2014

Name: L.S. Calvin

77 HAC

VERSION 5
June 2002

U.S. Army Corps of Engineers Louisville District - LCG

VOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 77

Laboratory: TA - North Canton

Batch Number(s): 460014, 460020

Sample Delivery Group (SDG): 17525

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Was mass assignment based on m/z 95?	[✓]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[✓]	[ ]
75	30.0 - 66.0 %	[✓]	[ ]
95	**100%, Base Peak**	[✓]	[ ]
96	5.0 - 9.0%	[✓]	[ ]
173	<2.0% of m/z 174	[✓]	[ ]
174	>50%	[✓]	[ ]
175	5.0 - 9.0% of mass 174	[✓]	[ ]
176	95.0 - 101.0% of m/z 174	[✓]	[ ]
177	5.0 - 9.0% of m/z 176	[✓]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
RF		
Chloromethane 0.1	[✓]	[ ]
1,1-Dichloroethane 0.1	[✓]	[ ]
Bromoform 0.1	[✓]	[ ]
Chlorobenzene 0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane 0.3	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[✓]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%?	N/A [ ]	[ ]
• Was manual integration "M" performed?	[ ]	[ ]
If the answer is "Yes", check for supporting documents.	[ ]	[ ]
• Was the manual integration necessary?		
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons**.	[ ]	[ ]
6. QCMDL:	[ ]	[✓]
• Was MDL Check performed?		
7. QCMRL:	[✓]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R (those affecting sample data)	[✓]	[ ]
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure) N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

	[✓]	[ ]
• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ?		
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)? N/A		

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did SPCC meet the RF values?	[✓]	[ ]

RF

Chloromethane	0.1	[✓]	[ ]
1,1-Dichloroethane	0.1	[✓]	[ ]
Bromoform	0.1	[✓]	[ ]
Chlorobenzene	0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane	0.3	[✓]	[ ]

• Did the CCC meet the minimum requirements (D ≤ 20%)?	[✓]	[ ]
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[ ]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration?	[✓]	[ ]

• Alternative Evaluation: Maximum allowable Drift/D for

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%? N/A	[ ]	[ ]

10. Sample Analysis:

	Yes	No
• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component?	[✓]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[✓]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[✓]	[ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL?	[✓]	[ ]
• LCS: Were the percent recoveries for LCS within the limits?	[✓]	[ ]
• MS/MSD: Were the percent recoveries within limits?	[✓]	[ ]
Were the RPD within control limits? (with ∆ sample amts. taken into account)	[✓]	[ ]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits ~~(50-150%)?~~ QSM limits	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

Validated/Reviewed by:
Signature: L.S. Calvin

Date: 3.28.2014

Name: L.S. Calvin

VOLATILE ORGANIC ANALYSIS CHECKLIST

Project Name: RVAAP CR Site 83

Laboratory: CT Labs

Batch Number(s): 45499

Sample Delivery Group (SDG): 99211

	Yes	No
1. Holding Time:		
(a) Were samples preserved?	[✓]	[ ]
(b) Were samples analyzed within holding time?	[✓]	[ ]
2. Was the BFB tune performed at the beginning of each 12-hour period during which samples were analyzed?	[✓]	[ ]
3. Was mass assignment based on m/z 95?	[✓]	[ ]
4. Indicate if BFB ions abundance relative to m/z 95 base peak met the ions abundance criteria:		

m/z	Acceptance Criteria		
50	15.0 - 40.0 %	[✓]	[ ]
75	30.0 - 66.0 %	[✓]	[ ]
95	**100%, Base Peak**	[✓]	[ ]
96	5.0 - 9.0%	[✓]	[ ]
173	<2.0% of m/z 174	[✓]	[ ]
174	>50%	[✓]	[ ]
175	5.0 - 9.0% of mass 174	[✓]	[ ]
176	95.0 - 101.0% of m/z 174	[✓]	[ ]
177	5.0 - 9.0% of m/z 176	[✓]	[ ]

The relative ion abundance of m/z 95/96, m/z 174/176, and 176/177 are of critical importance.

The relative ion abundance of m/z 50 and 75 are of lower importance.

	Yes	No
5. Initial Calibration:		
• Did the initial calibration consist of five standards?	[✓]	[ ]
• Did the System Performance Check Compounds (SPCC) meet the minimum mean response factor (RF)?		
RF		
Chloromethane 0.1	[✓]	[ ]
1,1-Dichloroethane 0.1	[✓]	[ ]
Bromoform 0.1	[✓]	[ ]
Chlorobenzene 0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane 0.3	[✓]	[ ]
• Did the RSD meet the criteria ≤ 30% for each individual Calibration Check Compound (CCC)?		
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Are the RSDs for the remaining target analytes ≤ 15% or r ≥ 0.99 with a mean RSD ≤ 15% with a maximum RSD ≤ 20%?	[✓]	[ ]
If the answer is "No", are the mean RSDs ≤ 15%?	N/A [ ]	[ ]
• Was manual integration "M" performed?	[✓]	[ ]
If the answer is "Yes", check for supporting documents.	[✓]	[ ]
• Was the manual integration necessary?	[✓]	[ ]
If the answer is "No", contact the laboratory inquiring about the reasons behind the manual integration, and **inform the District Chemist immediately if there were no valid reasons.**		
6. QCMDL:	[ ]	[✓]
• Was MDL Check performed?		
7. QCMRL:	[✓]	[ ]

	Yes	No
• Were QC/MRL run at the beginning and end of every daily sequence or every 12 hours?	[✓]	[ ]
• Was the QC/MRL between 70-130% R Chloroethane 65% closing - UJ/C -0005M	[ ]	[✓]
• For the non-contaminants of concern was the QC/MRL between 60-140% (Sporadic Marginal Failure) N/A	[ ]	[ ]

8. Initial Calibration Verification (ICV):

those affecting sample data	[✓]	[ ]
• Is the mid level (2nd source) recovery within 80 - 120% for contaminants of concern ? methylene chloride ↑ (J/B in SA - no ICV cal. qual) UJC		
• Is the mid level (2nd source) recovery within 60-140% for non-contaminants of concern (Sporadic Marginal Failure)? N/A		

9. Continuing Calibration Verification (CCV):

• Was CCV conducted every 12 hours?	[✓]	[ ]
• Did SPCC meet the RF values?	[✓]	[ ]

RF

Chloromethane	0.1	[✓]	[ ]
1,1-Dichloroethane	0.1	[✓]	[ ]
Bromoform	0.1	[✓]	[ ]
Chlorobenzene	0.3	[✓]	[ ]
1,1,2,2-Tetrachloroethane	0.3	[✓]	[ ]

• Did the CCC meet the minimum requirements (D ≤ 20%)?	[✓]	[ ]
1,1-Dichloroethene	[✓]	[ ]
Chloroform	[✓]	[ ]
1,2-Dichloropropane	[✓]	[ ]
Toluene	[✓]	[ ]
Ethylbenzene	[✓]	[ ]
Vinyl chloride	[✓]	[ ]
• Primary Evaluation: Was the mean, Drift or D ≤ 20% from the initial calibration?	[ ]	[✓]
UJC methylene chloride ↓ 36.6% D / 130% R see comments		
• Alternative Evaluation: Maximum allowable Drift/D for		

	Yes	No
each target analyte is ≤ 30% when mean D ≤ 20%? N/A	[ ]	[ ]

10. Sample Analysis:

	Yes	No
• Was the RRT of an identified component within ± 0.06 RRT units of the RRT of the standard component?	[✓]	[ ]
• Did the abundance of ions in the sample spectra agree within 30% of the major ions (> 10% of the base ion) in the standard spectra?	[✓]	[ ]
• Were the internal standard areas within the QC limits (from -50% to +200%)?	[✓]	[ ]

11. Sample Quality Control:

	Yes	No
• Method Blanks: Were target analytes ≤ 1/2 MRL? RL=10 ½ @ 5J methylene chloride w/B in 0005M at level of contamination	[ ]	[✓]
• LCS: Were the percent recoveries for LCS within the limits? methylene chloride ↑ not reportable in sample	[ ]	[✓]
• MS/MSD: Were the percent recoveries within limits? N/A	[ ]	[ ]
Were the RPD within control limits?	[ ]	[ ]
System Monitoring Compounds (Surrogates): are surrogate recoveries within QC limits (50-150%)?	[✓]	[ ]

12. Comments (attach additional sheets if necessary):

CCV: methylene chloride %D ↓ 42.4% -0005M W/C
Assoc VBS – no reportable detects.

Validated/Reviewed by:
Signature: A Calvin

Date: 4.3.2014

Name: L.S. Calvin