**Data Validation Summary Report, Revision 1**
**Dioxin Impacted Soil Removal Action and**
**Zero-Valent Iron Treatability Study, Modification No. 5**
**September 2018 through April 2019**
**Nevada Environmental Response Trust**
**Henderson, Nevada**

Prepared for

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December 12, 2019

# DVSR and EDD for the Dioxin Impacted Soil Removal Action and Zero-Valent Iron Treatability Study, Modification No. 5, Revision 1

## Nevada Environmental Response Trust
### Site (Former Tronox LLC Site)
### Henderson, Nevada

## Nevada Environmental Response Trust (NERT) Representative Certification

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of NERT. Based on my own involvement and/or my inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

**Signature:**

**Name:** Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

**Title:** Solely as President and not individually

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**Date:** 12/13/19

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# DVSR and EDD for the Dioxin Impacted Soil Removal Action and Zero-Valent Iron Treatability Study, Modification No. 5, Revision 1

Nevada Environmental Response Trust
Site (Former Tronox LLC Site)
Henderson, Nevada

**Responsible Certified Environmental Manager (CEM) for this project**
I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.


_____          _____December 13, 2019_____

John M. Pekala, PG                                               Date
Principal


Certified Environmental Manager
Ramboll US Corporation
CEM Certificate Number: 2347
CEM Expiration Date: September 20, 2020

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Table of Contents

Table of Contents

Table of Contents

| Section | Title | Page No. |
|---|---|---|

**LIST OF TABLES**

**ATTACHMENTS**

# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| CCB | Continuing Calibration Blank |
| CCV | Continuing Calibration Verification |
| DL | Detection Limit |
| DNR | Do Not Report |
| DOC | Dissolved Organic Carbon |
| DQO | Data Quality Objectives |
| DUP | Laboratory Duplicate |
| DVR | Data Validation Report |
| DVSR | Data Validation Summary Report |
| EB | Equipment Blank |
| EMPC | Estimated Maximum Possible Concentration |
| FB | Field Blank |
| FD | Field Duplicate |
| ICB | Initial Calibration Blank |
| ICV | Initial Calibration Verification |
| LCS/LCSD | Laboratory Control Sample / Laboratory Control Sample Duplicate |
| LDC | Laboratory Data Consultants, Inc. |
| MB | Method Blank |
| MDL | Method Detection Limit |
| MS/MSD | Matrix Spike / Matrix Spike Duplicate |
| NDEP | Nevada Department of Environmental Protection |
| NERT | Nevada Environmental Response Trust |
| NFG | National Functional Guidelines |
| PAH | Polynuclear Aromatic Hydrocarbons |
| PARCCS | Precision, Accuracy, Representativeness, Comparability, Completeness, Sensitivity |
| PCDD/PCDF | Polychlorinated Dioxin and Dibenzofuran |
| PCB | Polychlorinated Biphenyls |
| PQL | Practical Quantitation Limit |
| QA/QC | Quality Assurance / Quality Control |
| QAPP | Quality Assurance Project Plan |
| RPD | Relative Percent Difference |
| SDG | Sample Delivery Group |
| SIM | Selected Ion Monitoring |
| SOP | Standard Operating Procedure |
| SQL | Sample Quantitation Limit |
| SVOC | Semivolatile Organic Compound |
| TB | Trip Blank |
| TDS | Total Dissolved Solids |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TEQ | Toxic Equivalency Quantity |
| TPHE | Total Petroleum Hydrocarbons as Extractables |
| USEPA | United States Environmental Protection Agency |
| VOC | Volatile Organic Compound |
| ZVI | Zero-Valent Iron |
| %RSD | Percent Relative Standard Deviation |
| %D | Percent Difference |
| %R | Percent Recovery |

## 1.0     INTRODUCTION

This data validation summary report (DVSR) has been prepared by Laboratory Data Consultants, Inc. (LDC) to assess the validity and usability of laboratory analytical data associated with the Dioxin Impacted Soil Removal Action and Zero-Valent Iron (ZVI) Treatability Study sampling efforts completed from September 2018 through April 2019, conducted at the Nevada Environmental Response Trust (NERT) site in Henderson, Nevada.  The assessment was performed by Ramboll as a part of the *Quality Assurance Project Plan, Revision 2, Nevada Environmental Response Trust Site, Henderson, Nevada* dated October 2017 and included the collection and analyses of 110 environmental and quality control (QC) samples. In addition, a waste pile sample, ECA-COMPOSITE-20190401, was collected and analyzed; however, since this composite sample was not validated, analyte counts were not included in the DVSR. The analyses were performed by the following methods:

Volatile Organic Compounds (VOC) by Environmental Protection Agency (EPA) SW-846 Method 8260B
Semivolatile Organic Compounds (SVOC) by EPA SW-846 Method 8270C
Polynuclear Aromatic Hydrocarbons (PAH) by EPA SW-846 Method 8270C in SIM mode
Chlorinated Pesticides by EPA SW-846 Method 8081A
Polychlorinated Biphenyls (PCB) as Aroclors by EPA SW-846 Method 8082
Gasoline Range Organics (GRO) by EPA SW-846 Method 8015B
Total Petroleum Hydrocarbons as Extractables (TPHE) by EPA SW-846 Method 8015B
Polychlorinated Dioxin and Dibenzofuran (PCDD/PCDF) by EPA SW-846 Method 8290
Total PCDD/PCDF Toxic Equivalency Quantity (TEQ) by EPA SW-846 Method 8290 Calculation
Metals by EPA Methods 200.7 and EPA SW-846 Methods 6010B/7470A/7471B

Wet Chemistry:
Dissolved Hexavalent Chromium by EPA Method 218.6 and Hexavalent Chromium by EPA SW 846 Method 7199
Chloride, Fluoride, Nitrate as Nitrate, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate (Anions) by EPA Method 300.0
Chlorate by EPA Method 300.1B
Perchlorate by EPA Method 314.0
Alkalinity by Standard Method 2320B
Total Dissolved Solids (TDS) by Standard Method 2540C
Ferric Iron by Standard Method 3500
Ferrous Iron by Standard Method 3500-FE D
Dissolved Organic Carbon (DOC) by Standard Method 5310B
Total Organic Carbon (TOC) by Standard Method 5310B and EPA SW 846 Method 9060
Ignitability by EPA SW 846 Method 7.1.2
Total Cyanide by EPA SW 846 Method 9014
Sulfide by EPA SW 846 Method 9034
pH by EPA SW 846 Method 9045C

Laboratory analytical services were provided by Eurofins. The samples were grouped into sample delivery groups (SDGs). The soil and water samples are associated with quality assurance and quality control (QA/QC) samples designed to document the data quality of the entire SDG or a sub-group of samples within an SDG. Table I is a cross-reference table listing each sample, analysis, SDG, collection date, laboratory sample number, matrix, and validation level. An individual sample may be on multiple rows if it is reported in more than one SDG or if its analytes were validated at different validation levels. Table II is a reference table that identifies the QC elements reviewed for each validation level per method, as applicable.

The laboratory analytical data were validated in accordance with procedures described in the Nevada Division of Environmental Protection (NDEP) *Data Validation Guidance* established for the BMI Plant

Sites and Common Areas Projects, Henderson, Nevada, July 13, 2018. An email from NDEP to the Trust dated December 7, 2018 (2018b) clarified the guidance for reporting multiple results as follows:

> Multiple results can be reported for a single analyte for several reasons: dilutions to report analytes within the linear range of the calibration, results reported with QC sample outliers can be reanalyzed beyond the holding time and both results are reported, and analytes can be reported from two different methods (e.g., SW-846 8260 and 8270). In cases where more than one result is reported for an analyte in a sample, and only one result is valid, the most technically sound value is to be reported and the other result is to be rejected or otherwise qualified as unused (e.g. "R" or "DNR"). The professional judgment used to choose the most technically sound result should be documented in the validation report and the DVSR.

Consistent with the NDEP requirements, one hundred percent of the water analytical data were validated according to Stage 2A and approximately ninety percent of the soil analytical data were validated according to Stage 2B data validation procedures and approximately ten percent of the soil samples were validated according to Stage 4 data validation procedures. The number of samples and percentage of samples validated to Stage 2A, Stage 2B, and Stage 4 for each method is presented in Table III.

The analytical data were evaluated for QA/QC based on the following documents: *Quality Assurance Project Plan, Revision 2, Nevada Environmental Response Trust Site, Henderson, Nevada* dated October 2017; a modified outline of the *USEPA National Functional Guidelines* (NFGs) *for Organic Superfund Methods Data Review* (January 2017), *for Inorganic Superfund Data Review* (January 2017), and *for High Resolution Superfund Method Data Review* (April 2016); *Standard Method for the Examination of Water and Wastewater 22nd edition (2012);* and the *EPA SW 846 Third Edition, Test Methods for Evaluating Solid Waste,* update I, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IV, February 2007; update V, July 2014.

This report summarizes the QA/QC evaluation of the data according to precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) relative to the project data quality objectives (DQOs). This report provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

The PARCCS summary report evaluates and summarizes the results of QA/QC data validation for the entire sampling program. Each analytical fraction has a separate section for each of the PARCCS criteria. These sections interpret specific QC deviations and their effects on both individual data points and the analyses as a whole. Section 13.0 presents a summary of the PARCCS criteria by comparing quantitative parameters with acceptability criteria defined in the project DQO's. Qualitative PARCCS criteria are also summarized in this section.

**Precision and Accuracy of Environmental Data**

Environmental data quality depends on sample collection procedures, analytical methods and instrumentation, documentation, and sample matrix properties. Both sampling procedures and laboratory analyses contain potential sources of uncertainty, error, and/or bias, which affect the overall quality of a measurement. Errors for sample data may result from incomplete equipment decontamination, inappropriate sampling techniques, sample heterogeneity, improper filtering, and improper preservation. The accuracy of analytical results is dependent on selecting appropriate analytical methods, maintaining equipment properly, and complying with QC requirements. The sample matrix also is an important factor in the ability to obtain precise and accurate results within a given media.

Environmental and laboratory QA/QC samples assess the effects of sampling procedures and evaluate laboratory contamination, laboratory performance, and matrix effects. QA/QC samples include: trip blanks (TBs), equipment blanks (EBs), field blanks (FBs), field duplicates (FDs), calibration blanks, method blanks, laboratory control samples/laboratory control sample duplicates (LCS/LCSDs), matrix spike/matrix spike duplicates (MS/MSDs), and laboratory duplicates (DUPs).

Before conducting the PARCCS evaluation, the analytical data were validated according to the NDEP Data Validation Guidance (July 2018), QAPP (October 2017), NFGs (USEPA 2016, 2017), and EPA SW-846 Test Methods. Samples not meeting the acceptance criteria were qualified with a flag, an abbreviation indicating a deficiency with the data. The following are flags used in data validation.

J-      Estimated The associated numerical value is an estimated quantity with a negative bias. The analyte was detected but the reported value may not be accurate or precise.

J+      Estimated The associated numerical value is an estimated quantity with a positive bias. The analyte was detected but the reported value may not be accurate or precise.

J       Estimated The associated numerical value is an estimated quantity. It is not possible to assess the direction of the potential bias. The analyte was detected but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits, but the exceedance was not sufficient to cause rejection of the data.

R       Rejected The data is unusable (the analyte may or may not be present). Use of the "R" qualifier indicates a significant variance from functional guideline acceptance criteria. Either resampling or reanalysis is necessary to determine the presence or absence of the rejected analyte.

U       Nondetected Analyses were performed for the compound or analyte, but it was not detected.

UJ      Estimated/Nondetected Analyses were performed for the analyte, but it was not detected and the sample quantitation or detection limit is an estimated quantity due to poor accuracy or precision.

DNR     Do Not Report A more appropriate result is reported from another analysis or dilution.

A       Indicates the finding is based upon technical validation criteria.

P       Indicates the finding is related to a protocol/contractual deviation.

The hierarchy of flags is listed below:

R > J                           The R flag will always take precedence over the J qualifier.

J+                              The high bias (J+) flag is applied only to detected results.

J > J+ or J-                    A non-biased (J) flag will always supersede biased (J+ or J-) flags since it is not possible to assess the direction of the potential bias.

J = J+ plus J-                  Adding biased (J+, J-) flags with opposite signs will result in a non-biased flag (J).

UJ = U plus J                   The UJ flag is used when a non-detected (U) flag is added to a non-biased flag (J).

Table IV lists the reason codes used. Reason codes explain why flags have been applied and allow data users to assess if a result is usable with qualification due to QA/QC outliers or not usable when rejected due to QA/QC outliers. Reason codes are cumulative except when one of the flags is R then only the reason code associated to the R flag will be used.

Table V presents the overall qualified results after all the flags or validation qualifiers and associated reason codes have been applied.

Once the data are reviewed and qualified according to the QAPP, NFG, and EPA Test Methods, the data set is then evaluated using PARCCS criteria. PARCCS criteria provide an evaluation of overall data usability. The following is a discussion of PARCCS criteria as related to the project DQOs.

**Precision** is a measure of the agreement or reproducibility of analytical results under a given set of conditions. It is a quantity that cannot be measured directly but is calculated from reported concentrations.

Precision is expressed as the relative percent difference (RPD):

$$RPD = (D1-D2)/\{1/2(D1+D2)\} \times 100$$

where:
D1 = reported concentration for the sample
D2 = reported concentration for the duplicate

Precision is primarily assessed by calculating an RPD from the reported concentrations of the spiked compounds for each sample in the MS/MSD pair. In the absence of an MS/MSD pair, a laboratory duplicate or LCS/LCSD pair can be analyzed as an alternative means of assessing precision. An additional measure of sampling precision was obtained by collecting and analyzing field duplicate samples, which were compared using the RPD result as the evaluation criteria.

MS and MSD samples are field samples spiked by the laboratory with target analytes prior to preparation and analysis. These samples measure the overall efficiency of the analytical method in recovering target analytes from an environmental matrix. A LCS is similar to an MS/MSD sample in that the LCS is spiked with the same target analytes prior to preparation and analysis. However, the LCS is prepared using a controlled interference-free matrix instead of a field sample aliquot. Laboratory reagent water or solid matrix is used to prepare an LCS. The LCS measures laboratory efficiency in recovering target analytes from either matrix in the absence of matrix interferences.

DUPs measure laboratory precision. DUPs are replicate samples and are prepared by taking two aliquots from one sample container. The analytical results for DUPs are reported as the RPD between the results of the two aliquots.

Laboratory and field sampling precision are evaluated by calculating RPDs for field sample duplicate pairs. The sampler collects two field samples at the same location and under identically controlled conditions. The laboratory then analyzes the samples under identical conditions.

An RPD outside the numerical QC limit in the LCS/LCSD, MS/MSD, DUPs, or field duplicates indicates imprecision. Imprecision is the variance in the consistency with which the laboratory arrives at a particular reported result. Thus, the actual analyte concentration may be higher or lower than the reported result.

Possible causes of poor precision include sample heterogeneity, improper sample collection or handling, inconsistent sample preparation, and poor instrument stability. In some duplicate pairs, results may be reported in either the primary or duplicate samples at levels below the practical quantitation limit (PQL) or non-detected. Since these values are considered to be estimates, RPD exceedances from these duplicate pairs do not suggest a significant impact on the data quality.

**Accuracy** is a measure of the agreement of an experimental determination and the true value of the parameter being measured. It is used to identify bias in a given measurement system. Recoveries outside acceptable QC limits may be caused by factors such as instrumentation, analyst error, or matrix interference. Accuracy is assessed through the analysis of MS, MSD, LCS, and samples containing surrogate spikes. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. Surrogate spikes are either isotopically labeled compounds or compounds that are not typically detected in the samples. Surrogate spikes are added to every blank, environmental sample, LCS, MS/MSD, and standard, for all applicable organic analyses. Accuracy of inorganic analyses is determined using the percent recoveries of MS and LCS analyses.

Percent recovery (%R) is calculated using the following equation:

$$\%R = (A-B)/C \times 100$$

where:
A = measured concentration in the spiked sample
B = measured concentration of the spike compound in the unspiked sample
C = concentration of the spike

The percent recovery of each analyte spiked in MS/MSD samples, LCS/LCSD, and surrogate compounds added to environmental samples is evaluated with the acceptance criteria specified by the previously noted documents. Spike recoveries outside the acceptable QC accuracy limits provide an indication of bias, where the reported data may overestimate or underestimate the actual concentration of compounds detected or quantitation limits reported for environmental samples.

**Representativeness** is a qualitative parameter that expresses the degree to which the sample data are characteristic of a population. It is evaluated by reviewing the QC results of blanks, samples and holding times. Positive detects of compounds in the blank samples identify compounds that may have been introduced into the samples during sample collection, transport, preparation, or analysis. The QA/QC blanks collected and analyzed are method blanks, initial calibration blanks (ICB), and continuing calibration blanks (CCB), EBs and FBs.

A method blank is a laboratory grade water or solid matrix that contains the method reagents and has undergone the same preparation and analysis as the environmental samples. The method blank provides a measure of the combined contamination derived from the laboratory source water, glassware, instruments, reagents, and sample preparation steps. Method blanks are prepared for each sample of a similar matrix extracted by the same method at a similar concentration level.

Calibration blanks consist of acidified laboratory grade water, which are injected at the beginning and at a regular frequency during each 12 - hour sample analysis run. These blanks estimate residual contaminants from the previous sample or standards analysis and measure baseline shifts that commonly occur in emission and absorption spectroscopy.

Equipment blanks consist of analyte-free water poured over or through the sample collection equipment. The water is collected in a sample container for laboratory analysis. These blanks are collected after the sampling equipment is decontaminated and measure efficiency of the decontamination procedure.

Field blanks consist of analyte-free source water stored at the sample collection site. The water is collected from each source water used during each sampling event.

Holding times are evaluated to assure that the sample integrity is intact for accurate sample preparation and analysis. Holding times will be specific for each method and matrix analyzed. Holding time exceedance can cause loss of sample constituents due to biodegradation, precipitation, volatilization, and chemical degradation.

**Comparability** is a qualitative expression of the confidence with which one data set may be compared to another. It provides an assessment of the equivalence of the analytical results to data obtained from other analyses. It is important that data sets be comparable if they are used in conjunction with other data sets. The factors affecting comparability include the following: sample collection and handling techniques, matrix type, and analytical method. If these aspects of sampling and analysis are carried out according to standard analytical procedures, the data are considered comparable. Comparability is also dependent upon other PARCCS criteria, because only when precision, accuracy, and representativeness are known can data sets be compared with confidence.

**Completeness** is defined as the percentage of acceptable sample results compared to the total number of sample results. Completeness is evaluated to determine if an acceptable amount of usable data were obtained so that a valid scientific site assessment can be completed. Completeness equals the total number of sample results for each fraction minus the total number of rejected sample results divided by the total number of sample results multiplied by 100. As specified in the project DQOs, the goal for completeness for target analytes in each analytical fraction is 90 percent.

Percent completeness is calculated using the following equation:

$$\%C = (T - R)/T \times 100$$

where:
%C  = percent completeness
T    = total number of sample results
R    = total number of rejected sample results

Completeness is also determined by comparing the planned number of samples per method and matrix as specified in the QAPP, with the number determined above.

**Sensitivity** is the ability of an analytical method or instrument to discriminate between measurement responses representing different concentrations. This capability is established during the planning phase to meet the DQOs. It is important that calibration requirements, detection limits (DLs), and PQLs presented in the QAPP are achieved and that target analytes can be detected at concentrations necessary to support the DQOs. The method detection limits (MDLs) represent the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. Sample quantitation limits (SQLs) are adjusted MDL values that reflect sample specific actions, such as dilutions or varying aliquot sizes. PQLs are the lowest level at which the entire analytical system gives a recognizable signal and acceptable calibration point for the analyte. The laboratory is required to report detected analytes down to the SQL for this project. In addition, sample results are compared to method blank and field blank results to identify potential effects of laboratory background and field procedures on sensitivity.

The QA/QC criteria were met with the exceptions noted in the following sections for each analytical method.

## 2.0 VOLATILE ORGANIC COMPOUNDS

A total of 13 soil samples were analyzed for VOC by EPA SW-846 Method 8260B. All VOC data were assessed to be valid since none of the 884 total results were rejected due to holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

### 2.1 Precision and Accuracy

### 2.1.1 Instrument Calibration

Initial and continuing calibration results provide a means of evaluating accuracy within a particular SDG. Relative response factor (RRF), percent relative standard deviation (%RSD), and percent difference (%D) are the major parameters used to measure the effectiveness of instrument calibration. RRF is a measure of the relative spectral response of an analyte compared to its internal standard. %RSD is an expression of the linearity of instrument response. %D is a comparison of a continuing calibration instrumental response with its initial response. %RSD and %D exceedances suggest routine instrumental anomalies, which typically impact all sample results for the affected compounds.

The %RSDs met the acceptance criteria of 15 percent for each individual compound and 30 percent for calibration check compounds, or the coefficient of determination ($r^2$) was $\geq 0.990$ in the initial calibration.

Forty-two (42) results were qualified as estimated (J-) or non-detected estimated (UJ). The %Ds in the initial and continuing calibration verifications (CCV) were outside the acceptance criteria of 20 percent. The details regarding the qualification of results are provided in Attachment A.

### 2.1.2 Surrogates

All surrogate %Rs met the laboratory acceptance criteria for this analysis.

### 2.1.3 MS/MSD Samples

No data were qualified due to a MS %R above the laboratory acceptance criteria since the associated sample result was not detected.

All MS/MSD RPD met the laboratory acceptance criteria for this analysis.

### 2.1.4 LCS/LCSD Samples

All LCS %Rs met the laboratory acceptance criteria for this analysis.

### 2.1.5 Internal Standards

All internal standard areas retention times met the method acceptance criteria.

### 2.1.6 FD Samples

FD samples were not collected for this analysis.

### 2.1.7 Compound Quantitation and Target Identification

Raw data were evaluated for five (5) samples. All target identifications were acceptable and all reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

**2.2     Representativeness**

**2.2.1     Sample Preservation and Holding Times**

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day analysis holding time criteria.

**2.2.2     Blanks**

Method blanks were analyzed to evaluate representativeness. The concentration for an individual target compound in any of the types of QA/QC blanks was used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation.  The corrective action consisted of amending the laboratory reported results based on the following criteria.

> Results Below the PQL - Using professional judgment, if a sample result for the blank contaminant was less than the PQL and the sample result was less than or equal to 2 times the blank value, the sample result was qualified as detected estimated (J) at the reported concentration.

> Results Above the PQL - Using professional judgment, if a sample result for the blank contaminant was greater than the PQL and the sample result was less than or equal to 2 times the blank contaminant value, the sample result was qualified as detected estimated (J+) at the reported concentration.

> No Action - Using professional judgment, if a sample result for the blank contaminant was greater than 2 times the blank value, the result was not qualified.

For this data set, two times the blank value was used to assess all contaminants for organic methods, with the exception of the dioxin analysis which was assessed using five times the blank value.  This allows the data not to be censored and provides an understanding of the level of contamination relative to that found in the samples.  To ensure comparability, this approach is employed for all data sets associated with the Remedial Investigation collected for the NERT site by Ramboll.

**2.2.2.1  Method Blanks**

No contaminants were detected in the method blanks.

**2.3     Comparability**

The laboratory used standard analytical methods for all of the analyses.  In all cases, the SQLs attained were at or below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the VOC data is regarded as acceptable.

**2.4     Completeness**

The completeness level attained for VOC field samples was 100 percent.  This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

## 2.5    Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

## 3.0    SEMIVOLATILE ORGANIC COMPOUNDS

A total of 11 soil samples were analyzed by EPA SW-846 Method 8270C. Three (3) of the 11 soil samples underwent Toxicity Characteristic Leaching Procedure (TCLP) extraction. All SVOC data were assessed to be valid with the exception of 12 of the 731 total results which were rejected based on extremely low MS/MSD and LCS %Rs. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

### 3.1    Precision and Accuracy

### 3.1.1    Instrument Calibration

The %RSDs met the acceptance criteria of 15 percent for each individual compound and 30 percent for calibration check compounds, or the coefficient of determination ($r^2$) was $\geq 0.990$ in the initial calibration.

Seven (7) benzyl alcohol and benzoic acid results were qualified as non-detected estimated (UJ). The %Ds in the continuing calibration verifications were outside the acceptance criteria of 20 percent. No data were qualified due to initial calibration verifications above the acceptance criteria of 20 percent since the associated results were not detected.  The details regarding the qualification of results are provided in Attachment B.

### 3.1.2    Surrogates

One acid surrogate %R was above the laboratory acceptance criteria for sample DSPE-3-1.5-20180919TCLP. Using professional judgment, no data were qualified when one base or one acid surrogate %R was outside the laboratory acceptance criteria and the %R was greater than or equal to 10 percent.

### 3.1.3    MS/MSD Samples

As a result of grossly exceeded MS/MSD %Rs (i.e., 0%), the benzidine and benzoic acid results for samples DSPE-4-0.0-20180919 and the benzidine result for sample ECA-CONFIRMATION-20190401 were qualified as rejected (R). Additionally, the hexachlorobenzene result for sample DSPE-4-0.0-20180919 and the nitrobenzene result from the TCLP analysis of sample DSPE-4-0.0-20180919 were qualified as detected estimated (J-) or non-detected estimated (UJ) as a result of MS/MSD %Rs below the laboratory acceptance criteria.

No data were qualified due to a MS/MSD RPD above the laboratory acceptance criteria for pyridine since the associated sample result was not detected.

The details regarding the qualification of results are provided in Attachment B.

### 3.1.4    LCS/LCSD Samples

As a result of a grossly exceeded LCS %R (e.g., 0%), 10 benzidine results were qualified as rejected (R). The details regarding the qualification of results are provided in Attachment B.

No data were qualified due to a LCS/LCSD RPD above the laboratory acceptance criteria for pentachlorophenol since the associated sample results were not detected.

### 3.1.5    Internal Standards

All internal standard retention times met the method acceptance criteria.

### 3.1.6    FD Samples

FD samples were not collected for this analysis.

### 3.1.7    Compound Quantitation and Target Identification

Raw data were evaluated for five (5) soil samples and one TCLP sample.  All target identifications were acceptable and all reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

### 3.2    Representativeness

### 3.2.1    Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day extraction and 40-day analysis holding time criteria.

The results for sample DSPE-3-1.5-20180919TCLP were qualified as non-detected estimated (UJ). The TCLP extraction holding time criteria is 14 days. The details regarding the qualification of results are presented in Attachment B.

### 3.2.2    Blanks

Method blanks were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 2.2.2.

### 3.2.2.1  Method Blanks

No contaminants were detected in the method blanks.

### 3.3    Comparability

The laboratory used standard analytical methods for all of the analyses.  In all cases, the SQLs attained were at or below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the VOC data is regarded as acceptable.

### 3.4    Completeness

The completeness level attained for SVOC field samples was 98.36 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

**3.5    Sensitivity**

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

**4.0    POLYNUCLEAR AROMATIC HYDROCARBONS**

One soil sample was analyzed for PAH by EPA SW-846 Method 8270C-SIM. All PAH data were assessed to be valid since none of the 16 total results were rejected due to holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

**4.1    Precision and Accuracy**

**4.1.1    Instrument Calibration**

The %RSDs met the acceptance criteria of 15 percent in the initial calibration in the initial calibration. The %Ds in the initial and continuing calibration verifications met the acceptance criteria of 20 percent.

**4.1.2    Surrogates**

All surrogate %Rs met the laboratory acceptance criteria for this analysis.

**4.1.3    MS/MSD Samples**

MS/MSD was not performed for this analysis.

**4.1.4    LCS Samples**

All LCS %Rs were within the laboratory acceptance criteria.

**4.1.5    Internal Standards**

All internal standard areas and retention times met method acceptance criteria.

**4.1.6    FD Samples**

FD samples were not collected for this analysis.

**4.1.7    Compound Quantitation and Target Identification**

Raw data were evaluated for one soil sample.  All reported non-detect sample results were correctly calculated for this Stage 4 sample.

**4.2    Representativeness**

**4.2.1    Holding Times**

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day extraction and 40-day analysis holding time criteria.

**4.2.2    Blanks**

Method blanks were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 2.2.2.

**4.2.2.1 Method Blanks**

No contaminants were detected in the method blanks for this analysis.

**4.3    Comparability**

The laboratory used standard analytical methods for all of the analyses.  In all cases, the SQLs attained were below the PQLs. The comparability of the data is regarded as acceptable.

**4.4    Completeness**

The completeness level attained for PAH field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

**4.5    Sensitivity**

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

**5.0    CHLORINATED PESTICIDES**

A total of 13 soil samples were analyzed for chlorinated pesticides by EPA SW-846 Method 8081A. All chlorinated pesticide data were assessed to be valid since none of the 286 total results were rejected due to holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

**5.1    Precision and Accuracy**

**5.1.1    Instrument Calibration**

The %RSDs met the acceptance criteria of 20 percent or the coefficient of determination ($r^2$) was $\geq 0.990$ in the initial calibration. The %Ds in the initial and continuing calibration verifications met the acceptance criteria of 20 percent.

**5.1.2    Surrogates/Internal Standards**

Sixteen (16) results for six (6) samples were qualified as detected estimated (J+) due to surrogate %Rs above the laboratory acceptance criteria. The details regarding the qualification of results are provided in Attachment D.

All internal standard areas and retention times met the method acceptance criteria.

### 5.1.3 MS/MSD Samples

The 4,4'-DDE result for sample DSPE-5-1.0-20180919 was qualified as detected estimated (J+) as a result of MS/MSD %Rs above the laboratory acceptance criteria. The details regarding the qualification of results are provided in Attachment D.

All MS/MSD RPDs met the laboratory acceptance criteria for this analysis.

### 5.1.4 LCS Samples

All LCS %Rs met the laboratory acceptance criteria for this analysis.

### 5.1.5 FD Samples

FD samples were not collected for this analysis.

### 5.1.6 Compound Quantitation and Target Identification

Raw data were evaluated for five (5) soil samples. All target identifications were acceptable and all reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

### 5.2 Representativeness

### 5.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day extraction and 40-day analysis holding time criteria.

### 5.2.2 Blanks

Method blanks were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 2.2.2.

### 5.2.2.1 Method Blanks

No contaminants were detected in the method blanks for this analysis.

### 5.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the SQLs attained were at or below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the chlorinated pesticide data is regarded as acceptable.

### 5.4 Completeness

The completeness level attained for chlorinated pesticide field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

**5.5    Sensitivity**

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

**6.0    POLYCHLORINATED BIPHENYLS AS AROCLORS**

A total of six (6) soil samples were analyzed for PCB as aroclors by EPA SW-846 Method 8082. All PCB as aroclor data were assessed to be valid since none of the 42 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

**6.1    Precision and Accuracy**

**6.1.1    Instrument Calibration**

The %RSDs met the acceptance criteria of 20 percent or the coefficient of determination ($r^2$) was $\geq 0.990$ in the initial calibration. The %Ds in the initial and continuing calibration verifications met the acceptance criteria of 20 percent.

**6.1.2    Surrogates/Internal Standards**

No data were qualified due to surrogate %Rs above the laboratory acceptance criteria for four samples since the associated sample results were not detected.

All internal standard areas and retention times met the method acceptance criteria.

**6.1.3    MS/MSD Samples**

All MS/MSD %Rs and RPDs met the laboratory acceptance criteria for this analysis.

**6.1.4    LCS Samples**

All LCS %Rs met the laboratory acceptance criteria for this analysis.

**6.1.5    FD Samples**

FD samples were not collected for this analysis.

**6.1.6    Compound Quantitation and Target Identification**

Raw data were evaluated for one soil sample.  All reported non-detect sample results were correctly calculated for this Stage 4 sample.

**6.2    Representativeness**

**6.2.1    Sample Preservation and Holding Times**

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day extraction and 40-day analysis holding time criteria.

### 6.2.2 Blanks

Method blanks were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 2.2.2.

**6.2.2.1 Method Blanks**

No contaminants were detected in the method blanks.

### 6.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the SQLs attained were at or below the PQLs. The comparability of the PCB data is regarded as acceptable.

### 6.4 Completeness

The completeness level attained for PCB as aroclor field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

### 6.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

### 7.0 GASOLINE RANGE ORGANICS

A total of 12 soil samples were analyzed for GRO by EPA SW-846 Method 8015B. All GRO data were assessed to be valid since none of the 12 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

### 7.1 Precision and Accuracy

### 7.1.1 Instrument Calibration

The %RSDs in the initial calibration and %Ds in the initial and continuing calibration verifications met the acceptance criteria of 20 percent.

### 7.1.2 Surrogates

All surrogate %Rs met the laboratory acceptance criteria for this analysis.

### 7.1.3 MS/MSD Samples

All MS/MSD %Rs and RPDs met the laboratory acceptance criteria for this analysis.

### 7.1.4 LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs met the laboratory acceptance criteria for this analysis.

### 7.1.5 FD Samples

FD samples were not collected for this analysis.

### 7.1.6 Compound Quantitation and Target Identification

Raw data were evaluated for four (4) soil samples. All reported non-detect sample results were correctly calculated for these Stage 4 samples.

### 7.2 Representativeness

### 7.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day analysis holding time criteria.

### 7.2.2 Blanks

Method blanks were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 2.2.2.

### 7.2.2.1 Method Blanks

No contaminants were detected in the method blanks.

### 7.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the SQLs attained were at or below the PQLs. The comparability of the PCB data is regarded as acceptable.

### 7.4 Completeness

The completeness level attained for GRO field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

### 7.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

### 8.0 TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLES

A total of 12 soil samples were analyzed for TPHE by EPA SW-846 Method 8015B. All TPHE data were assessed to be valid since none of the 32 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

### 8.1    Precision and Accuracy

### 8.1.1    Instrument Calibration

The %RSDs in the initial calibration and %Ds in the initial and continuing calibration verifications met the acceptance criteria of 20 percent.

### 8.1.2    Surrogates

All surrogate %Rs met the laboratory acceptance criteria for this analysis.

### 8.1.3    MS/MSD Samples

All MS/MSD %Rs and RPDs met the laboratory acceptance criteria for this analysis.

### 8.1.4    LCS Samples

All LCS %Rs met the laboratory acceptance criteria for this analysis.

### 8.1.5    FD Samples

FD samples were not collected for this analysis.

### 8.1.6    Compound Quantitation and Target Identification

Raw data were evaluated for four (4) soil samples. All target identifications were acceptable and all reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

### 8.2    Representativeness

### 8.2.1    Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the 14-day extraction and 40-day analysis holding time criteria.

### 8.2.2    Blanks

Method blanks were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 2.2.2.

### 8.2.2.1 Method Blanks

As a result of contamination found in the method blanks, two (2) results were qualified as detected estimated (J), and two results were qualified as estimated with a high bias (J+). The details regarding the qualification of results are provided in Attachment G.

### 8.3    Comparability

The laboratory used standard analytical methods for all of the analyses.  In all cases, the SQLs attained were at or below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the PCB data is regarded as acceptable.

**8.4    Completeness**

The completeness level attained for TPHE field samples was 100 percent.  This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

**8.5    Sensitivity**

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

**9.0    POLYCHLORINATED DIOXINS AND DIBENZOFURANS**

A total of 17 soil and two (2) water samples were analyzed for PCDD/PCDFs and the Total TEQ calculated by EPA SW-846 Method 8290. All PCDD/PCDF data were assessed to be valid since none of the 494 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

**9.1    Precision and Accuracy**

**9.1.1    Instrument Calibration**

The %RSDs in the initial calibration and the %Ds in the initial and continuing calibration verifications met the acceptance criteria of 20 percent for unlabeled compounds and 30 percent for labeled compounds. The ion abundance ratios met the method acceptance criteria.

**9.1.2    MS/MSD Samples**

MS/MSD was not performed for this analysis.

**9.1.3    LCS/LCSD Samples**

All LCS/LCSD %Rs and RPDs met the laboratory acceptance criteria for this analysis.

**9.1.4    Labeled Compounds**

All labeled compound %Rs met the method acceptance criteria.

**9.1.5    FD Samples**

FD samples were not collected for this analysis.

**9.1.6    Compound Quantitation and Target Identification**

Raw data were evaluated for three (3) soil samples. All target identifications were acceptable and all reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

As a result of compound quantitation non-conformances, seven (7) results for four (4) samples exceeding the calibration range, 47 results in five samples due to matrix interference and 88 results reported by the laboratory as estimated maximum possible concentration (EMPC) were qualified as estimated (J). The details regarding the qualification of results are provided in Attachment H.

**9.2    Representativeness**

**9.2.1    Sample Preservation and Holding Times**

The evaluation of holding times to verify compliance with the method was conducted. All soil samples met the method holding time criteria of 30-day extraction and 45-day analysis. There is no holding time for PCDD/PCDFs per EPA SW-846 update V, July 2014, Revision 5.

**9.2.2    Blanks**

Method blanks, EBs and FBs were collected and analyzed to evaluate representativeness. The concentration for an individual target compound in any of the types of QA/QC blanks was used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation. The corrective action consisted of amending the laboratory reported results based on the following criteria.

> Results Below or Above the PQL - If a sample result for the blank contaminant was less than or greater than the PQL and the sample result was less than or equal to 5 times the blank value, the sample result was qualified as detected estimated (J) at the reported concentration.

> No Action - If a sample result for the blank contaminant was greater than 5 times the blank value, the result was not qualified.

For this data set, five times the blank value was used to assess contaminants for dioxins. This allows the data not to be censored and provides an understanding of the level of contamination relative to that found in the samples. To ensure comparability, this approach is employed for all dioxin data sets associated with the Remedial Investigation collected for the NERT site by Ramboll.

**9.2.2.1    Method Blanks**

As a result of contamination found in the method blanks, 36 results were qualified as detected estimated (J). The details regarding the qualification of results are provided in Attachment H.

**9.2.2.2    EBs and FBs**

No data were qualified due to the contamination found in the equipment and field blanks.

**9.3    Comparability**

The laboratory used standard analytical methods for all of the analyses. The laboratory reported non-detected results at the sample specific estimated detection limit (EDL). In all cases, the EDLs attained were below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the PCDD/PCDF data is regarded as acceptable.

**9.4    Completeness**

The completeness level attained for PCDD/PCDF field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

## 9.5     Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

## 10.0     METALS

A total of six (6) water samples were analyzed for metals by EPA Method 200.7, a total of 75 soil samples were analyzed for metals by EPA SW-846 Method 6010B, a total of nine (9) of the 75 soil samples underwent TCLP extraction and were analyzed for metals by EPA SW-846 Method 6010B and mercury by EPA SW-846 Method 7470A, and five (5) soil samples were analyzed for mercury by EPA SW-846 Method 7471B. All metal data were assessed to be valid since none of the 222 total results were rejected based on holding time or QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

## 10.1     Precision and Accuracy

### 10.1.1  Instrument Calibration

Initial and continuing calibration verification results provide a means of evaluating accuracy within a particular SDG.  Correlation coefficient (r) and percent recovery (%R) are the two major parameters used to measure the effectiveness of instrument calibration.  The correlation coefficient indicates the linearity of the calibration curve.  %R is used to verify the ongoing calibration acceptability of the analytical system. The most critical of the two calibration parameters, r, has the potential to affect data accuracy across an SDG when it is outside the acceptable QC limits. %R exceedances suggest more routine instrumental anomalies, which typically impact all sample results for the affected analytes.

The correlation coefficients in the initial calibrations were within the acceptance criteria of $\geq 0.995$.

The arsenic result for sample ECA-CONFIRMATION-20190401 was qualified as detected estimated (J+) due to a low level check standard (CRI) %R above the acceptance criteria of 70-130%. The details regarding the qualification of results are provided in Attachment I.

### 10.1.2  MS/MSD Samples

Four (4) barium and four (4) selenium results were qualified as detected estimated (J-) or non-detected estimated (UJ) due to MS/MSD %Rs below the laboratory acceptance criteria. The details regarding the qualification of results are provided in Attachment I.

All MS/MSD RPDs met the laboratory acceptance criteria for this analysis.

### 10.1.3  LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs met the laboratory acceptance criteria for this analysis.

### 10.1.4  ICP Interference Check Sample

All ICS interference check concentrations met the method acceptance criteria.

### 10.1.5  ICP Serial Dilution

All ICP serial dilution %Ds met the method acceptance criteria.

### 10.1.6  FD Samples

The chromium results in field duplicate pair ES-40-50.0-20190114 and ES-40-50.0-20190114-FD were qualified as detected estimated (J) due to a RPD above the QAPP acceptance criteria. The details regarding the qualification of results are provided in Attachment I.

### 10.1.7  Sample Result Verification

Raw data were evaluated for nine (9) samples for metals by EPA SW-846 Method 6010B, four (4) TCLP samples for metals by EPA SW-846 Method 6010B and mercury by EPA SW-846 Method 7470A , and one sample for mercury by EPA SW-846 Method 7471B.  All reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

### 10.2    Representativeness

### 10.2.1  Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All samples met the 28-day analysis holding time criteria for mercury and 180-day analysis holding time criteria for all other metals.

### 10.2.2  Blanks

Method blanks, and ICB/CCBs were analyzed to evaluate representativeness. The concentration for an individual target compound in any of the types of QA/QC blanks was used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation.  The corrective action consisted of amending the laboratory reported results based on the following criteria.

> Results Below the PQL - If a sample result and blank contaminant value were less than the PQL, the sample result was qualified as estimated (J) at the reported concentration.

> Results Above the PQL - If a sample result and blank contaminant value were greater than the PQL and the sample result was less than 10 times the blank contaminant value, the sample result was qualified as detected estimated (J+) at the reported concentration.

> No Action - If blank contaminant values were less than the PQL and associated sample results were greater than the PQL, or if blank contaminant values were greater than the PQL and associated sample results were greater than 10 times the blank contaminant value, the result was not qualified.

### 10.2.2.1 Method and Calibration Blanks

As a result of contamination found in the method and calibration blanks, the barium and lead results for sample  DSPE-3-1.5-20180919  were  qualified  as  detected  estimated  (J).  The  details  regarding  the qualification of results are provided in Attachment I.

### 10.3    Comparability

The laboratory used standard analytical methods for all of the analyses.  In all cases, the SQLs attained were at or below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the metals data is regarded as acceptable.

## 10.4 Completeness

The completeness level attained for metal field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

## 10.5 Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

## 11.0 WET CHEMISTRY

A total of six (6) water samples were analyzed for dissolved hexavalent chromium by EPA Method 218.6, anions by EPA Method 300.0, chlorate by EPA Method 300.1B, perchlorate by EPA Method 314.0, alkalinity by Standard Method 2320B, TDS by Standard Method 2540C, ferrous iron by Standard Method 3500-FE D, DOC by Standard Method 5310B, and TOC by Standard Method 5310B. A total of four (4) water samples were analyzed for ferric iron by Standard Method 3500. One soil sample was analyzed for hexavalent chromium by EPA SW-846 Method 7199, total cyanide by EPA SW 846 Method 9014 and sulfide by EPA SW 846 Method 9034. A total of 71 soil samples were analyzed for anions by EPA Method 300.0, 70 soil samples were analyzed for chlorate by EPA Method 300.1B and TOC by EPA SW-846 Method 9060, 76 soil samples were analyzed for perchlorate by EPA Method 314.0, five (5) soil samples were analyzed for ignitability by EPA SW-846 Method 7.1.2 and six (6) soil samples were analyzed for pH by EPA SW-846 Method 9045C. All wet chemistry data were assessed to be valid with the exception of 12 perchlorate results of the 402 total results which were rejected based on grossly exceeded MS/MSD %Rs. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

## 11.1 Precision and Accuracy

### 11.1.1 Instrument Calibration

Instrument calibrations were evaluated for all wet chemistry methods. The correlation coefficients in the initial calibrations met the acceptance criteria of $\geq 0.995$. The continuing calibration verification %Rs met the acceptance criteria of 90-110%.

### 11.1.2 Surrogate

No data were qualified due to a surrogate %R above laboratory acceptance criteria since the associated sample result was not detected.

### 11.1.3 MS/MSD Samples

As a result of grossly exceeded MS/MSD %Rs (e.g., < 30%), 12 perchlorate results were qualified as rejected (R). Additionally, 24 results were qualified as estimated (J-) or non-detected estimated (UJ) due to MS/MSD %Rs below the laboratory acceptance criteria.

Twelve (12) results were qualified as detected estimated (J+) due to MS/MSD %Rs above the laboratory acceptance criteria.

The chlorate result for sample ES-42-60.0-20190115 and the nitrate as nitrate result for sample ES-42-150.0-20190116 were qualified as detected estimated (J) or non-detected estimated (UJ) as a result of MS/MSD RPDs above the laboratory acceptance criteria.

The details regarding the qualification of results are provided in Attachment J.

### 11.1.4  DUP Samples

All DUP RPDs were within the QAPP acceptance criteria for these analyses.

### 11.1.5  LCS/LCSD Samples

All LCS/LCSD %Rs and RPDs were within the laboratory acceptance criteria.

### 11.1.6  FD Samples

The TOC result for field duplicate pair ES-40-50.0-20190114 and ES-40-50.0-20190114-FD were qualified as detected estimated (J) due to a RPD above the QAPP acceptance criteria. The details regarding the qualification of results are provided in Attachment I.

Given the additional uncertainty in results reported below the PQL, no data were qualified when the RPDs were outside the QAPP acceptance criteria and the associated results in either the primary or duplicate samples were below the PQL or not detected.

### 11.1.7  Sample Result Verification

Raw data were evaluated for one (1) soil sample for hexavalent chromium by EPA SW-846 Method 7199, ignitability by EPA SW-846 Method 7.1.2, total cyanide by EPA SW 846 Method 9014, sulfide by EPA SW 846 Method 9034, and pH by EPA SW-846 Method 9045C, nine (9) soil samples for anions by EPA Method 300.0 and perchlorate by EPA Method 314.0, eight (8) soil samples for TOC by EPA SW-846 Method 9060, and chlorate by EPA Method 300.1B. All reported sample results, detects and non-detects, were correctly calculated for these Stage 4 samples.

## 11.2    Representativeness

### 11.2.1  Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with all wet chemistry methods was conducted. All samples met the 24 hour analysis holding time criteria for hexavalent chromium for water samples, the 48 hour analysis holding time criteria for nitrate as nitrate and nitrate as nitrogen, the 28-day analysis holding time criteria for soil samples analyzed for  nitrate as nitrate, nitrate as nitrogen, nitrite as nitrogen, and orthophosphate as phosphorus, 7-day analysis holding time for water samples analyzed for TDS, 7-day analysis holding time for soil samples analyzed for sulfide,  the 14-day analysis holding time criteria for alkalinity and cyanide, the 28-day analysis holding time criteria for chlorate, chloride, fluoride, sulfate, perchlorate, pH, DOC and TOC, and the 30-day analysis holding time criteria for hexavalent chromium for soil samples.

Ten (10) ferrous and ferric iron results were qualified as non-detected estimated (UJ). Using professional judgment, analysis holding time criteria of 48 hours for water samples was utilized and although the holding time criteria were exceeded by greater than two times, the associated results were qualified as estimated since there is no established holding time in the method. The details regarding the qualification of results are presented in Attachment J.

### 11.2.2  Blanks

Method blanks and ICB/CCBs were analyzed to evaluate representativeness.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation based on the criteria presented in Section 10.2.2.

**11.2.2.1 Laboratory and Calibration Blanks**

No data were qualified due to contaminants detected in the calibration blanks.

### 11.3  Comparability

The laboratory used standard analytical methods for all of the analyses.  In all cases, the SQLs attained were at or below the PQLs. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the wet chemistry data is regarded as acceptable.

### 11.4  Completeness

The completeness level attained for alkalinity, anions, chlorate, DOC, ferric and ferrous iron, hexavalent chromium, ignitability, pH, TDS, TOC, total cyanide and sulfide was 100 percent and 85.37 percent for perchlorate. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

### 11.5  Sensitivity

The calibration was evaluated for instrument sensitivity and was determined to be technically acceptable. All laboratory PQLs met the specified requirements described in the QAPP.

### 12.0  VARIANCES IN ANALYTICAL PERFORMANCE

The laboratory used standard analytical methods for all of the analyses throughout the project. No systematic variances in analytical performance were noted in the laboratory case narratives.

### 13.0  SUMMARY OF PARCCS CRITERIA

The validation reports present the PARCCS results for all SDGs. Each PARCCS criterion is discussed in detail in the following sections.

### 13.1  Precision and Accuracy

Precision and accuracy were evaluated using data quality indicators such as calibration, surrogates, MS/MSD, DUP, LCS/LCSD, field duplicates and internal standards. The precision and accuracy of the data set were considered acceptable after integration of result qualification.

All calibrations were performed as required and met the acceptance criteria with the exceptions noted in Sections 2.1.1, 3.1.1, and 10.1.1.

All surrogate, LCS/LCSD and MS/MSD %Rs and RPDs, field duplicate RPDs, and compound quantitation and target identifications met acceptance criteria with the exceptions noted in Sections 3.1.3, 3.1.4, 5.1.2, 5.1.3, 9.1.6, 10.1.2, 10.1.6, 11.1.3, and 11.1.6.

### 13.2    Representativeness

All samples for each method and matrix were evaluated for holding time compliance. All holding times were met with the exception noted in Sections 3.2.1 and 11.2.1. All samples were associated with a method blank and in each individual SDG. The representativeness of the project data is considered acceptable after integration of result qualification due to blank contamination as noted in Sections 8.2.2.1, 9.2.2.1, and 10.2.2.1.

### 13.3    Comparability

Sampling frequency requirements were met in obtaining necessary field blanks and field duplicates.  The laboratory used standard analytical methods for the analyses. The analytical results were reported in correct standard units. Sample integrity criteria were met. Sample preservation and holding times were within QC criteria. The overall comparability is considered acceptable.

### 13.4    Completeness

Of the 3,121 total analytes reported, 24 of the sample results were rejected. The completeness for the SDGs is as follows:

| Parameter | Total  Analytes | No. of Rejects | % Completeness |
|---|---|---|---|
| VOC | 884 | 0 | 100 |
| SVOC | 731 | 12 | 98.36 |
| PAH | 16 | 0 | 100 |
| Chlorinate Pesticides | 286 | 0 | 100 |
| PCB | 42 | 0 | 100 |
| GRO | 12 | 0 | 100 |
| TPHE | 32 | 0 | 100 |
| PCDD/PCDF | 494 | 0 | 100 |
| Metals | 222 | 0 | 100 |
| Wet Chemistry: | | | |
| Dissolved CrVI (218.6) | 6 | 0 | 100 |
| CrVI (7199) | 1 | 0 | 100 |
| Anions | 102 | 0 | 100 |
| Chlorate | 76 | 0 | 100 |
| Perchlorate | 82 | 12 | 85.37 |
| Alkalinity | 24 | 0 | 100 |
| TDS | 6 | 0 | 100 |
| FeII and FeIII | 10 | 0 | 100 |
| DOC | 6 | 0 | 100 |
| TOC (5310B) | 6 | 0 | 100 |
| TOC (9060) | 70 | 0 | 100 |
| Ignitability | 5 | 0 | 100 |
| Total Cyanide | 1 | 0 | 100 |
| Sulfide | 1 | 0 | 100 |
| pH | 6 | 0 | 100 |
| **Total** | **3,121** | **24** | **99.23** |

The completeness percentage based on rejected data met the 90 percent DQO goal.

## 13.5    Sensitivity

Sensitivity was achieved by the laboratory to support the DQOs. Calibration concentrations and PQLs met the project requirements and low level contamination in the method blanks, calibration blanks, EBs, and FBs, did not affect sensitivity.

## 14.0    CONCLUSIONS AND RECOMMENDATIONS

The analytical data quality assessment for the soil and water sample laboratory analytical results generated during the Dioxin Impacted Soil Removal Action and ZVI Treatability Study soil and groundwater sampling activities completed from September 2018 through April 2019, at the NERT site in Henderson, Nevada established that the overall project requirements and completeness levels were met. Sample results that were found to be rejected (R) are unusable for all purposes. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the Stage 2A, Stage 2B, and Stage 4 data validation all other results are considered valid and usable for all purposes.

## 15.0   REFERENCES

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**TABLES**

Table I. Sample Cross-Reference

| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | VOC (8260B) | SVOC (8270C) | SVOC TCLP (8270C) | PAH (8270C-SIM) | Pesticides (8081A) | PCBs (8082) | GRO (8015B) | TPH-E (8015B) | PCDD/PCDF (8290) | Metals (200.7) | Metals (6010B) | Metals TCLP (6010B) | Mercury (7470A) | Mercury TCLP (7470A) | Mercury (7471B) | Dissolved CrVI (218.6) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 440-220519-1 | 09/19/18 | Stage 2B | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 440-220519-2 | 09/19/18 | Stage 2B | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 440-220519-3 | 09/19/18 | Stage 2B | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 440-220519-4 | 09/19/18 | Stage 2B | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 440-220623-1 | 09/20/18 | Stage 4 | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 440-220623-2 | 09/20/18 | Stage 4 | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 440-220623-3 | 09/20/18 | Stage 4 | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 440-220623-4 | 09/20/18 | Stage 4 | Soil | | X | X | | | X | | X | X | | | X | | X | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 320-43353-10 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-3-0.5-20180919 | 320-43353-14 | 09/19/18 | Stage 2B | Soil | FD1 | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 320-43353-16 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 320-43353-19 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 320-43353-2 | 09/19/18 | Stage 2B | Soil | FD2 | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 320-43353-23 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 320-43353-4 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 320-43353-9 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501D | NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 320-43477-1 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | X | | | | | | | |
| 43501D | NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 320-43477-5 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | X | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 320-43353-1 | 09/19/18 | Stage 2A | Water | FB | | | | | | | | | X | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 320-43353-15 | 09/19/18 | Stage 2B | Soil | FD1 | | | | | | | | | X | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 320-43353-3 | 09/19/18 | Stage 2B | Soil | FD2 | | | | | | | | | X | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 320-43353-8 | 09/19/18 | Stage 2A | Water | EB | | | | | | | | | X | | | | | | | |
| 43501F | NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 320-43353-17 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501G | NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 320-43353-18 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501G | NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 320-43353-27 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501H | NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 320-43353-16 | 09/19/18 | Stage 2B | Soil | | | | X | | | | | | | | | X | | X | | |
| 43501I | NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 320-43477-7 | 09/20/18 | Stage 2B | Soil | | | | | | | | | | X | | | | | | | |
| 43501J | NERT Dioxin Removal | 4402205192 | DSPE-4-0.0-20180919 | 440-220519-1 | 09/19/18 | Stage 2B | Soil | | | | X | | | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-40.0-20190114 | 440-230170-1 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-105.0-20190114 | 440-230170-10 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-110.0-20190114 | 440-230170-11 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-115.0-20190114 | 440-230170-12 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-120.0-20190114 | 440-230170-13 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-130.0-20190114 | 440-230170-14 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-140.0-20190114 | 440-230170-15 | 01/14/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-150.0-20190114 | 440-230170-16 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114 | 440-230170-2 | 01/14/19 | Stage 4 | Soil | FD3 | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114-FD | 440-230170-3 | 01/14/19 | Stage 2B | Soil | FD3 | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-60.0-20190114 | 440-230170-4 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-70.0-20190114 | 440-230170-5 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-80.0-20190114 | 440-230170-6 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-90.0-20190114 | 440-230170-7 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-95.0-20190114 | 440-230170-8 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-100.0-20190114 | 440-230170-9 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-40.0-20190115 | 440-230596-1 | 01/15/19 | Stage 2B | Soil | FD4 | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-100.0-20190116 | 440-230596-10 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-105.0-20190116 | 440-230596-11 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-110.0-20190116 | 440-230596-12 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |

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| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | VOC (8260B) | SVOC (8270C) | SVOC TCLP (8270C) | PAH (8270C-SIM) | Pesticides (8081A) | PCBs (8082) | GRO (8015B) | TPH-E (8015B) | PCDD/PCDF (8290) | Metals (200.7) | Metals (6010B) | Metals TCLP (6010B) | Mercury (7470A) | Mercury TCLP (7470A) | Mercury (7471B) | Dissolved CrVI (218.6) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-115.0-20190116 | 440-230596-13 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-120.0-20190116 | 440-230596-14 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-130.0-20190116 | 440-230596-15 | 01/16/19 | Stage 2B | Soil | FD5 | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-130.0-20190116-FD | 440-230596-16 | 01/16/19 | Stage 2B | Soil | FD5 | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-140.0-20190116 | 440-230596-17 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-150.0-20190116 | 440-230596-18 | 01/16/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-40.0-20190115-FD | 440-230596-2 | 01/15/19 | Stage 2B | Soil | FD4 | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-50.0-20190115 | 440-230596-3 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-60.0-20190115 | 440-230596-4 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-70.0-20190115 | 440-230596-5 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-74.0-20190115 | 440-230596-6 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-80.0-20190115 | 440-230596-7 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-90.0-20190115 | 440-230596-8 | 01/15/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-95.0-20190115 | 440-230596-9 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-40.0-20190117 | 440-230902-1 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-100.0-20190117 | 440-230902-10 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-105.0-20190117 | 440-230902-11 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-110.0-20190117 | 440-230902-12 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-115.0-20190117 | 440-230902-13 | 01/17/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-120.0-20190117 | 440-230902-14 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-130.0-20190117 | 440-230902-15 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-140.0-20190117 | 440-230902-16 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-150.0-20190117 | 440-230902-17 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-44-46.0-20190118 | 440-230902-18 | 01/18/19 | Stage 2B | Soil | FD6 | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-44-46.0-20190118-FD | 440-230902-19 | 01/18/19 | Stage 2B | Soil | FD6 | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-50.0-20190117 | 440-230902-2 | 01/17/19 | Stage 2B | Soil | FD7 | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-44-52.0-20190118 | 440-230902-20 | 01/18/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-50.0-20190117-FD | 440-230902-3 | 01/17/19 | Stage 2B | Soil | FD7 | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-60.0-20190117 | 440-230902-4 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-70.0-20190117 | 440-230902-5 | 01/17/19 | Stage 2B | Soil | FD8 | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-70.0-20190117-FD | 440-230902-6 | 01/17/19 | Stage 2B | Soil | FD8 | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-80.0-20190117 | 440-230902-7 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-90.0-20190117 | 440-230902-8 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-95.0-20190117 | 440-230902-9 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-40.0-20190121 | 440-231301-1 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-105.0-20190121 | 440-231301-10 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-110.0-20190121 | 440-231301-11 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-115.0-20190121 | 440-231301-12 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-120.0-20190121 | 440-231301-13 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-130.0-20190121 | 440-231301-14 | 01/21/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-140.0-20190121 | 440-231301-15 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-150.0-20190121 | 440-231301-16 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-50.0-20190121 | 440-231301-2 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121 | 440-231301-3 | 01/21/19 | Stage 4 | Soil | FD9 | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121-FD | 440-231301-4 | 01/21/19 | Stage 2B | Soil | FD9 | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-70.0-20190121 | 440-231301-5 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-80.0-20190121 | 440-231301-6 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-90.0-20190121 | 440-231301-7 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |

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| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | VOC (8260B) | SVOC (8270C) | SVOC TCLP (8270C) | PAH (8270C-SIM) | Pesticides (8081A) | PCBs (8082) | GRO (8015B) | TPH-E (8015B) | PCDD/PCDF (8290) | Metals (200.7) | Metals (6010B) | Metals TCLP (6010B) | Mercury (7470A) | Mercury TCLP (7470A) | Mercury (7471B) | Dissolved CrVI (218.6) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-95.0-20190121 | 440-231301-8 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-100.0-20190121 | 440-231301-9 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | | |
| 44720E | NERT ZVI Treatment Study | 4402347811 | ES-40-20190226 | 440-234781-1 | 02/26/19 | Stage 2A | Water | | | | | | | | | | | X | | | | | | X |
| 44720E | NERT ZVI Treatment Study | 4402347811 | ES-44-20190226 | 440-234781-2 | 02/26/19 | Stage 2A | Water | | | | | | | | | | | X | | | | | | X |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-43-20190227 | 440-234870-1 | 02/27/19 | Stage 2A | Water | FD10 | | | | | | | | | | X | | | | | | X |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-43-20190227-FD | 440-234870-2 | 02/27/19 | Stage 2A | Water | FD10 | | | | | | | | | | X | | | | | | X |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-42-20190227 | 440-234870-3 | 02/27/19 | Stage 2A | Water | | | | | | | | | | | X | | | | | | X |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-41-20190227 | 440-234870-4 | 02/27/19 | Stage 2A | Water | | | | | | | | | | | X | | | | | | X |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-40.0-20190114 | 440-230170-1 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-105.0-20190114 | 440-230170-10 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-110.0-20190114 | 440-230170-11 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-115.0-20190114 | 440-230170-12 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-120.0-20190114 | 440-230170-13 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-130.0-20190114 | 440-230170-14 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-140.0-20190114 | 440-230170-15 | 01/14/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-150.0-20190114 | 440-230170-16 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-50.0-20190114 | 440-230170-2 | 01/14/19 | Stage 4 | Soil | FD11 | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-50.0-20190114-FD | 440-230170-3 | 01/14/19 | Stage 2B | Soil | FD11 | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-60.0-20190114 | 440-230170-4 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-70.0-20190114 | 440-230170-5 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-80.0-20190114 | 440-230170-6 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-90.0-20190114 | 440-230170-7 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-95.0-20190114 | 440-230170-8 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-100.0-20190114 | 440-230170-9 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-40.0-20190115 | 440-230596-1 | 01/15/19 | Stage 2B | Soil | FD12 | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-100.0-20190116 | 440-230596-10 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-105.0-20190116 | 440-230596-11 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-110.0-20190116 | 440-230596-12 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-115.0-20190116 | 440-230596-13 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-120.0-20190116 | 440-230596-14 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-130.0-20190116 | 440-230596-15 | 01/16/19 | Stage 2B | Soil | FD13 | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-130.0-20190116-FD | 440-230596-16 | 01/16/19 | Stage 2B | Soil | FD13 | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-140.0-20190116 | 440-230596-17 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-150.0-20190116 | 440-230596-18 | 01/16/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-40.0-20190115-FD | 440-230596-2 | 01/15/19 | Stage 2B | Soil | FD12 | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-50.0-20190115 | 440-230596-3 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-60.0-20190115 | 440-230596-4 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-70.0-20190115 | 440-230596-5 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-74.0-20190115 | 440-230596-6 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-80.0-20190115 | 440-230596-7 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-90.0-20190115 | 440-230596-8 | 01/15/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-95.0-20190115 | 440-230596-9 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-40.0-20190117 | 440-230902-1 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-100.0-20190117 | 440-230902-10 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-105.0-20190117 | 440-230902-11 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-110.0-20190117 | 440-230902-12 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-115.0-20190117 | 440-230902-13 | 01/17/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-120.0-20190117 | 440-230902-14 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |

Table I. Sample Cross-Reference

| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | VOC (8260B) | SVOC (8270C) | SVOC TCLP (8270C) | PAH (8270C-SIM) | Pesticides (8081A) | PCBs (8082) | GRO (8015B) | TPH-E (8015B) | PCDD/PCDF (8290) | Metals (200.7) | Metals (6010B) | Metals TCLP (6010B) | Mercury (7470A) | Mercury TCLP (7470A) | Mercury (7471B) | Dissolved CrVI (218.6) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-130.0-20190117 | 440-230902-15 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-140.0-20190117 | 440-230902-16 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-150.0-20190117 | 440-230902-17 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-44-46.0-20190118 | 440-230902-18 | 01/18/19 | Stage 2B | Soil | FD14 | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-44-46.0-20190118-FD | 440-230902-19 | 01/18/19 | Stage 2B | Soil | FD14 | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-50.0-20190117 | 440-230902-2 | 01/17/19 | Stage 2B | Soil | FD15 | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-44-52.0-20190118 | 440-230902-20 | 01/18/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-50.0-20190117-FD | 440-230902-3 | 01/17/19 | Stage 2B | Soil | FD15 | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-60.0-20190117 | 440-230902-4 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-70.0-20190117 | 440-230902-5 | 01/17/19 | Stage 2B | Soil | FD16 | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-70.0-20190117-FD | 440-230902-6 | 01/17/19 | Stage 2B | Soil | FD16 | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-80.0-20190117 | 440-230902-7 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-90.0-20190117 | 440-230902-8 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-95.0-20190117 | 440-230902-9 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-40.0-20190121 | 440-231301-1 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-105.0-20190121 | 440-231301-10 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-110.0-20190121 | 440-231301-11 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-115.0-20190121 | 440-231301-12 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-120.0-20190121 | 440-231301-13 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-130.0-20190121 | 440-231301-14 | 01/21/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-140.0-20190121 | 440-231301-15 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-150.0-20190121 | 440-231301-16 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-50.0-20190121 | 440-231301-2 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-60.0-20190121 | 440-231301-3 | 01/21/19 | Stage 4 | Soil | FD17 | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-60.0-20190121-FD | 440-231301-4 | 01/21/19 | Stage 2B | Soil | FD17 | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-70.0-20190121 | 440-231301-5 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-80.0-20190121 | 440-231301-6 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-90.0-20190121 | 440-231301-7 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-95.0-20190121 | 440-231301-8 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-100.0-20190121 | 440-231301-9 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 440-234894-1 | 02/27/19 | Stage 2B | Soil | | X | | | | | X | X | X | | | X | | | | X | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 440-234894-2 | 02/27/19 | Stage 2B | Soil | | X | | | | | X | X | X | X | | X | | | | X | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 440-234894-3 | 02/27/19 | Stage 2B | Soil | | X | | | | | X | | X | X | | X | | | | X | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-4-RE-1.0-20190227 | 440-234894-4 | 02/27/19 | Stage 2B | Soil | | | X | | | | | X | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-5-RE-1.0-20190227 | 440-234894-5 | 02/27/19 | Stage 2B | Soil | | | | | | | | X | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-5-RE-1.0-20190227 | 440-234894-5 | 02/27/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-6-RE-1.0-20190227 | 440-234894-6 | 02/27/19 | Stage 2B | Soil | | | | | | | | X | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-7-RE-3.0-20190227 | 440-234894-7 | 02/27/19 | Stage 2B | Soil | | X | X | | | | X | X | X | X | | X | | | | X | |
| 44949B | NERT Dioxin Removal | 4402348942 | DSPE-4-RE-1.0-20190227 | 440-234894-4 | 02/27/19 | Stage 4 | Soil | | | | X | | | | | | | | | | | | | |
| 44949C | NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 440-237770-9 | 04/01/19 | Stage 4 | Soil | | X | X | | X | X | X | | | | | X | | | | X | |

**Table I. Sample Cross-Reference**

| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | CrVI (7199) | Anions (300.0) | Chlorate (300.1B) | Perchlorate (314.0) | Alkalinity (2320B) | TDS (2540C) | FeII (3500) | FeIII (3500) | DOC (5310) | TOC (5310B) | TOC (9060) | Ignitability (7.1.2) | Total Cyanide (9014) | Sulfide (9034) | pH (9045C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 440-220519-1 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 440-220519-2 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 440-220519-3 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501A | NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 440-220519-4 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 440-220623-1 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 440-220623-2 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 440-220623-3 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 43501B | NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 440-220623-4 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 320-43353-10 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-3-0.5-20180919 | 320-43353-14 | 09/19/18 | Stage 2B | Soil | FD1 | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 320-43353-16 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 320-43353-19 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 320-43353-2 | 09/19/18 | Stage 2B | Soil | FD2 | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 320-43353-23 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 320-43353-4 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501C | NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 320-43353-9 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501D | NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 320-43477-1 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 43501D | NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 320-43477-5 | 09/20/18 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 320-43353-1 | 09/19/18 | Stage 2A | Water | FB | | | | | | | | | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 320-43353-15 | 09/19/18 | Stage 2B | Soil | FD1 | | | | | | | | | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 320-43353-3 | 09/19/18 | Stage 2B | Soil | FD2 | | | | | | | | | | | | | | | |
| 43501E | NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 320-43353-8 | 09/19/18 | Stage 2A | Water | EB | | | | | | | | | | | | | | | |
| 43501F | NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 320-43353-17 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501G | NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 320-43353-18 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501G | NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 320-43353-27 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501H | NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 320-43353-16 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501I | NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 320-43477-7 | 09/20/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 43501J | NERT Dioxin Removal | 4402205192 | DSPE-4-0.0-20180919 | 440-220519-1 | 09/19/18 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-40.0-20190114 | 440-230170-1 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-105.0-20190114 | 440-230170-10 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-110.0-20190114 | 440-230170-11 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-115.0-20190114 | 440-230170-12 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-120.0-20190114 | 440-230170-13 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-130.0-20190114 | 440-230170-14 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-140.0-20190114 | 440-230170-15 | 01/14/19 | Stage 4 | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-150.0-20190114 | 440-230170-16 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114 | 440-230170-2 | 01/14/19 | Stage 4 | Soil | FD3 | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114-FD | 440-230170-3 | 01/14/19 | Stage 2B | Soil | FD3 | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-60.0-20190114 | 440-230170-4 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-70.0-20190114 | 440-230170-5 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-80.0-20190114 | 440-230170-6 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-90.0-20190114 | 440-230170-7 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-95.0-20190114 | 440-230170-8 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720A | NERT ZVI Treatment Study | 4402301701 | ES-40-100.0-20190114 | 440-230170-9 | 01/14/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-40.0-20190115 | 440-230596-1 | 01/15/19 | Stage 2B | Soil | FD4 | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-100.0-20190116 | 440-230596-10 | 01/16/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-105.0-20190116 | 440-230596-11 | 01/16/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-110.0-20190116 | 440-230596-12 | 01/16/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |

# Table I. Sample Cross-Reference

| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | CrVI (7199) | Anions (300.0) | Chlorate (300.1B) | Perchlorate (314.0) | Alkalinity (2320B) | TDS (2540C) | FeII (3500) | FeIII (3500) | DOC (5310) | TOC (5310B) | TOC (9060) | Ignitability (7.1.2) | Total Cyanide (9014) | Sulfide (9034) | pH (9045C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-115.0-20190116 | 440-230596-13 | 01/16/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-120.0-20190116 | 440-230596-14 | 01/16/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-130.0-20190116 | 440-230596-15 | 01/16/19 | Stage 2B | Soil | FD5 | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-130.0-20190116-FD | 440-230596-16 | 01/16/19 | Stage 2B | Soil | FD5 | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-140.0-20190116 | 440-230596-17 | 01/16/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-150.0-20190116 | 440-230596-18 | 01/16/19 | Stage 4 | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-40.0-20190115-FD | 440-230596-2 | 01/15/19 | Stage 2B | Soil | FD4 | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-50.0-20190115 | 440-230596-3 | 01/15/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-60.0-20190115 | 440-230596-4 | 01/15/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-70.0-20190115 | 440-230596-5 | 01/15/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-74.0-20190115 | 440-230596-6 | 01/15/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-80.0-20190115 | 440-230596-7 | 01/15/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-90.0-20190115 | 440-230596-8 | 01/15/19 | Stage 4 | Soil | | | X | X | X | | | | | | | | | | | |
| 44720B | NERT ZVI Treatment Study | 4402305961 | ES-42-95.0-20190115 | 440-230596-9 | 01/15/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-40.0-20190117 | 440-230902-1 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-100.0-20190117 | 440-230902-10 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-105.0-20190117 | 440-230902-11 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-110.0-20190117 | 440-230902-12 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-115.0-20190117 | 440-230902-13 | 01/17/19 | Stage 4 | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-120.0-20190117 | 440-230902-14 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-130.0-20190117 | 440-230902-15 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-140.0-20190117 | 440-230902-16 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-150.0-20190117 | 440-230902-17 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-44-46.0-20190118 | 440-230902-18 | 01/18/19 | Stage 2B | Soil | FD6 | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-44-46.0-20190118-FD | 440-230902-19 | 01/18/19 | Stage 2B | Soil | FD6 | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-50.0-20190117 | 440-230902-2 | 01/17/19 | Stage 2B | Soil | FD7 | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-44-52.0-20190118 | 440-230902-20 | 01/18/19 | Stage 4 | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-50.0-20190117-FD | 440-230902-3 | 01/17/19 | Stage 2B | Soil | FD7 | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-60.0-20190117 | 440-230902-4 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-70.0-20190117 | 440-230902-5 | 01/17/19 | Stage 2B | Soil | FD8 | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-70.0-20190117-FD | 440-230902-6 | 01/17/19 | Stage 2B | Soil | FD8 | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-80.0-20190117 | 440-230902-7 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-90.0-20190117 | 440-230902-8 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720C | NERT ZVI Treatment Study | 4402309021 | ES-41-95.0-20190117 | 440-230902-9 | 01/17/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-40.0-20190121 | 440-231301-1 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-105.0-20190121 | 440-231301-10 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-110.0-20190121 | 440-231301-11 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-115.0-20190121 | 440-231301-12 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-120.0-20190121 | 440-231301-13 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-130.0-20190121 | 440-231301-14 | 01/21/19 | Stage 4 | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-140.0-20190121 | 440-231301-15 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-150.0-20190121 | 440-231301-16 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-50.0-20190121 | 440-231301-2 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121 | 440-231301-3 | 01/21/19 | Stage 4 | Soil | FD9 | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121-FD | 440-231301-4 | 01/21/19 | Stage 2B | Soil | FD9 | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-70.0-20190121 | 440-231301-5 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-80.0-20190121 | 440-231301-6 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-90.0-20190121 | 440-231301-7 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |

**Table I. Sample Cross-Reference**

| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | CrVI (7199) | Anions (300.0) | Chlorate (300.1B) | Perchlorate (314.0) | Alkalinity (2320B) | TDS (2540C) | FeII (3500) | FeIII (3500) | DOC (5310) | TOC (5310B) | TOC (9060) | Ignitability (7.1.2) | Total Cyanide (9014) | Sulfide (9034) | pH (9045C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-95.0-20190121 | 440-231301-8 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720D | NERT ZVI Treatment Study | 4402313011 | ES-43-100.0-20190121 | 440-231301-9 | 01/21/19 | Stage 2B | Soil | | | X | X | X | | | | | | | | | | | |
| 44720E | NERT ZVI Treatment Study | 4402347811 | ES-40-20190226 | 440-234781-1 | 02/26/19 | Stage 2A | Water | | | X | X | X | X | X | X | | | X | X | | | | | |
| 44720E | NERT ZVI Treatment Study | 4402347811 | ES-44-20190226 | 440-234781-2 | 02/26/19 | Stage 2A | Water | | | X | X | X | X | X | X | | | X | X | | | | | |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-43-20190227 | 440-234870-1 | 02/27/19 | Stage 2A | Water | FD10 | | X | X | X | X | X | X | X | X | X | X | | | | | |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-43-20190227-FD | 440-234870-2 | 02/27/19 | Stage 2A | Water | FD10 | | X | X | X | X | X | X | X | X | X | X | | | | | |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-42-20190227 | 440-234870-3 | 02/27/19 | Stage 2A | Water | | | X | X | X | X | X | X | X | X | X | X | | | | | |
| 44720F | NERT ZVI Treatment Study | 4402348701 | ES-41-20190227 | 440-234870-4 | 02/27/19 | Stage 2A | Water | | | X | X | X | X | X | X | X | X | X | X | | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-40.0-20190114 | 440-230170-1 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-105.0-20190114 | 440-230170-10 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-110.0-20190114 | 440-230170-11 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-115.0-20190114 | 440-230170-12 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-120.0-20190114 | 440-230170-13 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-130.0-20190114 | 440-230170-14 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-140.0-20190114 | 440-230170-15 | 01/14/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-150.0-20190114 | 440-230170-16 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-50.0-20190114 | 440-230170-2 | 01/14/19 | Stage 4 | Soil | FD11 | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-50.0-20190114-FD | 440-230170-3 | 01/14/19 | Stage 2B | Soil | FD11 | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-60.0-20190114 | 440-230170-4 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-70.0-20190114 | 440-230170-5 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-80.0-20190114 | 440-230170-6 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-90.0-20190114 | 440-230170-7 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-95.0-20190114 | 440-230170-8 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720G | NERT ZVI Treatment Study | 4402301702 | ES-40-100.0-20190114 | 440-230170-9 | 01/14/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-40.0-20190115 | 440-230596-1 | 01/15/19 | Stage 2B | Soil | FD12 | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-100.0-20190116 | 440-230596-10 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-105.0-20190116 | 440-230596-11 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-110.0-20190116 | 440-230596-12 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-115.0-20190116 | 440-230596-13 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-120.0-20190116 | 440-230596-14 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-130.0-20190116 | 440-230596-15 | 01/16/19 | Stage 2B | Soil | FD13 | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-130.0-20190116-FD | 440-230596-16 | 01/16/19 | Stage 2B | Soil | FD13 | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-140.0-20190116 | 440-230596-17 | 01/16/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-150.0-20190116 | 440-230596-18 | 01/16/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-40.0-20190115-FD | 440-230596-2 | 01/15/19 | Stage 2B | Soil | FD12 | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-50.0-20190115 | 440-230596-3 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-60.0-20190115 | 440-230596-4 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-70.0-20190115 | 440-230596-5 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-74.0-20190115 | 440-230596-6 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-80.0-20190115 | 440-230596-7 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-90.0-20190115 | 440-230596-8 | 01/15/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | |
| 44720H | NERT ZVI Treatment Study | 4402305962 | ES-42-95.0-20190115 | 440-230596-9 | 01/15/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-40.0-20190117 | 440-230902-1 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-100.0-20190117 | 440-230902-10 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-105.0-20190117 | 440-230902-11 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-110.0-20190117 | 440-230902-12 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-115.0-20190117 | 440-230902-13 | 01/17/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-120.0-20190117 | 440-230902-14 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |

## Table I. Sample Cross-Reference

| LDC | Sampling Event | SDG | Client Sample ID | Lab ID | Sample Date | Validation Level | Matrix | QC Type | CrVI (7199) | Anions (300.0) | Chlorate (300.1B) | Perchlorate (314.0) | Alkalinity (2320B) | TDS (2540C) | FeII (3500) | FeIII (3500) | DOC (5310) | TOC (5310B) | TOC (9060) | Ignitability (7.1.2) | Total Cyanide (9014) | Sulfide (9034) | pH (9045C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-130.0-20190117 | 440-230902-15 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-140.0-20190117 | 440-230902-16 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-150.0-20190117 | 440-230902-17 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-44-46.0-20190118 | 440-230902-18 | 01/18/19 | Stage 2B | Soil | FD14 | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-44-46.0-20190118-FD | 440-230902-19 | 01/18/19 | Stage 2B | Soil | FD14 | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-50.0-20190117 | 440-230902-2 | 01/17/19 | Stage 2B | Soil | FD15 | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-44-52.0-20190118 | 440-230902-20 | 01/18/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-50.0-20190117-FD | 440-230902-3 | 01/17/19 | Stage 2B | Soil | FD15 | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-60.0-20190117 | 440-230902-4 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-70.0-20190117 | 440-230902-5 | 01/17/19 | Stage 2B | Soil | FD16 | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-70.0-20190117-FD | 440-230902-6 | 01/17/19 | Stage 2B | Soil | FD16 | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-80.0-20190117 | 440-230902-7 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-90.0-20190117 | 440-230902-8 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720I | NERT ZVI Treatment Study | 4402309022 | ES-41-95.0-20190117 | 440-230902-9 | 01/17/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-40.0-20190121 | 440-231301-1 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-105.0-20190121 | 440-231301-10 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-110.0-20190121 | 440-231301-11 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-115.0-20190121 | 440-231301-12 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-120.0-20190121 | 440-231301-13 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-130.0-20190121 | 440-231301-14 | 01/21/19 | Stage 4 | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-140.0-20190121 | 440-231301-15 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-150.0-20190121 | 440-231301-16 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-50.0-20190121 | 440-231301-2 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-60.0-20190121 | 440-231301-3 | 01/21/19 | Stage 4 | Soil | FD17 | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-60.0-20190121-FD | 440-231301-4 | 01/21/19 | Stage 2B | Soil | FD17 | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-70.0-20190121 | 440-231301-5 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-80.0-20190121 | 440-231301-6 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-90.0-20190121 | 440-231301-7 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-95.0-20190121 | 440-231301-8 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44720J | NERT ZVI Treatment Study | 4402313012 | ES-43-100.0-20190121 | 440-231301-9 | 01/21/19 | Stage 2B | Soil | | | | | | | | | | | | X | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 440-234894-1 | 02/27/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 440-234894-2 | 02/27/19 | Stage 2B | Soil | | | | | X | | | | | | | | | X | | X |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 440-234894-3 | 02/27/19 | Stage 2B | Soil | | | | | | | | | | | | | | | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-4-RE-1.0-20190227 | 440-234894-4 | 02/27/19 | Stage 2B | Soil | | | | | X | | | | | | | | | X | | X |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-5-RE-1.0-20190227 | 440-234894-5 | 02/27/19 | Stage 2B | Soil | | | | | X | | | | | | | | | | | X |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-5-RE-1.0-20190227 | 440-234894-5 | 02/27/19 | Stage 4 | Soil | | | | | | | | | | | | | | X | | |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-6-RE-1.0-20190227 | 440-234894-6 | 02/27/19 | Stage 2B | Soil | | | | | X | | | | | | | | | X | | X |
| 44949A | NERT Dioxin Removal | 4402348941 | DSPE-7-RE-3.0-20190227 | 440-234894-7 | 02/27/19 | Stage 2B | Soil | | | | | X | | | | | | | | | X | | X |
| 44949B | NERT Dioxin Removal | 4402348942 | DSPE-4-RE-1.0-20190227 | 440-234894-4 | 02/27/19 | Stage 4 | Soil | | | | | | | | | | | | | | | | |
| 44949C | NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 440-237770-9 | 04/01/19 | Stage 4 | Soil | | X | X | | X | | | | | | | | | X | X | X |

# Table II. Stage 2A, Stage 2B, and Stage 4 Validation Elements

| Quality Control Elements | Stage 2A | | |
|---|---|---|---|
| | HR GC/MS[1] | Metals | Wet Chemistry |
| Sample Receipt & Technical Holding Time | √ | √ | √ |
| Instrument Performance Check | - | - | - |
| Initial Calibration (ICAL) | - | - | - |
| Initial Calibration Verification (ICV) | - | - | - |
| Continuing Calibration Verification (CCV) | - | - | - |
| Laboratory Blanks | √ | √ | √ |
| Initial Calibration Blank and Continuing Calibration Blank (ICB/CCB) | N/A | √ | √ |
| Field Blanks | √ | √ | √ |
| Inductively Coupled Plasma (ICP) Interference Check Sample | N/A | - | N/A |
| Surrogate Spikes/ Carrier Recovery | N/A | N/A | √ |
| Matrix Spike (MS)/ Matrix Spike Duplicate (MSD) | √ | √ | √ |
| Laboratory Duplicate (DUP) | N/A | N/A | √ |
| Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD) | √ | √ | √ |
| Serial Dilution | N/A | - | N/A |
| Internal Standards | - | - | N/A |
| Field Duplicate | √ | √ | √ |
| RPD Between Two Columns | N/A | N/A | N/A |
| Project Quantitation Limits (PQL)[2] | √ | √ | √ |
| Multiple Results for One Sample | √ | √ | √ |
| Target Compound Identification | - | - | - |
| Compound Quantitation/ Sample Result Verification | - | - | - |
| System Performance[3] | - | - | - |
| Overall Data Usability Assessment | √ | √ | √ |

√ = Reviewed for Stage 2A review
N/A = Not applicable to method or not performed during this sampling event
- = Not applicable for Stage 2A review
[1]HR GC/MS = PCDD/PCDFs
[2]PQLs verified for Metals and Wet Chemistry methods. For HR GC/MS, Estimated Detection Limits (EDLs).
[3]System performance is a thorough review of the data acquisition that can yield indicators of degrading instrument performance affecting quality of data.

# Table II. Stage 2A, Stage 2B, and Stage 4 Validation Elements

| Quality Control Elements | Stage 2B | | | | |
|---|---|---|---|---|---|
| | GC/MS[1] | GC[2] | HR GC/MS[3] | Metals | Wet Chemistry |
| Sample Receipt & Technical Holding Time | √ | √ | √ | √ | √ |
| Instrument Performance Check | √ | √ | √ | √ | √ |
| Initial Calibration (ICAL) | √ | √ | √ | √ | √ |
| Initial Calibration Verification (ICV) | √ | √ | √ | √ | √ |
| Continuing Calibration Verification (CCV) | √ | √ | √ | √ | √ |
| Laboratory Blanks | √ | √ | √ | √ | √ |
| Initial Calibration Blank and Continuing Calibration Blank (ICB/CCB) | N/A | N/A | N/A | √ | √ |
| Field Blanks | √ | √ | √ | √ | √ |
| Inductively Coupled Plasma (ICP) Interference Check Sample | N/A | N/A | N/A | √ | N/A |
| Surrogate Spikes/ Carrier Recovery | √ | √ | N/A | N/A | √ |
| Matrix Spike (MS)/ Matrix Spike Duplicate (MSD) | √ | √ | √ | √ | √ |
| Laboratory Duplicate (DUP) | N/A | N/A | N/A | N/A | √ |
| Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD) | √ | √ | √ | √ | √ |
| Serial Dilution | N/A | N/A | N/A | √ | N/A |
| Internal Standards | √ | √ | √ | √ | N/A |
| Field Duplicate | √ | √ | √ | √ | √ |
| RPD Between Two Columns | N/A | √ | N/A | N/A | N/A |
| Project Quantitation Limits (PQL)[4] | √ | √ | √ | √ | √ |
| Multiple Results for One Sample | √ | √ | √ | √ | √ |
| Target Compound Identification | - | - | - | - | - |
| Compound Quantitation/ Sample Result Verification | - | - | - | - | - |
| System Performance[5] | - | - | - | - | - |
| Overall Data Usability Assessment | √ | √ | √ | √ | √ |

√ = Reviewed for Stage 2B review
N/A = Not applicable to method or not performed during this sampling event
- = Not applicable for Stage 2B review
[1]GC/MS = VOCs, SVOCs, and PAHs.
[2]GC = Chlorinated Pesticides, PCBs, DRO, and TPHE.
[3]HR GC/MS = PCDD/PCDFs
[4]PQLs verified for GC/MS, GC, Metals, and Wet Chemistry methods. For HR GC/MS, Estimated Detection Limits (EDLs).
[5]System performance is a thorough review of the data acquisition that can yield indicators of degrading instrument performance affecting quality of data.

# Table II. Stage 2A, Stage 2B, and Stage 4 Validation Elements

| Quality Control Elements | Stage 4 | | | | |
|---|---|---|---|---|---|
| | GC/MS[1] | GC[2] | HR GC/MS[3] | Metals | Wet Chemistry |
| Sample Receipt & Technical Holding Time | √ | √ | √ | √ | √ |
| Instrument Performance Check | √ | √ | √ | √ | √ |
| Initial Calibration (ICAL) | √ | √ | √ | √ | √ |
| Initial Calibration Verification (ICV) | √ | √ | √ | √ | √ |
| Continuing Calibration Verification (CCV) | √ | √ | √ | √ | √ |
| Laboratory Blanks | √ | √ | √ | √ | √ |
| Initial Calibration Blank and Continuing Calibration Blank (ICB/CCB) | N/A | N/A | N/A | √ | √ |
| Field Blanks | √ | √ | √ | √ | √ |
| Inductively Coupled Plasma (ICP) Interference Check Sample | N/A | N/A | N/A | √ | N/A |
| Surrogate Spikes/ Carrier Recovery | √ | √ | N/A | N/A | √ |
| Matrix Spike (MS)/ Matrix Spike Duplicate (MSD) | √ | √ | √ | √ | √ |
| Laboratory Duplicate (DUP) | N/A | N/A | N/A | N/A | √ |
| Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD) | √ | √ | √ | √ | √ |
| Serial Dilution | N/A | N/A | N/A | √ | N/A |
| Internal Standards | √ | N/A | √ | √ | N/A |
| Field Duplicate | √ | √ | √ | √ | √ |
| RPD Between Two Columns | N/A | √ | N/A | N/A | N/A |
| Project Quantitation Limits (PQL)[4] | √ | √ | √ | √ | √ |
| Multiple Results for One Sample | √ | √ | √ | √ | √ |
| Target Compound Identification | √ | √ | √ | N/A | N/A |
| Compound Quantitation/ Sample Result Verification | √ | √ | √ | √ | √ |
| System Performance[5] | √ | √ | √ | N/A | N/A |
| Overall Data Usability Assessment | √ | √ | √ | √ | √ |

√ = Reviewed for Stage 4 review

N/A = Not applicable to method or not performed during this sampling event

- = Not applicable for Stage 4 review

[1]GC/MS = VOCs, SVOCs, and PAHs.

[2]GC = Chlorinated Pesticides, PCBs, DRO, and TPHE.

[3]HR GC/MS = PCDD/PCDFs

[4]PQLs verified for GC/MS, GC, Metals, and Wet Chemistry methods. For HR GC/MS, Estimated Detection Limits (EDLs).

[5]System performance is a thorough review of the data acquisition that can yield indicators of degrading instrument performance affecting quality of data.

**Table III.  Stage 2A, Stage 2B & Stage 4 Validation Percentages**

| Parameter (Method) | Number of Samples | | | | Validation Percentage | | |
|---|---|---|---|---|---|---|---|
| | (Water) Stage 2A | (Soil) Stage 2B | (Soil) Stage 4 | (Soil) Total | (Water[1]) Stage 2A (%) | (Soil) Stage 2B (%) | (Soil) Stage 4 (%) |
| VOC (8260B) | - | 8 | 5 | 13 | 0 | 62 | 38 |
| SVOC (8270C) | - | 6 | 5 | 11 | 0 | 55 | 45 |
| SVOC (8270C) TCLP | - | 2 | 1 | 3 | 0 | 67 | 33 |
| PAH (8270C-SIM) | - | - | 1 | 1 | 0 | 0 | 100 |
| Chlorinated Pesticides (8081A) | - | 8 | 5 | 13 | 0 | 62 | 38 |
| PCBs (8082) | - | 5 | 1 | 6 | 0 | 83 | 17 |
| GRO (8015B) | - | 8 | 4 | 12 | 0 | 67 | 33 |
| TPHE (8015B) | - | 8 | 4 | 12 | 0 | 67 | 33 |
| PCDD/PCDF (8290) | 2 | 14 | 3 | 17 | 0 | 82 | 18 |
| Metals (200.7) | 6 | - | - | - | 100 | 0 | 0 |
| Metals (6010B) | - | 66 | 9 | 75 | 0 | 88 | 12 |
| Metals (6010B)  TCLP | - | 5 | 4 | 9 | 0 | 56 | 44 |
| Mercury (7470A) TCLP | - | 5 | 4 | 9 | 0 | 56 | 44 |
| Mercury (7471B) | - | 4 | 1 | 5 | 0 | 80 | 20 |
| Dissolved CrVI (218.6) | 6 | - | - | - | 100 | 0 | 0 |
| CrVI (7199) | - | - | 1 | 1 | 0 | 0 | 100 |
| Anions (300.0) | 6 | 62 | 9 | 71 | 8 | 87 | 13 |
| Chlorate (300.1B) | 6 | 62 | 8 | 70 | 8 | 89 | 11 |
| Perchlorate (314.0) | 6 | 67 | 9 | 76 | 7 | 88 | 12 |
| Alkalinity (2320B) | 6 | - | - | - | 100 | 0 | 0 |
| TDS (2540C) | 6 | - | - | - | 100 | 0 | 0 |
| FeII (3500-Fe D) | 6 | - | - | - | 100 | 0 | 0 |
| FeIII (3500) | 4 | - | - | - | 100 | 0 | 0 |
| DOC (5310) | 6 | - | - | - | 100 | 0 | 0 |
| TOC (5310B) | 6 | - | - | - | 100 | 0 | 0 |
| TOC (9060) | - | 62 | 8 | 70 | 0 | 89 | 11 |
| Ignitability (7.1.2) | - | 4 | 1 | 5 | 0 | 80 | 20 |
| Total Cyanide (9014) | - | - | 1 | 1 | 0 | 0 | 100 |
| Sulfide (9034) | - | - | 1 | 1 | 0 | 0 | 100 |
| pH (9045C) | - | 5 | 1 | 6 | 0 | 83 | 17 |

Notes:
1.  Consistent with NDEP guidance emailed on March 7, 2017, all water results have been validated to Stage 2A.

# Table IV.    Reason Codes and Definitions

| Reason Code | Explanation |
| --- | --- |
| a | qualified due to low abundance ( radiochemical activity) |
| be | qualified due to equipment blank contamination |
| bf | qualified due to field blank contamination |
| bl | qualified due to lab blank contamination |
| bt | qualified due to trip blank contamination |
| bp | qualified due to pump blank contamination (wells w/o dedicated pumps, when contamination is detected in the Pump Blk) |
| br | qualified due to filter blank contamination (aqueous Hexavalent Chromium and Dissolved sample fractions) |
| c | qualified due to calibration problems |
| cp | qualified due to insufficient ingrowth (radiochemical only) |
| dc | dual column confirmation RPD exceeded |
| e | concentration exceeded the calibration range |
| fd | qualified due to field duplicate imprecision |
| h | qualified due to holding time exceedance |
| i | qualified due to internal standard areas |
| k | qualified as Estimated Maximum Possible Concentrations (dioxins and PCB congeners) |
| l | qualified due to LCS recoveries |
| ld | qualified due to lab duplicate imprecision (matrix duplicate, MSD, LCSD) |
| m | qualified due to matrix spike recoveries |
| nb | qualified due to negative lab blank contamination (nondetect results only) |
| nd | qualified due to non-detected target analyte |
| o | other |
| orr | other result reported |
| p | qualified as a false positive due to contamination during shipping |
| pH | sample preservation not within acceptance range |
| q | qualified due to quantitation problem |
| s | qualified due to surrogate recoveries |
| sd | serial dilution did not meet control criteria |
| sp | detected value reported >SQL <PQL |
| st | sample receipt temperature exceeded |
| t | qualified due to elevated helium tracer concentrations |
| vh | volatile headspace detected in aqueous sample containers submitted for VOC analysis |
| x | qualified due to low % solids |
| z | qualified due to ICS results |

Table V. Overall Qualified Results

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 8.1 | JB | 1.1 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 2.2 | J | 0.25 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 2.4 | JqB | 1.1 | 54 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 14 | JB | 0.22 | 110 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 0.71 | Jq | 0.26 | 11 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 410 | q | 0.85 | 10 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 2.2 | JB | 0.26 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 6600 | q | 6.0 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 1.2 | J | 0.29 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 7.8 | Jq | 0.29 | 54 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 15 | JqB | 0.25 | 54 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 37871-00-4 | HpCDD (total) | 10 | JB | 0.20 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 5.6 | J | 0.57 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 7.7 | JB | 1.6 | 11 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 1.7 | J | 0.23 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 4.8 | Jq | 0.26 | 11 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 24 | JB | 0.63 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 14 | JB | 1.1 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Hexachlorodibenzofuran | 12 | JB | 0.57 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 890 | G | 68 | 68 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 8300 | G | 68 | 68 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 28 | JB | 5.7 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 15 | J | 0.31 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 43 | JB | 0.25 | 100 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 42 | JB | 1.1 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 30000 | G | 800 | 800 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 7100 | G | 280 | 280 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 2.0 | Jq | 0.29 | 10 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 6800 | qB | 17 | 52 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 73 | qB | 0.57 | 54 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 490 | q | 4.0 | 52 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 640 | qB | 1.0 | 52 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 50 | J | 4.0 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 3700 | GB | 740 | 740 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-4-1.5-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 5600 | GB | 15 | 15 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 77000 | GB | 180 | 180 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 140000 | GB | 720 | 720 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 100000 | GB | 280 | 280 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 24 | J | 1.1 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 60 | qB | 0.38 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 5.9 | JB | 0.20 | 54 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-5-1.5-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 87 | qB | 1.1 | 54 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 2000 | qB | 12 | 53 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 52 | JB | 13 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 17 | J | 1.3 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 230 | qB | 0.53 | 53 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 36 | JB | 0.30 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 12 | JB | 0.55 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 28 | J | 0.50 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 81 | q | 0.59 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 120 | q | 1.3 | 53 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 48 | Jq | 0.68 | 51 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 38 | q | 0.29 | 10 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 13 | J | 0.29 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 5.7 | JB | 0.32 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 1100 | qB | 3.2 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 42 | J | 2.7 | 51 | pg/g | J | sp | < PQL | | |

# Table V. Overall Qualified Results

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 5.7 | J | 0.68 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 27 | JB | 6.0 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-0.5-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 650 | qB | 2.7 | 51 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 150 | q | 1.5 | 53 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 120 | q | 0.47 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 14 | JB | 0.49 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 15 | J | 1.5 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 4.1 | Jq | 0.59 | 11 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 86 | JB | 0.39 | 110 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-1.5-20180919 | 09/19/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 36 | Jq | 0.53 | 53 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 28 | J | 0.47 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 5.0 | J | 0.47 | 11 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-1-0.5-20180919 | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 27 | J | 0.44 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-0.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 270 | q | 0.60 | 9.9 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-0.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 350 | q | 3.5 | 49 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-0.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 34 | J | 3.5 | 49 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-0.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 29 | JB | 0.87 | 49 | pg/g | J | sp | < PQL | | |
| NERT Dioxin; Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 7400 | EGB | 59 | 59 | pg/g | J | e,o | > Calibration range; Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 21000 | GB | 700 | 700 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 4100 | GB | 710 | 710 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-3-1.5-20180919 | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 14000 | GB | 280 | 280 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 4.0 | JB | 0.22 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 6.2 | J | 0.20 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 24 | q | 0.36 | 10 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 0.69 | J | 0.36 | 10 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 37 | JB | 0.23 | 100 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 6.4 | J | 0.21 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 18 | JB | 4.0 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 600 | qB | 4.1 | 52 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 23 | JB | 0.25 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 23 | JB | 4.2 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 3.2 | Jq | 0.51 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 35 | Jq | 0.51 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 44 | JB | 0.21 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 37871-00-4 | HpCDD (total) | 36 | JB | 0.25 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433531 | DSPE-2-1.5-20180919 | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 29 | J | 1.9 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 1.4 | JqB | 0.14 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 1.20 | 6 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 38998-75-3 | HpCDF (total) | 5.5 | JB | 0.21 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 4.35 | 21.75 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 1.4 | JqB | 0.15 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.946 | 4.73 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 3.3 | JqB | 0.19 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 4.45 | 22.25 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 1.5 | JqB | 0.18 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.804 | 4.02 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 0.68 | JB | 0.18 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 0.469 | 2.345 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 2.9 | JB | 0.26 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 3.05 | 15.25 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 0.54 | JqB | 0.21 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.488 | 2.44 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 72 | JB | 0.43 | 96 | pg/l | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 0.16 | JqB | 0.10 | 9.6 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.426 | 2.13 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 0.70 | JqB | 0.37 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.985 | 4.925 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 0.79 | JB | 0.10 | 9.6 | pg/l | J | bl,sp | MB contamination; < PQL | 0.426 | 2.13 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 18 | JB | 0.35 | 96 | pg/l | J | bl,sp | MB contamination; < PQL | 8.23 | 41.15 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 0.49 | JB | 0.18 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 0.488 | 2.44 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 3.1 | JB | 0.23 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 3.05 | 15.25 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 0.96 | JB | 0.18 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 0.804 | 4.02 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 2.2 | JB | 0.24 | 96 | pg/l | J | bl,sp | MB contamination; < PQL | 1.55 | 7.75 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 93 | q | 0.44 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 7.6 | JqB | 0.18 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 7.71 | 38.55 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 4.5 | J | 0.44 | 11 | pg/g | J | sp | < PQL | | |

# Table V. Overall Qualified Results

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 94 | JB | 0.37 | 110 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 14 | J | 1.2 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 1.5 | JB | 0.20 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 0.654 | 3.27 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 51 | JB | 12 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 37 | J | 0.62 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 12 | JB | 0.70 | 53 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-0.5-20180919-FD | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 120 | q | 1.2 | 53 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 1.8 | JB | 0.10 | 9.6 | pg/l | J | bl,sp | MB contamination; < PQL | 0.426 | 2.13 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 41903-57-5 | TCDD (total) | 4600 | q | 5.8 | 11 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 14000 | GB | 460 | 460 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 9700 | GB | 190 | 190 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 5100 | EGB | 53 | 53 | pg/g | J | e,o | > Calibration range; Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-EB | 09/19/18 | SW8290 | 37871-00-4 | HpCDD (total) | 2.4 | JqB | 0.37 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 2.28 | 11.4 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 2.2 | JB | 0.26 | 96 | pg/l | J | bl,sp | MB contamination; < PQL | 1.55 | 7.75 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 2900 | GB | 470 | 470 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 2.0 | JqB | 0.14 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 1.20 | 6 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 37871-00-4 | HpCDD (total) | 5.2 | JqB | 0.47 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 2.28 | 11.4 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 0.43 | JqB | 0.21 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.469 | 2.345 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 1.6 | JB | 0.15 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 0.946 | 4.73 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 0.32 | Jq | 0.14 | 48 | pg/l | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 3.6 | JB | 0.22 | 48 | pg/l | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 2600 | GB | 490 | 490 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 70000 | GB | 190 | 190 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 38998-75-3 | HpCDF (total) | 6.5 | JB | 0.24 | 48 | pg/l | J | bl,sp | MB contamination; < PQL | 4.35 | 21.75 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 4900 | G | 190 | 190 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 20000 | G | 480 | 480 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 93000 | GB | 480 | 480 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 0.16 | JqB | 0.10 | 9.6 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.426 | 2.13 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 3.2 | JqB | 0.22 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 4.45 | 22.25 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 6.7 | JqB | 0.21 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 7.71 | 38.55 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-1-20180919-FB | 09/19/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 2.1 | JqB | 0.47 | 48 | pg/l | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.985 | 4.925 pg/l |
| NERT Dioxin Removal | 320433532 | DSPE-3-0.5-20180919-FD | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 55000 | GB | 100 | 100 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 21000 | GB | 130 | 130 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 3000 | GB | 140 | 140 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 55000 | GEB | 200 | 200 | pg/g | J | e,o | > Calibration range; Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 60000 | GqB | 310 | 310 | pg/g | J | k,o | EMPC; Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 170000 | EB | 51 | 110 | pg/g | J | e | > Calibration range | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 24000 | GEB | 240 | 240 | pg/g | J | e,o | > Calibration range; Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 15000 | GB | 130 | 130 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 4600 | EBG | 39 | 39 | pg/g | J | e,o | > Calibration range; Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 3300 | GB | 130 | 130 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 4500 | G | 310 | 310 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 38998-75-3 | HpCDF (total) | 110000 | GB | 220 | 220 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 9700 | GB | 310 | 310 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 44000 | GqB | 63 | 63 | pg/g | J | k,o | EMPC; Matrix interference | | |
| NERT Dioxin Removal | 320433533 | DSPE-3-2.0-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 96000 | GB | 130 | 130 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 18000 | GqB | 99 | 99 | pg/g | J | k,o | EMPC; Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 16000 | GB | 63 | 63 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 36088-22-9 | PeCDD (total) | 1500 | q | 14 | 47 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 1400 | G | 99 | 99 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 6700 | GB | 48 | 48 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 780 | GB | 57 | 57 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 28000 | GB | 49 | 49 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 8.9 | JBq | 0.23 | 9.6 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 1.7 | JB | 0.33 | 48 | pg/g | J | bl,sp | MB contamination; < PQL | 0.356 | 1.78 pg/g |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 55684-94-1 | HxCDF (total) | 28 | JBq | 0.97 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |

**Table V. Overall Qualified Results**

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 1200 | GB | 10 | 10 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 2800 | G | 99 | 99 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 13000 | GB | 19 | 19 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 42000 | EB | 16 | 94 | pg/g | J | e | > Calibration range | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 38998-75-3 | HpCDF (total) | 33000 | GB | 69 | 69 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-3.0-20180919 | 09/19/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 6500 | GB | 75 | 75 | pg/g | J | o | Matrix interference | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 1.2 | JBq | 0.92 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 3.6 | J | 0.83 | 48 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 13 | JB | 1.1 | 48 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 3.8 | JBq | 0.88 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 2.4 | JB | 0.23 | 9.6 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 35 | JB | 0.44 | 96 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 0.69 | Jq | 0.25 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 14 | JB | 0.49 | 48 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 6.8 | JB | 0.24 | 96 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 4.6 | JBq | 0.96 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 30402-15-4 | PeCDF (total) | 7.9 | JBq | 0.83 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 37871-00-4 | HpCDD (total) | 3.0 | JB | 0.33 | 48 | pg/g | J | bl,sp | MB contamination; < PQL | 0.668 | 3.34 pg/g |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 34465-46-8 | HxCDD (total) | 3.6 | JBq | 0.25 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 13 | JB | 0.41 | 48 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 1.3 | JBq | 0.24 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 1.6 | JBq | 0.27 | 48 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320433534 | DSPE-3-4.0-20180919 | 09/19/18 | SW8290 | 38998-75-3 | HpCDF (total) | 37 | JB | 0.45 | 48 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW6010R | 7440-39-3 | Barium | 1.0 | JB | 0.012 | 5.0 | mg/l | J | bl,sp | MB contamination; < PQL | 0.426 | 5.0 mg/l |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW6010R | 7439-92-1 | Lead | 0.016 | J | 0.012 | 0.50 | mg/l | J | bl,sp | ICB/CCB contamination; < PQL | 0.008 | 0.50 mg/l |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 88-06-2 | 2,4,6-Trichlorophenol | | UH | 10 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 106-46-7 | 1,4-Dichlorobenzene | | UH | 7.0 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 1319-77-3MP | 3 & 4 Methylphenol | | UH | 50 | 150 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 87-68-3 | Hexachlorobutadiene | | UH | 6.5 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 95-48-7 | 2-Methylphenol | | UH | 4.7 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 95-95-4 | 2,4,5-Trichlorophenol | | UH | 10 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 110-86-1 | Pyridine | | UH | 4.0 | 100 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 121-14-2 | 2,4-Dinitrotoluene | | UH | 10 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 67-72-1 | Hexachloroethane | | UH | 7.0 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 118-74-1 | Hexachlorobenzene | | UH | 7.0 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 98-95-3 | Nitrobenzene | | UH | 8.0 | 50 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320433535 | DSPE-3-1.5-20180919_TCLP | 09/19/18 | SW8270R | 87-86-5 | Pentachlorophenol | | UH | 10 | 250 | ug/l | UJ | h | Holding time | 19 | 14 days |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 6.3 | JB | 0.23 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 1.0 | Jq | 0.33 | 10 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 6.4 | JB | 0.24 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 16 | J | 1.4 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 41903-57-5 | TCDD (total) | 27 | q | 0.33 | 10 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 48 | J | 2.0 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 4.0 | JB | 0.25 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 1.4 | JB | 0.14 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 14 | JB | 1.5 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 24 | JB | 0.34 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 37871-00-4 | HpCDD (total) | 37 | JB | 0.34 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 72 | JB | 0.26 | 100 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 24 | J | 2.0 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 3.9 | J | 0.58 | 50 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 34465-46-8 | HxCDD (total) | 44 | JqB | 0.24 | 50 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 34465-46-8 | HxCDD (total) | 2.3 | JqB | 0.13 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 36088-22-9 | PeCDD (total) | 0.26 | J | 0.20 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 37871-00-4 | HpCDD (total) | 2.2 | JqB | 0.13 | 52 | pg/g | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.806 | 4.03 pg/g |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 55684-94-1 | HxCDF (total) | 8.3 | JqB | 0.17 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |

**Table V. Overall Qualified Results**

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 0.94 | JqB | 0.13 | 52 | pg/g | J | k,bl,sp | EMPC; MB contamination; < PQL | 0.512 | 2.56 pg/g |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 1.4 | JqB | 0.11 | 10 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 4.3 | JB | 0.18 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 30402-15-4 | PeCDF (total) | 1.0 | J | 0.23 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 0.36 | JB | 0.12 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-6-1.5-20180920 | 09/20/18 | SW8290 | 36088-22-9 | PeCDD (total) | 36 | Jq | 0.58 | 50 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 0.61 | Jq | 0.17 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 0.78 | JB | 0.11 | 10 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 0.19 | Jq | 0.17 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 38998-75-3 | HpCDF (total) | 5.0 | JB | 0.15 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 0.91 | JB | 0.14 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 17 | JB | 0.21 | 100 | pg/g | J | bl,sp | MB contamination; < PQL | 9.69 | 48.45 pg/g |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 0.50 | JqB | 0.13 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 1.0 | J | 0.23 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 0.38 | Jq | 0.17 | 52 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 3.1 | JB | 0.25 | 100 | pg/g | J | bl,sp | MB contamination; < PQL | 0.681 | 3.405 pg/g |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 3.1 | JB | 0.16 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434771 | DSPE-7-1.5-20180920 | 09/20/18 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 0.26 | J | 0.20 | 52 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 1746-01-6 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 2.8 | J | 0.22 | 10 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 34465-46-8 | HxCDD (total) | 1.7 | JqB | 1.1 | 51 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 37871-00-4 | HpCDD (total) | 8.3 | JB | 0.34 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 67562-39-4 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 8.7 | JB | 0.71 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 39001-02-0 | Octachlorodibenzofuran | 33 | JB | 0.47 | 100 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 11 | JB | 0.85 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 55684-94-1 | HxCDF (total) | 8.7 | JqB | 1.6 | 51 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 2.2 | JB | 0.30 | 10 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 38998-75-3 | HpCDF (total) | 31 | JqB | 0.78 | 51 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 41903-57-5 | TCDD (total) | 2.8 | J | 0.22 | 10 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 5.4 | JqB | 0.30 | 10 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 4.6 | JB | 0.34 | 51 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 320434772 | DSPE-7-3.0-20180920 | 09/20/18 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 8.7 | JqB | 1.6 | 51 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW6010R | 7440-47-3 | Chromium (total) | 0.020 | J | 0.020 | 0.10 | mg/l | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8015 | C29-C40 | Petroleum Hydrocarbons C29 - C40 | 4.6 | J | 2.5 | 5.0 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8015 | EFH-C10-C40 | EFH (C10-C40) | 4.8 | J | 2.6 | 5.3 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8015 | EFH-C10-C40 | EFH (C10-C40) | 3.7 | J | 2.6 | 5.1 | mg/kg | J | sp | < PQL | | |
| MS/MSD Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8081 | 72-55-9 | 4,4'-DDE | 0.0032 | JF1 | 0.0016 | 0.0053 | mg/kg | J+ | m,sp | MS/MSD %R; < PQL | 197,201 | 35-130 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8081 | 72-55-9 | 4,4'-DDE | 0.057 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB, TCMX) | 2605; 121 | 45-120; 35-115 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8081 | 50-29-3 | 4,4'-DDT | 0.011 | p | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB, TCMX) | 2605; 121 | 45-120; 35-115 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8081 | 3424-82-6 | 2,4'-DDE | 0.048 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB, TCMX) | 2605; 121 | 45-120; 35-115 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8081 | 319-85-7 | beta-BHC | 0.014 | | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB) | 197 | 45-120 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8081 | 3424-82-6 | 2,4'-DDE | 0.028 | | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB) | 197 | 45-120 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8081 | 50-29-3 | 4,4'-DDT | 0.011 | | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB) | 197 | 45-120 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8081 | 319-84-6 | alpha-BHC | 0.0073 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB, TCMX) | 2605; 121 | 45-120; 35-115 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8081 | 319-84-6 | alpha-BHC | 0.0059 | | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB, TCMX) | 2750; 127 | 45-120; 35-115 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8081 | 50-29-3 | 4,4'-DDT | 0.019 | p | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB, TCMX) | 2750; 127 | 45-120; 35-115 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0026 | 0.0053 | mg/kg | UJ | c | CCV %D | 21.2 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0021 | 0.0053 | mg/kg | UJ | c | CCV %D | 24.1 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0025 | 0.0051 | mg/kg | UJ | c | CCV %D | 21.2 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0011 | 0.0021 | mg/kg | UJ | c | ICV %D | 25.8 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8260 | 67-64-1 | Acetone | | U | 0.0084 | 0.021 | mg/kg | UJ | c | CCV %D | 30.7 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0025 | 0.0050 | mg/kg | UJ | c | CCV %D | 21.2 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0051 | 0.010 | mg/kg | UJ | c | CCV %D | 30.1 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0050 | 0.010 | mg/kg | UJ | c | CCV %D | 30.1 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0053 | 0.011 | mg/kg | UJ | c | CCV %D | 30.1 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0053 | 0.011 | mg/kg | UJ | c | CCV %D | 30.1 | 20 % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0026 | 0.0053 | mg/kg | UJ | c | CCV %D | 21.2 | 20 % |

**Table V. Overall Qualified Results**

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0010 | 0.0020 | mg/kg | UJ | c | ICV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8260 | 67-64-1 | Acetone | 0.017 | J | 0.0081 | 0.020 | mg/kg | J- | c,sp | CCV %D; < PQL | 30.7 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0020 | 0.0050 | mg/kg | UJ | c | CCV %D | 24.1 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0010 | 0.0020 | mg/kg | UJ | c | ICV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8260 | 67-64-1 | Acetone | | U | 0.0081 | 0.020 | mg/kg | UJ | c | CCV %D | 30.7 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8260 | 67-64-1 | Acetone | | U | 0.0085 | 0.021 | mg/kg | UJ | c | CCV %D | 30.7 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0020 | 0.0051 | mg/kg | UJ | c | CCV %D | 24.1 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0021 | 0.0053 | mg/kg | UJ | c | CCV %D | 24.1 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0011 | 0.0021 | mg/kg | UJ | c | ICV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8270 | 118-74-1 | Hexachlorobenzene | 7.3 | F1 | 0.071 | 0.33 | mg/kg | J- | m | MS/MSD %R | -,23 | 50-120 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8270 | 92-87-5 | Benzidine | | UF1* | 0.17 | 2.1 | mg/kg | R | m,l | MS/MSD %R; LCS %R | 0,0; 0 | 20-120; 5-61 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8270 | 118-74-1 | Hexachlorobenzene | 0.20 | J | 0.071 | 0.34 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.17 | 2.1 | mg/kg | R | l | LCS %R | 0 | 5-61 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-0.0-20180919 | 09/19/18 | SW8270 | 100-51-6 | Benzyl Alcohol | | U | 0.42 | 3.5 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8270 | 100-51-6 | Benzyl Alcohol | | U | 0.43 | 3.6 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-1.0-20180919 | 09/19/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.18 | 2.2 | mg/kg | R | l | LCS %R | 0 | 5-61 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.18 | 2.2 | mg/kg | R | l | LCS %R | 0 | 5-61 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-5-1.0-20180919 | 09/19/18 | SW8270 | 100-51-6 | Benzyl Alcohol | | U | 0.43 | 3.6 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |
| NERT Dioxin Removal | 4402205191 | DSPE-4-0.0-20180919 | 09/19/18 | SW8270 | 65-85-0 | Benzoic Acid | | UF1 | 0.48 | 0.96 | mg/kg | R | m | MS/MSD %R | 0,0 | 20-120 | % |
| NERT Dioxin Removal | 4402205192 | DSPE-4-0.0-20180919 | 09/19/18 | SW8270R | 98-95-3 | Nitrobenzene | | UF1 | 0.015 | 0.20 | mg/l | UJ | m | MS/MSD %R | 52 | 55-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8015 | C29-C40 | Petroleum Hydrocarbons C29 - C40 | 4.3 | J | 2.5 | 5.1 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8015 | EFH-C10-C40 | EFH (C10-C40) | 7.5 | B | 2.5 | 5.1 | mg/kg | J+ | bl | MB contamination | 4.43 | 8.86 | mg/Kg |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8015 | C29-C40 | Petroleum Hydrocarbons C29 - C40 | 3.5 | J | 2.6 | 5.2 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8015 | DRO-C10-C28 | Diesel Range Organics (C10-C28) | 3.6 | J | 2.5 | 5.1 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8015 | DRO-C10-C28 | Diesel Range Organics (C10-C28) | 3.4 | J | 2.6 | 5.2 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8015 | EFH-C10-C40 | EFH (C10-C40) | 6.9 | B | 2.6 | 5.2 | mg/kg | J+ | bl | MB contamination | 4.43 | 8.86 | mg/Kg |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8015 | EFH-C10-C40 | EFH (C10-C40) | 5.0 | JB | 2.7 | 5.3 | mg/kg | J | bl,sp | MB contamination; < PQL | 4.43 | 8.86 | mg/Kg |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8081 | 3424-82-6 | 2,4'-DDE | 0.0059 | J | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB) | 157 | 45-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8081 | 319-85-7 | beta-BHC | 0.0016 | J | 0.0015 | 0.0051 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8081 | 72-55-9 | 4,4'-DDE | 0.0080 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB) | 157 | 45-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8081 | 3424-82-6 | 2,4'-DDE | 0.0019 | J | 0.0015 | 0.0051 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8081 | 72-55-9 | 4,4'-DDE | 0.0020 | J | 0.0015 | 0.0051 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8081 | 319-85-7 | beta-BHC | 0.055 | | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB) | 943 | 45-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8081 | 50-29-3 | 4,4'-DDT | 0.023 | | 0.0015 | 0.0051 | mg/kg | J+ | s | Surrogate %R (DCB) | 943 | 45-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8081 | 319-85-7 | beta-BHC | 0.0080 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB) | 157 | 45-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8081 | 50-29-3 | 4,4'-DDT | 0.014 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB) | 157 | 45-120 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0021 | 0.0053 | mg/kg | UJ | c | CCV %D | 24.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8260 | 67-64-1 | Acetone | | U | 0.0085 | 0.021 | mg/kg | UJ | c | CCV %D | 30.7 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0053 | 0.011 | mg/kg | UJ | c | CCV %D | 30.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0025 | 0.0051 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8260 | 67-64-1 | Acetone | | U | 0.0083 | 0.021 | mg/kg | UJ | c | CCV %D | 30.7 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0010 | 0.0021 | mg/kg | UJ | c | ICV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0026 | 0.0052 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0020 | 0.0051 | mg/kg | UJ | c | CCV %D | 24.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0010 | 0.0020 | mg/kg | UJ | c | ICV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 67-64-1 | Acetone | 0.014 | J | 0.0081 | 0.020 | mg/kg | J- | c,sp | CCV %D; < PQL | 30.7 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 95-63-6 | 1,2,4-Trimethylbenzene | 0.0012 | J | 0.0010 | 0.0020 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 75-09-2 | Methylene Chloride | 0.0078 | J | 0.0051 | 0.010 | mg/kg | J | sp | < PQL | | | |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0051 | 0.010 | mg/kg | UJ | c | CCV %D | 30.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0021 | 0.0052 | mg/kg | UJ | c | CCV %D | 24.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0027 | 0.0053 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0011 | 0.0021 | mg/kg | UJ | c | CCV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0051 | 0.010 | mg/kg | UJ | c | CCV %D | 30.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8260 | 591-78-6 | 2-Hexanone | | U | 0.0052 | 0.010 | mg/kg | UJ | c | CCV %D | 30.1 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0010 | 0.0020 | mg/kg | UJ | c | CCV %D | 25.8 | 20 | % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8260 | 108-10-1 | 4-Methyl-2-pentanone | | U | 0.0025 | 0.0051 | mg/kg | UJ | c | CCV %D | 21.2 | 20 | % |

# Table V. Overall Qualified Results

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8260 | 96-12-8 | 1,2-Dibromo-3-chloropropane | | U | 0.0020 | 0.0051 | mg/kg | UJ | c | CCV %D | 24.1 | 20 % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8260 | 67-64-1 | Acetone | | U | 0.0081 | 0.020 | mg/kg | UJ | c | CCV %D | 30.7 | 20 % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8270 | 65-85-0 | Benzoic Acid | | U | 0.50 | 1.0 | mg/kg | UJ | c | CCV %D | 24.8 | 20 % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8270 | 65-85-0 | Benzoic Acid | | U | 0.48 | 0.97 | mg/kg | UJ | c | CCV %D | 24.8 | 20 % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-1.0-20180920 | 09/20/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.18 | 2.2 | mg/kg | R | l | LCS %R | 0 | 5-61 % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8270 | 65-85-0 | Benzoic Acid | | U | 0.48 | 0.96 | mg/kg | UJ | c | CCV %D | 24.8 | 20 % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-0.0-20180920 | 09/20/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.17 | 2.1 | mg/kg | R | l | LCS %R | 0 | 5-61 % |
| NERT Dioxin Removal | 4402206231 | DSPE-7-0.0-20180920 | 09/20/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.17 | 2.1 | mg/kg | R | l | LCS %R | 0 | 5-61 % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8270 | 65-85-0 | Benzoic Acid | | U | 0.50 | 1.0 | mg/kg | UJ | c | CCV %D | 24.8 | 20 % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8270 | 92-87-5 | Benzidine | | U* | 0.18 | 2.2 | mg/kg | R | l | LCS %R | 0 | 5-61 % |
| NERT Dioxin Removal | 4402206231 | DSPE-6-1.0-20180920 | 09/20/18 | SW8270 | 118-74-1 | Hexachlorobenzene | 0.077 | J | 0.073 | 0.35 | mg/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402301701 | ES-40-90.0-20190114 | 01/14/19 | E300.1 | 14866-68-3 | Chlorate | 78 | J | 29 | 290 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402301701 | ES-40-115.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.068 | 0.072 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-140.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.013 | 0.013 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-110.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.064 | 0.068 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | 1.6 | | 0.080 | 0.084 | mg/kg | J- | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-105.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.013 | 0.014 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-60.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.070 | 0.073 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-130.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.014 | 0.015 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-40.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | 3.1 | | 0.078 | 0.082 | mg/kg | J- | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-120.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.014 | 0.015 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114-FD | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | 2.1 | | 0.089 | 0.094 | mg/kg | J- | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-90.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.014 | 0.014 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-150.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.013 | 0.014 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-100.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.015 | 0.015 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-70.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | UF1 | 0.073 | 0.077 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-95.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.013 | 0.013 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-80.0-20190114 | 01/14/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.013 | 0.014 | mg/kg | UJ | m | MS/MSD %R | 79 | 80-120 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114-FD | 01/14/19 | SW6010 | 7440-47-3 | Chromium (total) | 15 | | 0.93 | 1.9 | mg/kg | J | fd | FD RPD | 54 | 50 % |
| NERT ZVI Treatment Study | 4402301701 | ES-40-50.0-20190114 | 01/14/19 | SW6010 | 7440-47-3 | Chromium (total) | 26 | | 0.84 | 1.7 | mg/kg | J | fd | FD RPD | 54 | 50 % |
| NERT ZVI Treatment Study | 4402301702 | ES-40-50.0-20190114-FD | 01/14/19 | SW9060 | 7440-44-0 | CARBON | 270 | | 77 | 150 | mg/kg | J | fd | FD RPD | 115 | 50 % |
| NERT ZVI Treatment Study | 4402301702 | ES-40-50.0-20190114 | 01/14/19 | SW9060 | 7440-44-0 | CARBON | 1000 | | 77 | 150 | mg/kg | J | fd | FD RPD | 115 | 50 % |
| NERT ZVI Treatment Study | 4402305961 | ES-42-150.0-20190116 | 01/16/19 | E300 | 14797-55-8_NO3 | Nitrate as NO3 | | UF2 | 4.4 | 6.2 | mg/kg | UJ | ld | MS/MSD RPD | 21 | 20 % |
| NERT ZVI Treatment Study | 4402305961 | ES-42-60.0-20190115 | 01/15/19 | E300 | 14797-55-8_NO3 | Nitrate as NO3 | 4.5 | J | 4.5 | 6.4 | mg/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402305961 | ES-42-60.0-20190115 | 01/15/19 | E300.1 | 14866-68-3 | Chlorate | 68 | JF2 | 26 | 260 | ug/kg | J | ld,sp | MS/MSD RPD; < PQL | 28 | 25 % |
| NERT ZVI Treatment Study | 4402305961 | ES-42-74.0-20190115 | 01/15/19 | E300.1 | 14866-68-3 | Chlorate | 49 | J | 27 | 270 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402305961 | ES-42-115.0-20190116 | 01/16/19 | E300.1 | 14866-68-3 | Chlorate | 100 | J | 29 | 290 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402305962 | ES-42-150.0-20190116 | 01/16/19 | SW9060 | 7440-44-0 | CARBON | 8200 | F1 | 310 | 600 | mg/kg | J- | m | MS/MSD %R | 7 | 50-150 % |
| NERT ZVI Treatment Study | 4402309021 | ES-41-80.0-20190117 | 01/17/19 | E300.1 | 14866-68-3 | Chlorate | 110 | J | 28 | 280 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402309021 | ES-41-90.0-20190117 | 01/17/19 | E300.1 | 14866-68-3 | Chlorate | 72 | J | 28 | 280 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402309021 | ES-41-140.0-20190117 | 01/17/19 | E300.1 | 14866-68-3 | Chlorate | 100 | J | 27 | 270 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402309022 | ES-41-50.0-20190117 | 01/17/19 | SW9060 | 7440-44-0 | CARBON | 100 | J | 77 | 150 | mg/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402309022 | ES-41-130.0-20190117 | 01/17/19 | SW9060 | 7440-44-0 | CARBON | 130 | J | 77 | 150 | mg/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121-FD | 01/21/19 | E300 | 14797-55-8_NO3 | Nitrate as NO3 | 5.5 | J | 5.4 | 7.7 | mg/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121 | 01/21/19 | E300 | 14797-55-8_NO3 | Nitrate as NO3 | 6.7 | J | 5.2 | 7.4 | mg/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-120.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 55 | J | 27 | 270 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-115.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 110 | J | 56 | 560 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-130.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 45 | J | 29 | 290 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-80.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 440 | F1 | 29 | 290 | ug/kg | J- | m | MS/MSD %R | 63,74 | 75-125 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-100.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 84 | J | 28 | 280 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-70.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 55 | J | 35 | 350 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-140.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 250 | J | 27 | 270 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-150.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 51 | J | 30 | 300 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-105.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 66 | J | 28 | 280 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-95.0-20190121 | 01/21/19 | E300.1 | 14866-68-3 | Chlorate | 170 | J | 29 | 290 | ug/kg | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402313011 | ES-43-140.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.063 | 0.067 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |

**Table V. Overall Qualified Results**

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121-FD | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | 0.22 | | 0.015 | 0.015 | mg/kg | J- | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-70.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.017 | 0.018 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-50.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | 4.3 | | 0.077 | 0.081 | mg/kg | J- | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-40.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | 1.5 | | 0.066 | 0.070 | mg/kg | J- | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-150.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.071 | 0.075 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-80.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | UF1 | 0.28 | 0.29 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-60.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | 0.22 | | 0.014 | 0.015 | mg/kg | J- | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-130.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.068 | 0.072 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-90.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 7.5 | 7.9 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-120.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.065 | 0.069 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-115.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 0.066 | 0.070 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-95.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 7.0 | 7.4 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-110.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 6.3 | 6.6 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-105.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 6.8 | 7.1 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313011 | ES-43-100.0-20190121 | 01/21/19 | E314.0 | 14797-73-0 | Perchlorate | | U | 6.7 | 7.0 | mg/kg | R | m | MS/MSD %R | 0,0 | 80-120 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-130.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 94 | J | 77 | 150 | mg/kg | J+ | m,sp | MS/MSD %R; < PQL | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-120.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 1900 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-115.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 370 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-110.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 140 | J | 77 | 150 | mg/kg | J+ | m,sp | MS/MSD %R; < PQL | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-105.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 9100 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-70.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 620 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-60.0-20190121-FD | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 710 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-80.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 3500 | F1 | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-50.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 420 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-40.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 220 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-150.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 790 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402313012 | ES-43-140.0-20190121 | 01/21/19 | SW9060 | 7440-44-0 | CARBON | 9700 | | 77 | 150 | mg/kg | J+ | m | MS/MSD %R | 386,603 | 50-150 % |
| NERT ZVI Treatment Study | 4402347811 | ES-40-20190226 | 02/26/19 | E300.1 | 14866-68-3 | Chlorate | 68 | J | 20 | 200 | ug/l | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402347811 | ES-44-20190226 | 02/26/19 | SM3500 | 7439-89-6-FE2 | Iron, Ferrous | | UHF | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 192 | 48 hours |
| NERT ZVI Treatment Study | 4402347811 | ES-40-20190226 | 02/26/19 | SM3500 | 7439-89-6-FE2 | Iron, Ferrous | | UHF | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 192 | 48 hours |
| NERT ZVI Treatment Study | 4402347811 | ES-44-20190226 | 02/26/19 | SM5310_D | 7440-44-0 | CARBON | 880 | J | 650 | 1000 | ug/l | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402347811 | ES-44-20190226 | 02/26/19 | SM5310B | 7440-44-0 | CARBON | 0.82 | J | 0.65 | 1.0 | mg/l | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402348701 | ES-43-20190227 | 02/27/19 | E314.0 | 14797-73-0 | Perchlorate | 14 | J | 4.8 | 20 | ug/l | J | sp | < PQL | | |
| NERT ZVI Treatment Study | 4402348701 | ES-41-20190227 | 02/27/19 | SM3500 | 7439-89-6-FE2 | Iron, Ferrous | | UHF | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-43-20190227 | 02/27/19 | SM3500 | 7439-89-6-FE3 | Iron, Ferric | | U | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-42-20190227 | 02/27/19 | SM3500 | 7439-89-6-FE3 | Iron, Ferric | | U | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-41-20190227 | 02/27/19 | SM3500 | 7439-89-6-FE3 | Iron, Ferric | | U | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-42-20190227 | 02/27/19 | SM3500 | 7439-89-6-FE2 | Iron, Ferrous | | UHF | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-43-20190227-FD | 02/27/19 | SM3500 | 7439-89-6-FE2 | Iron, Ferrous | | UHF | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-43-20190227-FD | 02/27/19 | SM3500 | 7439-89-6-FE3 | Iron, Ferric | | U | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT ZVI Treatment Study | 4402348701 | ES-43-20190227 | 02/27/19 | SM3500 | 7439-89-6-FE2 | Iron, Ferrous | | UHF | 0.10 | 0.10 | mg/l | UJ | h | Holding time | 168 | 48 hours |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW6010 | 7440-43-9 | Cadmium | 0.040 | J | 0.026 | 0.52 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-7-RE-3.0-20190227 | 02/27/19 | SW6010 | 7440-39-3 | Barium | 140 | B | 0.11 | 5.3 | mg/kg | J- | m | MS/MSD %R | 66,55 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 02/27/19 | SW6010 | 7782-49-2 | Selenium | | UF1 | 0.61 | 5.5 | mg/kg | UJ | m | MS/MSD %R | 74,73 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW6010 | 7782-49-2 | Selenium | | U | 0.58 | 5.2 | mg/kg | UJ | m | MS/MSD %R | 74,73 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 02/27/19 | SW6010 | 7782-49-2 | Selenium | | U | 0.59 | 5.3 | mg/kg | UJ | m | MS/MSD %R | 74,73 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 02/27/19 | SW6010 | 7440-39-3 | Barium | 150 | B | 0.11 | 5.3 | mg/kg | J- | m | MS/MSD %R | 66,55 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 02/27/19 | SW6010 | 7440-39-3 | Barium | 150 | F1B | 0.11 | 5.5 | mg/kg | J- | m | MS/MSD %R | 66,55 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-7-RE-3.0-20190227 | 02/27/19 | SW6010 | 7782-49-2 | Selenium | | U | 0.59 | 5.3 | mg/kg | UJ | m | MS/MSD %R | 74,73 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW6010 | 7440-39-3 | Barium | 150 | B | 0.10 | 5.2 | mg/kg | J- | m | MS/MSD %R | 66,55 | 75-125 % |
| NERT Dioxin Removal | 4402348941 | DSPE-7-RE-3.0-20190227 | 02/27/19 | SW8015 | C23-C40 | Petroleum Hydrocarbons C23 - C40 | 4.3 | J | 2.7 | 5.5 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 02/27/19 | SW8015 | C23-C40 | Petroleum Hydrocarbons C23 - C40 | 3.1 | J | 2.7 | 5.5 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW8015 | C23-C40 | Petroleum Hydrocarbons C23 - C40 | 4.3 | JB | 2.7 | 5.4 | mg/kg | J | bl,sp | MB contamination; < PQL | 3.18 | 6.36 mg/Kg |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 02/27/19 | SW8015 | C23-C40 | Petroleum Hydrocarbons C23 - C40 | 3.1 | J | 2.7 | 5.4 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 02/27/19 | SW8081 | 72-55-9 | 4,4'-DDE | 0.0016 | J | 0.0016 | 0.0054 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW8081 | 50-29-3 | 4,4'-DDT | 0.0023 | J | 0.0016 | 0.0054 | mg/kg | J | sp | < PQL | | |

**Table V. Overall Qualified Results**

| Sampling Event | SDG | Client Sample ID | Sample Date | Method | Client Analyte ID | Analyte | Lab Result | Lab Qualifier | SQL | PQL | Units | Validator Qualifier | Reason Code | Data Quality Indicator[1] | Qualification Finding | Acceptance Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW8081 | 319-85-7 | beta-BHC | 0.0045 | J | 0.0016 | 0.0054 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-3.5-20190227 | 02/27/19 | SW8081 | 72-55-9 | 4,4'-DDE | 0.0039 | J | 0.0016 | 0.0054 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 02/27/19 | SW8081 | 72-55-9 | 4,4'-DDE | 0.0027 | J | 0.0017 | 0.0055 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-1.5-20190227 | 02/27/19 | SW8081 | 319-85-7 | beta-BHC | 0.0038 | J | 0.0017 | 0.0055 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-3-RE-2.5-20190227 | 02/27/19 | SW8081 | 319-85-7 | beta-BHC | 0.0028 | J | 0.0016 | 0.0054 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402348941 | DSPE-4-RE-1.0-20190227 | 02/27/19 | SW8270 | 92-87-5 | Benzidine | | U* | 0.37 | 2.9 | mg/kg | R | l | LCS %R | 3 | 5-61 % |
| NERT Dioxin Removal | 4402348941 | DSPE-7-RE-3.0-20190227 | 02/27/19 | SW8270 | 92-87-5 | Benzidine | | U* | 0.19 | 1.4 | mg/kg | R | l | LCS %R | 3 | 5-61 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | E300 | 7723-14-0P | Orthophosphate (total) (As P) | 1.4 | J | 1.4 | 1.7 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | E300 | 14808-79-8 | Sulfate | 160 | F1 | 4.2 | 5.3 | mg/kg | J- | m | MS/MSD %R | 71,59 | 80-120 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW6010 | 7440-42-8 | Boron | 3.5 | J | 2.6 | 5.3 | mg/kg | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW6010 | 7440-38-2 | Arsenic | 5.5 | | 1.6 | 3.2 | mg/kg | J+ | c | CRI %R | 139 | 70-130 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8081 | 319-85-7 | beta-BHC | 0.0064 | | 0.0016 | 0.0053 | mg/kg | J+ | s | Surrogate %R (DCB) | 129 | 21-177 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8260 | 74-87-3 | Chloromethane | | U | 0.0010 | 0.0021 | mg/kg | UJ | c | ICV %D | 20.1 | 20 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8260 | 75-71-8 | Dichlorodifluoromethane | | U | 0.0010 | 0.0021 | mg/kg | UJ | c | ICV %D | 31.7 | 20 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8270 | 92-87-5 | Benzidine | | UF1 | 0.18 | 1.4 | mg/kg | R | m | MS/MSD %R | 0,0 | 20-120 % |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 57117-31-4 | 2,3,4,7,8-Pentachlorodibenzofuran | 6.9 | J | 0.88 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 72918-21-9 | 1,2,3,7,8,9-Hexachlorodibenzofuran | 8.3 | JB | 2.1 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 35822-46-9 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 13 | JB | 0.46 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 70648-26-9 | 1,2,3,4,7,8-Hexachlorodibenzofuran | 37 | J | 2.0 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 34465-46-8 | HxCDD (total) | 21 | JB | 0.30 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 37871-00-4 | HpCDD (total) | 21 | JB | 0.46 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 36088-22-9 | PeCDD (total) | 10 | Jq | 0.49 | 47 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 55684-94-1 | HxCDF (total) | 150 | Bq | 2.0 | 47 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 40321-76-4 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 1.3 | J | 0.49 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 30402-14-3 | Tetrachlorodibenzofuran | 74 | q | 0.54 | 9.4 | pg/g | J | k | EMPC | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 3268-87-9 | Octachlorodibenzo-p-dioxin | 47 | JB | 0.45 | 94 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 51207-31-9 | 2,3,7,8-Tetrachlorodibenzofuran | 7.1 | J | 0.56 | 9.4 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 19408-74-3 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 2.8 | J | 0.28 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 39227-28-6 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 2.4 | JB | 0.33 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 41903-57-5 | TCDD (total) | 5.4 | Jq | 0.44 | 9.4 | pg/g | J | k,sp | EMPC; < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 57653-85-7 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 2.8 | J | 0.30 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 60851-34-5 | 2,3,4,6,7,8-Hexachlorodibenzofuran | 4.8 | J | 1.9 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 57117-44-9 | 1,2,3,6,7,8-Hexachlorodibenzofuran | 22 | JB | 1.9 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 57117-41-6 | 1,2,3,7,8-Pentachlorodibenzofuran | 15 | JB | 0.88 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW8290 | 55673-89-7 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 38 | JB | 1.4 | 47 | pg/g | J | sp | < PQL | | |
| NERT Dioxin Removal | 4402377701 | ECA-CONFIRMATION-20190401 | 04/01/19 | SW9034 | 18496-25-8 | Sulfide (total) | | U | 21 | 42 | mg/kg | UJ | m | MS/MSD %R | 64,55 | 70-130 % |

Notes:
1. Surrogate Acronyms:    DCB = Decachlorobiphenyl

                       TCMX = Tetrachloro-m-xylene

**ATTACHMENT A**
**VOC Data Validation Report (DVR)**

**Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ($r^2$) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

| SDG | Date | Compound | %D | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-220519-1 | 09/05/18 (NHI04021) | 2-Hexanone | 22.0 | All samples in SDG 440-220519-1 | NA | - |
| 440-220519-1 | 09/05/18 (NHI04021) | Dichlorodifluoromethane | 25.8 | All samples in SDG 440-220519-1 | UJ (all non-detects) | A |
| 440-220623-1 | 09/05/18 (NHI04021) | 2-Hexanone | 22.0 | All samples in SDG 440-220623-1 | NA | - |
| 440-220623-1 | 09/05/18 (NHI04021) | Dichlorodifluoromethane | 25.8 | All samples in SDG 440-220623-1 | UJ (all non-detects) | A |

| SDG | Date | Compound | %D | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-237770-1 | 03/14/19 | Dichlorodifluoromethane<br>Chloromethane | 31.7<br>20.1 | All samples in SDG 440-237770-1 | UJ (all non-detects)<br>UJ (all non-detects) | A |

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

| SDG | Date | Compound | %D | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-220519-1 | 09/26/18 (NHI26002) | Acetone<br>4-Methyl-2-pentanone<br>2-Hexanone<br>1,2-Dibromo-3-chloropropane | 30.7<br>21.2<br>30.1<br>24.1 | All samples in SDG 440-220519-1 | J- (all detects)<br>UJ (all non-detects) | A |
| 440-220623-1 | 09/26/18 (NHI26002) | Acetone<br>4-Methyl-2-pentanone<br>2-Hexanone<br>1,2-Dibromo-3-chloropropane | 30.7<br>21.2<br>30.1<br>24.1 | All samples in SDG 440-220623-1 | J- (all detects)<br>UJ (all non-detects) | A |
| 440-234894-1 | 03/02/19 | Isopropyl ether<br>1,2-Dichloroethane<br>Carbon tetrachloride | 23.5<br>21.4<br>24.6 | All samples in SDG 440-234894-1 | NA | - |
| 440-237770-1 | 04/09/19 | Vinyl chloride | 30.1 | All samples in SDG 440-237770-1 | NA | - |

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## VI. Field Blanks

No field blanks were identified in these SDGs.

## VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Compound | MS (%R) (Limits) | MSD (%R) (Limits) | Flag | A or P |
|-----|-------------------------------|----------|------------------|-------------------|------|--------|
| 440-234894-1 | DSPE-3-RE-2.5-20190227MS/MSD (DSPE-3-RE-2.5-20190227) | Acetone | - | 146 (20-145) | NA | - |

Relative percent differences (RPD) were within QC limits.

## IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Internal Standards

All internal standard areas and retention times were within QC limits.

## XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIV. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to ICV %D and continuing calibration %D, data were qualified as estimated in nine samples. No results were rejected in this SDG.

**NERT Dioxin Impacted Soil**
**Volatiles - Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1, 440-237770-1**

| SDG | Sample | Compound | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 440-220519-1 | DSPE-4-0.0-20180919<br>DSPE-4-1.0-20180919<br>DSPE-5-0.0-20180919<br>DSPE-5-1.0-20180919 | Dichlorodifluoromethane | UJ (all non-detects) | A | Initial calibration verification (%D) (c) |
| 440-220623-1 | DSPE-6-0.0-20180920**<br>DSPE-6-1.0-20180920**<br>DSPE-7-0.0-20180920**<br>DSPE-7-1.0-20180920** | Dichlorodifluoromethane | UJ (all non-detects) | A | Initial calibration verification (%D) (c) |
| 440-237770-1 | ECA-CONFIRMATION** | Dichlorodifluoromethane<br>Chloromethane | UJ (all non-detects)<br>UJ (all non-detects) | A | Initial calibration verification (%D) (c) |
| 440-220519-1 | DSPE-4-0.0-20180919<br>DSPE-4-1.0-20180919<br>DSPE-5-0.0-20180919<br>DSPE-5-1.0-20180919 | Acetone<br>4-Methyl-2-pentanone<br>2-Hexanone<br>1,2-Dibromo-3-chloropropane | J- (all detects)<br>UJ (all non-detects) | A | Continuing calibration (%D) (c) |
| 440-220623-1 | DSPE-6-0.0-20180920**<br>DSPE-6-1.0-20180920**<br>DSPE-7-0.0-20180920**<br>DSPE-7-1.0-20180920** | Acetone<br>4-Methyl-2-pentanone<br>2-Hexanone<br>1,2-Dibromo-3-chloropropane | J- (all detects)<br>UJ (all non-detects) | A | Continuing calibration (%D) (c) |

**NERT Dioxin Impacted Soil**
**Volatiles - Laboratory Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Volatiles - Field Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**ATTACHMENT B**
**SVOC DVR**

## Semivolatile Organic Compounds (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270C

### I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

| SDG | Sample | Compound | Total Days From Sample Collection Until TCLP Extraction | Required Holding Time (in Days) From Sample Collection Until TCLP Extraction | Flag | A or P |
|---|---|---|---|---|---|---|
| 320-43353-5 | DSPE-3-1.5-20180919TCLP | All compounds | 19 | 14 | UJ (all non-detects) | P |

### II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

### III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ($r^2$) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

| SDG | Date | Compound | %D | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-220519-1 | 08/30/18 (D18083014) | Benzidine | 37.4 | All samples in SDG 440-220519-1 | NA | - |
| 440-220623-1 | 08/30/18 (D18083014) | Benzidine | 37.4 | All samples in SDG 440-220623-1 | NA | - |
| | | | | | | |

| SDG | Date | Compound | %D | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-237770-1 | 11/29/18 | Dibenzo(a,h)anthracene | 22.6 | All samples in SDG 440-237770-1 | NA | - |

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

| SDG | Date | Compound | %D | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-220519-1 | 09/25/18 (D18092502) | Benzoic acid<br>Benzidine | 24.8<br>56.8 | DSPE-4-0.0-20180919 | UJ (all non-detects)<br>UJ (all non-detects) | A |
| 440-220519-1 | 09/26/18 (D18092602) | Benzidine | 56.4 | DSPE-4-1.0-20180919<br>DSPE-5-0.0-20180919<br>DSPE-5-1.0-20180919 | UJ (all non-detects) | A |
| 440-220519-1 | 09/26/18 (D18092603) | Benzyl alcohol | 21.2 | DSPE-4-1.0-20180919<br>DSPE-5-0.0-20180919<br>DSPE-5-1.0-20180919 | UJ (all non-detects) | A |
| 440-220623-1 | 09/25/18 (D18092502) | Benzoic acid<br>Benzidine | 24.8<br>56.8 | All samples in SDG 440-220623-1 | UJ (all non-detects)<br>UJ (all non-detects) | A |

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## VI. Field Blanks

No field blanks were identified in these SDGs.

## VII. Surrogates

Surrogates were added to all samples as required by the method. Surrogate recoveries (%R) were not within QC limits for sample DSPE-3-1.5-20180919TCLP (from SDG 320-43353-5). Using professional judgment, no data were qualified when one base or one acid surrogate %R was outside the QC limits and the %R was greater than or equal to 10%.

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Compound | MS (%R) (Limits) | MSD (%R) (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-220519-1 | DSPE-4-0.0-20180919MS/MSD (DSPE-4-0.0-20180919) | Benzidine Benzoic acid | 0 (20-120) 0 (20-120) | 0 (20-120) 0 (20-120) | R (all non-detects) R (all non-detects) | A |
| 440-220519-1 | DSPE-4-0.0-20180919MS/MSD (DSPE-4-0.0-20180919) | Hexachlorobenzene | - | 23 (50-120) | J- (all detects) | A |
| 440-237770-1 | ECA-CONFIRMATIONMS/MSD** (ECA-CONFIRMATION**) | Benzidine | 0 (20-120) | 0 (20-120) | R (all non-detects) | A |

| SDG | Spike ID (Associated Samples) | Compound | MS (%R) (Limits) | Flag | A or P |
|---|---|---|---|---|---|
| 440-220519-2 | DSPE-4-0.0-20180919MS$^{TCLP}$ (DSPE-4-0.0-20180919$^{TCLP}$) | Nitrobenzene | 52 (55-120) | UJ (all non-detects) | A |

Relative percent differences (RPD) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Compound | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|
| 440-234894-2 | DSPE-4-RE-1.0-20190227MS/MSD$^{TCLP}$** (DSPE-4-RE-1.0-20190227$^{TCLP}$**) | Pyridine | 44 (≤35) | NA | - |

## IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits with the following exceptions:

| SDG | LCS ID | Compound | %R (Limits) | Associated Samples | Compound | Flag | A or P |
|---|---|---|---|---|---|---|---|
| 440-220519-1 | LCS 440-500904/2-A | Benzidine | 0 (5-61) | All samples in SDG 440-220519-1 | Benzidine | R (all non-detects) | P |
| 440-220623-1 | LCS 440-500904/2-A | Benzidine | 0 (5-61) | All samples in SDG 440-220623-1 | Benzidine | R (all non-detects) | P |
| 440-234894-1 | LCS 440-531724/2-A | Benzidine | 3 (5-61) | All samples in SDG 440-234894-1 | Benzidine | R (all non-detects) | P |

| SDG | LCS ID (Associated Samples) | Compound | LCS %R (Limits) | LCSD %R (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-234894-2 | LCS/D 550-171388 (All samples in SDG 440-234894-2) | Pentachlorophenol | - | 112 (37-111) | NA | - |

Relative percent differences (RPD) were within QC limits.

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Internal Standards

All internal standard areas and retention times were within QC limits.

## XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIV. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to MS/MSD %R and LCS %R, data were rejected in eleven samples.

Due to technical holding time, continuing calibration %D, and MS/MSD %R, data were qualified as estimated in nine samples.

**NERT Dioxin Impacted Soil**
**Semivolatiles - Data Qualification Summary - SDGs 320-43353-5, 440-220519-1, 440-220519-2, 440-220623-1, 440-234894-1, 440-234894-2, 440-237770-1**

| SDG | Sample | Compound | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 320-43353-5 | DSPE-3-1.5-20180919TCLP | All compounds | UJ (all non-detects) | P | Technical holding times (h) |
| 440-220519-1 | DSPE-4-1.0-20180919<br>DSPE-5-0.0-20180919<br>DSPE-5-1.0-20180919 | Benzyl alcohol | UJ (all non-detects) | A | Continuing calibration (%D) (c) |
| 440-220623-1 | DSPE-6-0.0-20180920**<br>DSPE-6-1.0-20180920**<br>DSPE-7-0.0-20180920**<br>DSPE-7-1.0-20180920** | Benzoic acid | UJ (all non-detects) | A | Continuing calibration (%D) (c) |
| 440-220519-1 | DSPE-4-0.0-20180919 | Benzidine<br>Benzoic acid | R (all non-detects)<br>R (all non-detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-220519-1 | DSPE-4-0.0-20180919 | Hexachlorobenzene | J- (all detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-220519-2 | DSPE-4-0.0-20180919$^{TCLP}$ | Nitrobenzene | UJ (all non-detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-237770-1 | ECA-CONFIRMATION** | Benzidine | R (all non-detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-220519-1 | DSPE-4-0.0-20180919<br>DSPE-4-1.0-20180919<br>DSPE-5-0.0-20180919<br>DSPE-5-1.0-20180919 | Benzidine | R (all non-detects) | P | Laboratory control samples (%R) (l) |
| 440-220623-1 | DSPE-6-0.0-20180920**<br>DSPE-6-1.0-20180920**<br>DSPE-7-0.0-20180920**<br>DSPE-7-1.0-20180920** | Benzidine | R (all non-detects) | P | Laboratory control samples (%R) (l) |
| 440-234894-1 | DSPE-4-RE-1.0-20190227<br>DSPE-7-RE-3.0-20190227 | Benzidine | R (all non-detects) | P | Laboratory control samples (%R) (l) |

**NERT Dioxin Impacted Soil**
**Semivolatiles - Laboratory Blank Data Qualification Summary – SDGs 320-43353-5, 440-220519-1, 440-220519-2, 440-220623-1, 440-234894-1, 440-234894-2, 440-237770-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Semivolatiles - Field Blank Data Qualification Summary - SDGs 320-43353-5, 440-220519-1, 440-220519-2, 440-220623-1, 440-234894-1, 440-234894-2, 440-237770-1**

No Sample Data Qualified in these SDGs

**ATTACHMENT C**
**PAH DVR**

**Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270C in Selected Ion Monitoring (SIM) mode**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## VI. Field Blanks

No field blanks were identified in this SDG.

**VII. Surrogates**

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

**VIII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

**IX. Laboratory Control Samples**

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**XI. Internal Standards**

All internal standard areas and retention times were within QC limits.

**XII. Compound Quantitation**

All compound quantitations were within validation criteria.

**XIII. Target Compound Identifications**

All target compound identifications were within validation criteria.

**XIV. System Performance**

The system performance was acceptable.

**XV. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

**NERT Dioxin Impacted Soil**
**Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 440-237770-1**

No Sample Data Qualified in this SDG

**NERT Dioxin Impacted Soil**
**Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 440-237770-1**

No Sample Data Qualified in this SDG

**NERT Dioxin Impacted Soil**
**Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 440-237770-1**

No Sample Data Qualified in this SDG

**ATTACHMENT D**
**Chlorinated Pesticides DVR**

**Chlorinated Pesticides by Environmental Protection Agency (EPA) SW 846 Method 8081A**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## II. GC Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

## III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average calibration factors were utilized, percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ($r^2$) were greater than or equal to 0.990.

Retention time windows were established as required by the method for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## VI. Field Blanks

No field blanks were identified in these SDGs.

## VII. Surrogates/Internal Standards

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

| SDG | Sample | Column | Surrogate | %R (Limits) | Affected Compound | Flag | A or P |
|------|--------|--------|-----------|-------------|-------------------|------|--------|
| 440-220519-1 | DSPE-4-0.0-20180919 | RTX-CLP2 | Tetrachloro-m-xylene Decachlorobiphenyl | 127 (35-115) 2750 (45-120) | alpha-BHC 4,4'-DDT | J+ (all detects) | A |
| 440-220519-1 | DSPE-4-1.0-20180919 | RTX-CLP2 | Tetrachloro-m-xylene Decachlorobiphenyl | 121 (35-115) 2605 (45-120) | alpha-BHC 2,4'-DDE 4,4'-DDE 4,4'-DDT | J+ (all detects) | A |
| 440-220519-1 | DSPE-5-0.0-20180919 | RTX-CLP2 | Decachlorobiphenyl | 197 (45-120) | beta-BHC 2,4'-DDE 4,4'-DDT | J+ (all detects) | A |
| 440-220623-1 | DSPE-6-0.0-20180920** | RTX-CLP2 | Decachlorobiphenyl | 943 (45-120) | beta -BHC 4,4'-DDT | J+ (all detects) | A |
| 440-220623-1 | DSPE-6-1.0-20180920** | RTX-CLP2 | Decachlorobiphenyl | 157 (45-120) | beta-BHC 2,4'-DDE 4,4'-DDE 4,4'-DDT | J+ (all detects) | P |
| 440-237770-1 | ECA-CONFIRMATION** | NA | Decachlorobiphenyl | 129 (21-117) | beta-BHC | J+ (all detects) | A |

All internal standard areas and retention times were within QC limits.

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Compound | MS (%R) (Limits) | MSD (%R) (Limits) | Flag | A or P |
|------|-------------------------------|----------|------------------|-------------------|------|--------|
| 440-220519-1 | DSPE-5-1.0-20180919MS/MSD (DSPE-5-1.0-20180919) | 4,4'-DDE | 197 (35-130) | 201 (35-130) | J+ (all detects) | A |

Relative percent differences (RPD) were within QC limits.

## IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## X. Field Duplicates

No field duplicates were identified in these SDGs.

## XI. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation.

Raw data were not reviewed for Stage 2B validation.

## XII. Target Compound Identification

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIII. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to surrogate %R, and MS/MSD %R, data were qualified as estimated in seven samples.

No results were rejected in these SDGs.

**NERT Dioxin Impacted Soil**
**Chlorinated Pesticides - Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1, 440-237770-1**

| SDG | Sample | Compound | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 440-220519-1 | DSPE-4-0.0-20180919 | alpha-BHC<br>4,4'-DDT | J+ (all detects) | A | Surrogates (%R) (s) |
| 440-220519-1 | DSPE-4-1.0-20180919 | alpha-BHC<br>2,4'-DDE<br>4,4'-DDE<br>4,4'-DDT | J+ (all detects) | A | Surrogates (%R) (s) |
| 440-220519-1 | DSPE-5-0.0-20180919 | beta-BHC<br>2,4'-DDE<br>4,4'-DDT | J+ (all detects) | A | Surrogates (%R) (s) |
| 440-220623-1 | DSPE-6-0.0-20180920** | beta -BHC<br>4,4'-DDT | J+ (all detects) | A | Surrogates (%R) (s) |
| 440-220623-1 | DSPE-6-1.0-20180920** | beta-BHC<br>2,4'-DDE<br>4,4'-DDE<br>4,4'-DDT | J+ (all detects) | P | Surrogates (%R) (s) |
| 440-237770-1 | ECA-CONFIRMATION** | beta-BHC | J+ (all detects) | A | Surrogates (%R) (s) |
| 440-220519-1 | DSPE-5-1.0-20180919 | 4,4'-DDE | J+ (all detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |

**NERT Dioxin Impacted Soil**
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Chlorinated Pesticides - Field Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**ATTACHMENT E**
**PCB as Aroclors DVR**

**Polychlorinated Biphenyls (PCBs) by Environmental Protection Agency (EPA) SW 846 Method 8082**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average calibration factors were utilized, percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ($r^2$) were greater than or equal to 0.990.

Retention time windows were established as required by the method for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## V. Field Blanks

No field blanks were identified in these SDGs.

## VI. Surrogates/Internal Standards

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

| SDG | Sample | Surrogate | %R (Limits) | Affected Compound | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-234894-1 | DSPE-4-RE-1.0-20190227 | Decachlorobiphenyl | 1245 (45-120) | All compounds | NA | - |
| 440-234894-1 | DSPE-5-RE-1.0-20190227 | Decachlorobiphenyl | 138 (45-120) | All compounds | NA | - |
| 440-234894-1 | DSPE-6-RE-1.0-20190227 | Decachlorobiphenyl | 562 (45-120) | All compounds | NA | - |
| 440-237770-1 | ECA-COMPOSITE** | Decachlorobiphenyl | 402 (45-120) | All compounds | NA | - |
| 440-237770-1 | ECA-CONFIRMATION** | Decachlorobiphenyl | 131 (45-120) | All compounds | NA | - |

All internal standard areas and retention times were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## IX. Field Duplicates

No field duplicates were identified in these SDGs.

## X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XI. Target Compound Identification

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in these SDGs.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

**NERT Dioxin Impacted Soil**
**Polychlorinated Biphenyls - Data Qualification Summary - SDGs 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDGs 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDGs 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**ATTACHMENT F**
**GRO DVR**

**Gasoline Range Organics by Environmental Protection Agency (EPA) SW 846 Method 8015B**

**I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

**II. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0%.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

**III. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

**IV. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

**V. Field Blanks**

No field blanks were identified in these SDGs.

**VI. Surrogates**

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

**VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

**VIII. Laboratory Control Samples**

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

**IX. Field Duplicates**

No field duplicates were identified in these SDGs.

**X. Compound Quantitation**

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

**XI. Target Compound Identifications**

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

**XII. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in these SDGs.

**NERT Dioxin Impacted Soil**
**Diesel Range Organics - Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Diesel Range Organics - Laboratory Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Diesel Range Organics - Field Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1**

No Sample Data Qualified in these SDGs

**ATTACHMENT G**
**TPHE DVR**

**Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B**

**I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

**II. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

**III. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

**IV. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

| SDG | Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|---|---|---|---|---|---|
| 440-220623-1 | MB 440-500922/1-A | 09/25/18 | Extractable fuel hydrocarbons (C10-C40) | 4.43 mg/Kg | All samples in SDG 440-220623-1 |
| 440-234894-1 | MB 440-532305/1-A | 03/05/19 | Oil range organics (C23-C40) | 3.18 mg/Kg | DSPE-3-RE-3.5-20190227 |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated laboratory blanks with the following exceptions:

| SDG | Sample | Compound | Reported Concentration | Modified Final Concentration |
|---|---|---|---|---|
| 440-220623-1 | DSPE-6-1.0-20180920** | Extractable fuel hydrocarbons (C10-C40) | 6.9U mg/Kg | 6.9J mg/Kg |

| SDG | Sample | Compound | Reported Concentration | Modified Final Concentration |
|---|---|---|---|---|
| 440-220623-1 | DSPE-7-0.0-20180920** | Extractable fuel hydrocarbons (C10-C40) | 7.5U mg/Kg | 7.5J mg/Kg |
| 440-220623-1 | DSPE-7-1.0-20180920** | Extractable fuel hydrocarbons (C10-C40) | 5.0U mg/Kg | 5.0J mg/Kg |
| 440-234894-1 | DSPE-3-RE-3.5-20190227 | Oil range organics (C23-C40) | 4.3 mg/Kg | 4.3J mg/Kg |

## V. Field Blanks

No field blanks were identified in these SDGs.

## VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## IX. Field Duplicates

No field duplicates were identified in this SDG.

## X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to laboratory blank contamination, data were qualified as estimated in four samples.

No results were rejected in these SDGs.

**NERT Dioxin Impacted Soil**
**Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1**

## No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil**
**Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1**

| SDG | Sample | Compound | Modified Final Concentration | A or P | Code |
|---|---|---|---|---|---|
| 440-220623-1 | DSPE-6-1.0-20180920** | Extractable fuel hydrocarbons (C10-C40) | 6.9J mg/Kg | A | bl |
| 440-220623-1 | DSPE-7-0.0-20180920** | Extractable fuel hydrocarbons (C10-C40) | 7.5J mg/Kg | A | bl |
| 440-220623-1 | DSPE-7-1.0-20180920** | Extractable fuel hydrocarbons (C10-C40) | 5.0J mg/Kg | A | bl |
| 440-234894-1 | DSPE-3-RE-3.5-20190227 | Oil range organics (C23-C40) | 4.3J mg/Kg | A | bl |

**NERT Dioxin Impacted Soil**
**Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDGs 440-220519-1, 440-220623-1, 440-234894-1**

## No Sample Data Qualified in these SDGs

**ATTACHMENT H**
**PCDD/PCDF DVR**

**Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) SW 846 Method 8290**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was resolved with a valley of less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

Instrument performance check data were not reviewed for Stage 2A validation.

## III. Initial Calibration and Initial Calibration Verification

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs/PCDFs were within method and validation criteria.

The minimum S/N ratio was greater than or equal to 2.5 for each unlabeled compound and greater than or equal to 10 for each labeled compound associated to samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

The percent differences (%D) of the initial calibration verification (ICV) standard less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

Initial calibration data were not reviewed for Stage 2A validation.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound associated to samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

Continuing calibration data were not reviewed for Stage 2A validation.

## V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

| SDG | Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|---|---|---|---|---|---|
| 320-43353-1 | MB 320-246867/1-A | 09/20/18 | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDF<br>2,3,4,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.148 pg/g<br>0.131 pg/g<br>0.122 pg/g<br>0.0746 pg/g<br>0.0536 pg/g<br>0.618 pg/g<br>0.163 pg/g<br>0.136 pg/g<br>0.357 pg/g<br>0.884 pg/g<br>0.343 pg/g<br>0.223 pg/g<br>0.200 pg/g<br>0.122 pg/g<br>0.907 pg/g<br>0.341 pg/g<br>0.555 pg/g | All samples in SDG 320-43353-1 |
| 320-43353-2 | MB 320-247020/1-A | 09/21/18 | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.426 pg/L<br>0.804 pg/L<br>0.946 pg/L<br>0.251 pg/L<br>0.469 pg/L<br>0.488 pg/L<br>4.45 pg/L<br>0.985 pg/L<br>0.654 pg/L<br>3.05 pg/L<br>8.23 pg/L<br>1.55 pg/L<br>0.426 pg/L<br>0.804 pg/L<br>1.20 pg/L<br>7.71 pg/L<br>2.28 pg/L<br>4.35 pg/L | All water samples in SDG 320-43353-2 |

| SDG | Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|---|---|---|---|---|---|
| 320-43353-2 | MB 320-246867/1-A | 09/20/18 | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDF<br>2,3,4,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.148 pg/g<br>0.131 pg/g<br>0.122 pg/g<br>0.0746 pg/g<br>0.0536 pg/g<br>0.618 pg/g<br>0.163 pg/g<br>0.136 pg/g<br>0.357 pg/g<br>0.884 pg/g<br>0.343 pg/g<br>0.223 pg/g<br>0.200 pg/g<br>0.122 pg/g<br>0.907 pg/g<br>0.341 pg/g<br>0.555 pg/g | All soil samples in SDG 320-43353-2 |
| 320-43353-3 | MB 320-248208/1-A | 09/27/18 | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDD<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDD<br>1,2,3,7,8,9-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>2,3,4,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDD<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.0861 pg/g<br>0.0399 pg/g<br>0.142 pg/g<br>0.135 pg/g<br>0.0709 pg/g<br>0.0634 pg/g<br>0.0964 pg/g<br>0.0764 pg/g<br>0.0563 pg/g<br>0.987 pg/g<br>0.512 pg/g<br>0.205 pg/g<br>0.616 pg/g<br>11.4 pg/g<br>0.990 pg/g<br>0.126 pg/g<br>0.0399 pg/g<br>0.220 pg/g<br>0.297 pg/g<br>1.40 pg/g<br>0.806 pg/g<br>1.04 pg/g | All samples in SDG 320-43353-3 |
| 320-43353-4 | MB 320-249133/1-A | 10/02/18 | 2,3,7,8-TCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,7,8,9-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>2,3,4,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.0790 pg/g<br>0.110 pg/g<br>0.201 pg/g<br>0.0994 pg/g<br>0.0677 pg/g<br>0.0577 pg/g<br>1.30 pg/g<br>0.356 pg/g<br>0.462 pg/g<br>1.06 pg/g<br>0.816 pg/g<br>0.823 pg/g<br>0.0790 pg/g<br>0.141 pg/g<br>0.311 pg/g<br>1.85 pg/g<br>0.668 pg/g<br>1.52 pg/g | All samples in SDG 320-43353-4 |

| SDG | Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|---|---|---|---|---|---|
| 320-43477-1 | MB 320-247944/1-A | 09/26/18 | 2,3,7,8-TCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDD<br>1,2,3,7,8,9-HxCDD<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.0718 pg/g<br>0.129 pg/g<br>0.0332 pg/g<br>0.0300 pg/g<br>0.421 pg/g<br>0.324 pg/g<br>0.103 pg/g<br>0.315 pg/g<br>9.69 pg/g<br>0.681 pg/g<br>0.115 pg/g<br>0.192 pg/g<br>0.650 pg/g<br>0.559 pg/g<br>0.540 pg/g | All samples in SDG 320-43477-1 |
| 320-43477-2 | MB 320-248208/1-A | 09/27/18 | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDD<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDD<br>1,2,3,7,8,9-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>2,3,4,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDD<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.0861 pg/g<br>0.0399 pg/g<br>0.142 pg/g<br>0.135 pg/g<br>0.0709 pg/g<br>0.0634 pg/g<br>0.0964 pg/g<br>0.0764 pg/g<br>0.0563 pg/g<br>0.987 pg/g<br>0.512 pg/g<br>0.205 pg/g<br>0.616 pg/g<br>11.4 pg/g<br>0.990 pg/g<br>0.126 pg/g<br>0.0399 pg/g<br>0.220 pg/g<br>0.297 pg/g<br>1.40 pg/g<br>0.806 pg/g<br>1.04 pg/g | All samples in SDG 320-43477-2 |
| 440-237770-1 | MB 320-286467/1-A | 04/05/19 | 1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.0998 pg/g<br>0.121 pg/g<br>0.0705 pg/g<br>0.772 pg/g<br>0.150 pg/g<br>0.264 pg/g<br>0.456 pg/g<br>2.69 pg/g<br>0.222 pg/g<br>0.0998 pg/g<br>0.121 pg/g<br>0.930 pg/g<br>0.340 pg/g<br>0.829 pg/g | All samples in SDG 440-237770-1 |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated laboratory blanks with the following exceptions:

| SDG | Sample | Compound | Reported Concentration | Modified Final Concentration |
|---|---|---|---|---|
| 320-43477-1 | DSPE-7-1.5-20180920** | 1,2,3,4,6,7,8-HpCDD<br>OCDD<br>OCDF<br>Total HpCDD | 0.94 pg/g<br>17 pg/g<br>3.1 pg/g<br>2.2 pg/g | 0.94J pg/g<br>17J pg/g<br>3.1J pg/g<br>2.2J pg/g |
| 320-43353-2 | DSPE-1-FB-20180919* | 2,3,7,8-TCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,7,8,9-HpCDF<br>OCDF<br>Total TCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.16 pg/L<br>1.6 pg/L<br>0.43 pg/L<br>0.54 pg/L<br>3.2 pg/L<br>2.1 pg/L<br>2.9 pg/L<br>2.2 pg/L<br>0.16 pg/L<br>2.0 pg/L<br>6.7 pg/L<br>5.2 pg/L<br>6.5 pg/L | 0.16J pg/L<br>1.6J pg/L<br>0.43J pg/L<br>0.54J pg/L<br>3.2J pg/L<br>2.1J pg/L<br>2.9J pg/L<br>2.2J pg/L<br>0.16J pg/L<br>2.0J pg/L<br>6.7J pg/L<br>5.2J pg/L<br>6.5J pg/L |
| 320-43353-2 | DSPE-1-EB-20180919* | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.79 pg/L<br>0.96 pg/L<br>1.4 pg/L<br>0.68 pg/L<br>0.49 pg/L<br>3.3 pg/L<br>0.70 pg/L<br>1.5 pg/L<br>3.1 pg/L<br>18 pg/L<br>2.2 pg/L<br>1.8 pg/L<br>1.5 pg/L<br>1.4 pg/L<br>7.6 pg/L<br>2.4 pg/L<br>5.5 pg/L | 0.79J pg/L<br>0.96J pg/L<br>1.4J pg/L<br>0.68J pg/L<br>0.49J pg/L<br>3.3J pg/L<br>0.70J pg/L<br>1.5J pg/L<br>3.1J pg/L<br>18J pg/L<br>2.2J pg/L<br>1.8J pg/L<br>1.5J pg/L<br>1.4J pg/L<br>7.6J pg/L<br>2.4J pg/L<br>5.5J pg/L |
| 320-43353-4 | DSPE-3-4.0-20180919 | 1,2,3,4,6,7,8-HpCDD<br>Total HpCDD | 1.7 pg/g<br>3.0 pg/g | 1.7J pg/g<br>3.0J pg/g |

## VI. Field Blanks

Sample DSPE-1-EB-20180919* (from SDG 320-43353-2) was identified as an equipment blank. No contaminants were found with the following exceptions:

| SDG | Blank ID | Collection Date | Compound | Concentration | Associated Samples |
|------|----------|-----------------|----------|---------------|--------------------|
| 320-43353-2 | DSPE-1-EB-20180919* | 09/19/18 | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.79 pg/L<br>1.0 pg/L<br>1.4 pg/L<br>0.68 pg/L<br>0.49 pg/L<br>3.3 pg/L<br>0.70 pg/L<br>1.5 pg/L<br>3.1 pg/L<br>18 pg/L<br>2.2 pg/L<br>1.8 pg/L<br>1.5 pg/L<br>1.4 pg/L<br>7.6 pg/L<br>2.4 pg/L<br>5.5 pg/L | DSPE-1-1.5-20180919 |

Sample DSPE-1-FB-20180919* (from SDG 320-43353-2) was identified as a field blank. No contaminants were found with the following exceptions:

| SDG | Blank ID | Collection Date | Compound | Concentration | Associated Samples |
|------|----------|-----------------|----------|---------------|--------------------|
| 320-43353-2 | DSPE-1-FB-20180919* | 09/19/18 | 2,3,7,8-TCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,7,8,9-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.16 pg/L<br>1.6 pg/L<br>0.32 pg/L<br>0.43 pg/L<br>0.54 pg/L<br>3.2 pg/L<br>2.1 pg/L<br>3.6 pg/L<br>2.9 pg/L<br>72 pg/L<br>2.2 pg/L<br>0.16 pg/L<br>2.0 pg/L<br>6.7 pg/L<br>5.2 pg/L<br>6.5 pg/L | All soil samples in SDGs<br>320-43353-1<br>320-43353-2<br>320-43353-3<br>320-43353-4<br>320-43477-1<br>320-43477-2 |

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated field blanks.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in these SDGs, and therefore matrix spike and matrix spike duplicate analyses were not performed for these SDGs.

## VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## IX. Field Duplicates

No field duplicates were identified in these SDGs.

## X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

## XI. Compound Quantitation

All compound quantitations met validation criteria with the following exceptions:

| SDG | Sample | Compound | Flag | A or P |
|---|---|---|---|---|
| 320-43353-1 | All samples in SDG 320-43353-1 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A |
| 320-43353-1 | All samples in SDG 320-43353-1 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A |
| 320-43353-2 | All samples in SDG 320-43353-2 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A |
| 320-43353-2 | All samples in SDG 320-43353-2 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A |
| 320-43353-3 | All samples in SDG 320-43353-3 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A |
| 320-43353-3 | All samples in SDG 320-43353-3 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A |
| 320-43353-4 | All samples in SDG 320-43353-4 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A |
| 320-43353-4 | All samples in SDG 320-43353-4 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A |

| SDG | Sample | Compound | Flag | A or P |
|---|---|---|---|---|
| 320-43477-1 | All samples in SDG 320-43477-1 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A |
| 320-43477-2 | All samples in SDG 320-43477-2 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A |
| 440-237770-1 | All samples in SDG 440-237770-1 | All compounds flagged "q" by the laboratory as estimated maximum possible concentration (EMPC). | J (all detects) | A |

| SDG | Sample | Compound | Finding | Criteria | Flag | A or P |
|---|---|---|---|---|---|---|
| 320-43353-1 | DSPE-3-1.5-20180919 | 2,3,7,8-TCDF | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) | P |
| 320-43353-2 | DSPE-300-0.5-20180919 | 2,3,7,8-TCDF | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) | P |
| 320-43353-3 | DSPE-3-2.0-20180919 | 2,3,7,8-TCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) J (all detects) J (all detects) J (all detects) | P |
| 320-43553-4 | DSPE-3-3.0-20180919 | OCDF | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) | P |

Raw data were not reviewed for Stage 2A or Stage 2B validation.

## XII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2A or Stage 2B validation.

## XIII. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2A or Stage 2B validation.

## XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to results reported by the laboratory as EMPCs, matrix interference, and results exceeding the calibration range, data were qualified as estimated in nineteen samples.

Due to laboratory blank contamination, data were qualified as estimated in four samples.

No results were rejected in these SDGs.

**NERT Dioxin Impacted Soil**
**Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDGs 320-43353-1, 320-43353-2, 320-43353-3, 320-43353-4, 320-43477-1, 320-43477-2, 440-237770-1**

| SDG | Sample | Compound | Flag | A or P | Reason (Code) |
|------|--------|----------|------|--------|---------------|
| 320-43353-1 | DSPE-0-0.5-20180919<br>DSPE-1-1.5-20180919<br>DSPE-2-0.5-20180919<br>DSPE-2-1.5-20180919<br>DSPE-3-0.5-20180919<br>DSPE-3-1.5-20180919<br>DSPE-4-1.5-20180919<br>DSPE-5-1.5-20180919 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |
| 320-43353-1 | DSPE-0-0.5-20180919<br>DSPE-1-1.5-20180919<br>DSPE-2-0.5-20180919<br>DSPE-2-1.5-20180919<br>DSPE-3-0.5-20180919<br>DSPE-3-1.5-20180919<br>DSPE-4-1.5-20180919<br>DSPE-5-1.5-20180919 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A | Compound quantitation (matrix interference) (o) |
| 320-43353-2 | DSPE-1-FB-20180919*<br>DSPE-100-0.5-20180919<br>DSPE-1-EB-20180919*<br>DSPE-300-0.5-20180919 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |
| 320-43353-2 | DSPE-1-FB-20180919*<br>DSPE-100-0.5-20180919<br>DSPE-1-EB-20180919*<br>DSPE-300-0.5-20180919 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A | Compound quantitation (matrix interference) (o) |
| 320-43353-3 | DSPE-3-2.0-20180919 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |
| 320-43353-3 | DSPE-3-2.0-20180919 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A | Compound quantitation (matrix interference) (o) |
| 320-43353-4 | DSPE-3-3.0-20180919<br>DSPE-3-4.0-20180919 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |
| 320-43353-4 | DSPE-3-3.0-20180919<br>DSPE-3-4.0-20180919 | All compounds flagged "G" by the laboratory due to matrix interference. | J (all detects) | A | Compound quantitation (matrix interference) (o) |
| 320-43477-1 | DSPE-6-1.5-20180920**<br>DSPE-7-1.5-20180920** | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |

| SDG | Sample | Compound | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 320-43477-2 | DSPE-7-3.0-20180920 | All compounds flagged "q" by the laboratory was reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |
| 440-237770-1 | ECA-CONFIRMATION | All compounds flagged "q" by the laboratory as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) (k) |
| 320-43353-1 | DSPE-3-1.5-20180919 | 2,3,7,8-TCDF | J (all detects) | P | Compound quantitation (exceeded range) (e) |
| 320-43353-2 | DSPE-300-0.5-20180919 | 2,3,7,8-TCDF | J (all detects) | P | Compound quantitation (exceeded range) (e) |
| 320-43353-3 | DSPE-3-2.0-20180919 | 2,3,7,8-TCDF<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDF | J (all detects)<br>J (all detects)<br>J (all detects)<br>J (all detects) | P | Compound quantitation (exceeded range) (e) |
| 320-43553-4 | DSPE-3-3.0-20180919 | OCDF | J (all detects) | P | Compound quantitation (exceeded range) (e) |

**NERT Dioxin Impacted Soil**
**Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDGs 320-43353-1, 320-43353-2, 320-43353-3, 320-43353-4, 320-43477-1, 320-43477-2, 440-237770-1**

| SDG | Sample | Compound | Modified Final Concentration | A or P | Code |
|---|---|---|---|---|---|
| 320-43477-1 | DSPE-7-1.5-20180920** | 1,2,3,4,6,7,8-HpCDD<br>OCDD<br>OCDF<br>Total HpCDD | 0.94J pg/g<br>17J pg/g<br>3.1J pg/g<br>2.2J pg/g | A | bl |
| 320-43353-2 | DSPE-1-FB-20180919* | 2,3,7,8-TCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,7,8,9-HpCDF<br>OCDF<br>Total TCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.16J pg/L<br>1.6J pg/L<br>0.43J pg/L<br>0.54J pg/L<br>3.2J pg/L<br>2.1J pg/L<br>2.9J pg/L<br>2.2J pg/L<br>0.16J pg/L<br>2.0J pg/L<br>6.7J pg/L<br>5.2J pg/L<br>6.5J pg/L | A | bl |

*Indicates sample underwent Stage 2A validation
**Indicates sample underwent Stage 4 validation

| SDG | Sample | Compound | Modified Final Concentration | A or P | Code |
|---|---|---|---|---|---|
| 320-43353-2 | DSPE-1-EB-20180919* | 2,3,7,8-TCDF<br>1,2,3,7,8-PeCDF<br>1,2,3,4,7,8-HxCDD<br>1,2,3,4,7,8-HxCDF<br>1,2,3,6,7,8-HxCDF<br>1,2,3,7,8,9-HxCDF<br>1,2,3,4,6,7,8-HpCDD<br>1,2,3,4,6,7,8-HpCDF<br>1,2,3,4,7,8,9-HpCDF<br>OCDD<br>OCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDD<br>Total HxCDF<br>Total HpCDD<br>Total HpCDF | 0.79J pg/L<br>0.96J pg/L<br>1.4J pg/L<br>0.68J pg/L<br>0.49J pg/L<br>3.3J pg/L<br>0.70J pg/L<br>1.5J pg/L<br>3.1J pg/L<br>18J pg/L<br>2.2J pg/L<br>1.8J pg/L<br>1.5J pg/L<br>1.4J pg/L<br>7.6J pg/L<br>2.4J pg/L<br>5.5J pg/L | A | bl |
| 320-43353-4 | DSPE-3-4.0-20180919 | 1,2,3,4,6,7,8-HpCDD<br>Total HpCDD | 1.7J pg/g<br>3.0J pg/g | A | bl |

**NERT Dioxin Impacted Soil**
**Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDGs 320-43353-1, 320-43353-2, 320-43353-3, 320-43353-4, 320-43477-1, 320-43477-2, 440-237770-1**

No Sample Data Qualified in these SDGs

*Indicates sample underwent Stage 2A validation
**Indicates sample underwent Stage 4 validation

**ATTACHMENT I**
**Metals DVR**

**Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Iron, Lead, Magnesium, Manganese, Potassium, Selenium, Silver, and Sodium by Environmental Protection Agency (EPA) Method 200.7 and EPA SW 846 Method 6010B**
**Mercury by EPA SW 846 Methods 7470A/7471B**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

## II. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits with the following exceptions:

| SDG | Date | Lab. Reference/ID | Analyte | %R (Limits) | Associated Samples | Flag | A or P |
|---|---|---|---|---|---|---|---|
| 440-237770-1 | 04/11/19 | CRI (12:11) | Arsenic | 139 (70-130) | All samples in SDG 440-237770-1 | J+ (all detects) | P |

Instrument calibration data were not reviewed for Stage 2A validation.

## III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

ICP Interference check sample (ICS) analysis data were not reviewed for Stage 2A validation.

## IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

| SDG | Blank ID | Analyte | Maximum Concentration | Associated Samples |
|---|---|---|---|---|
| 320-43353-5 | PB (prep blank) | Barium | 0.426 mg/L | All samples in SDG 320-43353-5 |
| 320-43353-5 | ICB/CCB | Lead<br>Chromium | 0.00800 mg/L<br>0.00166 mg/L | All samples in SDG 320-43353-5 |
| 440-220623-1 | PB (prep blank) | Chromium | 0.0250 mg/L | All samples in SDG 440-220623-1 |

| SDG | Blank ID | Analyte | Maximum Concentration | Associated Samples |
|---|---|---|---|---|
| 440-234894-1 | PB (prep blank) | Barium | 0.109 mg/Kg | All samples in SDG 440-234894-1 |
| 440-237770-1 | PB (prep blank) | Iron<br>Magnesium | 15.8 mg/Kg<br>10.5 mg/Kg | All samples in SDG 440-237770-1 |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated laboratory blanks with the following exceptions:

| SDG | Sample | Analyte | Reported Concentration | Modified Final Concentration |
|---|---|---|---|---|
| 320-43353-5 | DSPE-3-1.5-20180919 | Barium<br>Lead | 1.0 mg/L<br>0.016 mg/L | 1.0J mg/L<br>0.016J mg/L |

## V. Field Blanks

No field blanks were identified in these SDGs.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Analyte | MS (%R) (Limits) | MSD (%R) (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-234894-1 | DSPE-3-RE-1.5-20190227MS/MSD (All samples in SDG 440-234894-1) | Barium<br><br>Selenium | 66 (75-125)<br><br>74 (75-125) | 55 (75-125)<br><br>73 (75-125) | J- (all detects)<br>UJ (all non-detects)<br>J- (all detects)<br>UJ (all non-detects) | A |

For ES-44-20190226MS*/MSD* (from SDG 440-234781-1), no data were qualified for calcium, magnesium, potassium, and sodium percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration.

Relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in these SDGs, and therefore duplicate analyses were not performed for these SDGs.

## VIII. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

## IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## X. Field Duplicates

Samples ES-40-50.0-20190114** and ES-40-50.0-20190114-FD (both from SDG 440-230170-1), samples ES-42-40.0-20190115 and ES-42-40-20190115-FD (both from SDG 440-230596-1), samples ES-42-130-20190116 and ES-42-130-20190116-FD (both from SDG 440-230596-1), samples ES-41-50.0-20190117 and ES-41-50.0-20190117-FD (both from SDG 440-230902-1), samples ES-41-70.0-20190117 and ES-41-70.0-20190117-FD (both from SDG 440-230902-1), samples ES-44-46.0-20190118 and ES-44-46.0-20190118-FD (both from SDG 440-230902-1), samples ES-43-60.0-20190121** and ES-43-60.0-20190121-FD (both from SDG 440-231301-1), and samples ES-43-20190227* and ES-43-20190227-FD* (both from SDG 440-234870-1) were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-40-50.0-20190114** | ES-40-50.0-20190114-FD | | | |
| 440-230170-1 | Chromium | 26 | 15 | 54 (≤50) | J (all detects) | A |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-42-40.0-20190115 | ES-42-40-20190115-FD | | | |
| 440-230596-1 | Chromium | 25 | 25 | 0 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-42-130-20190116 | ES-42-130-20190116-FD | | | |
| 440-230596-1 | Chromium | 23 | 22 | 4 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-41-50.0-20190117 | ES-41-50.0-20190117-FD | | | |
| 440-230902-1 | Chromium | 22 | 19 | 15 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-41-70.0-20190117 | ES-41-70.0-20190117-FD | | | |
| 440-230902-1 | Chromium | 25 | 23 | 8 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-44-46.0-20190118 | ES-44-46.0-20190118-FD | | | |
| 440-230902-1 | Chromium | 28 | 27 | 4 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-43-60.0-20190121** | ES-43-60.0-20190121-FD | | | |
| 440-231301-1 | Chromium | 24 | 24 | 0 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/L) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-43-20190227* | ES-43-20190227-FD* | | | |
| 440-234870-1 | Calcium | 510 | 510 | 0 (≤30) | - | - |
| | Magnesium | 2700 | 2700 | 0 (≤30) | - | - |
| | Potassium | 2100 | 2200 | 5 (≤30) | - | - |
| | Sodium | 3400 | 3400 | 0 (≤30) | - | - |

## XI. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2A or Stage 2B validation.

## XII. Overall Assessment of Data

The analysis was conducted within all specifications of the methods.

*Indicates sample underwent Stage 2A validation
**Indicates sample underwent Stage 4 validation

Due to CRI %R, MS/MSD %R and field duplicate RPD, data were qualified as estimated in seven samples.

Due to laboratory blank contamination, data were qualified as estimated in one sample.

No results were rejected in these SDGs.

**NERT Dioxin Impacted Soil and ZVI Treatment Study Modification No. 5
Metals - Data Qualification Summary - SDGs 320-43353-5, 440-220519-1, 440-
220623-1, 440-230170-1, 440-230596-1, 440-230902-1, 440-231301-1, 440-234781-1,
440-234870-1, 440-234894-1, 440-237770-1**

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|------|--------|---------|------|--------|----------------|
| 440-237770-1 | ECA-CONFIRMATION** | Arsenic | J+ (all detects) | P | Continuing calibration (CRI %R) (c) |
| 440-234894-1 | DSPE-3-RE-1.5-20190227<br>DSPE-3-RE-2.5-20190227<br>DSPE-3-RE-3.5-20190227<br>DSPE-7-RE-3.0-20190227 | Barium<br><br>Selenium | J- (all detects)<br>UJ (all non-detects)<br>J- (all detects)<br>UJ (all non-detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-230170-1 | ES-40-50.0-20190114**<br>ES-40-50.0-20190114-FD | Chromium | J (all detects) | A | Field duplicates (RPD) (fd) |

**NERT Dioxin Impacted Soil and ZVI Treatment Study Modification No. 5
Metals - Laboratory Blank Data Qualification Summary - SDGs 320-43353-5, 440-
220519-1, 440-220623-1, 440-230170-1, 440-230596-1, 440-230902-1, 440-231301-1,
440-234781-1, 440-234870-1, 440-234894-1, 440-237770-1**

| SDG | Sample | Analyte | Modified Final Concentration | A or P | Code |
|------|--------|---------|------------------------------|--------|------|
| 320-43353-5 | DSPE-3-1.5-20180919 | Barium<br>Lead | 1.0J mg/L<br>0.016J mg/L | A | bl |

**NERT Dioxin Impacted Soil and ZVI Treatment Study Modification No. 5
Metals - Field Blank Data Qualification Summary - SDGs 320-43353-5, 440-220519-
1, 440-220623-1, 440-230170-1, 440-230596-1, 440-230902-1, 440-231301-1, 440-
234781-1, 440-234870-1, 440-234894-1, 440-237770-1**

## No Sample Data Qualified in these SDGs

**ATTACHMENT J**
**Wet Chemistry DVR**

**Alkalinity by Standard Method 2320B**
**Chloride, Fluoride, Nitrate as Nitrate, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate by EPA Method 300.0**
**Chlorate by EPA Method 300.1B**
**Dissolved Organic Carbon by Standard Method 5310B**
**Ferrous Iron by Standard Method 3500-FE D**
**Ferric Iron by Standard Method 3500**
**Hexavalent Chromium by EPA SW 846 Method 7199**
**Dissolved Hexavalent Chromium by EPA Method 218.6**
**Ignitability by EPA SW 846 Method 7.1.2**
**Perchlorate by EPA Method 314.0**
**pH by EPA SW 846 Method 9045C**
**Sulfide by EPA SW 846 Method 9034**
**Total Cyanide by EPA SW 846 Method 9014**
**Total Dissolved Solids by Standard Method 2540C**
**Total Organic Carbon by Standard Method 5310B/EPA SW 846 Method 9060**

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

| SDG | Sample | Analyte | Total Time From Sample Collection Until Analysis | Required Holding Time From Sample Collection Until Analysis | Affected Analyte | Flag | A or P |
|---|---|---|---|---|---|---|---|
| 440-234781-1 | ES-40-20190226*<br>ES-44-20190226* | Ferrous iron | 8 days | 48 hours | Ferrous iron | UJ (all non-detects) | P |
| 440-234870-1 | ES-43-20190227*<br>ES-43-20190227-FD*<br>ES-42-20190227*<br>ES-41-20190227* | Ferrous iron | 7 days | 48 hours | Ferrous iron<br>Ferric iron | UJ (all non-detects)<br>UJ (all non-detects) | P |

## II. Initial Calibration

All criteria for the initial calibration of each method were met.

Initial calibration data were not reviewed for Stage 2A validation.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.
Continuing calibration data were not reviewed for Stage 2A validation.

## IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

| SDG | Blank ID | Analyte | Maximum Concentration | Associated Samples |
|---|---|---|---|---|
| 440-237770-1 | ICB/CCB | Hexavalent chromium | 0.290 ug/L | ECA-COMPOSITE** |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated laboratory blanks.

## V. Field Blanks

No field blanks were identified in these SDGs.

## VI. Surrogates

Surrogates were added to all samples as required by EPA Method 300.1B. Surrogate recoveries (%R) were within QC limits with the following exceptions:

| SDG | Sample | Surrogate | %R (Limits) | Affected Analyte | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-231301-1 | ES-43-110.0-20190121 | Dichloroacetic acid | 118 (90-115) | Chlorate | NA | - |

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Analyte | MS (%R) (Limits) | MSD (%R) (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-230170-1 | ES-40-70.0-20190114MS/MSD (All samples in SDG 440-230170-1) | Perchlorate | 79 (80-120) | - | J- (all detects) UJ (all non-detects) | A |
| 440-230596-2 | ES-42-150.0-20190116MS** (ES-42-150.0-20190116**) | Total organic carbon | 7 (50-150) | - | J- (all detects) | A |
| 440-231301-1 | ES-43-80.0-20190121MS/MSD (ES-43-80.0-20190121) | Chlorate | 63 (75-125) | 74 (75-125) | J- (all detects) | A |

| SDG | Spike ID (Associated Samples) | Analyte | MS (%R) (Limits) | MSD (%R) (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| 440-231301-1 | ES-43-80.0-20190121MS/MSD (ES-43-40.0-20190121 ES-43-50.0-20190121 ES-43-60.0-20190121** ES-43-60.0-20190121-FD) | Perchlorate | 0 (80-120) | 0 (80-120) | J- (all detects) | A |
| 440-231301-1 | ES-43-80.0-20190121MS/MSD (ES-43-70.0-20190121 ES-43-80.0-20190121 ES-43-90.0-20190121 ES-43-95.0-20190121 ES-43-100.0-20190121 ES-43-105.0-20190121 ES-43-110.0-20190121 ES-43-115.0-20190121 ES-43-120.0-20190121 ES-43-130.0-20190121** ES-43-140.0-20190121 ES-43-150.0-20190121) | Perchlorate | 0 (80-120) | 0 (80-120) | R (all non-detects) | A |
| 440-231301-2 | ES-43-80.0-20190121MS/MSD (ES-43-40.0-20190121 ES-43-50.0-20190121 ES-43-60.0-20190121-FD ES-43-70.0-20190121 ES-43-80.0-20190121 ES-43-105.0-20190121 ES-43-110.0-20190121 ES-43-115.0-20190121 ES-43-120.0-20190121 ES-43-130.0-20190121** ES-43-140.0-20190121 ES-43-150.0-20190121) | Total organic carbon | 386 (50-150) | 603 (50-150) | J+ (all detects) | A |
| 440-231301-2 | ES-43-80.0-20190121MS/MSD (ES-43-60.0-20190121**) | Total organic carbon | 386 (50-150) | 603 (50-150) | NA | - |
| 440-237770-1 | ECA-CONFIRMATIONMS/MSD (ECA-CONFIRMATION**) | Nitrite as N | 129 (80-120) | 131 (80-120) | NA | - |
| 440-237770-1 | ECA-CONFIRMATIONMS/MSD (ECA-CONFIRMATION**) | Sulfate | 71 (80-120) | 59 (80-120) | J- (all detects) | A |

For several MS/MSDs, no data were qualified for chlorate, chloride and sulfate percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration.

Relative percent differences (RPD) were within QC limits with the following exceptions:

| SDG | Spike ID (Associated Samples) | Analyte | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|
| 440-230596-1 | ES-42-60-20190115MS/MSD (ES-42-60-20190115) | Chlorate | 28 (≤25) | J (all detects) | A |

| SDG | Spike ID (Associated Samples) | Analyte | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|
| 440-230596-1 | ES-42-150-20190116MS/MSD (ES-42-150-20190116**) | Nitrate as NO3 | 21 (≤20) | UJ (all non-detects) | A |

## VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

## IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## X. Field Duplicates

Samples ES-40-50.0-20190114** and ES-40-50.0-20190114-FD (both from SDG 440-230170-1), samples ES-40-50.0-20190114** and ES-40-50.0-20190114-FD (both from SDG 440-230170-2), samples ES-42-40.0-20190115 and ES-42-40-20190115-FD (both from SDG 440-230596-1), samples ES-42-130-20190116 and ES-42-130-20190116-FD (both from SDG 440-230596-1), samples ES-42-40.0-20190115 and ES-42-40.0-20190115-FD (both from SDG 440-230596-2), samples ES-42-130.0-20190116 and ES-42-130.0-20190116-FD (both from SDG 440-230596-2), samples ES-41-50.0-20190117 and ES-41-50.0-20190117-FD (both from SDG 440-230902-1), samples ES-41-70.0-20190117 and ES-41-70.0-20190117-FD (both from SDG 440-230902-1), samples ES-44-46.0-20190118 and ES-44-46.0-20190118-FD (both from SDG 440-230902-1), samples ES-41-50.0-20190117 and ES-41-50.0-20190117-FD (both from SDG 440-230902-2), samples ES-41-70.0-20190117 and ES-41-70.0-20190117-FD (both from SDG 440-230902-2), samples ES-44-46.0-20190118 and ES-44-46.0-20190118-FD (both from SDG 440-230902-2), samples ES-43-60.0-20190121** and ES-43-60.0-20190121-FD (both from SDG 440-231301-1), samples ES-43-60.0-20190121** and ES-43-60.0-20190121-FD (both from SDG 440-231301-2), and samples ES-43-20190227* and ES-43-20190227-FD* (both from SDG 440-234870-1) were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-40-50.0-20190114** | ES-40-50.0-20190114-FD | | | |
| 440-230170-1 | Chlorate | 6700 ug/Kg | 7400 ug/Kg | 10 (≤50) | - | - |
| | Nitrate as NO3 | 9.7 mg/Kg | 11 mg/Kg | 13 (≤50) | - | - |

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-40-50.0-20190114** | ES-40-50.0-20190114-FD | | | |
| 440-230170-1 | Perchlorate | 1.6 mg/Kg | 2.1 mg/Kg | 27 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-40-50.0-20190114** | ES-40-50.0-20190114-FD | | | |
| 440-230170-2 | Total organic carbon | 1000 | 270 | 115 (≤50) | J (all detects) | A |

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-42-40.0-20190115 | ES-42-40-20190115-FD | | | |
| 440-230596-1 | Chlorate | 54000 ug/Kg | 55000 ug/Kg | 2 (≤50) | - | - |
| | Nitrate as NO3 | 58 mg/Kg | 60 mg/Kg | 3 (≤50) | - | - |
| | Perchlorate | 3.7 mg/Kg | 3.4 mg/Kg | 8 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-42-40.0-20190115 | ES-42-40.0-20190115-FD | | | |
| 440-230596-2 | Total organic carbon | 820 | 840 | 2 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-42-130.0-20190116 | ES-42-130.0-20190116-FD | | | |
| 440-230596-2 | Total organic carbon | 880 | 670 | 27 (≤50) | - | - |

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | | ES-41-50.0-20190117 | ES-41-50.0-20190117-FD | | | |
| 440-230902-1 | Chlorate | 12000 ug/Kg | 13000 ug/Kg | 8 (≤50) | - | - |
| | Nitrate as NO3 | 14 mg/Kg | 14 mg/Kg | 0 (≤50) | - | - |
| | Perchlorate | 1.8 mg/Kg | 1.8 mg/Kg | 0 (≤50) | - | - |

*Indicates sample underwent Stage 2A validation
**Indicates sample underwent Stage 4 validation

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-41-50.0-20190117 | ES-41-50.0-20190117-FD | | | |
| 440-230902-2 | Total organic carbon | 100 | 200 | 67 (≤50) | NQ | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-41-70.0-20190117 | ES-41-70.0-20190117-FD | | | |
| 440-230902-2 | Total organic carbon | 1100 | 930 | 17 (≤50) | - | - |

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-44-46.0-20190118 | ES-44-46.0-20190118-FD | | | |
| 440-230902-1 | Chlorate | 20000 ug/Kg | 21000 ug/Kg | 5 (≤50) | - | - |
| | Nitrate as NO3 | 24 mg/Kg | 23 mg/Kg | 4 (≤50) | - | - |
| | Perchlorate | 4.0 mg/Kg | 3.8 mg/Kg | 5 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-44-46.0-20190118 | ES-44-46.0-20190118-FD | | | |
| 440-230902-2 | Total organic carbon | 530 | 390 | 30 (≤50) | - | - |

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-43-60.0-20190121** | ES-43-60.0-20190121-FD | | | |
| 440-231301-1 | Chlorate | 580 ug/Kg | 580 ug/Kg | 0 (≤50) | - | - |
| | Nitrate as NO3 | 6.7 mg/Kg | 5.5 mg/Kg | 20 (≤50) | - | - |
| | Perchlorate | 0.22 mg/Kg | 0.22 mg/Kg | 0 (≤50) | - | - |

| SDG | Analyte | Concentration (mg/Kg) | | RPD (Limits) | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| | | ES-43-60.0-20190121** | ES-43-60.0-20190121-FD | | | |
| 440-231301-2 | Total organic carbon | 77U | 710 | 200 (≤50) | NQ | - |

*Indicates sample underwent Stage 2A validation
**Indicates sample underwent Stage 4 validation

| SDG | Analyte | Concentration | | RPD (Limits) | Flag | A or P |
| | | ES-43-20190227* | ES-43-20190227-FD* | | | |
| --- | --- | --- | --- | --- | --- | --- |
| 440-234870-1 | Alkalinity as bicarbonate ion | 100000 ug/L | 100000 ug/L | 0 (≤50) | - | - |
| | Alkalinity as CaCO3 | 86000 ug/L | 85000 ug/L | 1 (≤50) | - | - |
| | Chloride | 5000 mg/L | 4800 mg/L | 4 (≤50) | - | - |
| | Dissolved organic carbon | 3300 ug/L | 3300 ug/L | 0 (≤50) | - | - |
| | Perchlorate | 14 ug/L | 20U ug/L | 200 (≤50) | NQ | - |
| | Sulfate | 15000000 ug/L | 15000000 ug/L | 0 (≤50) | - | - |
| | Total dissolved solids | 30000000 ug/L | 29000000 ug/L | 3 (≤50) | - | - |
| | Total organic carbon | 3.8 mg/L | 3.7 mg/L | 3 (≤50) | - | - |

NQ = No data were qualified when either the primary or duplicate result was not detected or was below the practical quantitation limit (PQL).

## XI. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Stage 4 validation with the following exceptions:

| SDG | Sample | Analyte | Finding | Criteria | Flag | A or P |
| --- | --- | --- | --- | --- | --- | --- |
| 440-237770-1 | ECA-CONFIRMATION** | Chloride | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) | A |

Raw data were not reviewed for Stage 2A or Stage 2B validation.

## XII. Overall Assessment of Data

The analysis was conducted within all specifications of the methods.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

| SDG | Sample | Analyte | Finding | Flag | A or P |
|---|---|---|---|---|---|
| 440-237770-1 | ECA-CONFIRMATION** | Chloride | Results exceeded calibration range. | Do not report | - |

Due to MS/MSD %R, data were rejected in twelve samples.

Due to technical holding time, MS/MSD %R and RPD, and field duplicate RPD, data were qualified as estimated in thirty-eight samples.

**NERT Dioxin Impacted Soil and ZVI Treatment Study Modification No. 5**
**Wet Chemistry - Data Qualification Summary - SDGs 440-230170-1, 440-230170-2, 440-230596-1, 440-230596-2, 440-230902-1, 440-230902-2, 440-231301-1, 440-231301-2, 440-234781-1, 440-234870-1, 440-234894-1, 440-237770-1**

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 440-234781-1 | ES-40-20190226*<br>ES-44-20190226* | Ferrous iron | UJ (all non-detects) | P | Technical holding times (h) |
| 440-234870-1 | ES-43-20190227*<br>ES-43-20190227-FD*<br>ES-42-20190227*<br>ES-41-20190227* | Ferrous iron<br>Ferric iron | UJ (all non-detects)<br>UJ (all non-detects) | P | Technical holding times (h) |
| 440-230170-1 | ES-40-40.0-20190114<br>ES-40-50.0-20190114**<br>ES-40-50.0-20190114-FD<br>ES-40-60.0-20190114<br>ES-40-70.0-20190114<br>ES-40-80.0-20190114<br>ES-40-90.0-20190114<br>ES-40-95.0-20190114<br>ES-40-100.0-20190114<br>ES-40-105.0-20190114<br>ES-40-110.0-20190114<br>ES-40-115.0-20190114<br>ES-40-120.0-20190114<br>ES-40-130.0-20190114<br>ES-40-140.0-20190114**<br>ES-40-150.0-20190114 | Perchlorate | J- (all detects)<br>UJ (all non-detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-230596-2 | ES-42-150.0-20190116** | Total organic carbon | J- (all detects) | A | Matrix spike (%R) (m) |
| 440-231301-1 | ES-43-80.0-20190121 | Chlorate | J- (all detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-231301-1 | ES-43-40.0-20190121<br>ES-43-50.0-20190121<br>ES-43-60.0-20190121**<br>ES-43-60.0-20190121-FD | Perchlorate | J- (all detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-231301-1 | ES-43-70.0-20190121<br>ES-43-80.0-20190121<br>ES-43-90.0-20190121<br>ES-43-95.0-20190121<br>ES-43-100.0-20190121<br>ES-43-105.0-20190121<br>ES-43-110.0-20190121<br>ES-43-115.0-20190121<br>ES-43-120.0-20190121<br>ES-43-130.0-20190121**<br>ES-43-140.0-20190121<br>ES-43-150.0-20190121 | Perchlorate | R (all non-detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 440-231301-2 | ES-43-40.0-20190121<br>ES-43-50.0-20190121<br>ES-43-60.0-20190121-FD<br>ES-43-70.0-20190121<br>ES-43-80.0-20190121<br>ES-43-105.0-20190121<br>ES-43-110.0-20190121<br>ES-43-115.0-20190121<br>ES-43-120.0-20190121<br>ES-43-130.0-20190121**<br>ES-43-140.0-20190121<br>ES-43-150.0-20190121 | Total organic carbon | J+ (all detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-237770-1 | ECA-CONFIRMATION** | Sulfate | J- (all detects) | A | Matrix spike/Matrix spike duplicate (%R) (m) |
| 440-230596-1 | ES-42-60-20190115 | Chlorate | J (all detects) | A | Matrix spike/Matrix spike duplicate (RPD) (ld) |
| 440-230596-1 | ES-42-150-20190116** | Nitrate as NO3 | UJ (all non-detects) | A | Matrix spike/Matrix spike duplicate (RPD) (ld) |
| 440-230170-2 | ES-40-50.0-20190114**<br>ES-40-50.0-20190114-FD | Total organic carbon | J (all detects) | A | Field duplicates (RPD) (fd) |
| 440-237770-1 | ECA-CONFIRMATION** | Chloride | Do not report | - | Overall assessment of data (orr) |

**NERT Dioxin Impacted Soil and ZVI Treatment Study Modification No. 5**
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDGs 440-230170-1, 440-230170-2, 440-230596-1, 440-230596-2, 440-230902-1, 440-230902-2, 440-231301-1, 440-231301-2, 440-234781-1, 440-234870-1, 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs

**NERT Dioxin Impacted Soil and ZVI Treatment Study Modification No. 5**
**Wet Chemistry - Field Blank Data Qualification Summary - SDGs 440-230170-1, 440-230170-2, 440-230596-1, 440-230596-2, 440-230902-1, 440-230902-2, 440-231301-1, 440-231301-2, 440-234781-1, 440-234870-1, 440-234894-1, 440-237770-1**

No Sample Data Qualified in these SDGs