Prepared for
Nevada Environmental Response Trust
Henderson, Nevada

Prepared by
Ramboll US Consulting, Inc.
Emeryville, California

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SCREENING-LEVEL HEALTH RISK ASSESSMENT FOR 8TH STREET DVSR AND EDD - SEPTEMBER 2022

NEVADA ENVIRONMENTAL RESPONSE TRUST SITE HENDERSON, NEVADA

RAMBOLL

Screening-Level Health Risk Assessment for 8th Street DVSR and EDD September 2022

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: Jay A Steinberg, President Not Individually, but Solely as President of the Trustee

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

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

Date: 7/27/23

Screening-Level Health Risk Assessment for 8th Street DVSR and EDD September 2022

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.

Kimberly Kuwabara

July 27, 2023

Kimberly Kuwabara, MS
Senior Managing Consultant

Date

Certified Environmental Manager
Ramboll US Corporation, Inc.
CEM Certificate Number: 2353
CEM Expiration Date: March 20, 2025

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Prepared for

Ramboll
Emeryville, California

Prepared by

Laboratory Data Consultants, Inc.
2701 Loker Avenue West, Suite 220
Carlsbad, California 92010

July 26, 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

CCB	Continuing Calibration Blank
DL	Detection Limit
DNR	Do Not Report
DQO	Data Quality Objectives
DUP	Laboratory Duplicate
DVR	Data Validation Report
DVSR	Data Validation Summary Report
EB	Equipment Blank
EMPC	Estimated Maximum Possible Concentration
EPA	Environmental Protection Agency
FB	Field Blank
FD	Field Duplicate
GRO	Gasoline Range Organics
ICB	Initial Calibration Blank
LCS/LCSD	Laboratory Control Sample / Laboratory Control Sample Duplicate
LDC	Laboratory Data Consultants, Inc.
MDC	Minimum Detectable Concentrations
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
PCB	Polychlorinated Biphenyls
PCDD/PCDF	Polychlorinated Dioxin and Dibenzofuran
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
RER	Relative Error Ratio
RPD	Relative Percent Difference
RRF	Relative Response Factor
SDG	Sample Delivery Group
SIM	Selected Ion Monitoring
SQL	Sample Quantitation Limit
SVOC	Semivolatile Organic Compound
TB	Trip Blank
TPHE	Total Petroleum Hydrocarbons as Extractables
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
ug/L	Micrograms per Liter
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pCi/G	Picocuries per Gram
pCi/L	Picocuries per Liter
pg/g	Picogram per Gram
pg/L	Picogram per Liter
%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 non-asbestos laboratory analytical data associated with the Screening-Level Health Risk Assessment for 8th Street sampling efforts conducted during September 2022, 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 6, Nevada Environmental Response Trust Site, Henderson, Nevada* dated February 2021, and included the collection and analyses of six environmental and quality control (QC) samples. 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 Selected Ion Monitoring (SIM) mode
Chlorinated Pesticides by EPA SW-846 Method 8081B
Polychlorinated Biphenyls (PCB) by EPA SW-846 Method 8082A
Gasoline Range Organics (GRO) by EPA SW 846 Method 8015B
Total Petroleum Hydrocarbons as Extractables (TPHE) by EPA SW846 Method 8015B
Organophosphorus Pesticides by EPA SW846 Method 8141A
Polychlorinated Dioxin and Dibenzofuran (PCDD/PCDF) by EPA SW-846 Method 8290A
Metals by EPA SW-846 Methods 6010B/6010C/6020/6020A/7471A/1630

Wet Chemistry:
Ammonia as Nitrogen by Standard Method 4500-NH3 D
Bromide, Chloride, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, Sulfate (Anions) by EPA SW 846 Method 9056
Chlorate by EPA Method 300.1B
Cyanide by EPA SW 846 Method 9014
Perchlorate by EPA Method 314.0
Total Phosphorus by EPA Method 365.3

Radiological Chemistry:
Radium-226 and Radium-228 by Method GA-01-R
Isotopic Thorium and Isotopic Uranium by Method A-01-R

Laboratory analytical services were provided by Eurofins. The soil 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. Consistent with the NDEP and Quality Assurance Project Plan (QAPP) requirements for air samples, approximately ninety percent of the analytical data were validated according to Stage 2B data validation procedures and ten

percent of the analytical data were validated according to Stage 4 data validation procedures. The number of samples for each method is presented in Table III.

The analytical data were evaluated for QA/QC based on the following documents: QAPP Revision 6 (February 2021)*, United States Environmental Protection Agency (USEPA) National Functional Guidelines (NFG) for Organic and Inorganic Superfund Methods Data Review* (November 2020); the *Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual* (July 2004); *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; *Standard Method for the Examination of Water and Wastewater 22nd edition (2012) and EPA Methods for Chemical Analysis of Water and Wastes (1983).*

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 16.0 presents a summary of the PARCCS criteria by comparing quantitative parameters with acceptability criteria defined in the project DQOs. 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), method blanks, calibration blanks, laboratory 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 QAPP (February 2021), NFG (USEPA 2020), MARLAP (2004), 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):

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

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 laboratory blanks, calibration blanks, TBs, and EBs.

A laboratory 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 laboratory blank provides a measure of the combined contamination derived from the laboratory source water, glassware, instruments, reagents, and sample preparation steps. Laboratory blanks are prepared for each sample of a similar matrix extracted by the same method at a similar concentration level.

Initial and continuing calibration blanks (ICB/CCBs) 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.

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 laboratory 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

All VOC data were assessed to be valid since none of the 408 total results were rejected based on holding time and 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 ≥ 0.990 in the initial calibration.

Sixteen results were qualified as non-detected estimated (UJ). The %Ds in the initial and continuing calibration verifications 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.

2.1.3 MS/MSD Samples

The bromomethane and chloroethane results for sample ETH-SB-3-8-10-20220928 were qualified as non-detected estimated (UJ) as a result of MS/MSD %Rs below the laboratory acceptance criteria. The details regarding the qualification of results are provided in Attachment A.

All MS/MSD RPDs met the method acceptance criteria.

2.1.4 LCS/LCSD Samples

Eighteen results were qualified as non-detected estimated (UJ) as a result of LCS/LCSD %Rs below the laboratory acceptance criteria. The details regarding the qualification of results are provided in Attachment A.

All LCS/LCSD RPDs met the method acceptance criteria.

2.1.5 Internal Standards

All internal standard retention times met the method acceptance criteria.

2.1.6 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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 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 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. Reason codes are applied to distinguish if the blank concentration was above or below the PQL.
>
> 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. Reason codes are applied to distinguish if the blank concentration was above or below the PQL.
>
> 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. This allows the data not to be censored and provides an understanding of the level of contamination relative to that found in the samples. This approach is employed for all data sets collected for annual and semi-annual groundwater remedial performance sampling for the NERT site to ensure comparability.

2.2.2.1 Method Blanks

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

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

All SVOC data were assessed to be valid since none of the 366 total results were rejected based on holding time and QC exceedances. 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 ≥ 0.990 in the initial calibration.

No data were qualified due to benzidine and hexachlorocyclopentadiene %Ds above the acceptance criteria of 20 percent for the initial and continuing calibration verifications. The associated results were not detected.

Six benzoic acid results were qualified as non-detected estimated (UJ). The %D in the continuing calibration verification were outside the acceptance criteria of 20 percent. The details regarding the qualification of results are provided in Attachment B.

3.1.2 Surrogates

All surrogate %Rs met the laboratory acceptance criteria.

3.1.3 MS/MSD Samples

No data were qualified due to ETH-SB-1-0-2-20220928 MS/MSD %Rs and RPDs outside the acceptance criteria when the dilution is greater than or equal to a 5X dilution.

3.1.4 LCS/LCSD Samples

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

3.1.5 Internal Standards

All internal standard retention times met the method acceptance criteria.

3.1.6 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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.

3.2.2 Blanks

Method blanks were collected and 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 for this analysis.

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. The comparability of the SVOC data is regarded as acceptable.

3.4 Completeness

The completeness level attained for SVOC 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.

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

All PAH data were assessed to be valid since none of the 96 total results were rejected based on holding time and QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS 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 or the coefficient of determination (r^2) was ≥ 0.990 in the initial calibration. The %Ds met the acceptance criteria of 20 percent in the continuing calibration.

The benzo(a)anthracene and benzo(g,h,i)perylene results for sample ETH-SB-1-0-2-20220928 were qualified as detected estimated (J-). The %Ds in the initial calibration verification were outside the acceptance criteria of 20 percent. The details regarding the qualification of results are provided in Attachment C.

4.1.2 Surrogates

All surrogate %Rs met the laboratory acceptance criteria.

4.1.3 MS/MSD Samples

No data were qualified due to ETH-SB-1-0-2-20220928 MS/MSD %Rs and RPDs outside the acceptance criteria when the dilution is greater than or equal to a 5X dilution.

4.1.4 LCS Samples

All LCS %Rs and RPDs 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 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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 collected and 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. Target compounds detected below the PQLs flagged (J) by the laboratory should be considered estimated. The comparability of the PAH 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

All chlorinated pesticides data were assessed to be valid since none of the 114 total results were rejected based on holding time and 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 ≥ 0.990 in the initial calibration. The %Ds in the initial calibration verifications and continuing calibration met the acceptance criteria of 20 percent.

5.1.2 Surrogates/Internal Standards

One result for sample ETH-SB-1-0-2-20220928 and nineteen results for sample ETH-SB-3-0-2-20220928 were qualified as non-detected estimated (UJ) due to surrogate %Rs below 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

All MS/MSD %Rs and RPDs met acceptance criteria.

5.1.4 LCS/LCSD Samples

Six endrin aldehyde results were qualified as non-detected estimated (UJ) due to LCS/LCSD %Rs below the laboratory acceptance criteria. The details regarding the qualification results are provide in Attachment D.

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

5.1.5 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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 collected and 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. 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

All PCB data were assessed to be valid since none of the 42 total results were rejected based on holding time and 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 coefficient of determination (r^2) was ≥ 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

All surrogate %Rs met the laboratory acceptance criteria.

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 acceptance criteria.

6.1.4 LCS/LCSD Samples

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

6.1.5 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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 collected and 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 for this analysis.

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 polychlorinated biphenyls 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

All GRO data were assessed to be valid since none of the six total results were rejected based on holding time and 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 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.

7.1.2 Surrogates

All surrogate %Rs met the laboratory acceptance criteria.

7.1.3 MS/MSD Samples

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

7.1.4 LCS/LCSD Samples

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

7.1.5 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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 for this analysis.

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 GRO 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

All TPHE data were assessed to be valid since none of the twelve total results were rejected based on holding time and 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 coefficient of determination (r^2) was ≥ 0.990 in the initial calibration. The %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.

8.1.3 MS/MSD Samples

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

8.1.4 LCS/LCSD Samples

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

8.1.5 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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

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

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 TPHE 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 ORGANOPHOSPHORUS PESTICIDES

All organophosphorus pesticides data were assessed to be valid since none of the 168 total results were rejected based on holding time and 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 coefficient of determination (r^2) was ≥ 0.990 in the initial calibration.

One hundred-two results were qualified as non-detected estimated (UJ). The %Ds in the initial and continuing calibration verifications were outside the acceptance criteria of 20 percent. The details regarding the qualification of results are provided in Attachment H.

9.1.2 Surrogates

Fifty-six results for samples ETH-SB-1-8-10-20220928 and ETH-SB-3-8-10-20220928 were qualified as non-detected estimated (UJ) due to surrogate %Rs below the QAPP acceptance criteria. The details regarding the qualification of results are provided in Attachment H.

9.1.3 MS/MSD Samples

No data were qualified due to ETH-SB-3-8-10-20220928 MS/MSD %Rs and RPDs outside the acceptance criteria when the dilution is greater than or equal to a 5X dilution.

9.1.4 LCS Samples

All LCS %Rs were within the laboratory acceptance criteria.

9.1.5 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations and identifications were acceptable.

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 14-day extraction and 40-day analysis holding time criteria.

9.2.2 Blanks

Method blanks were collected and analyzed to evaluate representativeness.

9.2.2.1 Method blanks

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

9.3 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 organophosphorus pesticide data is regarded as acceptable.

9.4 Completeness

The completeness level attained for organophosphorus pesticides 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 POLYCHLORINATED DIOXINS AND DIBENZOFURANS

All PCDD/PCDF data were assessed to be valid since none of the 150 total results were rejected based on holding time and 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

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

10.1.2 MS/MSD Samples

MS/MSD analyses were not performed for this analysis.

10.1.3 LCS/LCSD Samples

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

10.1.4 Labeled Compounds

All labeled compound %Rs were within method acceptance criteria.

10.1.5 Target Analyte Quantitation and Identification

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte identifications were acceptable.

As a result of target quantitation non-conformances, 42 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 I.

10.2 Representativeness

10.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. There is no holding time for PCDD/PCDF per EPA SW-846 update V, July 2014, Revision 5.

10.2.2 Blanks

Laboratory blanks 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 amended.

10.2.2.1 Method Blanks

As a result of contamination found in the method blanks, 97 results 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. 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.

10.4 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.

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 METALS

All metals by EPA SW-846 Methods 6010B/6010C/6020/6020A/7471A and EPA Method 1630 were assessed to be valid since none of the 156 total results were rejected based on holding time and QC exceedances. 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

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 ≥ 0.995. The %Rs in the initial and continuing calibration verifications were within the acceptance criteria.

11.1.2 MS/MSD Samples

Six barium and six strontium results were qualified as detected estimated (J+) due to MS/MSD %Rs above the laboratory acceptance criteria.

Six antimony, six silver and six tungsten results were qualified as detected estimated (J-) or non-detected estimated (UJ) due to MS/MSD %Rs below the laboratory acceptance criteria.

Six silver results were qualified as non-detected estimated (UJ) due to an MS/MSD RPD above the laboratory acceptance criteria.

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

11.1.3 LCS/LCSD Samples

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

11.1.4 ICP Interference Check Sample

ICS interference check concentrations met method acceptance criteria.

11.1.5 ICP Serial Dilution

Serial dilution %Ds were within method acceptance criteria.

11.1.6 Internal Standards

All internal standard %Rs met the method acceptance criteria.

11.1.7 Target Analyte Quantitation

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations were acceptable.

11.2 Representativeness

11.2.1 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.

11.2.2 Blanks

Method blanks and ICB/CCBs 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 the PQL If a sample result and blank contaminant value were less than the PQL, the sample result was amended 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.

11.2.2.1 Method and Calibration Blanks

As a result of contamination found in the method and calibration blanks, four antimony, six molybdenum and two tungsten results were qualified as detected estimated (J). The details regarding the qualification of results are provided in Attachment J.

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 metals data is regarded as acceptable.

11.4 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.

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 WET CHEMISTRY

All wet chemistry data were assessed to be valid since none of the 72 total results were rejected based on holding time and QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

12.1 Precision and Accuracy

12.1.1 Instrument Calibration

The correlation coefficients in the initial calibrations were within the acceptance criteria of ≥ 0.995. The %Rs in the initial and continuing calibration verifications were within the acceptance criteria.

12.1.2 Surrogate

All surrogate %Rs met method criteria.

12.1.3 MS/MSD Samples

No cyanide data were qualified due to an MSD %R being above laboratory acceptance criteria since the associated result was not detected.

All MS/MSD RPDs met laboratory acceptance criteria.

12.1.4 LCS/LCSD Samples

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

12.1.5 Target Analyte Quantitation

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations were acceptable.

12.2 Representativeness

12.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with all wet chemistry methods was conducted. All soil samples met the 7-day analysis holding time criteria for nitrate as nitrogen, nitrite as nitrogen, and orthophosphate as phosphorus, the 14-day analysis holding time for cyanide, and the 28-day analysis holding time criteria for ammonia as nitrogen, bromide, chlorate, chloride, fluoride, sulfate, perchlorate, and total phosphorus.

12.2.2 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 11.2.2.

12.2.2.1 Method and Calibration Blanks

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

12.3 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.

12.4 Completeness

The completeness level attained for wet chemistry 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.

12.5 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.

13.0 RADIUM-226 AND RADIUM-228

All radium-226 and radium-228 by Method GA-01-R were assessed to be valid since none of the 12 total results were rejected based on holding time and QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

13.1 Precision and Accuracy

13.1.1 Instrument Calibration

All instruments and detectors were calibrated as required. Detector efficiency was determined for each radionuclide of interest. Continuing calibration and background determination was performed at the required frequencies. Results met the method acceptance.

13.1.2 Carrier

All carrier %Rs met the validation criteria.

13.1.3 MS/MSD Samples

MS/MSD analyses were not performed for this analysis.

13.1.4 DUP Samples

All DUP relative error ratios (RERs) met the laboratory acceptance criteria.

13.1.5 LCS/LCSD Samples

All LCS %Rs met the laboratory acceptance criteria.

13.1.6 Target Analyte Quantitation

Raw data were evaluated for sample ETH-SB-3-8-10-20220928.

As a result of target quantitation non-conformance, the radium-226 result for sample ETH-SB-3-8-10-20220928 was qualified as estimated (J-) due to insufficient sample amount provided. The details regarding the qualification of results are provided in Attachment L.

13.2 Representativeness

13.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All samples met the 180-day analysis holding time criteria for radium-226 and radium-228.

13.2.2 Blanks

Method blanks were collected and 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 11.2.2.

13.2.2.1 Method Blanks

All method blank results contained less than the minimum detectable concentrations (MDC).

13.3 Comparability

The laboratory used standard analytical methods for all of the analyses. The laboratory reported non-detect results at the sample specific MDCs. All MDCs attained were at or below the PQLs. The comparability of the radium-226 and radium-228 data is regarded as acceptable.

13.4 Completeness

The completeness level attained for radium-226 and radium-228 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.

13.5 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.

14.0 ISOTOPIC THORIUM AND ISOTOPIC URANIUM

All isotopic thorium and isotopic uranium by Method A-01-R were assessed to be valid since none of the 36 total results were rejected based on holding time and QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCCS criteria and evaluated based on the DQOs.

14.1 Precision and Accuracy

14.1.1 Instrument Calibration

All instruments and detectors were calibrated as required. Detector efficiency was determined for each radionuclide of interest. Continuing calibration and background determination was performed at the required frequencies. Results met the method acceptance criteria.

14.1.2 Tracer

All tracer %Rs met the method acceptance criteria.

14.1.3 MS/MSD Samples

MS/MSD analyses were not performed for this analysis.

14.1.4 LCS/LCSD Samples

All LCS %Rs met the laboratory acceptance criteria.

14.1.5 Target Analyte Quantitation

Raw data were evaluated for sample ETH-SB-3-8-10-20220928. All target analyte quantitations were

acceptable.

14.2 Representativeness

14.2.1 Sample Preservation and Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All samples met the 180-day analysis holding time criteria for isotopic uranium.

14.2.2 Blanks

Method blanks were collected and 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 11.2.2.

14.2.2.1 Method Blanks

All method blank results were less than the MDC.

14.3 Comparability

The laboratory used standard analytical methods for all of the analyses. The laboratory reported non-detect results at the sample specific MDCs. All MDCs attained were at or below the PQLs. The comparability of the isotopic thorium and isotopic uranium data is regarded as acceptable.

14.4 Completeness

The completeness level attained for isotopic thorium and isotopic uranium 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.

14.5 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.

15.0 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.

16.0 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.

16.1 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, 4.1.1, and 9.1.1.

All surrogate, LCS/LCSD and MS/MSD %Rs and RPDs, carrier and tracer %Rs, internal standard areas and %Rs, RPD between two columns, serial dilution %Ds, and ICP interference check met acceptance criteria with the exceptions noted in Sections 2.1.3, 2.1.4, 5.1.2, 5.1.4, 9.1.2, 10.1.5, 11.1.2, and 13.1.6.

16.2 Representativeness

All samples for each method and matrix were evaluated for holding time compliance. All holding times were met. All samples were associated with a laboratory 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 10.2.2.1 and 11.2.2.1.

16.3 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.

16.4 Completeness

Of the 1,638 total analytes reported, none were rejected. The completeness for the SDGs is as follows:

Parameter	Total Analytes	No. of Rejects	% Completeness
VOCs	408	0	100
SVOCs	366	0	100
PAHs	96	0	100
Chlorinated Pesticides	114	0	100
PCBs	42	0	100
GRO	6	0	100
TPHE	12	0	100
Organophosphorus Pesticides	168	0	100
PCDD/PCDF	150	0	100
Metals	156	0	100
Wet Chemistry	72	0	100
Radium-226/228	12	0	100
Isotopic Thorium/Uranium	36	0	100
Total	**1,638**	**0**	**100**

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

16.5 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 laboratory blanks, EBs, FBs, and TBs did not affect sensitivity.

17.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical data quality assessment for the soil sample laboratory analytical results generated during the September 2022 sampling for the Screening-Level Health Risk Assessment for 8th Street 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 estimated (J) are usable for limited purposes only. Based upon the Stage 2B, and Stage 4 data validation all other results are considered valid and usable for all purposes.

18.0 REFERENCES

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USEPA 2014. Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual. July.

USEPA 2020. USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review. November.

USEPA 2020. USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review. November.

USEPA 2020. USEPA National Functional Guidelines for Superfund Organic Methods Data Review. November.

TABLES

Table I. Sample Cross-Reference

LDC	SDG	Client Sample ID	Lab ID	Sample Date	Validation Level	Matrix	QC Type	VOC (8260B)	SVOC (8270C)	PAH (8270CSIM)	Chlorinated Pesticides (8081B)	PCB (8082A)	GRO (8015B)	TPHE (8015B)	Organophosphorus Pesticides (8141A)	PCDD/PCDF (8290A)	Metals (6010)	Metals (6020)	Metals (7471A)	Metals (1630)
55571	5501911851	ETH-SB-1-0-2-20220928	550-191185-1	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-1-8-10-20220928	550-191185-2	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-2-0-2-20220928	550-191185-3	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-2-8-10-20220928	550-191185-4	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-3-0-2-20220928	550-191185-5	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-3-8-10-20220928	550-191185-6	9/28/2022	Stage 4	Soil		X	X	X	X	X	X	X	X	X	X	X	X	X

Table I. Sample Cross-Reference

LDC	SDG	Client Sample ID	Lab ID	Sample Date	Validation Level	Matrix	QC Type	Ammonia - N (4500-NH3-D)	Anoins (9056)	Chlorate (300.1B)	Cyanide (9014)	Perchlorate (314.0)	Total Phosphorus (365.3)	Radium 226 & Radium 228 (GA-01-R)	Isotopic Thorium & Isotopic Uranium (A-01-R)	Isotopic Uranium (A-01-R)
55571	5501911851	ETH-SB-1-0-2-20220928	550-191185-1	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-1-8-10-20220928	550-191185-2	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-2-0-2-20220928	550-191185-3	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-2-8-10-20220928	550-191185-4	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-3-0-2-20220928	550-191185-5	9/28/2022	Stage 2B	Soil		X	X	X	X	X	X	X	X	X
55571	5501911851	ETH-SB-3-8-10-20220928	550-191185-6	9/28/2022	Stage 4	Soil		X	X	X	X	X	X	X	X	X

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

Quality Control Elements	Stage 2B				
	GC/MS[1]	GC[2]	Metals	Wet Chemistry	Rad[3]
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**	√	√
Matrix Spike (MS)/ Matrix Spike Duplicate (MSD)	√	√	√	√	√
Laboratory Duplicate (DUP)	√	√	**N/A**	√	√
Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD)	√	√	√	√	√
Serial Dilution	**N/A**	**N/A**	√	**N/A**	**N/A**
Internal Standards/ Labeled Compounds	√	**N/A**	√	**N/A**	**N/A**
Field Duplicate	√	√	√	√	√
RPD Between Two Columns	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Project Quantitation Limits (QL)[4]	√	√	√	√	√
Multiple Results for One Sample	√	√	√	√	√
Target Analyte Quantitation	-	-	-	-	-
Target Analyte Identification	-	-	-	-	-
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 = VOC, SVOC, PAH and PCDD/PCDF
[2]GC = Chlorinated and Organophosphorus Pesticides, PCB, GRO, and TPHE
[3]Rad = Radium-226, Radium-228, Isotopic Thorium, and Isotopic Uranium
[4]PQLs verified for GC/MS, GC, Metals and Wet Chemistry; for Rad, Minimum Detectable Concentration (MDC).

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

Quality Control Elements	Stage 4				
	GC/MS[1]	GC[2]	Metals	Wet Chemistry	Rad[3]
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**
Surrogate Spikes/ Carrier Recovery	√	√	**N/A**	√	√
Matrix Spike (MS)/ Matrix Spike Duplicate (MSD)	√	√	√	√	√
Laboratory Duplicate (DUP)	√	√	**N/A**	√	√
Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD)	√	√	√	√	√
Serial Dilution	**N/A**	**N/A**	√	**N/A**	**N/A**
Internal Standards/ Labeled Compounds	√	**N/A**	√	**N/A**	**N/A**
Field Duplicate	√	√	√	√	√
RPD Between Two Columns	**N/A**	√	**N/A**	**N/A**	**N/A**
Project Quantitation Limits (QL)[4]	√	√	√	√	√
Multiple Results for One Sample	√	√	√	√	√
Target Analyte Quantitation	√	√	√	√	√
Target Analyte Identification	√	√	**N/A**	**N/A**	**N/A**
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 = VOC, SVOC, PAH and PCDD/PCDF
[2]GC = Chlorinated and Organophosphorus Pesticides, PCB, GRO, and TPHE
[3]Rad = Radium-226, Radium-228, Isotopic Thorium, and Isotopic Uranium
[4]PQLs verified for GC/MS, GC, Metals and Wet Chemistry; for Rad, Minimum Detectable Concentration (MDC).

Table III. Stage 2B & Stage 4 Validation Percentage

Parameter (Method)	Number of Analytes			Validation Percentage	
	Stage 2B	Stage 4	Total	Stage 2B (%)	Stage 4 (%)
VOC (8260B)	340	68	408	83	17
SVOC (8270C)	305	61	366	83	17
PAH (8270C SIM)	80	16	96	83	17
Chlorinated Pesticides (8081B)	95	19	114	83	17
PCBs (8082A)	35	7	42	83	17
GRO (8015B)	5	1	6	83	17
TPHE (8015B)	10	2	12	83	17
Organophosphorus Pesticides (8141A)	140	28	168	83	17
PCDD/PCDF (8290A)	125	25	150	83	17
Metals (6010/6020/7471A/1630)	130	26	156	83	17
Wet Chemistry (4500-NH3-D/9056/ 300.1B/9014 /314.0/365.3)	60	12	72	83	17
Radium-226 & Radium-228 (GA-01-R)	10	2	12	83	17
Isotopic Uranium & Isotopic Thorium (A-01-R)	30	6	36	83	17

Table IV. Reason Codes and Definitions

Reason Code	Explanation
a	qualified due to low abundance (radiochemical activity)
ba	blank contamination above PQL
bb	blank contamination below PQL
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

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8260B	74-83-9	Bromomethane		U^+	0.20	0.50	mg/kg	UJ	l	LCS/LCSD %R	37,39	60-145	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8260B	75-00-3	Chloroethane		U	0.032	0.25	mg/kg	UJ	l	LCS/LCSD %R	44,46	60-140	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8260B	75-65-0	tert Butyl alcohol		U	4.7	5.0	mg/kg	UJ	l	LCS/LCSD %R	38,37	70-135	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	74-97-5	Bromochloromethane		U^-	0.015	0.25	mg/kg	UJ	c	CCAL %D	21.1	20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	74-83-9	Bromomethane		U	0.20	0.49	mg/kg	UJ	l	LCS/LCSD %R	37,39	60-145	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	75-00-3	Chloroethane		U	0.032	0.25	mg/kg	UJ	l	LCS/LCSD %R	44,46	60-140	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	74-87-3	Chloromethane		U	0.025	0.25	mg/kg	UJ	c	ICV %D	25.1	20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	75-71-8	Dichlorodifluoromethane		U	0.068	0.25	mg/kg	UJ	c	ICV %D	23.2	20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	75-09-2	Methylene Chloride		U	0.15	0.49	mg/kg	UJ	c	ICV %D, CCAL %D	23.6; 24.8	20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8260B	75-65-0	tert Butyl alcohol		U	4.7	4.9	mg/kg	UJ	l	LCS/LCSD %R	38,37	70-135	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	74-97-5	Bromochloromethane		U^-	0.015	0.25	mg/kg	UJ	c	CCAL %D	21.1	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	74-83-9	Bromomethane		U	0.20	0.50	mg/kg	UJ	l	LCS/LCSD %R	37,39	60-145	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	75-00-3	Chloroethane		U	0.032	0.25	mg/kg	UJ	l	LCS/LCSD %R	44,46	60-140	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	74-87-3	Chloromethane		U	0.025	0.25	mg/kg	UJ	c	ICV %D	25.1	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	75-71-8	Dichlorodifluoromethane		U	0.068	0.25	mg/kg	UJ	c	ICV %D	23.2	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	75-09-2	Methylene Chloride		U	0.15	0.50	mg/kg	UJ	c	ICV %D, CCAL %D	23.6; 24.8	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8260B	75-65-0	tert Butyl alcohol		U	4.7	5.0	mg/kg	UJ	l	LCS/LCSD %R	38,37	70-135	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	74-97-5	Bromochloromethane		U^-	0.015	0.25	mg/kg	UJ	c	CCAL %D	21.1	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	74-83-9	Bromomethane		U	0.20	0.50	mg/kg	UJ	l	LCS/LCSD %R	37,39	60-145	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	75-00-3	Chloroethane		U	0.032	0.25	mg/kg	UJ	l	LCS/LCSD %R	44,46	60-140	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	74-87-3	Chloromethane		U	0.025	0.25	mg/kg	UJ	c	ICV %D	25.1	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	75-71-8	Dichlorodifluoromethane		U	0.068	0.25	mg/kg	UJ	c	ICV %D	23.2	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	75-09-2	Methylene Chloride		U	0.15	0.50	mg/kg	UJ	c	ICV %D, CCAL %D	23.6; 24.8	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8260B	75-65-0	tert Butyl alcohol		U	4.7	5.0	mg/kg	UJ	l	LCS/LCSD %R	38,37	70-135	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	74-97-5	Bromochloromethane		U^-	0.015	0.25	mg/kg	UJ	c	CCAL %D	21.1	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	74-83-9	Bromomethane		U	0.20	0.50	mg/kg	UJ	l	LCS/LCSD %R	37,39	60-145	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	75-00-3	Chloroethane		U	0.032	0.25	mg/kg	UJ	l	LCS/LCSD %R	44,46	60-140	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	74-87-3	Chloromethane		U	0.025	0.25	mg/kg	UJ	c	ICV %D	25.1	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	75-71-8	Dichlorodifluoromethane		U	0.068	0.25	mg/kg	UJ	c	ICV %D	23.2	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	75-09-2	Methylene Chloride		U	0.15	0.50	mg/kg	UJ	c	ICV %D, CCAL %D	23.6; 24.8	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8260B	75-65-0	tert Butyl alcohol		U	4.7	5.0	mg/kg	UJ	l	LCS/LCSD %R	38,37	70-135	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	87-61-6	1,2,3-Trichlorobenzene	0.085	J	0.044	0.25	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	95-50-1	1,2-Dichlorobenzene	0.016	J	0.013	0.10	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	541-73-1	1,3-Dichlorobenzene	0.014	J	0.013	0.10	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	106-46-7	1,4-Dichlorobenzene	0.016	J	0.013	0.10	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	74-83-9	Bromomethane		U^+	0.20	0.50	mg/kg	UJ	m,l	MS/MSD %R, LCS/LCSD %R	42,36; 31.34	60-155; 60-145	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	75-00-3	Chloroethane		U	0.032	0.25	mg/kg	UJ	m,l	MS/MSD %R, LCS/LCSD %R	22,19; 39.41	60-150; 60-140	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8260B	75-71-8	Dichlorodifluoromethane		U	0.068	0.25	mg/kg	UJ	l	LCS/LCSD %R	30,32	35-160	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8270C	65-85-0	Benzoic Acid		UDF1	0.28	10	mg/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8270C	65-85-0	Benzoic Acid		U	0.28	1.0	mg/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270C	65-85-0	Benzoic Acid		UD	0.28	10	mg/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8270C	65-85-0	Benzoic Acid		U	0.28	1.0	mg/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8270C	65-85-0	Benzoic Acid		UD	0.28	10	mg/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8270C	65-85-0	Benzoic Acid		U	0.28	1.1	mg/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8270CSIM	56-55-3	Benzo(a)anthracene	0.011	J	0.0014	0.039	mg/kg	J-	sp,c	<PQL, ICV %D	22.2	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8270CSIM	205-99-2	Benzo(b)fluoranthene	0.015	J	0.0013	0.039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8270CSIM	191-24-2	Benzo(g,h,i)perylene	0.032	J	0.0015	0.039	mg/kg	J-	sp,c	<PQL, ICV %D	30.0	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8270CSIM	218-01-9	Chrysene	0.028	JF1	0.0017	0.039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8270CSIM	50-32-8	Benzo(a)pyrene	0.0012	J	0.00098	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8270CSIM	205-99-2	Benzo(b)fluoranthene	0.0014	J	0.0013	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8270CSIM	191-24-2	Benzo(g,h,i)perylene	0.0028	J	0.0015	0.0039	mg/kg	J	sp	<PQL			

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8270CSIM	53-70-3	Dibenz(a,h)anthracene	0.00091	J	0.00094	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8270CSIM	85-01-8	Phenanthrene	0.0022	J	0.0017	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270CSIM	56-55-3	Benzo(a)anthracene	0.0059	J	0.0014	0.016	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270CSIM	50-32-8	Benzo(a)pyrene	0.0084	J	0.00098	0.016	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270CSIM	205-99-2	Benzo(b)fluoranthene	0.013	J	0.0013	0.016	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270CSIM	218-01-9	Chrysene	0.015	J	0.0017	0.016	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270CSIM	53-70-3	Dibenz(a,h)anthracene	0.0064	J	0.00094	0.016	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8270CSIM	206-44-0	Fluoranthene	0.0039	J	0.0012	0.016	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8270CSIM	205-99-2	Benzo(b)fluoranthene	0.0012	J	0.0013	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8270CSIM	191-24-2	Benzo(g,h,i)perylene	0.0029	J	0.0015	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8270CSIM	85-01-8	Phenanthrene	0.0015	J	0.0017	0.0039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8270CSIM	50-32-8	Benzo(a)pyrene	0.014	J	0.00098	0.039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8270CSIM	205-99-2	Benzo(b)fluoranthene	0.019	J	0.0013	0.039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8270CSIM	191-24-2	Benzo(g,h,i)perylene	0.036	J	0.0015	0.039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8270CSIM	53-70-3	Dibenz(a,h)anthracene	0.012	J	0.00094	0.039	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8270CSIM	191-24-2	Benzo(g,h,i)perylene	0.0026	J	0.0015	0.0040	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8270CSIM	85-01-8	Phenanthrene	0.0018	J	0.0017	0.0040	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8081	7421-93-4	Endrin aldehyde		U*-*1	0.0019	0.020	mg/kg	UJ	l,s	LCS/LCSD %R, Surrogate %R	33,26; 19	54-115; 45-120	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8081	7421-93-4	Endrin aldehyde		U*-*1	0.0019	0.0052	mg/kg	UJ	l	LCS/LCSD %R	33,26	54-115	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8081	7421-93-4	Endrin aldehyde		U*-*1	0.0019	0.0052	mg/kg	UJ	l	LCS/LCSD %R	33,26	54-115	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8081	7421-93-4	Endrin aldehyde		U*-*1	0.0019	0.0051	mg/kg	UJ	l	LCS/LCSD %R	33,26	54-115	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	72-54-8	4,4'-DDD		UD	0.0024	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	72-55-9	4,4'-DDE		UD	0.0022	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	50-29-3	4,4'-DDT		UD	0.0035	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	309-00-2	Aldrin		UD	0.0018	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	319-84-6	alpha-BHC		UD	0.00060	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	319-85-7	beta-BHC		UD	0.0026	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	57-74-9	Chlordane (total)		UD	0.019	0.10	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	319-86-8	delta-BHC		UD	0.00080	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	60-57-1	Dieldrin		UD	0.0019	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	959-98-8	Endosulfan I		UD	0.0017	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	33213-65-9	Endosulfan II		UD	0.0019	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	1031-07-8	Endosulfan sulfate		UD	0.0021	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	72-20-8	Endrin		UD	0.0018	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	7421-93-4	Endrin aldehyde		U*-*1	0.0019	0.021	mg/kg	UJ	l,s	LCS/LCSD %R, Surrogate %R	33,26; 12	54-115; 45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	58-89-9	gamma-BHC		UD	0.00070	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	76-44-8	Heptachlor		UD	0.0024	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	1024-57-3	Heptachlor epoxide		UD	0.0017	0.010	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	72-43-5	Methoxychlor		UD	0.0015	0.021	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8081	8001-35-2	Toxaphene		UD	0.019	0.21	mg/kg	UJ	s	Surrogate %R	36.0	45-120	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8081	7421-93-4	Endrin aldehyde		U*-*1	0.0019	0.0052	mg/kg	UJ	l	LCS/LCSD %R	33,26	54-115	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8015	C22-C32	Petroleum Hydrocarbons C22 - C32	14	J	12	26	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8015	C22-C32	Petroleum Hydrocarbons C22 - C32	17	J	12	26	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	2921-88-2	Chlorpyrifos		U	11	250	ug/kg	UJ	c	CCAL%D	27.1	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	56-72-4	Coumaphos		U	25	380	ug/kg	UJ	c	CCAL%D	27.6	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	8065-48-3	Demeton (Demeton O + Demeton S)		U	110	1400	ug/kg	UJ	c	ICV %D, CCAL %D	87.8,89.3; 43.8	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	333-41-5	Diazinon		U	14	250	ug/kg	UJ	c	CCAL%D	26.0,33.9	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	60-51-5	Dimethoate		U	42	760	ug/kg	UJ	c	CCAL%D	44.3	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	298-04-4	Disulfoton		U	10	380	ug/kg	UJ	c	CCAL%D	38.5	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	13194-48-4	Ethoprop		U	29	760	ug/kg	UJ	c	CCAL%D	35.9	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	150-50-5	Merphos		U	18	250	ug/kg	UJ	c	CCAL%D	22.3	20	%

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	298-00-0	Methyl parathion		U	15	380	ug/kg	UJ	c	ICV %D, CCAL %D	24.6; 24.5,23.0	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	298-02-2	Phorate		U	27	760	ug/kg	UJ	c	CCAL%D	23.7	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	139-40-2	Propazine		U	23	380	ug/kg	UJ	c	CCAL%D	21.4	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	34643-46-4	Prothiophos		U	11	250	ug/kg	UJ	c	CCAL%D	21.4,21.5	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	299-84-3	Ronnel		U	24	250	ug/kg	UJ	c	CCAL%D	20.6	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	122-34-9	Simazine		U	41	380	ug/kg	UJ	c	CCAL%D	26.6,46.4	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	3689-24-5	Sulfotepp		U	59	1400	ug/kg	UJ	c	CCAL%D	21.9	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	297-97-2	Thionazin		U	12	250	ug/kg	UJ	c	CCAL%D	27.0	20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8141A	327-98-0	Trichloronate		U	11	250	ug/kg	UJ	c	CCAL%D	30.9	20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	1912-24-9	Atrazine		U	21	76	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	2921-88-2	Chlorpyrifos		U	11	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	27.1; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	56-72-4	Coumaphos		U	25	76	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	27.6; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	115-90-2	Dasanit		U	32	150	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	8065-48-3	Demeton (Demeton O + Demeton S)		U	110	280	ug/kg	UJ	c,s	ICV %D, CCAL %D, Surrogate %R	87.8,89.3; 43.8; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	333-41-5	Diazinon		U	14	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	26.0,33.9; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	62-73-7	Dichlorovos		U	16	51	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	60-51-5	Dimethoate		U	42	150	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	44.3; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	298-04-4	Disulfoton		U	10	76	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	38.5; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	2104-64-5	EPN		U	11	51	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	13194-48-4	Ethoprop		U	29	150	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	35.9; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	52-85-7	Famphur		U	31	76	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	55-38-9	Fenthion		U	25	76	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	86-50-0	Guthion		U	25	76	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	121-75-5	Malathion		U	14	51	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	150-50-5	Merphos		U	18	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	22.3; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	298-00-0	Methyl parathion		U	15	76	ug/kg	UJ	c,s	ICV %D, CCAL %D, Surrogate %R	24.6; 24.5,23.0; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	7786-34-7	Mevinphos		U	30	76	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	56-38-2	Parathion		U	11	51	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	298-02-2	Phorate		U	27	150	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	23.7; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	139-40-2	Propazine		U	23	76	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	21.4; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	34643-46-4	Prothiophos		U	11	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	33,31; 21.4,21.5	20.00; 42-132, 47-1	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	299-84-3	Ronnel		U	24	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	20.6; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	122-34-9	Simazine		U	41	76	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	26.6,46.4; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	3689-24-5	Sulfotepp		U	59	280	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	21.9; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	35400-43-2	Sulprofos		U	24	76	ug/kg	UJ	s	Surrogate %R	33,31	42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	297-97-2	Thionazin		U	12	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	27; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8141A	327-98-0	Trichloronate		U	11	51	ug/kg	UJ	c,s	CCAL %D, Surrogate %R	30.9; 33,31	20; 42-132, 47-161	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	2921-88-2	Chlorpyrifos		UF1	11	250	ug/kg	UJ	c	CCAL %D	27.1	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	56-72-4	Coumaphos		UF1	25	380	ug/kg	UJ	c	CCAL %D	27.6	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	8065-48-3	Demeton (Demeton O + Demeton S)		U	110	1400	ug/kg	UJ	c	ICV %D, CCAL %D	87.8,89.3; 43.8	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	333-41-5	Diazinon		UF1	14	250	ug/kg	UJ	c	CCAL %D	26.0,33.9	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	60-51-5	Dimethoate		U	42	760	ug/kg	UJ	c	CCAL %D	44.3	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	298-04-4	Disulfoton		UF1	10	380	ug/kg	UJ	c	CCAL %D	38.5	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	13194-48-4	Ethoprop		U	29	760	ug/kg	UJ	c	CCAL %D	35.9	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	150-50-5	Merphos		UF1	18	250	ug/kg	UJ	c	CCAL %D	22.3	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	298-00-0	Methyl parathion		UF1	15	380	ug/kg	UJ	c	ICV %D, CCAL %D	24.6; 24.5,23.0	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	298-02-2	Phorate		U	27	760	ug/kg	UJ	c	CCAL %D	23.7	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	139-40-2	Propazine		UF1	23	380	ug/kg	UJ	c	CCAL %D	21.4	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	34643-46-4	Prothiophos		UF1	11	250	ug/kg	UJ	c	CCAL %D	21.4,21.5	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	299-84-3	Ronnel		UF1	24	250	ug/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	122-34-9	Simazine		U	41	380	ug/kg	UJ	c	CCAL %D	26.6,46.4	20	%

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	3689-24-5	Sulfotepp		U	59	1400	ug/kg	UJ	c	CCAL %D	21.9	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	297-97-2	Thionazin		UF1	12	250	ug/kg	UJ	c	CCAL %D	27.0	20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8141A	327-98-0	Trichloronate		UF1	11	250	ug/kg	UJ	c	CCAL %D	30.9	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	2921-88-2	Chlorpyrifos		U	11	260	ug/kg	UJ	c	CCAL %D	27.1	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	56-72-4	Coumaphos		U	25	390	ug/kg	UJ	c	CCAL %D	27.6	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	8065-48-3	Demeton (Demeton O + Demeton S)		U	110	1400	ug/kg	UJ	c	ICV %D, CCAL %D	87.8,89.3; 43.8	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	333-41-5	Diazinon		U	14	260	ug/kg	UJ	c	CCAL %D	26.0,33.9	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	60-51-5	Dimethoate		U	42	780	ug/kg	UJ	c	CCAL %D	44.3	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	298-04-4	Disulfoton		U	10	390	ug/kg	UJ	c	CCAL %D	38.5	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	13194-48-4	Ethoprop		U	29	780	ug/kg	UJ	c	CCAL %D	35.9	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	150-50-5	Merphos		U	18	260	ug/kg	UJ	c	CCAL %D	22.3	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	298-00-0	Methyl parathion		U	15	390	ug/kg	UJ	c	ICV %D, CCAL %D	24.6; 24.5,23.0	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	298-02-2	Phorate		U	27	780	ug/kg	UJ	c	CCAL %D	23.7	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	139-40-2	Propazine		U	23	390	ug/kg	UJ	c	CCAL %D	21.4	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	34643-46-4	Prothiophos		U	11	260	ug/kg	UJ	c	CCAL %D	21.4,21.5	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	299-84-3	Ronnel		U	24	260	ug/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	122-34-9	Simazine		U	41	390	ug/kg	UJ	c	CCAL %D	26.6,46.4	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	3689-24-5	Sulfotepp		U	59	1400	ug/kg	UJ	c	CCAL %D	21.9	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	297-97-2	Thionazin		U	12	260	ug/kg	UJ	c	CCAL %D	27.0	20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8141A	327-98-0	Trichloronate		U	11	260	ug/kg	UJ	c	CCAL %D	30.9	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	2921-88-2	Chlorpyrifos		U	11	510	ug/kg	UJ	c	CCAL %D	27.1	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	56-72-4	Coumaphos		U	25	770	ug/kg	UJ	c	CCAL %D	27.6	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	8065-48-3	Demeton (Demeton O + Demeton S)		U	110	2800	ug/kg	UJ	c	ICV %D, CCAL %D	87.8,89.3; 43.8	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	333-41-5	Diazinon		U	14	510	ug/kg	UJ	c	CCAL %D	26.0,33.9	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	60-51-5	Dimethoate		U	42	1500	ug/kg	UJ	c	CCAL %D	44.3	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	298-04-4	Disulfoton		U	10	770	ug/kg	UJ	c	CCAL %D	38.5	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	13194-48-4	Ethoprop		U	29	1500	ug/kg	UJ	c	CCAL %D	35.9	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	150-50-5	Merphos		U	18	510	ug/kg	UJ	c	CCAL %D	22.3	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	298-00-0	Methyl parathion		U	15	770	ug/kg	UJ	c	ICV %D, CCAL %D	24.6; 24.5,23.0	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	298-02-2	Phorate		U	27	1500	ug/kg	UJ	c	CCAL %D	23.7	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	139-40-2	Propazine		U	23	770	ug/kg	UJ	c	CCAL %D	21.4	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	34643-46-4	Prothiophos		U	11	510	ug/kg	UJ	c	CCAL %D	21.4,21.5	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	299-84-3	Ronnel		U	24	510	ug/kg	UJ	c	CCAL %D	20.6	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	122-34-9	Simazine		U	41	770	ug/kg	UJ	c	CCAL %D	26.6,46.4	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	3689-24-5	Sulfotepp		U	59	2800	ug/kg	UJ	c	CCAL %D	21.9	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	297-97-2	Thionazin		U	12	510	ug/kg	UJ	c	CCAL %D	27.0	20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8141A	327-98-0	Trichloronate		U	11	510	ug/kg	UJ	c	CCAL %D	30.9	20	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	1912-24-9	Atrazine		U	21	78	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	2921-88-2	Chlorpyrifos		U	11	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	27.1; 39,93	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	56-72-4	Coumaphos		U	25	78	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	27.6; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	115-90-2	Dasanit		U	32	160	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	8065-48-3	Demeton (Demeton O + Demeton S)		U	110	290	ug/kg	UJ	c,s	ICV %D, CCAL %D, Surrogate %R	87.8,89.3; 43.8; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	333-41-5	Diazinon		U	14	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	26.0,33.9; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	62-73-7	Dichlorovos		U	16	52	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	60-51-5	Dimethoate		U	42	160	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	44.3; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	298-04-4	Disulfoton		U	10	78	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	38.5; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	2104-64-5	EPN		U	11	52	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	13194-48-4	Ethoprop		U	29	160	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	35.9; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	52-85-7	Famphur		U	31	78	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	55-38-9	Fenthion		U	25	78	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	86-50-0	Guthion		U	25	78	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	121-75-5	Malathion		U	14	52	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	150-50-5	Merphos		U	18	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	22.3; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	298-00-0	Methyl parathion		U	15	78	ug/kg	UJ	c,s	ICV %D, CCAL %D, Surrogate %R	24.6; 24.5,23.0; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	7786-34-7	Mevinphos		U	30	78	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	56-38-2	Parathion		U	11	52	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	298-02-2	Phorate		U	27	160	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	23.7; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	139-40-2	Propazine		U	23	78	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	21.4; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	34643-46-4	Prothiophos		U	11	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	39,39; 21.4, 21.5	20.00; 42-132, 39-1	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	299-84-3	Ronnel		U	24	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	20.6; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	122-34-9	Simazine		U	41	78	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	26.6,46.4; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	3689-24-5	Sulfotepp		U	59	290	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	21.9; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	35400-43-2	Sulprofos		U	24	78	ug/kg	UJ	s	Surrogate %R	39,39	42-132, 39-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	297-97-2	Thionazin		U	12	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	27; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8141A	327-98-0	Trichloronate		U	11	52	ug/kg	UJ	c,s	CCAL; %D, Surrogate %R	30.9; 39,39	20; 42-132,27-161	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.0	JB	0.04	4.9	pg/g	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.67	JB	0.017	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.481	0.481	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.70	JB	0.043	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.383	0.383	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	0.72	JB	0.039	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.216	0.216	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.27	JB	0.024	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.382	0.382	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	0.47	JB	0.041	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.273	0.273	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.25	JB	0.028	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.318	0.318	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	0.36	JB	0.04	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.38	0.38	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.31	JqB	0.023	4.9	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.367	0.367	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	0.46	JB	0.04	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.28	0.28	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	0.20	JB	0.04	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.238	0.238	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	0.20	JB	0.042	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.252	0.252	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.46	JB	0.024	0.99	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	37871-00-4	HpCDD (total)	1.2	JB	0.017	4.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.661	0.661	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	38998-75-3	HpCDF (total)	3.8	JqB	0.041	4.9	pg/g	J	sp,k	<PQL, EMPC		0.759	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	34465-46-8	HxCDD (total)	0.83	JqB	0.025	4.9	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.07	1.07	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	55684-94-1	HxCDF (total)	4.4	JqB	0.4	4.9	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.14	1.14	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	39001-02-0	Octachlorodibenzofuran	4.1	JB	0.071	9.9	pg/g	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	3268-87-9	Octachlorodibenzo-p-dioxin	4.8	JB	0.059	9.9	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	1.15	1.15	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	30402-15-4	PeCDF (total)	1.2	JqB	0.041	4.9	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.652	0.652	pg/g
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW8290A	30402-14-3	Tetrachlorodibenzofuran	0.46	JB	0.024	0.99	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.47	JB	0.03	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.376	0.376	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.37	JB	0.028	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.481	0.481	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.30	JB	0.029	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.383	0.383	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	0.17	JqB	0.03	5.2	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.216	0.216	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.25	JB	0.024	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.382	0.382	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	0.19	JB	0.02	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.273	0.273	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.20	JB	0.028	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.318	0.318	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	0.29	JB	0.02	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.38	0.38	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.23	JqB	0.023	5.2	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.367	0.367	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	0.11	JqB	0.027	5.2	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.238	0.238	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.16	JqB	0.011	1.0	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.35	Jq	0.029	1.0	pg/g	J	sp,k	<PQL, EMPC			pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	37871-00-4	HpCDD (total)	0.67	JB	0.01	5.2	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.661	0.661	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	38998-75-3	HpCDF (total)	0.90	JqB	0.029	5.2	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.759	0.759	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	34465-46-8	HxCDD (total)	0.68	JqB	0.025	5.2	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.07	1.07	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	55684-94-1	HxCDF (total)	1.1	JqB	0.019	5.2	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.14	1.14	pg/g

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	39001-02-0	Octachlorodibenzofuran	0.83	JB	0.045	10	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.727	0.727	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	3268-87-9	Octachlorodibenzo-p-dioxin	1.5	JqB	0.033	10	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.15	1.15	pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	41903-57-5	TCDD (total)	0.35	Jq	0.029	1.0	pg/g	J	sp,k	<PQL, EMPC			pg/g
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW8290A	30402-14-3	Tetrachlorodibenzofuran	0.16	JqB	0.011	1.0	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.2	JB	0.077	5.1	pg/g	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.49	JB	0.066	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.481	0.481	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.71	JB	0.085	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.383	0.383	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	0.69	JB	0.053	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.216	0.216	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.20	JB	0.031	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.382	0.382	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	0.46	JB	0.051	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.273	0.273	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.20	JB	0.035	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.318	0.318	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	0.29	JB	0.049	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.38	0.38	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.31	JB	0.03	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.367	0.367	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	0.30	JqB	0.052	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.28	0.28	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	0.14	JqB	0.05	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.238	0.238	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	0.19	JB	0.052	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.252	0.252	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.44	JB	0.026	1.0	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	37871-00-4	HpCDD (total)	0.93	JB	0.066	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.661	0.661	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	38998-75-3	HpCDF (total)	4.5	JB	0.081	5.1	pg/g	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	34465-46-8	HxCDD (total)	1.2	JqB	0.032	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.07	1.07	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	55684-94-1	HxCDF (total)	4.6	JqB	0.051	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.14	1.14	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	39001-02-0	Octachlorodibenzofuran	4.8	JB	0.13	10	pg/g	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	3268-87-9	Octachlorodibenzo-p-dioxin	3.5	JB	0.16	10	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	1.15	1.15	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	36088-22-9	PeCDD (total)	0.16	JqB	0.051	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.184	0.184	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	30402-15-4	PeCDF (total)	2.2	JqB	0.052	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.652	0.652	pg/g
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW8290A	30402-14-3	Tetrachlorodibenzofuran	0.99	JB	0.026	1.0	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.64	JB	0.11	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.376	0.376	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.35	JqB	0.13	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.481	0.481	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.19	JqB	0.11	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.383	0.383	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.23	JB	0.082	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.382	0.382	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.21	JqB	0.1	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.318	0.318	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	0.26	JqB	0.082	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.38	0.38	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.42	JB	0.082	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.367	0.367	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	37871-00-4	HpCDD (total)	0.68	JqB	0.13	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.661	0.661	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	38998-75-3	HpCDF (total)	1.1	JqB	0.11	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.759	0.759	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	34465-46-8	HxCDD (total)	0.86	JqB	0.088	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.07	1.07	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	55684-94-1	HxCDF (total)	0.62	JqB	0.082	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.14	1.14	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	39001-02-0	Octachlorodibenzofuran	1.0	JB	0.24	10	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.727	0.727	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	3268-87-9	Octachlorodibenzo-p-dioxin	1.9	JB	0.29	10	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	1.15	1.15	pg/g
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW8290A	36088-22-9	PeCDD (total)	0.22	JqB	0.11	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.184	0.184	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	3.1	JB	0.2	5.1	pg/g	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1.5	JB	0.2	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.481	0.481	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.54	JB	0.23	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.383	0.383	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.2	JB	0.15	5.1	pg/g	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.29	JB	0.088	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.382	0.382	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	0.83	JB	0.14	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.273	0.273	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.44	JB	0.1	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.318	0.318	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	0.60	JB	0.14	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.38	0.38	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.49	JB	0.087	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.367	0.367	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	0.55	JB	0.096	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.28	0.28	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	0.18	JqB	0.14	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.238	0.238	pg/g

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.59	JB	0.045	1.0	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	37871-00-4	HpCDD (total)	2.8	JB	0.2	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.661	0.661	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	34465-46-8	HxCDD (total)	2.1	JB	0.093	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	1.07	1.07	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	55684-94-1	HxCDF (total)	5.5	qB	0.14	5.1	pg/g	J	k,bl,bb	EMPC, Blank Contamination <PQL	1.14	1.14	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	39001-02-0	Octachlorodibenzofuran	7.8	JB	0.45	10	pg/g	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	30402-15-4	PeCDF (total)	1.8	JB	0.1	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.652	0.652	pg/g
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW8290A	30402-14-3	Tetrachlorodibenzofuran	0.98	JqB	0.045	1.0	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.241	0.241	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.41	JqB	0.11	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.376	0.376	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.29	JB	0.11	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.383	0.383	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	0.18	JqB	0.086	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.216	0.216	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.25	JB	0.095	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.382	0.382	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.16	JqB	0.11	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.318	0.318	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	0.35	JB	0.081	5.1	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.38	0.38	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.26	JqB	0.094	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.367	0.367	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	38998-75-3	HpCDF (total)	0.70	JqB	0.11	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.759	0.759	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	34465-46-8	HxCDD (total)	0.67	JqB	0.1	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.07	1.07	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	55684-94-1	HxCDF (total)	0.53	JqB	0.083	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	1.14	1.14	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	39001-02-0	Octachlorodibenzofuran	0.86	JB	0.22	10	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.727	0.727	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	3268-87-9	Octachlorodibenzo-p-dioxin	1.5	JB	0.26	10	pg/g	J	sp,bl,bb	<PQL, Blank Contamination <PQL	1.15	1.15	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW8290A	36088-22-9	PeCDD (total)	0.22	JqB	0.093	5.1	pg/g	J	sp,k,bl,bb	<PQL, EMPC, Blank Contamination <PQL	0.184	0.184	pg/g
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6010	7439-98-7	Molybdenum	0.18	J	0.050	0.52	mg/kg	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.00082	0.00082	mg/Kg
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6010	7440-39-3	Barium	130	F1	0.051	5.0	mg/kg	J+	m	MS/MSD %R	171, 173	75-125	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6010	7440-22-4	Silver		UF1F2	0.012	0.40	mg/kg	UJ	m,ld	MS/MSD %R, DUP RPD	-,70; 40	75-125, ≤20	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6010	7440-24-6	Strontium	140	F1	0.012	1.0	mg/kg	J+	m	MS/MSD %R	153, 160	75-125	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6010	7704-34-9	Sulfur	330	J	19	500	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6010	7440-39-3	Barium	200		0.051	5.2	mg/kg	J+	m	MS/MSD %R	171, 173	75-125	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6010	7439-98-7	Molybdenum	0.30	J	0.050	0.51	mg/kg	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.00082	0.00082	mg/Kg
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6010	7439-98-7	Molybdenum	0.31	J	0.050	0.51	mg/kg	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.00082	0.00082	mg/Kg
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6010	7440-22-4	Silver		U	0.012	0.42	mg/kg	UJ	m,ld	MS/MSD %R, DUP RPD	-,70; 40	75-125, ≤20	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6010	7440-24-6	Strontium	310		0.012	1.0	mg/kg	J+	m	MS/MSD %R	153, 160	75-125	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6010	7704-34-9	Sulfur	340	J	19	490	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6010	7439-98-7	Molybdenum	0.31	J	0.050	0.51	mg/kg	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.00082	0.00082	mg/Kg
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6010	7440-33-7	Tungsten		U	0.064	5.2	mg/kg	UJ	m	MS/MSD %R	69,68	75-125	%
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6010	7439-98-7	Molybdenum	0.34	J	0.050	0.52	mg/kg	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.00082	0.00082	mg/Kg
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6010	7439-98-7	Molybdenum	0.38	J	0.050	0.50	mg/kg	J	sp,bl,bb	<PQL, Blank Contamination <PQL	0.00082	0.00082	mg/Kg
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6010	7440-39-3	Barium	170		0.051	5.1	mg/kg	J+	m	MS/MSD %R	171, 173	75-125	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6010	7440-22-4	Silver		U	0.012	0.41	mg/kg	UJ	m,ld	MS/MSD %R, DUP RPD	-,70; 40	75-125, ≤20	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6010	7440-24-6	Strontium	170		0.012	1.0	mg/kg	J+	m	MS/MSD %R	153, 160	75-125	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6010	7704-34-9	Sulfur	160	J	19	480	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6010	7440-39-3	Barium	160		0.051	5.1	mg/kg	J+	m	MS/MSD %R	171, 173	75-125	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6010	7440-22-4	Silver		U	0.012	0.41	mg/kg	UJ	m,ld	MS/MSD %R, DUP RPD	-,70; 40	75-125, ≤20	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6010	7440-24-6	Strontium	250		0.012	1.0	mg/kg	J+	m	MS/MSD %R	153, 160	75-125	%
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6010	7704-34-9	Sulfur	110	J	19	510	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6010	7440-33-7	Tungsten		U	0.064	5.1	mg/kg	UJ	m	MS/MSD %R	69,68	75-125	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6010	7440-39-3	Barium	160		0.051	5.1	mg/kg	J+	m	MS/MSD %R	171, 173	75-125	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6010	7440-22-4	Silver		U	0.012	0.41	mg/kg	UJ	m,ld	MS/MSD %R, DUP RPD	-,70; 40	75-125, ≤20	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6010	7440-24-6	Strontium	190		0.012	1.0	mg/kg	J+	m	MS/MSD %R	153, 160	75-125	%
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6010	7704-34-9	Sulfur	220	J	19	440	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6010	7440-33-7	Tungsten		U	0.064	5.1	mg/kg	UJ	m	MS/MSD %R	69,68	75-125	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6010	7440-39-3	Barium	160		0.051	5.2	mg/kg	J+	m	MS/MSD %R	171, 173	75-125	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6010	7440-33-7	Tungsten	0.096	JF1	0.064	5.0	mg/kg	J	sp,m,bl,bb	<PQL, MS/MSD %R, Blank Contamination <PQL	69,68; 0.00257	75-125; 0.00257	%,mg/Kg

Table V. Overall Qualified Results

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	Qualification Finding	Acceptance Criteria	
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6010	7440-33-7	Tungsten	0.14	J	0.064	5.1	mg/kg	J	sp,m,bl,bb	<PQL, MS/MSD %R, Blank Contamination <PQL	69,68; 0.00082	75-125; 0.00082	%,mg/Kg
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6010	7440-22-4	Silver		U	0.012	0.42	mg/kg	UJ	m,ld	MS/MSD %R, DUP RPD	-,70; 40	75-125, ≤20	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6010	7440-24-6	Strontium	270		0.012	1.0	mg/kg	J+	m	MS/MSD %R	153, 160	75-125	%
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6010	7704-34-9	Sulfur	99	J	19	460	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6010	7440-33-7	Tungsten		U	0.064	5.2	mg/kg	UJ	m	MS/MSD %R	69,68	75-125	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6020	7440-36-0	Antimony	0.062	BF1	0.0047	0.041	mg/kg	J-	m	MS/MSD %R	31,29	75-125	%
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6020	7440-03-1	Niobium	0.66	J	0.091	2.4	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW6020	7440-05-3	Palladium	0.035	J	0.0052	0.098	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6020	7440-03-1	Niobium	0.56	J	0.091	2.5	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6020	7440-05-3	Palladium	0.041	J	0.0052	0.10	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6020	7440-36-0	Antimony	0.042	B	0.0047	0.042	mg/kg	J-	m	MS/MSD %R	31,29	75-125	%
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6020	7440-03-1	Niobium	0.63	J	0.091	2.3	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW6020	7440-05-3	Palladium	0.038	J	0.0052	0.093	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6020	7440-03-1	Niobium	0.59	J	0.091	2.5	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6020	7440-05-3	Palladium	0.038	J	0.0052	0.10	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6020	7440-03-1	Niobium	0.84	J	0.091	2.5	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6020	7440-05-3	Palladium	0.045	J	0.0052	0.099	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6020	7440-36-0	Antimony	0.034	JB	0.0047	0.042	mg/kg	J	sp,m,bl,bb	<PQL, MS/MSD %R, Blank Contamination <PQL	31,29; 0.01	75-125; 0.01	%,mg/Kg
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW6020	7440-36-0	Antimony	0.035	JB	0.0047	0.041	mg/kg	J	sp,m,bl,bb	<PQL, MS/MSD %R, Blank Contamination <PQL	31,29; 0.00082	75-125; 0.00082	%,mg/Kg
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW6020	7440-36-0	Antimony	0.035	JB	0.0047	0.041	mg/kg	J	sp,m,bl,bb	<PQL, MS/MSD %R, Blank Contamination <PQL	31,29; 0.01	75-125; 0.01	%,mg/Kg
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6020	7440-03-1	Niobium	0.48	J	0.091	2.4	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW6020	7440-36-0	Antimony	0.037	JB	0.0047	0.042	mg/kg	J	sp,m,bl,bb	<PQL, MS/MSD %R, Blank Contamination <PQL	31,29; 0.00729	75-125; 0.00729	%,mg/Kg
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW6020	7440-05-3	Palladium	0.040	J	0.0052	0.094	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-0-2-20220928	2022-09-28	SW9056	16984-48-8	Fluoride	0.58	J	0.40	2.1	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW9056	16887-00-6	Chloride	9.3	J	2.9	11	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-1-8-10-20220928	2022-09-28	SW9056	16984-48-8	Fluoride	1.9	J	0.40	2.1	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-0-2-20220928	2022-09-28	SW9056	16984-48-8	Fluoride	1.2	J	0.40	2.1	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW9056	16887-00-6	Chloride	5.7	J	2.9	10	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-2-8-10-20220928	2022-09-28	SW9056	16984-48-8	Fluoride	1.8	J	0.40	2.1	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW9056	16984-48-8	Fluoride	1.5	J	0.40	2.1	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-0-2-20220928	2022-09-28	SW9056	14797-55-8_N	Nitrate as N	0.63	J	0.51	1.0	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW9056	16887-00-6	Chloride	4.3	J	2.9	11	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	SW9056	16984-48-8	Fluoride	1.3	J	0.40	2.1	mg/kg	J	sp	<PQL			
5501911851	ETH-SB-3-8-10-20220928	2022-09-28	GA-01-R	13982-63-3	Radium-226	1.49		0.173	0.173	pci/g	J-	a	Low Abundance			

ATTACHMENTS

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 analytes 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 analyte 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 analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes 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 analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
09/27/22	1,1-Dichloroethene tert-Butyl alcohol trans-1,2-Dichloroethene Di-isopropyl ether	34.6 27.4 23.2 20.9	ETH-SB-1-0-2-09282022 ETH-SB-3-8-10-09282022**	NA	-
10/10/22	Dichlorodifluoromethane Chloromethane Methylene chloride	23.2 25.1 23.6	ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

**Indicates Stage 4 validation
Attachment A

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

Date	Analyte	%D	Associated Samples	Flag	A or P
10/04/22	Dichlorodifluoromethane Bromomethane Chloroethane Trichlorofluoromethane 1,1,1-Trichloroethane Carbon tetrachloride 1,2-Dibromo-3-chloropropane	29.3 66.1 21.7 38.3 22.4 24.5 26.2	ETH-SB-1-0-2-09282022 ETH-SB-3-8-10-09282022**	NA	-
10/10/22	Methylene chloride Bromochloromethane	24.8 21.1	ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022	UJ (all non-detects) 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 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

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:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ETH-SB-3-8-10-09282022MS/MSD (ETH-SB-3-8-10-09282022**)	Bromomethane Chloroethane	42 (60-155) 22 (60-150)	36 (60-155) 19 (60-150)	UJ (all non-detects) UJ (all non-detects)	A

Relative percent differences (RPD) were within QC limits.

**Indicates Stage 4 validation
Attachment A

IX. 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 with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
LCS/LCSD 550-285085/2,3-A (ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022)	Bromomethane Chloroethane tert-Butyl alcohol	37 (60-145) 44 (60-140) 38 (70-135)	39 (60-145) 46 (60-140) 37 (70-135)	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P
LCS/LCSD 550-285186/2,3-A (ETH-SB-3-8-10-09282022**)	Bromomethane Chloroethane Dichlorodifluoromethane	31 (60-145) 39 (60-140) 30 (35-160)	34 (60-145) 41 (60-140) 32 (35-160)	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P

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. Target Analyte Quantitation

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

XIII. Target Analyte Identification

All target analyte identifications met validation criteria 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. No results were rejected in this SDG.

Due to ICV %D, continuing calibration %D, MS/MSD %R, and LCS/LCSD %R, data were qualified as estimated in six samples.

**Indicates Stage 4 validation
Attachment A

NERT BHRA
Volatiles - Data Qualification Summary – SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022	Dichlorodifluoromethane Chloromethane Methylene chloride	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D) (c)
ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022	Methylene chloride Bromochloromethane	UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (c)
ETH-SB-3-8-10-09282022**	Bromomethane Chloroethane	UJ (all non-detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (m)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022	Bromomethane Chloroethane tert-Butyl alcohol	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P	Laboratory control samples (%R) (l)
ETH-SB-3-8-10-09282022**	Bromomethane Chloroethane Dichlorodifluoromethane	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P	Laboratory control samples (%R) (l)

NERT BHRA
Volatiles - Laboratory Blank Data Qualification Summary – SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Volatiles - Field Blank Data Qualification Summary – SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment A

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.

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.

For analytes 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 analyte 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 analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes 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 analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
10/04/22	Benzidine	23.5	All samples in SDG 550-191185-1	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 analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P

**Indicates Stage 4 validation
Attachment B

Date	Analyte	%D	Associated Samples	Flag	A or P
10/13/22 (10132205)	Benzoic acid	20.6	All samples in SDG 550-191185-1	UJ (all non-detects)	A
10/13/22 (10132205)	Hexachlorocyclopentadiene	23.2	All samples in SDG 550-191185-1	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 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

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For ETH-SB-1-0-2-09282022MS/MSD, no data were qualified for percent recoveries (%R) and relative percent differences (RPD) outside the QC limits since the MS/MSD was analyzed at greater than or equal to a 5X dilution.

IX. 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.

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. Target Analyte Quantitation

**Indicates Stage 4 validation
Attachment B

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

XIII. Target Analyte Identification

All target analyte identifications met validation criteria 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. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in six samples.

**Indicates Stage 4 validation
Attachment B

NERT BHRA
Semivolatiles - Data Qualification Summary – SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Benzoic acid	UJ (all non-detects)	A	Continuing calibration (%D) (c)

NERT BHRA
Semivolatiles - Laboratory Blank Data Qualification Summary – SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Semivolatiles - Field Blank Data Qualification Summary – SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment B

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

Instrument performance check was performed at the required frequency.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For analytes where average relative response factors (RRFs) were utilized, percent relative standard deviations (%RSD) were less than or equal to 15.0%.

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

Average relative response factors (RRF) for all analytes 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 analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
10/03/22	Benzo(a)anthracene Benzo(g,h,i)perylene	22.2 30.0	ETH-SB-1-0-2-09282022	J- (all detects) J- (all 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 analytes.

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

V. Laboratory Blanks

**Indicates Stage 4 validation
Attachment C

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

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For ETH-SB-1-0-2-09282022MS/MSD, no data were qualified for percent recoveries (%R) outside the QC limits since the MS/MSD was analyzed at greater than or equal to a 5X dilution. Relative percent differences (RPD) were within QC limits.

IX. 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.

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. Target Analyte Quantitation

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

XIII. Target Analyte Identification

All target analyte identifications met validation criteria 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. No results were

rejected in this SDG.

Due to ICV %D, data were qualified as estimated in one sample.

**Indicates Stage 4 validation
Attachment C

NERT BHRA
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary – SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-0-2-09282022	Benzo(a)anthracene Benzo(g,h,i)perylene	J- (all detects) J- (all detects)	A	Initial calibration verification (%D) (c)

NERT BHRA
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary – SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary – SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment C

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.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r2) was 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 analytes.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

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

Retention times of all analytes 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 this SDG.

**Indicates Stage 4 validation
Attachment D

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:

Sample	Column	Surrogate	%R (Limits)	Affected Analyte	Flag	A or P
ETH-SB-1-0-2-09282022	CLP 1	Decachlorobiphenyl	19 (45-120)	Endrin aldehyde	UJ (all non-detects)	A
ETH-SB-3-0-2-09282022	CLP 1	Decachlorobiphenyl	36 (45-120)	All analytes except Endrin aldehyde	UJ (all non-detects)	A
ETH-SB-3-0-2-09282022	CLP 1	Decachlorobiphenyl	12 (45-120)	Endrin aldehyde	UJ (all non-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. Relative percent differences (RPD) were within QC limits.

IX. 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 with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
LCS/LCSD 550-285413/2,3-A (All samples in SDG 550-191185-1)	Endrin aldehyde	33 (54-115)	26 (54-115)	UJ (all non-detects)	P

Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Target Analyte Quantitation

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

XII. Target Analyte Identification

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

XIII. Overall Assessment of Data

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

Due to surrogate %R and LCS/LCSD %R, data were qualified as estimated in six samples.

**Indicates Stage 4 validation
Attachment D

NERT BHRA
Chlorinated Pesticides - Data Qualification Summary - SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-0-2-09282022	Endrin aldehyde	UJ (all non-detects)	A	Surrogates (%R) (s)
ETH-SB-3-0-2-09282022	All analytes	UJ (all non-detects)	A	Surrogates (%R) (s)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Endrin aldehyde	UJ (all non-detects)	P	Laboratory control samples (%R) (l)

NERT BHRA
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment D

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

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.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r2) was 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 analytes.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

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

Retention times of all analytes 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 this SDG.

VI. Surrogates/Internal Standards

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

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) 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 this SDG.

X. Target Analyte Quantitation

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

XI. Target Analyte Identification

All target analyte 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 this SDG.

NERT BHRA
Polychlorinated Biphenyls - Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

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.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r2) was greater than or equal to 0.990.

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 duplicates were identified in this SDG.

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 this SDG.

X. Target Analyte Quantitation

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

XI. Target Analyte Identification

All target analyte 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 this SDG.

NERT BHRA
Gasoline Range Organics - Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

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.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r2) was greater than or equal to 0.990.

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

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 analytes.

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 this SDG.

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 this SDG.

X. Target Analyte Quantitation

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

XI. Target Analyte Identification

All target analyte 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 this SDG.

NERT BHRA
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

Organophosphorus Pesticides by Environmental Protection Agency (EPA) SW 846 Method 8141A

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.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r2) was 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 analytes with the following exceptions:

Date	Standard	Column	Analyte	%D	Associated Samples	Affected Analyte	Flag	A or P
09/22/22	099220010	RTX-1MS	Demeton-O	103.6	All samples in SDG 550-191185-1	Demeton, total	NA	-
09/22/22	099220010	RTX-1MS	Demeton-S	87.8	All samples in SDG 550-191185-1	Demeton, total	UJ (all non-detects)	A
09/22/22	099220010	RTX-OPP2	Demeton-O	105.8	All samples in SDG 550-191185-1	Demeton, total	NA	-
09/22/22	099220010	RTX-OPP2	Demeton-S Methyl parathion	89.3 24.6	All samples in SDG 550-191185-1	Demeton, total Methyl parathion	UJ (all non-detects) UJ (all non-detects)	A

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

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

**Indicates Stage 4 validation
Attachment H

Date	Standard	Column	Analyte	%D	Associated Samples	Affected Analyte	Flag	A or P
10/13/22	10130015	RTX-1MS	Merphos Simazine Diazinon Propazine Methyl parathion Tokuthion	22.3 26.6 26.0 21.4 24.5 21.4	All samples in SDG 550-191185-1	Merphos Simazine Diazinon Propazine Methyl parathion Tokuthion	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
10/13/22	10130015	RTX-OPP2	Thionazin Ethoprop Phorate Sulfotepp Demeton-S Simazine Dimethoate Diazinon Disulfoton Methyl parathion Ronnel Chlorpyrifos Trichloronate Tokuthion Coumaphos	27.0 35.9 23.7 21.9 43.8 46.4 44.3 33.9 38.5 23.0 20.6 27.1 30.9 21.5 27.6	All samples in SDG 550-191185-1	Thionazin Ethoprop Phorate Sulfotepp Demeton, total Simazine Dimethoate Diazinon Disulfoton Methyl parathion Ronnel Chlorpyrifos Trichloronate Tokuthion Coumaphos	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A

Retention times of all analytes 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 this SDG.

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:

Sample	Surrogate	%R (Limits)	Affected Analyte	Flag	A or P
ETH-SB-1-8-10-09282022	Chlormefos Triphenylphosphate	33 (42-132) 31 (47-161)	All analytes	UJ (all non-detects)	P
ETH-SB-3-8-10-09282022**	Chlormefos Triphenylphosphate	39 (42-132) 39 (47-161)	All analytes	UJ (all non-detects)	P

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

**Indicates Stage 4 validation
Attachment H

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For ETH-SB-3-8-10-09282022MS/MSD, no data were qualified for percent recoveries (%R) and relative percent differences (RPD) outside the QC limits since the MS/MSD was analyzed at greater than or equal to a 5X dilution.

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. Target Analyte Quantitation

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

XI. Target Analyte Identification

All target analyte 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 this SDG.

Due to ICV %D, continuing calibration %D, and surrogate %R, data were qualified as estimated in six samples.

**Indicates Stage 4 validation
Attachment H

NERT BHRA
Organophosphorus Pesticides - Data Qualification Summary - SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Demeton total Methyl parathion	UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D) (c)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Merphos Simazine Diazinon Propazine Methyl parathion Thionazin Ethoprop Phorate Sulfotepp Demeton, total Dimethoate Disulfoton Ronnel Chlorpyrifos Trichloronate Tokuthion Coumaphos	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (c)
ETH-SB-1-8-10-09282022 ETH-SB-3-8-10-09282022**	All analytes	UJ (all non-detects)	P	Surrogates (%R) (s)

NERT BHRA
Organophosphorus Pesticides - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Organophosphorus Pesticides - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment H

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

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).

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) were less than or equal to 20.0% for all analytes and 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 analyte 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 were less than or equal to 20.0% for all analytes and labeled compounds.

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 all analytes and less than or equal to 30.0% for labeled compounds with.

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

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The minimum S/N ratio was greater than or equal to 10 for each analyte and labeled compound associated to 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 with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration	Associated Samples
MB 320-623143/1-A	10/07/22	2,3,7,8-TCDF	0.241 pg/g	All samples in SDG 550-191185-1
		1,2,3,7,8-PeCDF	0.280 pg/g	
		2,3,4,7,8-PeCDF	0.252 pg/g	
		1,2,3,4,7,8-HxCDD	0.382 pg/g	
		1,2,3,6,7,8-HxCDD	0.318 pg/g	
		1,2,3,7,8,9-HxCDD	0.367 pg/g	
		1,2,3,4,7,8-HxCDF	0.216 pg/g	
		1,2,3,6,7,8-HxCDF	0.273 pg/g	
		1,2,3,7,8,9-HxCDF	0.380 pg/g	
		2,3,4,6,7,8-HxCDF	0.238 pg/g	
		1,2,3,4,6,7,8-HpCDD	0.481 pg/g	
		1,2,3,4,6,7,8-HpCDF	0.376 pg/g	
		1,2,3,4,7,8,9-HpCDF	0.383 pg/g	
		OCDD	1.15 pg/g	
		OCDF	0.727 pg/g	
		Total TCDF	0.241 pg/g	
		Total PeCDD	0.184 pg/g	
		Total PeCDF	0.652 pg/g	
		Total HxCDD	1.07 pg/g	
		Total HxCDF	1.14 pg/g	
		Total HpCDD	0.661 pg/g	
		Total HpCDF	0.759 pg/g	

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration

**Indicates Stage 4 validation
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Sample	Analyte	Reported Concentration	Modified Final Concentration
ETH-SB-1-0-2-09282022	2,3,7,8-TCDF	0.46 pg/g	0.46J pg/g
	1,2,3,7,8-PeCDF	0.46 pg/g	0.46J pg/g
	2,3,4,7,8-PeCDF	0.20 pg/g	0.20J pg/g
	1,2,3,4,7,8-HxCDD	0.27 pg/g	0.27J pg/g
	1,2,3,6,7,8-HxCDD	0.25 pg/g	0.25J pg/g
	1,2,3,7,8,9-HxCDD	0.31 pg/g	0.31J pg/g
	1,2,3,4,7,8-HxCDF	0.72 pg/g	0.72J pg/g
	1,2,3,6,7,8-HxCDF	0.47 pg/g	0.47J pg/g
	1,2,3,7,8,9-HxCDF	0.36 pg/g	0.36J pg/g
	2,3,4,6,7,8-HxCDF	0.20 pg/g	0.20J pg/g
	1,2,3,4,6,7,8-HpCDD	0.67 pg/g	0.67J pg/g
	1,2,3,4,7,8,9-HpCDF	0.70 pg/g	0.70J pg/g
	OCDD	4.8 pg/g	4.8J pg/g
	Total TCDF	0.46 pg/g	0.46J pg/g
	Total PeCDF	1.2 pg/g	1.2J pg/g
	Total HxCDD	0.83 pg/g	0.83J pg/g
	Total HxCDF	4.4 pg/g	4.4J pg/g
	Total HpCDD	1.2 pg/g	1.2J pg/g
ETH-SB-1-8-10-09282022	2,3,7,8-TCDF	0.16 pg/g	0.16J pg/g
	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25J pg/g
	1,2,3,6,7,8-HxCDD	0.20 pg/g	0.20J pg/g
	1,2,3,7,8,9-HxCDD	0.23 pg/g	0.23J pg/g
	1,2,3,4,7,8-HxCDF	0.17 pg/g	0.17J pg/g
	1,2,3,6,7,8-HxCDF	0.19 pg/g	0.19J pg/g
	1,2,3,7,8,9-HxCDF	0.29 pg/g	0.29J pg/g
	2,3,4,6,7,8-HxCDF	0.11 pg/g	0.11J pg/g
	1,2,3,4,6,7,8-HpCDD	0.37 pg/g	0.37J pg/g
	1,2,3,4,6,7,8-HpCDF	0.47 pg/g	0.47J pg/g
	1,2,3,4,7,8,9-HpCDF	0.30 pg/g	0.30J pg/g
	OCDD	1.5 pg/g	1.5J pg/g
	OCDF	0.83 pg/g	0.83J pg/g
	Total TCDF	0.16 pg/g	0.16J pg/g
	Total HxCDD	0.68 pg/g	0.68J pg/g
	Total HxCDF	1.1 pg/g	1.1J pg/g
	Total HpCDD	0.67 pg/g	0.67J pg/g
	Total HpCDF	0.90 pg/g	0.90J pg/g
ETH-SB-2-0-2-09282022	2,3,7,8-TCDF	0.44 pg/g	0.44J pg/g
	1,2,3,7,8-PeCDF	0.30 pg/g	0.30J pg/g
	2,3,4,7,8-PeCDF	0.19 pg/g	0.19J pg/g
	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20J pg/g
	1,2,3,6,7,8-HxCDD	0.20 pg/g	0.20J pg/g
	1,2,3,7,8,9-HxCDD	0.31 pg/g	0.31J pg/g
	1,2,3,4,7,8-HxCDF	0.69 pg/g	0.69J pg/g
	1,2,3,6,7,8-HxCDF	0.46 pg/g	0.46J pg/g
	1,2,3,7,8,9-HxCDF	0.29 pg/g	0.29J pg/g
	2,3,4,6,7,8-HxCDF	0.14 pg/g	0.14J pg/g
	1,2,3,4,6,7,8-HpCDD	0.49 pg/g	0.49J pg/g
	1,2,3,4,7,8,9-HpCDF	0.71 pg/g	0.71J pg/g
	OCDD	3.5 pg/g	3.5J pg/g
	Total TCDF	0.99 pg/g	0.99J pg/g
	Total PeCDD	0.16 pg/g	0.16J pg/g
	Total PeCDF	2.2 pg/g	2.2J pg/g
	Total HxCDD	1.2 pg/g	1.2J pg/g
	Total HxCDF	4.6 pg/g	4.6J pg/g
	Total HpCDD	0.93 pg/g	0.93J pg/g

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Sample	Analyte	Reported Concentration	Modified Final Concentration
ETH-SB-2-8-10-09282022	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23J pg/g
	1,2,3,6,7,8-HxCDD	0.21 pg/g	0.21J pg/g
	1,2,3,7,8,9-HxCDD	0.42 pg/g	0.42J pg/g
	1,2,3,7,8,9-HxCDF	0.26 pg/g	0.26J pg/g
	1,2,3,4,6,7,8-HpCDD	0.35 pg/g	0.35J pg/g
	1,2,3,4,6,7,8-HpCDF	0.64 pg/g	0.64J pg/g
	1,2,3,4,7,8,9-HpCDF	0.19 pg/g	0.19J pg/g
	OCDD	1.9 pg/g	1.9J pg/g
	OCDF	1.0 pg/g	1.0J pg/g
	Total PeCDD	0.22 pg/g	0.22J pg/g
	Total HxCDD	0.86 pg/g	0.86J pg/g
	Total HxCDF	0.62 pg/g	0.62J pg/g
	Total HpCDD	0.68 pg/g	0.68J pg/g
	Total HpCDF	1.1 pg/g	1.1J pg/g
ETH-SB-3-0-2-09282022	2,3,7,8-TCDF	0.59 pg/g	0.59J pg/g
	1,2,3,7,8-PeCDF	0.55 pg/g	0.55J pg/g
	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29J pg/g
	1,2,3,6,7,8-HxCDD	0.44 pg/g	0.44J pg/g
	1,2,3,7,8,9-HxCDD	0.49 pg/g	0.49J pg/g
	1,2,3,6,7,8-HxCDF	0.83 pg/g	0.83J pg/g
	1,2,3,7,8,9-HxCDF	0.60 pg/g	0.60J pg/g
	2,3,4,6,7,8-HxCDF	0.18 pg/g	0.18J pg/g
	1,2,3,4,6,7,8-HpCDD	1.5 pg/g	1.5J pg/g
	1,2,3,4,7,8,9-HpCDF	0.54 pg/g	0.54J pg/g
	Total TCDF	0.98 pg/g	0.98J pg/g
	Total PeCDF	1.8 pg/g	1.8J pg/g
	Total HxCDD	2.1 pg/g	2.1J pg/g
	Total HxCDF	5.5 pg/g	5.5J pg/g
	Total HpCDD	2.8 pg/g	2.8J pg/g
ETH-SB-3-8-10-09282022**	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25J pg/g
	1,2,3,6,7,8-HxCDD	0.16 pg/g	0.16J pg/g
	1,2,3,7,8,9-HxCDD	0.26 pg/g	0.26J pg/g
	1,2,3,4,7,8-HxCDF	0.18 pg/g	0.18J pg/g
	1,2,3,7,8,9-HxCDF	0.35 pg/g	0.35J pg/g
	1,2,3,4,6,7,8-HpCDF	0.41 pg/g	0.41J pg/g
	1,2,3,4,7,8,9-HpCDF	0.29 pg/g	0.29J pg/g
	OCDD	1.5 pg/g	1.5J pg/g
	OCDF	0.86 pg/g	0.86J pg/g
	Total PeCDD	0.22 pg/g	0.22J pg/g
	Total HxCDD	0.67 pg/g	0.67J pg/g
	Total HxCDF	0.53 pg/g	0.53J pg/g
	Total HpCDF	0.70 pg/g	0.70J pg/g

VI. Field Blanks

No field blanks were identified in this SDG.

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 this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD)

**Indicates Stage 4 validation
Attachment I

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 this SDG.

X. Labeled Compounds

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

XI. Target Analyte Quantitation

All target analyte quantitations met validation criteria with the following exceptions:

Sample	Analyte	Flag	A or P
All samples in SDG 550-191185-1	All analytes flagged "q" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XII. Target Analyte Identification

All target analyte identifications met validation criteria 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. No results were rejected in this SDG.

Due to results reported as EMPCs, data were qualified as estimated in six samples.

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

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NERT BHRA
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	All analytes flagged "q" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	A	Target analyte quantitation (EMPC) (k)

NERT BHRA
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

Sample	Analyte	Modified Final Concentration	A or P	Code
ETH-SB-1-0-2-09282022	2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDD 1,2,3,4,7,8,9-HpCDF OCDD Total TCDF Total PeCDF Total HxCDD Total HxCDF Total HpCDD	0.46J pg/g 0.46J pg/g 0.20J pg/g 0.27J pg/g 0.25J pg/g 0.31J pg/g 0.72J pg/g 0.47J pg/g 0.36J pg/g 0.20J pg/g 0.67J pg/g 0.70J pg/g 4.8J pg/g 0.46J pg/g 1.2J pg/g 0.83J pg/g 4.4J pg/g 1.2J pg/g	A	bl,bb
ETH-SB-1-8-10-09282022	2,3,7,8-TCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDD OCDF Total TCDF Total HxCDD Total HxCDF Total HpCDD Total HpCDF	0.16J pg/g 0.25J pg/g 0.20J pg/g 0.23J pg/g 0.17J pg/g 0.19J pg/g 0.29J pg/g 0.11J pg/g 0.37J pg/g 0.47J pg/g 0.30J pg/g 1.5J pg/g 0.83J pg/g 0.16J pg/g 0.68J pg/g 1.1J pg/g 0.67J pg/g 0.90J pg/g	A	bl,bb

**Indicates Stage 4 validation
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Sample	Analyte	Modified Final Concentration	A or P	Code
ETH-SB-2-0-2-09282022	2,3,7,8-TCDF	0.44J pg/g	A	bl,bb
	1,2,3,7,8-PeCDF	0.30J pg/g		
	2,3,4,7,8-PeCDF	0.19J pg/g		
	1,2,3,4,7,8-HxCDD	0.20J pg/g		
	1,2,3,6,7,8-HxCDD	0.20J pg/g		
	1,2,3,7,8,9-HxCDD	0.31J pg/g		
	1,2,3,4,7,8-HxCDF	0.69J pg/g		
	1,2,3,6,7,8-HxCDF	0.46J pg/g		
	1,2,3,7,8,9-HxCDF	0.29J pg/g		
	2,3,4,6,7,8-HxCDF	0.14J pg/g		
	1,2,3,4,6,7,8-HpCDD	0.49J pg/g		
	1,2,3,4,7,8,9-HpCDF	0.71J pg/g		
	OCDD	3.5J pg/g		
	Total TCDF	0.99J pg/g		
	Total PeCDD	0.16J pg/g		
	Total PeCDF	2.2J pg/g		
	Total HxCDD	1.2J pg/g		
	Total HxCDF	4.6J pg/g		
	Total HpCDD	0.93J pg/g		
ETH-SB-2-8-10-09282022	1,2,3,4,7,8-HxCDD	0.23J pg/g	A	bl,bb
	1,2,3,6,7,8-HxCDD	0.21J pg/g		
	1,2,3,7,8,9-HxCDD	0.42J pg/g		
	1,2,3,7,8,9-HxCDF	0.26J pg/g		
	1,2,3,4,6,7,8-HpCDD	0.35J pg/g		
	1,2,3,4,6,7,8-HpCDF	0.64J pg/g		
	1,2,3,4,7,8,9-HpCDF	0.19J pg/g		
	OCDD	1.9J pg/g		
	OCDF	1.0J pg/g		
	Total PeCDD	0.22J pg/g		
	Total HxCDD	0.86J pg/g		
	Total HxCDF	0.62J pg/g		
	Total HpCDD	0.68J pg/g		
	Total HpCDF	1.1J pg/g		
ETH-SB-3-0-2-09282022	2,3,7,8-TCDF	0.59J pg/g	A	bl,bb
	1,2,3,7,8-PeCDF	0.55J pg/g		
	1,2,3,4,7,8-HxCDD	0.29J pg/g		
	1,2,3,6,7,8-HxCDD	0.44J pg/g		
	1,2,3,7,8,9-HxCDD	0.49J pg/g		
	1,2,3,6,7,8-HxCDF	0.83J pg/g		
	1,2,3,7,8,9-HxCDF	0.60J pg/g		
	2,3,4,6,7,8-HxCDF	0.18J pg/g		
	1,2,3,4,6,7,8-HpCDD	1.5J pg/g		
	1,2,3,4,7,8,9-HpCDF	0.54J pg/g		
	Total TCDF	0.98J pg/g		
	Total PeCDF	1.8J pg/g		
	Total HxCDD	2.1J pg/g		
	Total HxCDF	5.5J pg/g		
	Total HpCDD	2.8J pg/g		

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Sample	Analyte	Modified Final Concentration	A or P	Code
ETH-SB-3-8-10-09282022**	1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDD OCDF Total PeCDD Total HxCDD Total HxCDF Total HpCDF	0.25J pg/g 0.16J pg/g 0.26J pg/g 0.18J pg/g 0.35J pg/g 0.41J pg/g 0.29J pg/g 1.5J pg/g 0.86J pg/g 0.22J pg/g 0.67J pg/g 0.53J pg/g 0.70J pg/g	A	bl,bb

NERT BHRA

Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation

Metals by Environmental Protection Agency (EPA) SW 846 Methods 6010B/6010C/6020/6020A
Mercury by EPA SW 846 Method 7471A
Methyl Mercury by EPA Method 1630

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. 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.

IV. ICP Interference Check Sample Analysis

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

V. Laboratory Blanks

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

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Copper Iron Manganese Zirconium Antimony Arsenic	0.513 mg/Kg 1.78 mg/Kg 0.299 mg/Kg 0.502 mg/Kg 0.00729 mg/Kg 0.0845 mg/Kg	All samples in SDG 550-191185-1
ICB/CCB	Molybdenum Tungsten	0.00082 mg/L 0.00257 mg/L	All samples in SDG 550-191185-1
ICB/CCB	Antimony Thallium	0.199 ug/L 0.036 ug/L	All samples in SDG 550-191185-1

**Indicates Stage 4 validation
Attachment J

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
ETH-SB-1-8-10-09282022	Antimony Molybdenum	0.037 mg/Kg 0.34 mg/Kg	0.037J mg/Kg 0.34J mg/Kg
ETH-SB-2-8-10-09282022	Antimony Molybdenum	0.035 mg/Kg 0.30 mg/Kg	0.035J mg/Kg 0.30J mg/Kg
ETH-SB-3-0-2-09282022	Antimony Molybdenum	0.035 mg/Kg 0.31 mg/Kg	0.035J mg/Kg 0.31J mg/Kg
ETH-SB-3-8-10-09282022**	Antimony Molybdenum	0.034 mg/Kg 0.18 mg/Kg	0.034J mg/Kg 0.18J mg/Kg
ETH-SB-1-0-2-09282022	Molybdenum Tungsten	0.38 mg/Kg 0.096 mg/Kg	0.38J mg/Kg 0.096J mg/Kg
ETH-SB-2-0-2-09282022	Molybdenum Tungsten	0.31 mg/Kg 0.14 mg/Kg	0.31J mg/Kg 0.14J mg/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

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:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ETH-SB-1-0-2-09282022MS/MSD (All samples in SDG 550-191185-1)	Barium Strontium	171 (75-125) 153 (75-125)	173 (75-125) 160 (75-125)	J+ (all detects) J+ (all detects)	A
ETH-SB-1-0-2-09282022MS/MSD (All samples in SDG 550-191185-1)	Tungsten Silver Antimony	69 (75-125) - 31 (75-125)	68 (75-125) 70 (75-125) 29 (75-125)	J- (all detects) UJ (all non-detects)	A

For ETH-SB-1-0-2-09282022MS/MSD, although the percent recoveries were severely low for antimony, the associated sample results were qualified as estimated (J/UJ) since the post spike recoveries were within the QC limits for this analyte.

**Indicates Stage 4 validation
Attachment J

For ETH-SB-1-0-2-09282022MS/MSD, no data were qualified for iron, magnesium, and manganese 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:

Spike ID (Associated Samples)	Analyte	RPD (Limits)	Flag	A or P
ETH-SB-1-0-2-09282022MS/MSD (All samples in SDG 550-191185-1)	Silver	40 (≤20)	UJ (all non-detects)	A

VIII. Duplicate Sample Analysis

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

IX. Serial Dilution

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

X. 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.

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

XIII. Target Analyte Quantitation

All target analyte quantitations were 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 methods. No results were rejected in this SDG.

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

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

**Indicates Stage 4 validation
Attachment J

NERT BHRA
Metals - Data Qualification Summary - SDG 550-191185-1

Sample	Analyte	Flag	A or P	Reason (Code)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Barium Strontium	J+ (all detects) J+ (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (m)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Tungsten Silver Antimony	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (m)
ETH-SB-1-0-2-09282022 ETH-SB-1-8-10-09282022 ETH-SB-2-0-2-09282022 ETH-SB-2-8-10-09282022 ETH-SB-3-0-2-09282022 ETH-SB-3-8-10-09282022**	Silver	UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (RPD) (ld)

NERT BHRA
Metals - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

Sample	Analyte	Modified Final Concentration	A or P	Code
ETH-SB-1-8-10-09282022	Antimony Molybdenum	0.037J mg/Kg 0.34J mg/Kg	A	bl,bb
ETH-SB-2-8-10-09282022	Antimony Molybdenum	0.035J mg/Kg 0.30J mg/Kg	A	bl,bb
ETH-SB-3-0-2-09282022	Antimony Molybdenum	0.035J mg/Kg 0.31J mg/Kg	A	bl,bb
ETH-SB-3-8-10-09282022**	Antimony Molybdenum	0.034J mg/Kg 0.18J mg/Kg	A	bl,bb
ETH-SB-1-0-2-09282022	Molybdenum Tungsten	0.38J mg/Kg 0.096J mg/Kg	A	bl,bb
ETH-SB-2-0-2-09282022	Molybdenum Tungsten	0.31J mg/Kg 0.14J mg/Kg	A	bl,bb

**Indicates Stage 4 validation
Attachment J

NERT BHRA
Metals - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment J

Ammonia as Nitrogen by Standard Method 4500-NH3 D
Bromide, Chloride, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, Sulfate by Environmental Protection Agency (EPA) SW 846 Method 9056
Chlorate by EPA Method 300.1B
Cyanide by EPA SW 846 Method 9014
Perchlorate by EPA Method 314.0
Total Phosphorus by EPA Method 365.3

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

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

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

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

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by Method 300.1B. 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 with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
ETH-SB-1-0-2-09282022MS/MSD (All samples in SDG 550-191185-1)	Cyanide	-	121 (70-115)	NA	-

Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

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

IX. 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.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Target Analyte Quantitation

All target analyte quantitations were acceptable 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 methods. No results were rejected in this SDG.

NERT BHRA
Wet Chemistry - Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Wet Chemistry - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

Radium-226 and Radium-228 by Method GA-01-R

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

III. Continuing Calibration

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

IV. Blanks

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable concentrations (MDC).

V. Field Blanks

No field blanks were identified in this SDG.

VI. 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.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results 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.

**Indicates Stage 4 validation
Attachment L

X. Carrier Recovery

All carrier recoveries were within validation criteria.

XI. Minimum Detectable Concentrations

All minimum detectable concentrations (MDC) met reporting limits (RL).

XII. Target Analyte Quantitation

All target analyte quantitations met validation criteria with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
ETH-SB-3-8-10-09282022**	Radium-226	The laboratory indicated that insufficient sample amount was provided to fill a tuna can calibrated for Radium 226. The use for different geometry could potentially bias the results low due to loss of radon into the headspace of the container.	J- (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XIII. Overall Assessment of Data

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

Due to insufficient sample amount, data were qualified as estimated in one sample.

**Indicates Stage 4 validation
Attachment L

NERT BHRA
Radium-226 & Radium-228 - Data Qualification Summary - SDG 550-191185-1

Sample	Isotope	Flag	A or P	Reason (Code)
ETH-SB-3-8-10-09282022**	Radium 226	J- (all detects)	A	Target analyte quantitation (insufficient sample amount) (a)

NERT BHRA
Radium-226 & Radium-228 - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Radium-226 & Radium-228 - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

**Indicates Stage 4 validation
Attachment L

Isotopic Thorium and Isotopic Uranium by Method A-01-R

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

III. Continuing Calibration

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

IV. Blanks

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable concentrations (MDC).

V. Field Blanks

No field blanks were identified in this SDG.

VI. 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.

VII. Duplicate Sample Analysis

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

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. Tracer Recovery

All tracer recoveries were within validation criteria.

XI. Minimum Detectable Concentrations

All minimum detectable concentrations (MDC) met reporting limits (RL).

XII. Target Analyte Quantitation

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

XIII. Overall Assessment of Data

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

NERT BHRA
Isotopic Thorium - Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Isotopic Thorium - Laboratory Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

NERT BHRA
Isotopic Thorium - Field Blank Data Qualification Summary - SDG 550-191185-1

No Sample Data Qualified in this SDG

Data Validation Summary Report for Asbestos Data from the Screening-Level Health Risk Assessment for 8th Street

Prepared for:

Ramboll
Emeryville, CA

July 26, 2023

Prepared by:

Neptune and Company, Inc.
1435 Garrison St., Suite 201
Lakewood, CO 80215

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Table of Contents

Acronyms and Abbreviations

BHRA	Baseline Health Risk Assessment
BMI	Basic Management, Inc.
COC	chain-of-custody
DVSR	Data Validation Summary Report
ED	electron diffraction
EDD	Electronic Data Deliverable
EDXA	energy dispersive X-ray analysis
EMSL	EMSL Analytical, Inc.
EPA	U.S. Environmental Protection Agency
Eurofins	Eurofins Environmental Testing. Phoenix
FBAS	Fluidized Bed Asbestos Segregator
gPM10	Grams of particulate matter 10 microns or less in diameter
NDEP	Nevada Division of Environmental Protection
Neptune	Neptune and Company, Inc.
QAPP	Quality Assurance Project Plan
QA	quality assurance
QC	quality control
QSM	Quality Systems Manual
RAMBOLL	Ramboll US Corporation
RPD	relative percent difference
S	analytical sensitivity
SDG	sample delivery group
SOP	Standard Operating Procedure
str/g	structures per gram
TEM	Transmission Electron Microscopy

1. Introduction

This data validation summary report (DVSR) has been prepared by Neptune and Company, Inc. (Neptune) to assess the validity and usability of asbestos results reported by EMSL Analytical, Inc. (EMSL) for samples collected from the Screening-Level Baseline Health Risk Assessment (BHRA) of 8th Street. This DVSR evaluates one sample delivery group (SDG) 042228765 containing results for six samples analyzed for asbestos.

The samples received from Eurofins Phoenix (Eurofins) on September 30, 2022 by EMSL were prepared and processed by Fluidized Bed Asbestos Segregator (FBAS) for the determination of releasable asbestos via dust generation. Asbestos structure counting for each sample utilized transmission electron microscopy (TEM) per ISO 10312 and the results were reported as asbestos structures per gram of soil. EMSL was subcontracted to Eurofins to process the six samples in accordance with EMSL's Analytical Standard Operating Procedures (SOP).

Table 1 below identifies the samples collected and subsequently validated by Neptune. The sample-related information was retrieved from the Chain of Custodies (COCs) provided in the SDG.

Table 1: Samples Collected for BHRA of 8th Street

Lab ID (EMSL)	Client Sample ID (Eurofins)	Date Samples Received by EMSL	Date Samples Analyzed by EMSL
042228765-0001	ETH-SB-1-0-2-09282022 (550-191185-1)	09/30/2022	11/25/2022
042228765-0002	ETH-SB-1-8-10-09282022 (550-191185-2)	09/30/2022	11/25/2022
042228765-0003	ETH-SB-2-0-2-209282022 (550-191185-3)	09/30/2022	11/25/2022
042228765-0004	ETH-SB-2-8-10-209282022 (550-191185-4)	09/30/2022	11/25/2022
042228765-0005	ETH-SB-3-0-2-209282022 (550-191185-5)	09/30/2022	11/25/2022
042228765-0006	ETH-SB-3-8-10-209282022 (550-191185-6)	09/30/2022	11/25/2022

The laboratory report included a sample summary report and a bench data sheet for each asbestos sample. The SDG also included a case narrative, quality control (QC) data reports, instrument performance checks, accreditation certification, client correspondence and shipping documents. Following common practice, TEM images, electron diffraction (ED) and energy dispersive X-ray analysis (EDXA) were not provided with the report because the laboratory reported that no asbestos fibers or structures were identified greater than or equal to 0.5 microns with an aspect ratio of 3:1. Although this is common practice, the validator cannot confirm without the images that no asbestos fibers or structures were detected; however, the validity of the conclusions that there are no asbestos fibers in

the samples is considered reasonable. The COC was properly completed by Eurofins for the shipped soil to EMSL. In addition, EMSL properly completed their internal COC for tracking of the six samples within their lab.

The Eurofins sample IDs were incorrectly transferred to EMSL bench sheets and EMSL internal COC for four of the samples. The bench sheets and EMSL internal COC are missing a "2". Additionally, the Eurofins COC identifies the sample matrix as solids, however, EMSL's bench sheets and internal COC identify the matrix as a soil. EMSL SDG contains data for a "Lab Blank". The Lab Blank meets the criteria of a method blank defined in the data validation guidance (NDEP 2012) and is treated as a method blank for this review. The method blank is the only QC sample provided in the SDG and it meets the acceptance criteria. However, generally an equipment blank, laboratory blank, field blank, or field duplicate are provided but since no asbestos fibers were detected, these QC elements would not provide usable information to validate the data.

This DVSR summarizes the QA evaluation of the data according to precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) criteria. It also provides an assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

Data qualifiers and their definitions are presented Table 2.

Table 2: Data Qualifier Definitions

Qualifier	Definition
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.
J+	Estimated: The associated numerical value is an estimated quantity with a potentially positive 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.
J-	Estimated: The associated numerical value is an estimated quantity with a potentially negative 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.
UJ	Estimated/non-detected: Analyses were performed for the compound or analyte, but it was not detected. This qualification is used to flag possible false negative results in the case where low bias is indicated by a detect in the field duplicate
R	Rejected: The datum is unusable (the compound or analyte may or may not be present). Use of the "R" qualifier indicates a significant variance from functional guideline acceptance criteria.

1.1. PARCCS Criteria

Precision is a measure of the agreement of reproducibility of analytical results under a given set of conditions. It is a quantity that cannot be measured directly but is calculated from structure counts. Precision is expressed as the relative percent difference (RPD).

$$RPD = \left| \frac{D1 - D2}{\left(\frac{D1 + D2}{2}\right)} \right| \times 100$$

Where, D1 and D2, respectively, are the reported structure counts for the sample and duplicate analyses.

An RPD exceeding the 50% criterion from Berman and Kolk (2000) indicates imprecision but cannot not judge accuracy or bias (e.g., J+ or J-). Due to the inherent heterogeneity of the soil samples, RPD exceedances may be observed, however, it is important for field duplicates to be evaluated to assess site (and possibly sampling) variability. For this report, no field duplicate was identified, therefore, the RPD determination is not available.

Accuracy is a measure of the agreement of an experimental determination and the true value of the parameter being measured. Due to the nature of asbestos analysis, accuracy cannot easily be assessed. There are no standards or reference materials that mimic the type of samples collected at field sites. The key component for accuracy is the analyst, who is well-trained in the identification and analysis of asbestos structures, including proficiency tests generated by accrediting agencies (e.g., National Voluntary Laboratory Accreditation Program). The analyst uses tools such as electron diffraction (ED) and energy dispersive X-ray analysis (EDXA) to accurately assess morphology and identify asbestos structures and visually determines size using scale bars. Analytical equipment (e.g., TEM, ED and EDXA) have manufacturer requirements for maintenance and calibration; these records are maintained by the laboratory and not part of the standard data package, although they can be provided upon request. For this DVSR, the analyst performed a daily calibration check of the K Factors for Al and Cu. The results were within acceptance limits. The instrument calibration (e.g., camera, magnification, K-factors, detector resolution, resolvable Mg-Si and Na peaks, spot size measurement) TEM monthly checks were provided in the package and demonstrate an analytical system in control.

Representativeness is a qualitative parameter that expresses the degree to which the sample data are characteristic of a population. It is evaluated herein by reviewing the blank result, sample results and holding times. Detects in the blank samples identify structures that may have been introduced into the samples during sample collection, transport, preparation, or analysis. QC blanks collected and analyzed can include filter lot, field, laboratory, method, equipment and conditioning filter blanks. The Eurofins client (Ramboll) determines if field blanks are collected/analyzed as per the NDEP approved work plan, whereas analysis of other blanks is dependent on batch size and if contamination is detected (e.g.,

conditioning filters). Holding times and preservation are not established for asbestos in soils; however, EMSL Elutriator Standard Operating Procedure (SOP) (rev. 2.1, June 2010) recommends samples be shipped on ice and stored at ice temperature if samples are not immediately analyzed to avoid bacterial growth in the samples. For this review, samples were received on September 30, 2022 and analyzed on November 25, 2022. The COC does not indicate the presence of ice in the cooler.

Comparability is a qualitative expression of the confidence with which one data set may be compared with another. In the data validation context, it provides an assessment of the equivalence of the analytical results to data obtained from other analyses. Comparability is also dependent upon other PARCCS criteria because only when precision, accuracy, and representativeness are known can data sets be compared with confidence. The comparability of asbestos is somewhat limited because the accuracy of analysis cannot be easily assessed.

Completeness is defined as the percentage of acceptable sample results compared with the total number of sample results. Completeness equals the total number of samples results for each fraction minus the total number of rejected sample results divided by the total number of sample results multiplied by 100. Percent completeness (%C) is calculated using the following equation:

$$\%C = \frac{T - R}{T} \times 100$$

Where, T is the total number of sample results and R is the number of rejected sample results.

Sensitivity relates to the ability of an analytical method to identify positive results. For asbestos analysis, sensitivity is measured using a construct called “analytical sensitivity.” This is the calculated concentration of airborne asbestos structures that is equivalent to counting one asbestos structure in the analysis. Analytical sensitivity (S) is a function of the volume of air sampled, the active area of the collection filter and the area of the TEM grid, EMSL reported results as structures per gram of soil:

$$S = \frac{EFA}{GOA \times NO \times W \times FR}$$

Where, EFA is the elutriator filter area (385), GOA is the grid opening area (0.013), NO is the number of grid openings observed, W is the weight of sample, and FR is the flow ratio.

The purpose of the analytical sensitivity is to try to encompass the range of asbestos concentrations that are of concern for asbestos related risk assessment. Eurofins has requested an analytical sensitivity of 2,000,000 structures per gram (str/g) of particulate matter greater than or equal to (≥) 0.5 microns with an aspect ratio ≥ 3:1. EMSL observed a minimum of 4 grid openings as per EMSL Analytical SOP for ISO 10312 (2017). This calculates to an analytical sensitivity of 296,154 str/g, which meets the minimum requirement of 2,000,000 str/g. The number of grid openings observed for the laboratory blank was 10. This calculates to an analytical sensitivity of 11,846 str/g.

1.2. Basis for Qualifying Data

Field Duplicate: Duplicate and parent sample results are qualified if the RPD between the sample and its duplicate exceeded 50%. Since a field duplicate was not provided or identified for this data set, no qualification of data is applicable.

Blanks: Per the EMSL Elutriator SOP, the following blanks may be analyzed:

- Filter lot blanks: 2 per lot of 50 filters, analyzed prior to sampling, lot rejected if background contamination is >0.2 fiber/mm^2;
- Field blanks: not required per the Quality Assurance Project Plan (QAPP);
- Lab Blanks: 1) filter to evaluate elutriator prep room air, 2) filter near elutriator sampling ports (always collected, only analyzed if there is a question of contamination), 3) not analyzed unless there is a question of contamination; 40 blanks considered contaminated if >10 structures/mm^2;
- Method blank: analyzed 1 in every 20 samples, washed play sand used to assess tumbler and elutriator, should not exceed 0.2 structures/mm^2;
- Equipment blanks: similar to the method blank, except sand is not used (only air), interchangeable with method blank;
- Conditioning filters: collected at the beginning of every run; not required unless there is case of contamination since these filters can help with troubleshooting.

2. Asbestos via FBAS and TEM ISO 10312

No quality control issues were found for the samples listed in Table 1. Further information regarding the quality control checks is provided below.

2.1 Quality Control Results

2.1.1 Blank Samples

The following is the evaluation of the various blanks used to determine indications of contamination during sampling, transport, preparation and analysis of asbestos samples:

- Filter lot blanks: information not reported in the data package. Information is unnecessary given there were no detections of asbestos fibers or structures in the EMSL FBAS samples;
- Field blanks: no field blank was included with this data set;
- Lab blanks: not necessary to be analyzed given there were no detections of asbestos fibers or structures in the EMSL FBAS samples;
- Method blank: no issues have been reported; no asbestos structures were identified in the method blank.

- Conditioning filters: only used for troubleshooting, and not necessary for this data set.

No blank issues were reported; therefore, no data were qualified.

2.1.2 Duplicate Sample Results

There were no field duplicate samples submitted or identified in this data set. No qualifications were required.

2.1.3. Analytical Sensitivities

The required analytical sensitivity of 2,000,000 str/g was met for all samples; no qualifications were required. Using the equation in Section 1.1, the analytical sensitivity achieved for samples is as follows;

Where, EFA equals 385, GOA equals 0.013, NO equals 4, W equals 2, FR equals 0.0125 the analytical sensitivity is calculated as 385/(0.013x4x2x0.0125) or 296154 str/g.

The analytical sensitivity achieved for the method blank is as follows:

Where, EFA equals 385, GOA equals 0.013, NO equals 10, W equals 20, FR equals 0.0125, the analytical sensitivity is calculated as 385/(0.013x10x20x0.0125) or 11,846 str/g.

As indicated by the method blank analytical sensitivity, an increase in either the number of grid openings observed or the weight of the sample will lower the sensitivity.

2.2. Unaddressed Issues

The data are to be used to evaluate potential health risk. When the result is not-detected, or zero counts, there is a concern whether additional observations (grid openings) are warranted to provide increased confidence in supporting the result of zero counts. The process to instill confidence that the reported result is zero is through the application of Poisson Distribution (Chatfield, 1995). Chatfield (1995) defines the limit of detection as the upper limit of a Poisson distribution with a 95% confidence interval where there is a zero structure count. For all the samples analyzed by EMSL the upper confidence interval is 885,500. All samples had zero counts, therefore, the results are reported as <885,000 str/g.

Given that the recovery of asbestos from the FBAS method is less than 5% from analysis of performance evaluation samples (Januch, J., et al., 2013), the probability of asbestos remaining in the sample and not released by the FBAS method is high. The filters are presumed to be loaded evenly (Januch, J., et al., 2013), therefore, the small number of grid openings observed should not be a concern. However, the optimal percent of filter loading is 15-25%. EMSL reported sample loading at 5%-12%. This is likely due to a lower sample volume used during the sample preparation. EMSL SOP indicates that a 3 gram

sample is preferred however, depending on the amount of respirable particles the lower sample size can be used. The lab used 2 grams for each sample, which potentially reduces the percent filter loading and detection of asbestos fibers/structures. Although the lab used a lower amount of soil for FBAS process the analytical sensitivity was met. No qualification of data is necessary.

2.3 Summary

As described above, no samples were qualified due to QC issues. The data are considered acceptable as no data are rejected. All samples are non-detect, defined as zero structures observed or counted in the sample. A non-detect result means that structures elutriated into an air stream at a rate of 16 l/min, measuring 0.5 micron and above, and with an aspect ratio of 3:1 were not observed in the four grid openings.

3. PARCCS

Precision: Assessments were discussed above, since a field duplicate was not provided or identified in this data set, the precision cannot be evaluated. No data qualifiers were applied.

Accuracy: As discussed above, accuracy is not easily assessed, however, daily instrument check, and the TEM monthly calibration checks indicate the analytical system is in control. EMSL records indicate the data should be accurate within their limitations.

Representativeness: No blank contamination has been found in the laboratory sample and the representativeness of the project data is considered acceptable.

Comparability: The laboratory used standard analytical methods for the analyses. No information was provided that would conflict with the comparability of the results; therefore, the overall comparability is considered acceptable.

Completeness: No results were rejected based on this data validation. The completeness level attained for the samples was 100%.

Sensitivity: The analytical sensitivity for all samples was 296,154 str/g which is more sensitive than the requested 2,000,000 str/g. The analytical sensitivity is acceptable for this data set.

4. References

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