APPENDIX D

Data Quality Control Summary Report

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ATTACHMENT

ACRONYMS AND ABBREVIATIONS

ADR	Automated Data Review
AOC	Area of Concern
DoD	U.S. Department of Defense
DQA	Data Quality Assessment
DQO	Data Quality Objective
FS	Feasibility Study
FWCUG	Facility-wide Cleanup Goal
FWQAPP	Facility-wide Quality Assurance Project Plan
ICP	Inductively Coupled Plasma
LCS	Laboratory Control Sample
LOD	Limit of Detection
LOQ	Level of Quantitation
MDL	Method Detection Level
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PAH	Polycyclic Aromatic Hydrocarbon
PBA13	Performance-based Acquisition 2013
PCB	Polychlorinated Biphenyl
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
REIMS	RVAAP Environmental Information Management System
RL	Reporting Limit
RPD	Relative Percent Difference
RVAAP	Ravenna Army Ammunition Plant
SAP	Sampling and Analysis Plan
SIM	Selected Ion Monitoring
SVOC	Semi-volatile Organic Compound
UPS	United Parcel Service
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compound

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D.0 DATA QUALITY CONTROL SUMMARY REPORT

D.1 PURPOSE OF THIS REPORT

Environmental data must always be interpreted relative to their known limitations and their intended use. As can be expected in environmental media, areas and data points exist where the user needs to be cautioned relative to the quality of the project information presented. The data verification process and this data quality assessment (DQA) are performed to assist current and future data users in interpreting these data.

The purpose of this DQA report is to describe

- The quality control (QC) procedures followed to ensure data generated by Leidos during the Load Lines 1 through 4 and 12 Feasibility Study (FS) Addendum at the former Ravenna Army Ammunition Plant (RVAAP) meet project requirements,
- The quality of the data collected, and
- The problems encountered during the course of the study and their solutions.

This DQA report provides an assessment of the analytical information gathered during the implementation of the *PBA13 Sample and Analysis Plan Addendum for Surface Water and Sediment at Load Lines 1, 2, 3, and 4* (USACE 2016), herein referred to as the Performance-Based Acquisition 13 (PBA13) Sampling and Analysis Plan (SAP). It documents the quality of the data utilized for the FS Addendum Report and assesses if quality assurance (QA)/QC objectives were met. Evaluation of field and laboratory QC measures will constitute the majority of this assessment; however, references also will be directed toward those QA procedures that establish data credibility. The primary intent of this assessment is to illustrate that, except as noted, data generated for this investigation can withstand scientific scrutiny; are appropriate for their intended purpose; are technically defensible; and are of known and acceptable sensitivity, precision, and accuracy.

Multiple activities were performed to achieve the desired data quality for this project. As discussed in the FS Addendum Report, decisions were made during the initial scoping of the FS Addendum to define the quality and quantity of data required. Data quality objectives (DQOs) were established to guide the implementation of the field sampling and laboratory analysis (refer to *Part III: Quality Assurance Project Plan* of the PBA13 SAP). A QA program was established to standardize procedures and document activities (refer to the *Facility-wide Quality Assurance Project Plan for Environmental Investigations* [USACE 2011], herein referred to as the FWQAPP). This program provided a means to detect and correct any deficiencies in the process. Upon receipt by the project team, data were subjected to verification and validation review by an automated data review (ADR) process to identify and qualify problems related to the analysis. These review steps contributed to this final DQA where data used in the investigation are identified as having met the criteria and are being utilized appropriately.

D.2 QUALITY ASSURANCE PROGRAM

The FWQAPP and Part III of the PBA13 SAP were developed to guide the FS Addendum for Load Lines 1 through 4 and 12. The purposes of these documents were to enumerate the quantity and type of samples to be collected to inspect the area of concern (AOC) and define the quantity and type of QA/QC samples to be used to evaluate the quality of the data obtained. The FWQAPP established requirements for field and laboratory QC procedures. In general, field QC duplicates and QA split samples were required for each environmental sample matrix collected in the area being investigated; volatile organic compound (VOC) trip blanks were to accompany each cooler containing water samples for VOC determinations; and analytical laboratory QC duplicates, matrix spikes (MSs), laboratory control samples (LCSs), and method blanks were required for each preparation batch of 20 samples or less for each matrix and analyte.

A primary goal of the former RVAAP QA program was to ensure that the quality of results for all environmental measurements were appropriate for their intended use. To this end, the FWQAPP and standardized field procedures were compiled to guide the investigation. Through the process of readiness review, training, equipment calibration, QC implementation, and detailed documentation, the project has successfully accomplished the goals set for the QA program.

D.2.1 Daily Activity Logs

The Field Team Leader completed Daily Activity Logs. These include information such as, but not limited to, on-site equipment, work performed summaries, QC activities, health and safety activities, problems encountered, and corrective actions.

D.2.2 Laboratory "Definitive" Level Data Reporting

The Quality Assurance Project Plan (QAPP) for this project identified requirements for laboratory data reporting. CT Laboratories of Baraboo, Wisconsin was the laboratory for the project. QA split samples were collected and sent to ARDL, Inc. in Mount Vernon, Illinois. CT Laboratories and ARDL, Inc. are accredited by the U.S. Department of Defense (DoD). All analytical procedures were completed in accordance with applicable professional standards; U.S. Environmental Protection Agency (USEPA) requirements; government regulations and guidelines; the DoD Quality Systems Manual (QSM), Version 5.0 (DoD 3024); the U.S. Army Corps of Engineers (USACE), Louisville District analytical QA guidelines (USACE 2007); and specific project goals and requirements. USEPA "definitive" data have been reported and include the following basic information:

- Laboratory case narratives;
- Sample results (soil/sediment reported per dry weight);
- Laboratory method blank results;
- LCS results;
- Laboratory sample MS recoveries;
- Laboratory duplicate results;

- Surrogate recoveries (VOCs, semi-volatile organic compounds [SVOCs], pesticides, polychlorinated biphenyls [PCBs], and explosives);
- Internal standards (VOCs, SVOCs);
- Serial dilutions and/or post digestion spikes (metals only);
- Interference check solutions (metals only);
- Initial and continuing calibrations;
- Sample preparation dates; and
- Sample analysis dates.

This information from the laboratory, along with field information, provides the basis for subsequent data evaluation relative to sensitivity, precision, accuracy, representativeness, and completeness. These data evaluation criteria are presented in Section D.4.

D.3 DATA VERIFICATION

The objective when evaluating the project data quality is to determine its usability. The evaluation is based on the interpretation of laboratory QC measures, field QC measures, and project DQOs. ADR software was implemented during this project to facilitate laboratory data review. The ADR output was reviewed by the project-designated verification staff.

D.3.1 Field Data Verification

Field-generated documents such as sampling logs, health and safety summaries, safety inspections, equipment calibration and maintenance logs, and sample management logs were peer-reviewed on site.

D.3.2 Laboratory Data Verification

Analytical data generated for this project have been subjected to a process of automated data verification and review. The following describes this systematic process and the evaluation activities performed. Several criteria have been established against which the data were compared and from which a judgment was rendered regarding the acceptance and qualification of the data. Because it is beyond the scope of this report to cite those criteria, the reader is directed to the following documents for specific detail:

- PBA13 SAP (USACE 2016);
- DoD – QSM for Environmental Laboratories, Version 5.0, July 2013;
- USACE, Louisville District – Louisville DoD QSM Supplement, Version 1, March 2007;
- USEPA – Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA-540/R-99/008, October 1999;
- USEPA – Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540/R-94/013, February 1994; and

- Leidos Technical Support Contractor QA Technical Procedure (ESE DM-05) – Data Verification and Validation.

Upon receiving field and analytical data, verification staff performed a systematic examination of the reports, including ADR software, to ensure the content, presentation, and administrative validity of 100% of the data. Discrepancies identified during this process were recorded and documented utilizing the ADR. Any discrepancies were resolved prior to database flag entry. As part of data verification, standardized laboratory electronic data deliverables were subjected to review. This technical evaluation ensured that all contract-specified requirements had been met, and that electronic information conformed to reported hardcopy data. Outlier reports from the ADR software review are included as Attachment 1 to this appendix. QA Program Nonconformance Report and Corrective Action systems were implemented as required.

During the verification phase of the review and evaluation process, data were subjected to a systematic technical review by examining all field and analytical QC results and laboratory documentation following USEPA functional guidelines, DoD QSM criteria, and Leidos internal procedures for laboratory data review. These data review guidelines define the technical review criteria, methods for evaluating the criteria, and actions to be taken resulting from the review of these criteria. The primary objectives of this phase were to assess and summarize the quality and reliability of the data for the intended use and to document factors that may affect the usability of the data. This process did not include in-depth review of raw data instrument output or re-calculation of results from the primary instrument output. This data verification and analytical review process included, but was not necessarily limited to, the following parameters:

- Data completeness,
- Analytical holding times and sample preservation,
- Calibration (initial and continuing),
- Calibration blanks (metals),
- Method blanks,
- Sample results verification,
- Surrogate recovery,
- LCS analysis,
- Internal standard performance,
- MS recovery,
- Duplicate analysis comparison,
- Serial dilutions, post-digestion spike recovery (metals),
- Reported detection limits,
- Compound, element, and isotope quantification,
- Reported detection levels,

- Method reporting levels, and
- Secondary dilutions.

As an end result of this phase of the review, the data were qualified based on the technical assessment of the verification criteria. Qualifiers were applied by the ADR to each field and analytical result to indicate the usability of the data for its intended purpose.

D.3.3 Definitions of Data Qualifiers (Flags)

During the data verification process, all laboratory data were assigned appropriate data qualification flags and reason codes. Qualification flags are defined as follows:

- "U" Indicates the analyte was analyzed for, but not detected above, the level of the associated value.
- "J" Indicates the analyte was positively identified; however, the associated numerical value is an approximate concentration of the analyte in the sample.
- "UJ" Indicates the analyte was analyzed for, but not detected above, the associated value; however, the reported value is an estimate and demonstrates a decreased knowledge of its accuracy or precision.
- "R" Indicates the analyte value reported is unusable. The integrity of the analyte's identification, accuracy, precision, or sensitivity has raised significant questions as to the reality of the information presented.

D.3.4 Data Usability

A total of 17 environmental sediment and surface water samples (13 primary samples and 4 field duplicates) along with 2 field QA samples, were collected with approximately 136 discrete analyses (i.e., analytes) being obtained, reviewed, and integrated into the assessment (these totals do not include field measurements and field descriptions). Under the direction of the PBA13 SAP and USACE, Louisville District, all samples were successfully collected during the project and acceptable results were achieved for 100% of the sample analyses performed. No data were rejected.

Table D-1 summarizes all targeted field QC and QA split samples collected during the investigation. Cross-references for duplicate and QA split sample pair numbers are presented in Table D-2 along with the requested parameters for each sample. Table D-3 summarizes the qualified analyses grouped by media and analyte category, and Table D-4 shows the individual results qualified during review. The majority of the estimated values were based on values observed between the laboratory method detection levels (MDLs) and the project reporting levels (values determined in this region have an inherently higher variability and need to be considered estimated at best); a few were qualified based on MS recoveries.

During this FS Addendum, four field duplicates were analyzed, with three sediment locations and one surface water location sampled in duplicate. One equipment rinsate associated with sediments and

one deionized water field blank were collected for the entire field cycle. The project goal for blanks is to achieve concentrations less than the reporting limits (RLs). Table D-5 summarizes analytes that were detected in these blanks. Two metals (copper and zinc) were detected in the field blank (PBA13-QC-6252-FB) at concentrations that exceeded the reporting limits but were not detected in the equipment rinse blank; all sediment sample concentrations were greater than five times the blank concentration and the results did not impact the sample data. Two polycyclic aromatic hydrocarbons (PAHs) were detected in the equipment rinse blank (PBA13-QC-6251-ER): acenaphthene at an estimated concentration below the RL and naphthalene at a concentration above the RL. However, both compounds were detected at concentrations below the sediment limit of detection. Therefore, these results did not impact the sample data. In general, the field blank and rinsate blank results indicate that the equipment decontamination procedure was effective and the potential for sample contamination due to ambient field conditions is very low.

D.4 DATA QUALITY EVALUATION

D.4.1 Metals Analysis

D.4.1.1 Sediment

The samples were analyzed using USEPA Method 6010C (Inductively Coupled Plasma [ICP]). Analytical holding times were met for all samples. Initial and continuing calibration criteria were achieved for all elements analyzed; one low-level calibration verification standard result for iron fell below control limits; all sample concentrations were significantly greater than the standard concentration (> 20 times); and the results did not impact the sample data. Instrument blank contamination was noted for silver and copper; all sample concentrations were either nondetect or greater than five times the blank concentration and, therefore, results were not qualified. Iron was detected in the method blank analyzed with the sediment samples at a concentration above the control limit (of ½ the level of quantitation [LOQ]) and silver was detected at a concentration below the control limit; associated sample concentrations were reported either nondetect or were greater than five times the blank values. Due to MS/matrix spike duplicate (MSD) recoveries outside control limit criteria for lead, one data point for sediment (3.4% of metals sediment data) were qualified as estimated "J"; this same sample point also had serial dilution results that exceeded criteria. Reporting levels are considered to be acceptable relative to QAPP goals. No sediment samples required dilutions. Although some analyses were qualified as estimated, the deviations observed should not have a significant influence on the results, and the values are considered technically sound and defensible. Complete data summary tables, with associated qualifiers, are provided in Appendix E of the FS Addendum Report and can be found in the RVAAP Environmental Information Management System (REIMS).

D.4.1.2 Surface Water

Samples were analyzed using USEPA Method 6010C (ICP). Analytical holding times were met for all samples. Initial and continuing calibration criteria were achieved for the element analyzed (manganese). Method and instrument blanks were within criteria. MS recoveries were within criteria. Concentrations were not within specifications to evaluate serial dilution results; duplicate comparisons were within control limits. LCS determinations met criteria. Reporting levels are considered to be consistent with QAPP goals. No dilutions were required and no data were rejected. The reported values are considered technically sound and defensible. Complete data summary tables, with associated qualifiers, are provided in Appendix E of the FS Addendum Report and can be found in REIMS.

D.4.2 Semi-volatile Organic Analysis

D.4.2.1 Sediment

The samples were analyzed using USEPA Method 8270D (Selected Ion Monitoring [SIM] for PAHs). Analytical holding times were met for all sediment samples. Surrogate recovery and internal standard criteria were met. Initial and continuing calibration criteria were met for all compounds. Method blanks were free of contamination. LCS recoveries for sediment were within criteria; however, the spiked sediment sample had numerous MS/MSD recoveries and relative percent difference (RPD) values outside control limits, resulting in 15 data points (19% of the PAH data) being qualified as estimated "J."

Due to elevated target levels or matrix difficulties, all sediment samples required dilutions. Only two analytes in one sample were reported as nondetected; these compounds (acenaphthylene and naphthalene) had elevated detection limits but do not have associated Facility-wide Cleanup Goals (FWCUGs). Concentrations detected between the limit of detection (LOD) and reporting limit would have been reported by the laboratory as estimated values. Data are considered acceptable for its intended use. No sediment data were rejected for any reason. Although several PAH results were qualified as estimated, the deviations observed should not have a significant influence on the results, and the values are considered technically sound and defensible. Complete data summary tables, with associated qualifiers, are provided in Appendix E of the FS Addendum Report and can be found in REIMS.

D.4.3 Pesticide Analysis

D.4.3.1 Sediment

Samples were analyzed using USEPA Method 8081B. Analytical holding times were met for all samples. Surrogate recoveries were within acceptance criteria for all sediment samples. Initial and continuing calibrations met criteria for the target pesticide compounds. Method blanks were free of contamination. All LCS recoveries were within acceptance criteria as were MS/MSD results. No

sediment samples required dilutions. No pesticide sediment data were rejected for any reason, and the values are considered technically sound and defensible. Complete data summary tables, with associated qualifiers, are provided in Appendix E of the FS Addendum Report and can be found in REIMS.

D.4.4 Explosives Analysis

D.4.4.1 Sediment

The samples were analyzed using USEPA Method 8330B. Analytical holding times were met for all sediment samples. Surrogate recoveries were within acceptance criteria. Initial and continuing calibration criteria were within criteria for target analytes. The method blank was free of contamination. All LCS recoveries, MS/MSD recoveries and RPD values were within acceptance criteria. No explosives sediment sample required dilutions. No data were rejected for any reason. Reported values are considered technically sound and defensible. Complete data summary tables, with associated qualifiers, are provided in Appendix E of the FS Addendum Report and can be found in REIMS.

D.4.5 Precision

Field duplicate samples were collected to ascertain the contribution to variability (i.e., precision) of the combination of environmental media, sampling consistency, and analytical precision. Field duplicate samples were collected from the same spatial and temporal conditions as the primary environmental sample. Sediment field duplicate samples were collected after homogenization.

Field duplicate comparison information is presented in Table D-6. If a given analyte was not detected in both the regular and field duplicate sample, precision was considered to be within control and results were not included in the table. RPD was calculated only when both samples were greater than five times the reporting level. When one or both sample values were between the reporting level and 5 times the reporting level, the absolute difference was evaluated. Tables 3-1 and 3-2 of the FWQAPP set the RPD criteria at 50% for soil and sediment and at 30% for waters, while the absolute difference is set at 1 time the reporting limit for all matrices. One sediment metal result (out of seven) exceeded the established criteria; the sample pair (LL3SD/SW-554-2539-SD/LL3SD/SW-554-4099-FD) had both silver results less than five times the RL. The surface water metal field duplicate had results within criteria. The sample collected in duplicate for PAHs (LL2SD-632-2531-SD/LL2SD-632-4097-FD) had all compounds exceed the criteria; it should be noted that this sample was the one analyzed as an MS/MSD with recoveries and RPD values that exceeded criteria, indicating potential matrix heterogeneity.

D.4.6 Sensitivity

Determining minimum detectable values allows the investigation to assess the relative confidence that can be placed in a value relative to the magnitude or level of analyte concentration observed. The

closer a measured value comes to the minimum detectable concentration, the less confidence and more variation the measurement will have. Individual analyte reporting levels can vary due to matrix differences, contaminant analyte concentrations, and inherent moisture content variability. Project sensitivity goals were expressed as quantitation level goals in the QAPP. These levels were achieved or exceeded throughout the analytical process, with the exception of a few silver limits that were affected by moisture content of the samples. Reporting level variations have been considered during data interpretation and statistical applications.

Method blank determinations were performed with each analytical sample batch for each analyte under investigation. These blanks were evaluated during data review to determine their potential impact on individual data points, if any. Review action levels are set at 5 times the blank level for all analytes, except those designated as common laboratory contaminants (e.g., methylene chloride, acetone, toluene, 2-butanone, and phthalate compounds) with action levels set at 10 times the blank levels. During data review, reported sample concentrations are assessed against method blank action levels, and the following qualifications are made when reportable quantities of analytes were observed in the associated method blank:

- When the analyte sample concentration is above 5 or 10 times the action level, the data are not qualified and it is considered a positive value.
- When inorganic analyte sample concentrations are determined to be below 5 or 10 times the action level, the data are considered impacted by the method blank and the value reported is qualified as a non-detectable concentration at the analyte value reported. These data are then qualified as "U."
- When organic analyte sample concentrations are determined to be below 5 or 10 times the action level, the data are considered impacted by the method blank and the value reported is qualified as a non-detectable concentration. If the reported value is below the reporting level, the result is qualified as a non-detectable concentration at the reporting level. If the result is above the reporting limit, it is qualified as a non-detectable concentration at the analyte value reported. These data are then qualified as "U."

No data were qualified as a result of method blank contamination, as discussed in the preceding subsections.

D.4.7 Representativeness and Comparability

Representativeness expresses the degree to which data accurately reflect the analyte or parameter of interest for the environmental AOC and is the qualitative term most concerned with the proper design of the sampling program. Factors that affect the representativeness of analytical data include proper preservation, holding times, use of standard sampling and analytical methods, and determination of matrix or analyte interferences. Samples were shipped via United Parcel Service (UPS) overnight and were received by CT Laboratories within temperature specifications and in good condition.

Comparability, like representativeness, is a qualitative term relative to an individual project data set. This investigation employed appropriate sampling methodologies, sample containers and preservation, site surveillance, use of standard sampling devices, uniform training, documentation of sampling, standard analytical protocols/procedures, QC checks with standard control limits, and universally accepted data reporting units to ensure comparability to other data sets. Through the proper implementation and documentation of these standard practices, the project has established the confidence that the data will be comparable to other project and programmatic information. Tables D-7 and D-8 present the standardized parameter groups, sample containers, preservation techniques, and associated holding times for environmental media.

D.4.8 Completeness

Usable data are defined as those data that pass individual scrutiny during the verification and validation process and are accepted for unrestricted application to the human health risk assessment evaluation or equivalent-type applications. Estimated data have been determined to be acceptable for RVAAP project objectives.

The completeness goal for analytical data is 90% as defined in Tables 3-1 and Table 3-2 of the FWQAPP. The project achieved this goal by collecting all samples presented in the PBA13 SAP and producing usable results for 100% of all sample analyses performed.

D.5 DATA QUALITY ASSESSMENT SUMMARY

The overall quality of the Load line 1 through 4 and 12 FS Addendum information meets or exceeds the established project objectives. Through proper implementation of the project data verification and assessment process, project information has been determined to be acceptable for use.

Data, as presented, have been qualified as usable or estimated "J" or "UJ," and no data were qualified as rejected ("R"). Data that have been qualified as estimated indicate accuracy, precision, or sensitivity may be less than expected but are adequate for evaluating project objectives. Qualifiers have been applied to data when necessary. Data produced for this project demonstrate they can withstand scientific scrutiny; are appropriate for its intended purpose; are technically defensible; and are of known and adequate sensitivity, precision, and accuracy. Data integrity has been documented through proper implementation of QA and QC measures. The environmental information presented has an established confidence that allows utilization for the project objectives and provides data for future needs.

D.6 REFERENCES

DoD (U.S. Department of Defense) 2013. *Quality Systems Manual for Environmental Laboratories*. Environmental Data Quality Workgroup. Version 5.0. July.

USACE (U.S. Army Corps of Engineers) 2011. *Facility-wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. February.

USACE 2007. *Louisville DoD Quality Systems Manual Supplement*. Version 1. March.

USACE 2016. *PBA13 Remedial Investigation Sample and Analysis Plan Addendum for Load Lines 1, 2, 3, and 4, , Ravenna Army Ammunition Plant, Ravenna, Ohio*. January.

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Table D-1. Number of Samples Taken at Load Lines 1 Through 4

Media	Environmental Samples	Field Duplicates	USACE Split Samples	Trip Blanks	Equipment Rinse Blanks	Source Water Blanks
Sediment	11	3	3	0	1	1
Surface Water	2	1	1	0		

USACE = U.S. Army Corps of Engineers.

Table D-2. Identification of Regular and QC Samples Taken at Load Lines 1 Through 4

Environmental Samples	Laboratory Sample Delivery Group	Field Duplicates	USACE Split Samples	Trip Blanks	Lead	Copper	PAHs	Lead, Silver	2,4,6-TNT, 2,4-DNT, 4-A-2,6-DNT	Eldrin Ketone, Beta-BHC	Antimony, Copper, Iron, Silver, Zinc	Manganese
Sediment												
LL1SD-731-2532-SD	119072	NS	NS	NR	X							
LL1SD-732-2533-SD	119072	NS	NS	NR	X							
LL1SD-733-2534-SD	119072	NS	NS	NR	X							
LL1SD-734-2535-SD	119072	NS	NS	NR		X						
LL1SD-735-2536-SD	119072	LL1SD-735-4098-FD	LL1SD-735-4104-QA	NR		X						
LL2SD-630-2530-SD	119072	NS	NS	NR			X	X	X	X		
LL2SD-631-2528-SD	119072	NS	LL2SD-631-4101-QA	NR	X		X					
LL2SD-632-2531-SD	119072	LL2SD-632-4097-FD	NS	NR			X	X	X	X		
LL2SD-633-2529-SD	119072	NS	NS	NR	X		X					
LL3SD/SW-553-2537-SD	119072	NS	NS	NR					X		X	
LL3SD/SW-554-2539-SD	119072	LL3SD/SW-554-4099-FD	LL3SD/SW-554-4102-QA	NR					X		X	
Surface Water												
LL3SD/SW-553-2538-SW	119072	NS	NS	NR								X
LL3SD/SW-554-2540-SW	119072	LL3SD/SW-554-4100-FD	LL3SD/SW-554-4103-QA	NR								X
Field QC Samples (Blanks)												
PBA13-QC-6251-ER	119072	NS	NS	NR	X		X		X	X	X	
PBA13-QC-6252-FB	119072	NS	NS	NR	X		X		X	X	X	

DNT = 2,4-Dinitrotoluene.
NR = Not Required.
QC = Quality Control.
TNT = 2,4,6-Trinitrotoluene.
NS = Not Sampled.
USACE = U.S. Army Corps of Engineers.
PAH = Polycyclic Aromatic Hydrocarbon.

Table D-3. Summary of Qualified Results for Samples from Load Lines 1 Through 4

Analysis Group	Validation Qualifier[a]	Validation Reason Code[b]	Number Qualified	Total Number of Analyses	Percent
Sediment					
All Analyses	J	--	16	133	12
	None	--	117	133	88
Metals	J	MS-J	1	29	3.4
	None	None	28	29	97
Explosives	None	None	18	18	100
PAHs	J	MS-J	15	80	19.0
	None	None	65	80	81.0
Pesticides	None	None	6	6	100.0
Surface Water					
All Analyses	None	--	3	3	100.0
Metals	None	None	3	3	100.0

[a] Validation Qualifiers: J = Estimated.
[b] Validation Reason Codes: MS = Matrix Spike.

PAH = Polycyclic Aromatic Hydrocarbon.

Table D-4. Detailed Listing of Individual Results for Samples from Load Lines 1 Through 4

Chemical	Sample Delivery Group	Sample ID	Results	Reporting Limit	Laboratory Qualifier[a]	Validation Qualifier[b]	Validation Code[c]
Metals							
Sediment (mg/kg)							
Lead	119072	LL2SD-632-2531-SD	25.6	0.33	M	J	MS-J; Pro-J
PAHs							
Sediment (µg/kg)							
Acenaphthene	119072	LL2SD-632-2531-SD	28.5	9.9	M,Y	J	MS-J
Anthracene	119072	LL2SD-632-2531-SD	101	9.9	M,Y	J	MS-J
Benzo(a)anthracene	119072	LL2SD-632-2531-SD	471	9.9	M,Y	J	MS-J
Benzo(a)pyrene	119072	LL2SD-632-2531-SD	463	9.9	M,Y	J	MS-J
Benzo(b)fluoranthene	119072	LL2SD-632-2531-SD	675	9.9	M,Y	J	MS-J
Benzo(g,h,i)perylene	119072	LL2SD-632-2531-SD	240	9.9	M,Y	J	MS-J
Benzo(k)fluoranthene	119072	LL2SD-632-2531-SD	250	9.9	M	J	MS-J
Chrysene	119072	LL2SD-632-2531-SD	496	9.9	M,Y	J	MS-J
Dibenzo(a,h)anthracene	119072	LL2SD-632-2531-SD	79.7	9.9	M,Y	J	MS-J
Fluoranthene	119072	LL2SD-632-2531-SD	966	9.9	M,Y	J	MS-J
Fluorene	119072	LL2SD-632-2531-SD	40.3	9.9	M,Y	J	MS-J
Indeno(1,2,3-cd)pyrene	119072	LL2SD-632-2531-SD	259	9.9	M,Y	J	MS-J
Naphthalene	119072	LL2SD-632-2531-SD	16.6	9.9	M,Y	J	MS-J
Phenanthrene	119072	LL2SD-632-2531-SD	502	20	M,Y	J	MS-J
Pyrene	119072	LL2SD-632-2531-SD	788	9.9	M,Y	J	MS-J

[a]Laboratory qualifier: M = Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits; Y = Replicate/Duplicate precision outside acceptance limits.
[b]Validation Qualifiers: J = Estimated, R = Rejected, U = Not detected, and UJ = Not detected and reporting limit estimated.
[c]Validation Reason Codes: MS = Matrix Spike, Pro=professional judgment (serial dilution).

ID = Identifier.
PAH = Polycyclic Aromatic Hydrocarbon.

Table D-5. Results for Analytes Detected in Field Blanks or Equipment Rinsate Samples

Sample ID			PBA13-QC-6252-FB	PBA13-QC-6251-ER
Date			05/17/2016	05/16/2016
Sample Type				
Analyte (mg/L)	CAS Number	Project Reporting Level	Deionized Water Blank	Equipment Rinse Blank
Metals				
Copper	7440-50-8	0.007 mg/l	0.0385	0.0035 U
Zinc	7440-66-6	0.010 mg/l	0.0175	0.005 U
PAHs				
Acenaphthene	83-32-9	0.00015 mg/l	0.000061 U	0. 00013 J
Naphthalene	91-20-3	0.00015 mg/l	0.000061 U	0.00034

Other parameters (other metals analytes, PAH analytes, explosives, pesticides) were analyzed for and not detected

Sample Type: FB = Source Water Blank and ER = Equipment Rinse Blank.
Data Qualifiers: J = Estimated, U = Not detected.
CAS = Chemical Abstract Service.
ID = Identifier.
PAH = Polycyclic Aromatic Hydrocarbon.

Table D-6. Field Duplicate Pair Comparisons for Analytes in Samples from Load Lines 1 Through 4

Sample ID	Chemical	Regular Result	Duplicate Result	RPD % or (Absolute Difference)[a]	Test[b]
Metals					
Sediment (mg/kg)					
LL1SD-735-2536-SD/ LL1SD-735-4098-FD	Copper	18.4	18.1	2%	RPD
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Lead	25.6 J	22.6	12%	RPD
LL3SD/SW-554-2539-SD/ LL3SD/SW-554-4099-FD	Antimony	4	4.7	(0.58)	D
LL3SD/SW-554-2539-SD/ LL3SD/SW-554-4099-FD	Copper	13.4	10.9	21%	RPD
LL3SD/SW-554-2539-SD/ LL3SD/SW-554-4099-FD	Iron	12100	11600	4%	RPD
LL3SD/SW-554-2539-SD/ LL3SD/SW-554-4099-FD	Silver	0.52	0.29	(1.50)	D *
LL3SD/SW-554-2539-SD/ LL3SD/SW-554-4099-FD	Zinc	133	95	33%	RPD
PAHs					
Sediment (mg/kg)					
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Acenaphthene	0.0285 J	0.063	(2.30)	D *
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Acenaphthylene	0.0328	0.0762	(2.90)	D *
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Anthracene	0.101 J	0.228	77%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Benzo(a)anthracene	0.471 J	1.21	88%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Benzo(a)pyrene	0.463 J	1.21	89%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Benzo(b)fluoranthene	0.675 J	1.58	80%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Benzo(g,h,i)perylene	0.24 J	0.618	88%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Benzo(k)fluoranthene	0.25 J	0.561	77%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Chrysene	0.496 J	1.22	84%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Dibenzo(a,h)anthracene	0.0797 J	0.208	89%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Fluoranthene	0.966 J	2.37	84%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Fluorene	0.0403 J	0.0849	(3.00)	D *
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Indeno(1,2,3-cd)pyrene	0.259 J	0.662	88%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Naphthalene	0.0166 J	0.0479	(2.10)	D *
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Phenanthrene	0.502 J	1.14	78%	RPD*
LL2SD-632-2531-SD/ LL2SD-632-4097-FD	Pyrene	0.788 J	1.92	84%	RPD*
Metals					
Surface Water (mg/L)					
LL3SD/SW-554-2540-SW/ LL3SD/SW-554-4100-FD	Manganese	0.276	0.278	1%	RPD

Table D-6. Field Duplicate Pair Comparisons for Analytes in Samples from Load Lines 1 Through 4 (Continued)

[a]RPD is calculated as 100x |R-D|/(R-D)/2, where R is the concentration of the regular sample and D is the concentration of the duplicate. The absolute difference is calculated as |R-D|/L, where L is the average reporting limit of the two samples. Values followed by a "%" are RPD values. Values in parentheses are absolute difference values.
[b]The test used to evaluate the duplicate comparison is the RPD if both sample results were more than 5 times the reporting limit or the absolute difference (D) if any result was less than 5 times the reporting limit.
*RPD or D outside criteria.

ID = Identifier.
PAH = Polycyclic Aromatic Hydrocarbon.
RPD = Relative Percent Difference.
Data Qualifiers: J = Estimated.

Table D-7. Container Requirements for Sediment Samples

Analyte Group	Container	Minimum Sample Size	Preservative	Holding Time
Pesticide Compounds	16-oz glass jar with Teflon®-lined cap	60 g	Cool, 4°C	14 days (extraction) 40 days (analysis)
Polycyclic Aromatic Hydrocarbons	16-oz glass jar with Teflon®-lined cap	60 g	Cool, 4°C	14 days (extraction) 40 days (analysis)
Explosive Compounds	One 4-oz glass jar with Teflon®-lined cap	60 g	Cool, 4°C	14 days (extraction) 40 days (analysis)
Metals	4-oz glass or plastic	50 g	Cool, 4°C	180 days

Table D-8. Container Requirements for Surface Water Samples

Analyte Group	Container	Minimum Sample Size	Preservative	Holding Time
Metals	1-L Poly	300 mL	HNO_3 to pH <2 Cool, 4°C	180 days

HNO_3 = Nitric Acid

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ATTACHMENT 1

Automated Data Review Outlier Reports

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Data Review Sample Summary Report by Analysis Method

Reviewed By: **Approved By:** **Laboratory: CT**

Client Sample ID	Lab Sample ID	Matrix	Sample Type	Preparation Method	Collection Date	Validation Code
Lab Reporting Batch: 119072						
Method: 6010C						
LL1SD-731-2532-SD	724844	SO	N	3050B	5/17/2016 11:15:00 AM	S2AVE
LL1SD-732-2533-SD	724845	SO	N	3050B	5/17/2016 11:30:00 AM	S2AVE
LL1SD-733-2534-SD	724846	SO	N	3050B	5/17/2016 11:45:00 AM	S2AVE
LL1SD-734-2535-SD	724842	SO	N	3050B	5/17/2016 9:40:00 AM	S2AVE
LL1SD-735-2536-SD	724840	SO	N	3050B	5/17/2016 9:10:00 AM	S2AVE
LL1SD-735-4098-FD	724841	SO	FD	3050B	5/17/2016 9:10:00 AM	S2AVE
LL2SD-630-2530-SD	724837	SO	N	3050B	5/16/2016 3:55:00 PM	S2AVE
LL2SD-631-2528-SD	724843	SO	N	3050B	5/17/2016 9:40:00 AM	S2AVE
LL2SD-632-2531-SD	724828	SO	N	3050B	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDDUP	726069	SO	DUP	3050B	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMS	726070	SO	MS	3050B	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMSD	726071	SO	MSD	3050B	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-4097-FD	724836	SO	FD	3050B	5/16/2016 3:08:00 PM	S2AVE
LL2SD-633-2529-SD	724838	SO	N	3050B	5/16/2016 4:25:00 PM	S2AVE
LL3SD/SW-553-2537-SD	724852	SO	N	3050B	5/17/2016 2:10:00 PM	S2AVE
LL3SD/SW-553-2538-SW	724851	AQ	N	3010A	5/17/2016 2:00:00 PM	S2AVE
LL3SD/SW-553-2538-SWDUP	726917	AQ	DUP	3010A	5/17/2016 2:00:00 PM	S2AVE
LL3SD/SW-553-2538-SWMS	726918	AQ	MS	3010A	5/17/2016 2:00:00 PM	S2AVE
LL3SD/SW-553-2538-SWMSD	726919	AQ	MSD	3010A	5/17/2016 2:00:00 PM	S2AVE
LL3SD/SW-554-2539-SD	724850	SO	N	3050B	5/17/2016 12:30:00 PM	S2AVE
LL3SD/SW-554-2540-SW	724847	AQ	N	3010A	5/17/2016 12:00:00 PM	S2AVE
LL3SD/SW-554-4099-FD	724849	SO	N	3050B	5/17/2016 12:30:00 PM	S2AVE

Data Review Sample Summary Report by Analysis Method

Reviewed By: **Approved By:** **Laboratory: CT**

Client Sample ID	Lab Sample ID	Matrix	Sample Type	Preparation Method	Collection Date	Validation Code
Method: 6010C						
LL3SD/SW-554-4100-FD	724848	AQ	N	3010A	5/17/2016 12:00:00 PM	S2AVE
PBA13-QC-6251-ER	724815	AQ	N	3010A	5/16/2016 8:20:00 AM	S2AVE
PBA13-QC-6252-FB	724839	AQ	N	3010A	5/17/2016 6:35:00 AM	S2AVE
Method: 8081B						
LL2SD-630-2530-SD	724837	SO	N	3546	5/16/2016 3:55:00 PM	S2AVE
LL2SD-632-2531-SD	724828	SO	N	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMS	725992	SO	MS	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMSD	725993	SO	MSD	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-4097-FD	724836	SO	FD	3546	5/16/2016 3:08:00 PM	S2AVE
PBA13-QC-6251-ER	724815	AQ	N	3510C	5/16/2016 8:20:00 AM	S2AVE
PBA13-QC-6252-FB	724839	AQ	N	3510C	5/17/2016 6:35:00 AM	S2AVE
Method: 8270D-SIM						
LL2SD-630-2530-SD	724837	SO	N	3546	5/16/2016 3:55:00 PM	S2AVE
LL2SD-631-2528-SD	724843	SO	N	3546	5/17/2016 9:40:00 AM	S2AVE
LL2SD-632-2531-SD	724828	SO	N	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMS	726474	SO	MS	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMSD	726475	SO	MSD	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-4097-FD	724836	SO	FD	3546	5/16/2016 3:08:00 PM	S2AVE
LL2SD-633-2529-SD	724838	SO	N	3546	5/16/2016 4:25:00 PM	S2AVE
PBA13-QC-6251-ER	724815	AQ	N	3510C	5/16/2016 8:20:00 AM	S2AVE
PBA13-QC-6252-FB	724839	AQ	N	3510C	5/17/2016 6:35:00 AM	S2AVE
Method: 8330B						
LL2SD-630-2530-SD	724837	SO	N	Gen Prep	5/16/2016 3:55:00 PM	S2AVE
LL2SD-632-2531-SD	724828	SO	N	Gen Prep	5/16/2016 3:08:00 PM	S2AVE

Data Review Sample Summary Report by Analysis Method

Reviewed By: **Approved By:** **Laboratory: CT**

Client Sample ID	Lab Sample ID	Matrix	Sample Type	Preparation Method	Collection Date	Validation Code
Method: 8330B						
LL2SD-632-2531-SDMS	726972	SO	MS	Gen Prep	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-2531-SDMSD	726973	SO	MSD	Gen Prep	5/16/2016 3:08:00 PM	S2AVE
LL2SD-632-4097-FD	724836	SO	FD	Gen Prep	5/16/2016 3:08:00 PM	S2AVE
LL3SD/SW-553-2537-SD	724852	SO	N	Gen Prep	5/17/2016 2:10:00 PM	S2AVE
LL3SD/SW-554-2539-SD	724850	SO	N	Gen Prep	5/17/2016 12:30:00 PM	S2AVE
LL3SD/SW-554-4099-FD	724849	SO	N	Gen Prep	5/17/2016 12:30:00 PM	S2AVE
PBA13-QC-6251-ER	724815	AQ	N	3535	5/16/2016 8:20:00 AM	S2AVE
PBA13-QC-6252-FB	724839	AQ	N	3535	5/17/2016 6:35:00 AM	S2AVE

Data Review Sample Summary Report by Analysis Method

Reviewed By: **Approved By:** **Laboratory: CT**

Client Sample ID	Lab Sample ID	Matrix	Sample Type	Preparation Method	Collection Date	Validation Code

Validation Label Legend

Label Code	Label Decription	EPA Level
S1VE	Stage_1_Validation_Electronic	N/A
S1VM	Stage_1_Validation_Manual	N/A
S1VEM	Stage_1_Validation_Electronic_and_Manual	N/A
S2AVE	Stage_2A_Validation_Electronic	Level 3 w/o calibration
S2AVM	Stage_2A_Validation_Manual	Level 3 w/o calibration
S2AVEM	Stage_2A_Validation_Electronic_and_Manual	Level 3 w/o calibration
S2BVE	Stage_2B_Validation_Electronic	Level 3 with calibration
S2BVM	Stage_2B_Validation_Manual	Level 3 with calibration
S2BVEM	Stage_2B_Validation_Electronic_and_Manual	Level 3 with calibration
S3VE	Stage_3_Validation_Electronic	Level 4
S3VM	Stage_3_Validation_Manual	Level 4
S3VEM	Stage_3_Validation_Electronic_and_Manual	Level 4
S4VE	Stage_4_Validation_Electronic	Level 4
S4VM	Stage_4_Validation_Manual	Level 4
S4VEM	Stage_4_Validation_Electronic_and_Manual	Level 4
NV	Not_Validated	N/A

Data Qualifier Summary

Lab Reporting Batch ID: 119072 **Laboratory: CT**

EDD Filename: 119072 **eQAPP Name: RVAAP (Leidos) 061416**

Method Category: METALS
Method: 6010C **Matrix:** SO

Sample ID: LL2SD-632-2531-SD **Collected:** 5/16/2016 3:08:00 PM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	25.6	M	0.17	LOD	0.33	LOQ	mg/kg	J	Ms , ProJudge *

Method Category: SVOA
Method: 8270D-SIM **Matrix:** AQ

Sample ID: PBA13-QC-6251-ER **Collected:** 5/16/2016 8:20:00 AM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ACENAPHTHENE	0.13	J	0.061	LOD	0.15	LOQ	ug/L	J	Rl

Method Category: SVOA
Method: 8270D-SIM **Matrix:** SO

Sample ID: LL2SD-632-2531-SD **Collected:** 5/16/2016 3:08:00 PM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ACENAPHTHENE	28.5	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
ANTHRACENE	101	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
BENZO(A)ANTHRACENE	471	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
BENZO(A)PYRENE	463	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
BENZO(B)FLUORANTHENE	675	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
BENZO(G,H,I)PERYLENE	240	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
BENZO(K)FLUORANTHENE	250	M	5.3	LOD	9.9	LOQ	ug/kg	J	Ms
CHRYSENE	496	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
DIBENZO(A,H)ANTHRACENE	79.7	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
FLUORANTHENE	966	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
FLUORENE	40.3	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
INDENO(1,2,3-CD)PYRENE	259	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
NAPHTHALENE	16.6	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms
PHENANTHRENE	502	M,Y	5.3	LOD	20	LOQ	ug/kg	J	Ms, Ms
PYRENE	788	M,Y	5.3	LOD	9.9	LOQ	ug/kg	J	Ms, Ms

* denotes a non-reportable result

Project Name and Number: 212950.00.08.30.302 - PBA13 SEDIMENT- SURFACE WATER SAMPLING AT LL1-4

* Serial dilution results also exceeded criteria

Data Qualifier Summary

Lab Reporting Batch ID: 119072

Laboratory: CT

EDD Filename: 119072

eQAPP Name: RVAAP (Leidos) 061416

* denotes a non-reportable result

Project Name and Number: 212950.00.08.30.302 - PBA13 SEDIMENT- SURFACE WATER SAMPLING AT LL1-4

Data Qualifier Summary

Lab Reporting Batch ID: 119072 **Laboratory: CT**

EDD Filename: 119072 **eQAPP Name: RVAAP (Leidos) 061416**

Reason Code Legend

Reason Code	*Description*
Mb	Method Blank Contamination
Ms	Matrix Spike Precision
Ms	Matrix Spike Upper Estimation
RI	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 212950.00.08.30.302 - PBA13 SEDIMENT- SURFACE WATER SAMPLING AT LL1-4

Data Review Summary

Lab Reporting Batch ID: 119072

Laboratory: CT

EDD Filename: 119072

eQAPP Name: RVAAP (Leidos) 061416

Validation Area	*Note*
Technical Holding Times	A
Temperature	A
Initial Calibration	N
Continuing Calibration/Initial Calibration Verification	N
Method Blanks	SR
Surrogate/Tracer Spikes	A
Matrix Spike/Matrix Spike Duplicates	SR
Laboratory Duplicates	A
Laboratory Replicates	N
Laboratory Control Samples	A
Compound Quantitation	SR
Field Duplicates	A
Field Triplicates	N
Field Blanks	N

A = Acceptable, N = Not provided/applicable, SR = See report

The contents of this report reflect findings made by ADR during Automated Data Review, manual applied qualifiers are not considered. Please refer to the Overall Qualifier Summary report for manual qualifiers.

Reporting Limit Outliers

Lab Reporting Batch ID: 119072 **Laboratory: CT**

EDD Filename: 119072 **eQAPP Name: RVAAP (Leidos) 061416**

Method: **8270D-SIM**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
PBA13-QC-6251-ER	ACENAPHTHENE	J	0.13	0.15	LOQ	ug/L	J (all detects)

Method Blank Outlier Report

Lab Reporting Batch ID: 119072 **Laboratory: CT**

EDD Filename: 119072 **eQAPP Name: RVAAP (Leidos) 061416**

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
726114	5/25/2016 3:57:00 PM	IRON SILVER	1.6 mg/kg 0.032 mg/kg	LL1SD-731-2532-SD LL1SD-732-2533-SD LL1SD-733-2534-SD LL1SD-734-2535-SD LL1SD-735-2536-SD LL1SD-735-4098-FD LL2SD-630-2530-SD LL2SD-631-2528-SD LL2SD-632-2531-SD LL2SD-632-4097-FD LL2SD-633-2529-SD LL3SD/SW-553-2537-SD LL3SD/SW-554-2539-SD LL3SD/SW-554-4099-FD

Project Name and Number: 212950.00.08.30.302 - PBA13 SEDIMENT- SURFACE WATER SAMPLING

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 119072 **Laboratory: CT**

EDD Filename: 119072 **eQAPP Name: RVAAP (Leidos) 061416**

Method: 6010C
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LL2SD-632-2531-SDMS (TOT) LL2SD-632-2531-SDMSD (TOT) (LL2SD-632-2531-SD)	LEAD	134	135	81.00-112.00	-	LEAD	J (all detects)

Method: 8270D-SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LL2SD-632-2531-SDMS LL2SD-632-2531-SDMSD (LL2SD-632-2531-SD)	ACENAPHTHENE	-	137	44.00-111.00	36 (20.00)	ACENAPHTHENE	J(all detects)
	ANTHRACENE	123	227	50.00-114.00	41 (20.00)	ANTHRACENE	
	BENZO(A)ANTHRACENE	355	648	54.00-122.00	34 (20.00)	BENZO(A)ANTHRACENE	
	BENZO(A)PYRENE	364	616	50.00-125.00	30 (20.00)	BENZO(A)PYRENE	
	BENZO(B)FLUORANTHENE	420	828	53.00-128.00	36 (20.00)	BENZO(B)FLUORANTHENE	
	BENZO(G,H,I)PERYLENE	209	318	49.00-127.00	24 (20.00)	BENZO(G,H,I)PERYLENE	
	BENZO(K)FLUORANTHENE	252	287	56.00-123.00	-	BENZO(K)FLUORANTHENE	
	CHRYSENE	343	614	57.00-118.00	32 (20.00)	CHRYSENE	
	DIBENZO(A,H)ANTHRACENE	-	164	50.00-129.00	24 (20.00)	DIBENZO(A,H)ANTHRACENE	
	FLUORANTHENE	624	1217	55.00-119.00	36 (20.00)	FLUORANTHENE	
	FLUORENE	-	154	47.00-114.00	40 (20.00)	FLUORENE	
	INDENO(1,2,3-CD)PYRENE	220	341	49.00-130.00	26 (20.00)	INDENO(1,2,3-CD)PYRENE	
	NAPHTHALENE	-	175	38.00-111.00	62 (20.00)	NAPHTHALENE	
	PHENANTHRENE	301	815	49.00-113.00	55 (20.00)	PHENANTHRENE	
	PYRENE	509	948	55.00-117.00	33 (20.00)	PYRENE	

Project Name and Number: 212950.00.08.30.302 - PBA13 SEDIMENT- SURFACE WATER SAMPLING

Field QC Assignments and Associated Samples

EDD File Name: 119072

eQapp Name: RVAAP (Leidos) 061416

	Associated Samples	Sample Collection Date
Field QC Sample: LL1SD-735-4098-FD **QC Type:** FD		
	LL1SD-735-2536-SD	5/17/2016 9:10:00 AM
Field QC Sample: LL2SD-632-4097-FD **QC Type:** FD		
	LL2SD-632-2531-SD	5/16/2016 3:08:00 PM
Field QC Sample: LL3SD/SW-554-4099-FD **QC Type:** FD		
	LL3SD/SW-554-2539-SD	5/17/2016 12:30:00 PM
Field QC Sample: LL3SD/SW-554-4100-FD **QC Type:** FD		
	LL3SD/SW-554-2540-SW	5/17/2016 12:00:00 PM

Field Duplicate RPD Report

Lab Reporting Batch ID: 119072 **Laboratory: CT**

EDD Filename: 119072 **eQAPP Name: RVAAP (Leidos) 061416**

Method: 6010C
Matrix: AQ

Analyte	Concentration (ug/L)		Sample RPD	eQAPP RPD	Flag
	LL3SD/SW-554-2540-SW (TOT)	LL3SD/SW-554-4100-FD (TOT)			
MANGANESE	276	278	1		No Qualifiers Applied

Method: 6010C
Matrix: SO

Analyte	Concentration (mg/kg)		Sample RPD	eQAPP RPD	Flag
	LL2SD-632-2531-SD (TOT)	LL2SD-632-4097-FD (TOT)			
LEAD	25.6	22.6	12		No Qualifiers Applied

Analyte	Concentration (mg/kg)		Sample RPD	eQAPP RPD	Flag
	LL3SD/SW-554-2539-SD (TOT)	LL3SD/SW-554-4099-FD (TOT)			
ANTIMONY	4.0	4.7	16		No Qualifiers Applied
COPPER	13.4	10.9	21		
IRON	12100	11600	4		
SILVER	0.52	0.29	57		
ZINC	133	95.0	33		

Analyte	Concentration (mg/kg)		Sample RPD	eQAPP RPD	Flag
	LL1SD-735-2536-SD (TOT)	LL1SD-735-4098-FD (TOT)			
COPPER	18.4	18.1	2		No Qualifiers Applied

Method: 8270D-SIM
Matrix: SO

Analyte	Concentration (ug/kg)		Sample RPD	eQAPP RPD	Flag
	LL2SD-632-2531-SD	LL2SD-632-4097-FD			
ACENAPHTHENE	28.5	63.0	75		No Qualifiers Applied
ACENAPHTHYLENE	32.8	76.2	80		
ANTHRACENE	101	228	77		
BENZO(A)ANTHRACENE	471	1210	88		
BENZO(A)PYRENE	463	1210	89		
BENZO(B)FLUORANTHENE	675	1580	80		
BENZO(G,H,I)PERYLENE	240	618	88		
BENZO(K)FLUORANTHENE	250	561	77		
CHRYSENE	496	1220	84		
DIBENZO(A,H)ANTHRACENE	79.7	208	89		
FLUORANTHENE	966	2370	84		
FLUORENE	40.3	84.9	71		
INDENO(1,2,3-CD)PYRENE	259	662	88		
NAPHTHALENE	16.6	47.9	97		
PHENANTHRENE	502	1140	78		
PYRENE	788	1920	84		

Project Name and Number: 212950.00.08.30.302 - PBA13 SEDIMENT- SURFACE WATER SAMPLING AT LL1-4

EDD Warning Log

Lab Reporting Batch ID: 119072

eQAPP: RVAAP (Leidos) 061416 **Laboratory: CT**

Table	Line #	Column	Value	Warning #	Description
Analytical Results	144	ReportingLimit	0.60	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	145	ReportingLimit	0.60	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	146	ReportingLimit	1.0	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	164	ReportingLimit	0.080	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	165	ReportingLimit	0.16	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	166	ReportingLimit	0.32	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	178	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	179	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	180	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	181	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	182	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	183	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	184	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	185	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	186	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	187	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	188	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	189	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	190	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	191	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	192	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	193	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	197	ReportingLimit	0.080	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	198	ReportingLimit	0.16	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	199	ReportingLimit	0.32	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	211	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	212	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	213	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	214	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	215	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	216	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	217	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	218	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	219	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).

EDD Warning Log

Lab Reporting Batch ID: 119072

eQAPP: RVAAP (Leidos) 061416 **Laboratory: CT**

Table	Line #	Column	Value	Warning #	Description
Analytical Results	220	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	221	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	222	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	223	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	224	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	225	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results	226	ReportingLimit	0.15	8	This reporting limit exceeds the allowable project reporting limit (corrected for %moisture and dilution).
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-631-2528-SD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-631-2528-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-631-2528-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-631-2528-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-631-2528-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-731-2532-SD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-731-2532-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-731-2532-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-731-2532-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-731-2532-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-732-2533-SD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-732-2533-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-732-2533-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-732-2533-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-732-2533-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-733-2534-SD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-733-2534-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-733-2534-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-733-2534-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-733-2534-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-734-2535-SD.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-734-2535-SD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-734-2535-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-734-2535-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-734-2535-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-2536-SD.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-2536-SD.

EDD Warning Log

Lab Reporting Batch ID: 119072

eQAPP: RVAAP (Leidos) 061416 **Laboratory: CT**

Table	Line #	Column	Value	Warning #	Description
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-2536-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-2536-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-2536-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-4098-FD.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-4098-FD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-4098-FD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-4098-FD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL1SD-735-4098-FD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-630-2530-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-630-2530-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-630-2530-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-630-2530-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-2531-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-2531-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-2531-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-2531-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-4097-FD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-4097-FD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-4097-FD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-632-4097-FD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-633-2529-SD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-633-2529-SD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-633-2529-SD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-633-2529-SD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL2SD-633-2529-SD.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL3SD/SW-553-2537-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-553-2538-SW.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-553-2538-SW.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-553-2538-SW.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-553-2538-SW.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-553-2538-SW.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-553-2538-SW.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL3SD/SW-554-2539-SD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-2540-SW.

EDD Warning Log

Lab Reporting Batch ID: 119072

eQAPP: RVAAP (Leidos) 061416 **Laboratory: CT**

Table	Line #	Column	Value	Warning #	Description
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-2540-SW.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-2540-SW.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-2540-SW.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-2540-SW.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-2540-SW.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'SO', but is not reported for sample LL3SD/SW-554-4099-FD.
Analytical Results				10	IRON (7439-89-6) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-4100-FD.
Analytical Results				10	LEAD (7439-92-1) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-4100-FD.
Analytical Results				10	SILVER (7440-22-4) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-4100-FD.
Analytical Results				10	ANTIMONY (7440-36-0) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-4100-FD.
Analytical Results				10	COPPER (7440-50-8) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-4100-FD.
Analytical Results				10	ZINC (7440-66-6) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample LL3SD/SW-554-4100-FD.
Analytical Results				10	MANGANESE (7439-96-5) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample PBA13-QC-6251-ER.
Analytical Results				10	MANGANESE (7439-96-5) is a required target analyte for Method: '6010C' and Matrix: 'AQ', but is not reported for sample PBA13-QC-6252-FB.
Analytical Results				14	ANTIMONY (7440-36-0) is a required SPK compound for Method: '6010C', Matrix: 'SO' and QCType: 'MS', but is not reported for sample LL2SD-632-2531-SDMS.
Analytical Results				14	COPPER (7440-50-8) is a required SPK compound for Method: '6010C', Matrix: 'SO' and QCType: 'MS', but is not reported for sample LL2SD-632-2531-SDMS.
Analytical Results				14	IRON (7439-89-6) is a required SPK compound for Method: '6010C', Matrix: 'SO' and QCType: 'MS', but is not reported for sample LL2SD-632-2531-SDMS.
Analytical Results				14	ZINC (7440-66-6) is a required SPK compound for Method: '6010C', Matrix: 'SO' and QCType: 'MS', but is not reported for sample LL2SD-632-2531-SDMS.
Analytical Results				14	ANTIMONY (7440-36-0) is a required SPK compound for Method: '6010C', Matrix: 'AQ' and QCType: 'MS', but is not reported for sample LL3SD/SW-553-2538-SWMS.
Analytical Results				14	COPPER (7440-50-8) is a required SPK compound for Method: '6010C', Matrix: 'AQ' and QCType: 'MS', but is not reported for sample LL3SD/SW-553-2538-SWMS.
Analytical Results				14	IRON (7439-89-6) is a required SPK compound for Method: '6010C', Matrix: 'AQ' and QCType: 'MS', but is not reported for sample LL3SD/SW-553-2538-SWMS.
Analytical Results				14	LEAD (7439-92-1) is a required SPK compound for Method: '6010C', Matrix: 'AQ' and QCType: 'MS', but is not reported for sample LL3SD/SW-553-2538-SWMS.
Analytical Results				14	SILVER (7440-22-4) is a required SPK compound for Method: '6010C', Matrix: 'AQ' and QCType: 'MS', but is not reported for sample LL3SD/SW-553-2538-SWMS.
Analytical Results				14	ZINC (7440-66-6) is a required SPK compound for Method: '6010C', Matrix: 'AQ' and QCType: 'MS', but is not reported for sample LL3SD/SW-553-2538-SWMS.
Sample Analysis				38	MethodBatch '126454' is missing a sample of QCType 'MS' for LabAnalysisRefMethodID '8330B'
Sample Analysis				38	MethodBatch '126454' is missing a sample of QCType 'MSD' for LabAnalysisRefMethodID '8330B'
Sample Analysis				38	MethodBatch '126317' is missing a sample of QCType 'MS' for LabAnalysisRefMethodID '8081B'
Sample Analysis				38	MethodBatch '126317' is missing a sample of QCType 'MSD' for LabAnalysisRefMethodID '8081B'
Sample Analysis				38	MethodBatch '126320' is missing a sample of QCType 'MS' for LabAnalysisRefMethodID '8270D-SIM'

EDD Warning Log

Lab Reporting Batch ID: 119072

eQAPP: RVAAP (Leidos) 061416 **Laboratory: CT**

Table	Line #	Column	Value	Warning #	Description
Sample Analysis				38	MethodBatch '126320' is missing a sample of QCType 'MSD' for LabAnalysisRefMethodID '8270D-SIM'