FINAL

Oregon Department of Environmental Quality

Offsite Investigation Report

Former JH Baxter & Co. Facility
Eugene, Oregon
ECSI No. 55

September 30, 2024

Prepared by:

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Abbreviations and Acronyms

AP	Alva Park (decision unit)
Baxter	JH Baxter & Co.
BB&A	BB&A Associates
bgs	below ground surface
City	City of Eugene, Oregon
CUL	cleanup level
DEQ	Oregon Department of Environmental Quality
DU	decision unit
EMPC	estimated maximum possible concentration
EPA	U.S. Environmental Protection Agency
Frontier	Frontier Analytical Laboratory
GSI	GSI Water Solutions, Inc.
ISM	incremental sampling methodology
ITRC	Interstate Technology and Regulatory Council
LRAPA	Lane Regional Air Protection Agency
MRL	method reporting limit
OHA	Oregon Health Authority
Pace	Pace Analytical National
PCDD/F	polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran
PCP	pentachlorophenol
pg/g	picograms per gram
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RA	removal action
RBSL	Risk-Based Screening Level
ROD	Record of Decision
ROW	right-of-way
SO	step out (decision unit)
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TEF	toxicity equivalency factor
TEQ	toxicity equivalence quotient
WHO	World Health Organization

SECTION 1: **Introduction**

This report describes offsite investigation activities and analytical results that were collected in preparation of residential soil removal activities north of the former JH Baxter & Co. (Baxter) facility in Eugene, Oregon (Figure 1). The properties identified by these offsite investigations consist of the first offsite soil removal action (RA) to be completed by the Oregon Department of Environmental Quality (DEQ).

This report also contains an assessment of the data results, as well as recommendations to DEQ for the RA activities associated with elevated polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran (PCDD/F) concentration in soil at residential properties north of the Baxter facility. The recommendations provided in this report include the extent and depth of soil removal proposed for each decision unit (DU).

1.1 Purpose

In accordance with the Offsite Investigation Work Plan (GSI, 2022) and Offsite Investigation Work Plan Addendum #1 (GSI, 2023), the purpose of the offsite investigations was to delineate the PCDD/F concentrations in surface and shallow soil at residential properties immediately north of the Baxter facility. These locations had a high potential for air deposition based on modeling performed by the Lane Regional Air Protection Agency (LRAPA) in support of the Cleaner Air Oregon air emissions evaluations at the Baxter facility. Data from the 2022 and 2023 soil sampling investigations, a prior surface soil sampling investigation completed by Baxter in 2020 and 2021, and the U.S. Environmental Protection Agency's (EPA's) Removal Program investigations in 2022 and 2023 were used to support evaluations of human health risk to residents and for planning future RAs.

1.2 Limitations

The offsite investigations and this summary report have been prepared for DEQ. Work for this project was performed in accordance with generally accepted professional practices relating to the nature of work completed at the same or similar localities. It is intended for the exclusive use of DEQ and for specific application to the site. No other warranty, express or implied, is made.

SECTION 2: **Background**

This section provides a summary of the Baxter facility's history and previous offsite investigation activities conducted near the Baxter facility. For a more detailed description of the Baxter facility and previous facility activities, refer to DEQ's Record of Decision (ROD) issued for the Baxter facility (DEQ, 2019).

2.1 Baxter Facility History

The JH Baxter & Co. facility is a former wood treating facility located at 85 Baxter Street in Eugene, Oregon (Figure 1). The Baxter facility produced treated wood products using a variety of additives, including pentachlorophenol (PCP), which results in the generation of PCDD/Fs as part of the PCP manufacturing process. Further, unauthorized evaporation of PCP was performed in the retorts, which resulted in airborne releases of PCP (and in turn PCDD/Fs) that are suspected of depositing in the neighborhood to the north of the facility, immediately across Roosevelt Boulevard (DEQ, 2022b).

Offsite Soil Investigation. In 2020 and 2021, Baxter, to meet the conditions of the ROD, began investigating the potential impacts of facility operations on the surrounding area to confirm releases to offsite areas in the direction of prevailing wind patterns. Sampling activities included investigating adjacent drainage ditches to the north and south of the facility and close-in residential properties, as well as collecting background samples to understand area-wide depositional patterns (DEQ, 2019). Contaminants of interest included chemicals related to wood treatment (metals [arsenic, chromium, copper, and zinc], polycyclic aromatic hydrocarbons, PCP, and PCDD/Fs).

Baxter collected offsite surface soil samples from the locations listed in Table 1 in 2020 (GSI, 2020) and 2021 (GSI, 2021). This report does not present data collected from these previous investigations, except where detected surface soil concentrations indicated a risk that was investigated further in subsequent offsite investigations.

Table 1. Previous Offsite Investigation Sample Locations

Sample Type	Sample Name	Location
2020 Offsite Investigation		
Offsite Surface Soil	DU-1	Lark City Park northeast of site.
	DU-2	Public right-or-way along West 1st Avenue, south of site.
	DU-3	Within ditch along south side of Site from outfall entry into ditch to west property line fence.
	DU-4	Public right-of-way along Roosevelt Boulevard, north of site.
	DU-5	Residential area right-of-way north of site (archived).
	DU-6	Within ditch along northwest side of Site at discharge of outfall.
Background Surface Soil	BKGD-1/DU-7	Uplands southeast of site.
	BKGD-2/DU-8	Within ditch along south side of site from east property line fence to immediately prior to Outfall 1 water entering ditch (archived).

Sample Type	Sample Name	Location
2021 Offsite Investigation		
Offsite Surface Soil	DU-02	South shoulder of Roosevelt Boulevard in unpaved areas immediately beyond the facility fence line with northwesterly wind direction potential air deposition.
	DU-03	South shoulder of Roosevelt Boulevard in unpaved areas immediately beyond the facility fence line with northwesterly wind direction potential air deposition.
	DU-04	Undeveloped north bank soil of Roosevelt channel above the assumed high water elevation with northwesterly wind direction potential air deposition. Location also evaluates potential concentration gradients away from DU-02.
	DU-05	Undeveloped north bank soil of Roosevelt channel above the assumed high water elevation with northly wind direction potential air deposition. Location also evaluates potential concentration gradients away from DU-02 and DU-03.
	DU-06	Undeveloped north bank soil of Roosevelt channel above the assumed high water elevation with northeasterly wind direction potential air deposition. Location also evaluates potential concentration gradients away from DU-03.
	DU-07	Unimproved and unutilized lot in residential area. Location evaluates northwesterly wind direction potential air deposition. Location also evaluates potential concentration gradients away from DU-04.
	DU-08	Residential lot north of site. Location also evaluates potential concentration gradients away from DU-05.
	DU-10	Residential lot north of site. Location also evaluates potential concentration gradients away from DU-05.
	DU-11	Residential lot north of site. Location also evaluates potential concentration gradients away from DU-05.
	DU-12	Residential lot north of site. Location also evaluates potential concentration gradients away from DU-05 and DU-06.
	DU-15	Residential lot north of site. Location also evaluates potential concentration gradients away from DU-11
	DU-16	Residential lot north of site. Location also evaluates potential concentration gradients away from DU-11 and DU-12.
Background Surface Soil	BKGD-04	Peterson City Park north of site
	BKGD-05	Residential Property northwest of the site
	BKGD-06	Trainsong City Park northeast of the site
	BKGD-07	North slope Roosevelt Ditch north of the site
	BKGD-08	Emerald Park northeast of the site
	BKGD-09	Hawkins Heights City Park south of the site

Notes

BKGD = background DU = decision unit

Elevated PCDD/F contamination was identified in soil samples collected from drainage ditches and residential yards immediately north of the Baxter facility. PCDD/F concentrations were highest in the 2021 samples in drainage ditches and yards within areas where air deposition modeling completed by the LRAPA predicted predominant summer wind direction and deposition from the Baxter facility (GSI, 2020).

Drainage ditches and a few residential yards exceeded DEQ's Risk-Based Screening Levels (RBSLs) for direct contact with soil in residential settings for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxicity equivalence quotient (TEQ), which is 4.7 picograms per gram (pg/g). Arsenic was also detected in residential yards above RBSLs; however, these concentrations were below regional background concentrations (DEQ, 2013).

Following these investigations, Baxter was directed to perform residential soil removal and replacement in accordance with the ROD.

2.2 DEQ Offsite Involvement

In January 2022, Baxter notified DEQ they would not be able to implement cleanup at the residential yards in a timely manner and suspended wood treatment activities at its facility. DEQ subsequently declared the Baxter facility an Orphan Site to enable utilization of the Industrial Orphan Site Account (DEQ, 2022a) to complete the RAs at the offsite residential properties. Two supplemental investigations, which are detailed in this report, were completed by GSI Water Solutions, Inc. (GSI), under contract to DEQ.

2.3 EPA Offsite Involvement

In May 2022, EPA's Removal Program began assisting DEQ with the Baxter offsite property investigation. EPA's work expanded on the surface soil sampling previously conducted by Baxter and focused on delineating the extent of contamination in the neighborhood north of the former Baxter facility. Analytical data provided by EPA has added to the extent of RAs to be conducted. To date, EPA has collected soil samples from 52 properties.

2.4 PCDD/F Action Levels

The Oregon Health Authority (OHA) identified a 40 pg/g TCDD TEQ value to warrant expedited cleanup of residential properties near the Baxter facility (OHA, 2023). The value was based on the consideration of increased non-cancer human health risks related to children under 6 years of age regularly exposed to residential soil. DEQ subsequently adopted the 40 pg/g value as an early action cleanup level (CUL) for initial Baxter offsite RA activities.

After a property was identified as requiring early action soil removal, the total depth of soil removal was determined by the maximum vertical depth where PCDD/F concentrations exceeded DEQ's RBSLs for direct contact by residential receptors of 4.7 pg/g (DEQ, 2023).

SECTION 3: **Offsite Investigations and Results**

The offsite investigations described in this report focused on properties initially identified in Baxter's and EPA's offsite investigations. GSI completed two rounds of investigation activities with DEQ. The first investigation was completed in June 2022 and included five residential properties north of the Baxter facility. The second investigation was completed in April 2023 and included seven residential properties. Each residential property was investigated as a single DU, with two sub-DUs for vertical delineation sampling. A DU defines an exposure area upon which risk decisions to potential receptors (i.e., humans and/or ecological receptors) are based. Analytical results from the two offsite investigations are summarized below; complete data results tables from the investigations are included in Appendix A. Analytical laboratory reports and data validation reports are included in Appendix B.

3.1 June 2022 Offsite Investigation

On June 20 and 21, 2022, GSI completed an offsite investigation at five residential properties near the Baxter facility. Soil samples were collected from the ground surface to depths up to 12 inches below ground surface (bgs) to identify the extent of PCDD/F in surface soil. The DUs and associated property addresses included:

- DU-09 ([redacted] Baxter Street)
- DU-10 ([redacted] Baxter Street)
- DU-11 ([redacted] Baxter Street)
- DU-14 ([redacted] Baxter Street)
- DU-15 ([redacted] Baxter Street)

At DU-09, DU-14, and the backyard of DU-11, previous sampling had not been conducted and soil was assessed for PCDD/F concentrations in the 0- to 6-inch bgs depth zone using an incremental sampling methodology (ISM) approach (ITRC, 2020; DEQ, 2020). At DU-10, DU-15, and the front yard of DU-11, ISM sampling from 0 to 6 inches was previously completed during the 2021 investigation by Baxter. All five DUs had not previously been characterized within the 6- to 12-inch depth interval and sampling was performed in this depth zone during this investigation using a multi-point composite sampling approach. The individual sample locations collected per DU during the June 2022 investigation are presented on the figures included in Appendix C.

3.1.1 ISM Sampling (0- to 6-inch bgs intervals)

Surface soil from DU-09, DU-14, and the backyard of DU-11 were characterized using ISM, which is a structured composite sampling and processing protocol that reduces data variability, increases sample representativeness, and reduces the chance of missing potential elevated concentrations of PCDD/Fs in a volume of soil targeted for sampling. The composite sample from each DU consisted of 50 soil increments collected in accordance with DEQ's *Decision Unit Characterization* Internal Management Directive (DEQ, 2020) and Interstate Technology and Regulatory Council's (ITRC's) ISM Update (ITRC, 2020).

Each DU was divided into a grid pattern consisting of 50 approximately equal-sized grid cells. An increment was collected from within each of the grid cells using a systematic random grid pattern.

Soil for the incremental surface samples were collected using a small wood auger bit attached to an electric drill. The auger attachment was decontaminated between sampling each DU. At each increment location, surface vegetation, debris, and/or larger gravels and cobbles were removed prior to sample collection. In

addition to surface vegetation and gravel, significant root mass was removed from the soil surface and discarded; however, degraded or fine organic materials were left for sample collection. The sampling device was then advanced to a depth of 6 inches from the cleared soil surface. Soil was extruded from the sampling device and placed into a decontaminated stainless steel bowl for homogenization and observation of soil conditions. After homogenization, an increment of approximately equal volume was removed from the bowl. Soil sample volumes were then placed in a single laboratory-supplied certified-clean glass sample container (approximately 4 liters). This process was repeated for all 50 increments.

Field replicate samples (i.e., duplicate and triplicate samples) were collected from the backyard of DU-11 in accordance with DEQ's *Decision Unit Characterization* Internal Management Directive (DEQ, 2020) to assess data variability. To collect duplicate and triplicate samples, the field team collected a total of three increment samples from each grid square, rather than one. This was performed by collecting the initial 50-increment sample (no duplicate or triplicate increments) from all grids and compositing into a common sample jar. Then the field team returned to each grid to collect soil for the duplicate sample (increments for the duplicate were obtained approximately a foot north of the original increments). Following collection of the duplicate sample, the triplicate sample was collected approximately one foot west of the original increments.

ISM samples were submitted under chain of custody to Apex Analytical Laboratory of Tigard, Oregon, for processing and analysis. Processing included grinding and homogenizing the entire soil volume in accordance with ITRC's ISM standards (ITRC, 2020). The processed soil was then submitted under chain of custody to Frontier Analytical Laboratory (Frontier) of El Dorado Hill, California, for chemical analysis.

3.1.2 Composite Sampling (6- to 12-inch bgs intervals)

Each of the original five DUs were subdivided into two sub-DUs (i.e., front yard, backyard) for composite sampling at the deeper intervals. Each composite sample comprised five discrete soil increments (similar to ISM sampling) collected from 6 to 12 inches bgs. For each sub-DU, the total surface soil area was divided into five areas of approximately equal size. Composite sample increments were collected from near the center of each area.

The composite soil samples within each DU were collected using the same tooling and sampling procedures as described for ISM sampling. Surface vegetation, debris, and the top 6 inches of soil were completely removed using a decontaminated stainless steel hand trowel. Loose debris and soil from the top 6 inches of soil were fully removed to prevent sluffing and cross-contamination of the lower 6-inch sample increment. The 6- to 12-inch sample depth interval was then collected and placed in a large stainless-steel bowl for field homogenization. An aliquot of the soil sample was then placed in a laboratory-supplied 1-liter glass sample container. All aliquots from each composite increment were of equal volume and were placed in a single sample container, with total volume sufficient to fill the 1-liter sample container.

Composite samples were submitted under chain of custody to Pace Analytical National (Pace) of Mt. Juliet, Tennessee, for ISM processing (pulverizing and homogenizing sample material) and chemical analysis under Price Agreement #8903 with the State of Oregon.

3.1.3 Analytical Results

Soil samples were submitted to Frontier and Pace and analyzed for PCDD/F by EPA Method 1613B. Total TCDD TEQ was calculated using World Health Organization's (WHO's) 2005 summation rules (see Section 4.1). CUL decision concentrations have been determined to be 40 pg/g, as discussed in Section 2.4. A summary of TCDD TEQ values and CUL exceedances is provided in Table 2. Complete analytical results are presented in Table A-1 in Appendix A.

Table 2. Total TCDD TEQ June 2022

Decision Unit	Sample Interval (inches bgs)	TCDD TEQ (pg/g)
DU-09	0–6	30.9
DU-09A	6–12	18.0
DU-09B	6–12	62.3
DU-10[1]	0–6	62.2
DU-10A	6–12	27.6
DU-10B	6–12	30.9
DU-11 (front yard only)[1]	0–6	116
DU-11 (backyard only)	0–6	60.4
DU-11A	6–12	35.1
DU-11B	6–12	32.9
DU-14	0–6	14.9
DU-14A	6–12	11.0
DU-14B	6–12	10.3
DU-15[1]	0–6	67.7
DU-15A	6–12	26.2
DU-15B	6–12	19.8

Notes

Yellow highlighted cells indicate TCDD TEQ concentration above 40 pg/g.

[1] Sample collected in September 2021 during Baxter-funded investigation.

bgs = below ground surface DU = decision unit pg/g = picograms per gram

TCDD = 2,3,7,8-tetrachlorodibenzo-p-dioxin TEQ = toxicity equivalence quotient

The results of the June 2022 investigation indicated that additional soil data was required to fully delineate the vertical extent of PCDD/F contamination to the RBSL threshold. Additional data needs prompted a supplemental investigation to be performed in April 2023. Results from DU-14 indicate no early RA was required and further investigation was not performed in this DU.

3.2 April 2023 Supplemental Offsite Investigation

DU-09, DU-10, DU-11, and DU-15 were carried forward to the supplemental offsite investigation based on the soil results summarized above. Additionally, DUs step out (SO) -06 ([redacted] Baxter Street), SO-07 ([redacted] Baxter Street), and Alva Park (AP) -01 ([redacted] Alva Park Drive) were also identified as having surface soil TCDD TEQ concentration above 40 pg/g through the 2022 EPA sampling program. EPA sampling design was to collect soil samples to 6 inches bgs only in order to maximize the number of properties initially screened. Based on the results of EPA's initial efforts, these three DUs were added to the DEQ 2023 supplemental investigation. The individual sample locations collected per DU during the April 2023 investigation are presented on the figures included in Appendix D.

The purpose of the supplemental offsite investigation was to determine the vertical extent and magnitude of PCDD/F concentrations in shallow soil in properties north of the Baxter facility to support future removal depth requirements during the RA.

Separately, the supplemental investigation included characterization of trees and shrubs within DUs where RA is anticipated to determine the potential impacts RA may have on viability. To support this assessment, consultation with a certified arborist was conducted to identify vegetation that may be at risk during RA and develop procedures and mitigation measures for critical root structure protection within affected properties.

3.2.1 Push Probe Soil Collection

GSI subcontracted with BB&A Associates (BB&A) of Eugene, Oregon, to complete shallow push probe activities. BB&A is an Oregon-licensed driller in accordance with Oregon Water Resources Department regulations (Oregon Administrative Rule 690-240). BB&A mobilized a direct push drill rig and electric jackhammer with probe attachment to complete 10 direct push cores (five cores for each of the two sub-DUs) on each property for composite sample collection. A GSI representative was present to observe and document the direct push activities and subsurface conditions.

Each property was divided into two sub-DUs (i.e., front yard, backyard) matching the June 2022 sampling approach for composite sampling. Composite samples consisted of five individual aliquots. The total surface area of each sub-DU was divided into five sample areas of approximately equal size, where one sample aliquot was obtained from each of the five areas. The sample location of each aliquot was generally located near its center. All cores were drilled to 3 feet bgs.

3.2.2 Composite Sampling

The objective of composite sampling was to determine the concentrations of PCDD/F at various depth intervals within each sub-DU. Each composite sample consisted of combining aliquots of soil from five individual sample locations representing the sub-DU within depth zones. Composite sample depth intervals included soil from 0.5 to 1 foot bgs from EPA-identified DUs only (SO-06, SO-07, and AP-01), and from 1 to 1.5 feet, 1.5 to 2 feet, 2 to 2.5 feet, and 2.5 to 3 feet bgs in all DUs identified for the 2023 supplemental offsite investigation. Aliquots for each 6-inch depth composite were collected by removing soil from direct push cores obtained by the drilling subcontractor within the identified discrete intervals. The aliquots were then placed in a labeled, laboratory-supplied sample containers specific to each depth interval. All aliquots from each composite increment were of equal volume and were placed in a single sample container, with total volume sufficient to fill the 1-liter sample container.

Composite samples were submitted under chain of custody to Pace for ISM processing and chemical analysis under Price Agreement #8903 with the State of Oregon. Upon receipt at the laboratory, Pace performed ISM laboratory homogenization methodology prior to analysis.

3.2.3 Analytical Results

Soil samples were submitted to Pace for PCDD/F analysis by EPA Method 1613B. Total TCDD TEQ was calculated using WHO's 2005 summation rules (Van den Berg et al., 2006). A summary of TCDD TEQ data from the April 2023 investigation is provided in Table 3. Because each of the DUs investigated in the April 2023 offsite investigation have qualified for early action, the table below indicates exceedance of DEQs Risk-Based Concentrations for direct contact (4.7 pg/g) that is used to determine the depth of soil removal. Complete analytical results are presented on Table A-1 in Appendix A.

Table 3. Total TCDD TEQ April 2023

Decision Unit	Sample Interval (inches bgs)	TCDD TEQ (pg/g)
DU-09A	12–18	11.4
	18–24	1.60
DU-09B	12–18	15.4
	18–24	3.89
DU-10A	12–18	4.81
	18–24	1.85
DU-10B	12–18	1.94
	18–24	2.00
DU-11A	12–18	4.76
	18–24	6.49
	24–30	2.94
	30–36	1.03
DU-11B	12–18	1.24
	18–24	0.707
DU-15A	12–18	1.99
	18–24	1.52
DU-15B	12–18	1.95
	18–24	0.729
SO-06[1]	0–6	124
SO-06A	6–12	1.19
	12–18	0.533
SO-06B	6–12	3.48
	12–18	0.678
	18–24	0.423
SO-07[1]	0–6	18.6
SO-07A	6–12	5.01
	12–18	1.39
SO-07B	6–12	4.69
	12–18	1.40
AP-01[1]	0–6	27.6
AP-01A	6–12	0.905
	12–18	0.599
AP-01B	6–12	3.78
	12–18	0.803

Notes

Yellow highlighted cells indicate TCDD TEQ concentration above 4.7 pg/g.

[1] Sample collected by EPA in November 2022.

AP = Alva Park bgs = below ground surface DU = decision unit pg/g = picograms per gram

SO = step out TCDD = 2,3,7,8-tetrachlorodibenzo-p-dioxin TEQ = toxicity equivalence quotient

3.2.4 Arborist Consultation

Established trees and their associated critical root structures are expected to be encountered on all or nearly all properties where RA is anticipated. This includes root structures from trees located on neighboring properties and from trees within the City of Eugene (City) right-of-way (ROW). The City has a municipal code designed to protect existing ROW trees and critical root structures during development activities. Depending on how RA activities are classified by the City and whether trees within the ROW are affected, the level of protection and planning may differ. GSI subcontracted with an International Society of Arboriculture-certified arborist, Spade Tree Preservation, of Brownsville, Oregon, to identify trees that may require protective measures and best management practices to minimize impacts to established vegetation that will remain during the RA.

Spade Tree Preservation prepared outlined procedures the earthwork contractor should take during RA to protect existing trees while removing as much soil as possible from removal areas. The arborist also outlined backfill requirements and completed an International Society of Arboriculture Basic Tree Risk Assessment Form for each potentially affected tree within a DU.

SECTION 4: **Data Screening**

All PCDD/F results from the 2022 and 2023 investigations completed by GSI, historical offsite investigation results, and initial EPA data collected from current offsite investigation DUs are included in Table A-1 in Appendix A. An evaluation of the results was performed by GSI with input from DEQ, as described below.

4.1 TCDD TEQ Calculation

TCDD TEQ values are used as screening criteria to evaluate risk from PCDD/F exposure. The WHO has provided standardized guidance on how to calculate a TCDD TEQ value. DEQ has determined that the WHO's 2005 TCDD TEQ criteria (Van den Berg et al., 2006) is the most appropriate summation approach to be used for TEQ calculations.

Individual PCDD/F congener data were reported by the analytical laboratory for 17 congeners. The TCDD TEQ was calculated using the WHO's summation rules. The TCDD TEQ calculation assigns toxicity equivalency factor (TEF) to each individual PCDD/F congener. The detected values of the individual congeners are multiplied by their TEF and summed together to calculate the TCDD TEQ. The TEF values for individual congeners are shown in Table A-1 in Appendix A.

Individual congeners that were reported as non-detect by the laboratory are represented in the TCDD TEQ calculation by using half of the estimated detection limit, which is presented in the laboratory report. Concentrations above the laboratory detection limit but below the laboratory method reporting limit (MRL), are estimate (i.e., J-flagged). In some instances, matrix interference resulted in concentrations being estimated and biased high (i.e., J+-flagged). Where these qualifiers exist for individual congeners, the qualifier is also applied to the total TCDD TEQ value.

4.2 Screening Levels

DEQ used a CUL of 40 pg/g TCDD TEQ, as derived by OHA. The 40 pg/g value was used to evaluate all shallow soil results and determine if RA would be prioritized for the property. After a DU was selected for RA, the complete set of data from the DU was used to determine the total depth of removal. DEQ's RBSL for TCDD TEQ of 4.7 pg/g was used to determine the total depth of the RA removal. The maximum total depth of soil removal considered was 3 feet bgs, as that is seen as the zone of potential exposure for residential receptors (DEQ, 2017a).

4.3 RA Depths

Seven DUs have been identified for inclusion in the initial RA with soil concentrations at or above 40 pg/g TCDD TEQ within at least one depth interval analyzed in samples from 2020 to 2022. These seven properties were then included in the supplemental offsite investigation in April 2023 to determine total depth of soil removal. The soil removal depths for each DU, presented on Figure 2, are as follows:

- 6-inch soil removal will occur at SO-06 ([redacted] Baxter Street) in both the front and backyard, SO-07 ([redacted] Baxter Street) in the backyard, and AP-01 ([redacted] Park Drive) in both the front and backyard.
- 12-inch soil removal will occur at DU-10 ([redacted] Baxter Street) in the backyard, DU-11 ([redacted] Baxter Street) in the backyard, DU-15 ([redacted] Baxter Street) in both the front and backyard, and SO-07 ([redacted] Baxter Street) in the front yard.
- 18-inch soil removal will occur at DU-09 ([redacted] Baxter Street) in both the front and backyard, and DU-10 ([redacted] Baxter Street) in the front yard.

- 24-inch soil removal will occur at DU-11 ([redacted] Baxter Street) in the front yard.

4.4 Quality Assurance/Quality Control

Soil samples were collected and analyzed in accordance with DEQ's Quality Assurance Project Plan (QAPP) for EPA Preliminary Assessment/Site Inspection investigations (DEQ, 2017b). The QAPP presents quality objectives and procedures for sampling and analysis of sites that involve DEQ funding.

Data Quality Objectives. The data quality and quality assurance objectives for the offsite investigations were used to develop and implement procedures for obtaining and evaluating data of a specified quality, which could then be used to determine the magnitude and extent of contamination and evaluate risks posed to human health. To collect such information, analytical data required an appropriate degree of accuracy and reproducibility, samples collected needed to be representative of actual field conditions, and samples needed to be collected and analyzed using unbroken chain-of-custody procedures.

Field Quality Assurance/Quality Control (QA/QC). Disposable or decontaminated sampling equipment were used to the extent practicable to minimize or eliminate cross-contamination. Samples were labeled with sample-specific identifying information and chain of custody was maintained at all times.

For precision, the QAPP requires field duplicate samples be collected at a frequency of at least 1 for every 20 samples analyzed. The duplicates are then compared to the primary sample to determine the precision of the analytical results. For concentrations or measurements that are five times greater than the MRL, the control limit for field duplicate samples is set as relative percent difference of +/- 50 percent for organic solid compounds. For concentrations or measurements less than five times greater than the MRL, the control limits are set at a difference no greater than twice the absolute value of the difference. QA/QC samples are shown on Table A-2 in Appendix A.

To determine representativeness of sample results, the QAPP requires equipment blank samples (also referred to as rinsate blanks) to be collected at a frequency of at least 1 for every 20 samples analyzed. The blank sample results are compared to samples collected from the same sampling event to determine whether insufficient decontamination procedures may have resulted in cross-contamination of samples. Analytes in the equipment blank should be below the MRL or any detections should be less than 10 percent of the lowest concentration identified in any sample.

During the June 2022 offsite investigation, duplicate and triplicate samples were collected from DU-11 at the 0- to 6-inch depth interval. These duplicate samples were processed and analyzed by the same procedures as the primary sample. The results of the duplicate and triplicate samples were within the QAPP parameters for field duplicates and therefore representative according to the QAPP (Table A-2 in Appendix A). In June 2022, an equipment blank was obtained using laboratory supplied deionized water passing over decontaminated auger equipment and collected for analysis of PCDD/Fs. Low-level detections of certain PCDD/F congeners were reported in the equipment blank sample. These results are below 10 percent of the lowest detection in any sample from the same event. As such, the samples are representative.

In April 2023, a duplicate sample was collected and analyzed from DU-10A at the 12- to 18-inch depth interval and from DU-06A at the 18- to 24-inch depth interval. These duplicate samples were processed and analyzed by the same procedures as the primary sample. The results of the duplicate samples were within the QAPP parameters for field duplicates and therefore representative according to the QAPP (Table A-2 in Appendix A). Two equipment blanks were obtained using laboratory supplied deionized water passing over decontaminated push probe equipment and collected for analysis of PCDD/Fs. Low-level detections of certain PCDD/F congeners were reported in the equipment blank samples. These results are below

10 percent of the lowest detection in any sample from the same event. As such, the samples are representative.

Laboratory QA/QC. The laboratory also performed QC analyses (e.g., matrix spikes and method blanks) per the requirements of the analytical method. Detection limits were consistent with industry standards and, when practicable, below or comparable to promulgated regulatory standards, unless raised due to high analyte concentrations in the sample or matrix effects.

Data Validation. GSI conducted Stage 2A/B Data Validation on laboratory reports to confirm data usability. The results of the data validation are included in Appendix B for each of the laboratory reports. The laboratory provided an estimated maximum possible concentrations (EMPCs) for congeners where the ion abundance ratio was out of specifications and where polychlorinated diphenyl ether was present, These EMPCs were flagged by GSI's data validation review as estimated values that are biased high (J+). J+-flagged concentrations were used in the TCDD TEQ calculation, with the resultant TCDD TEQ calculation also flagged as J+.

SECTION 5: **Recommendations**

The findings from the offsite investigations determined where RA is required, determined the depth of soil removal on each DU included for RA, and identified protective measures for trees and/or shrubs during the RA. Additional RA recommendations are also discussed below.

5.1 Soil Removal Depth

The recommended soil removal depths, shown in Figure 2, were determined from the analytical results from data collected over multiple investigations. In general, deeper soil removal is required from properties closer to the Baxter facility. The deepest soil removal will occur at DU-11 in the front yard and southern portion of the backyard where 24 inches of soil will be removed and replaced with clean soil.

DU-09 and DU-10 are also the along the southern-most offsite properties and closest to the Baxter facility. At these locations, 18 inches of soil will be removed and replaced. From the analytical results, only 12 inches of soil will be removed from the backyard of DU-10.

The northern portion of DU-11 backyard, DU-15, and the southern portion of SO-07 will also require 12 inches of soil removal. These DUs are adjacent to each other along the east side of Baxter Street.

The northern portion of SO-07 (backyard) will require 6 inches of soil removal. DUs SO-06 and AP-01 will also require 6 inches of soil removal. These are the northernmost DUs identified for RA and furthest from the Baxter facility.

5.2 Import Soil

Clean topsoil will be imported to replace the top 6 to 12 inches of soil removed for the RA. For deeper soils, another clean fill soil source will be identified and imported. Commercially available topsoil and clean fill sources were tested for PCDD/F prior to implementing the RA. The results of the source soil sampling will be included in the Offsite Removal Action Construction Completion Report.

5.3 Vegetation Removal

The Arborist Reports (Appendix E) outlines which trees were recommended for removal from properties and whether tree removal should occur before or during RA due to a high risk of tree death or instability resulting from soil excavation. Of 44 trees assessed in the report, 16 trees were recommended for removal. These include smaller trees with deformities or poor placement, as well as larger varieties, including Coast redwood (*Sequoia sempervirens*), Eastern black walnut (*Juglans nigras*), and Douglas fir (*Pseudotsuga menziensii*). Shrubs were also evaluated in the Arborist Reports in Appendix E. The arborist declined to recommend action on three trees three were identified to be within the City ROW. These three trees will be protected during the RA.

5.4 Vegetation Protection

Spade Tree Preservation determined the procedures necessary to keep trees and shrubs where possible, as outlined in the Arborist Reports (Appendix E). Sixteen of 44 trees assessed and several shrubs were deemed appropriate for transplantation. This would involve removing the plant by digging out the entire root ball, shaking out excess root ball soil, potting the specimen after removal, and either replanting following the RA, or keeping the plant potted until the optimal planting season (fall or winter). For the 9 trees recommended to be kept in the ground during the RA and 3 trees within the City ROW, root structures should be protected from heavy equipment by excavating using an air knife or via hand removal within the critical root zone of the tree. The root systems shall be kept moist, and soil under trees shall not be removed greater than 12 inches for structural safety purposes.

5.5 City ROW RAs

Each DU where RA is proposed is adjacent to an unpaved portion of City ROW. The ROW was not included in the offsite investigation and consultation with the City will be required to determine the necessary actions that are amenable by the City. Options include, but are not limited to, removing soil between the DUs and the paved roadway to at least 6 inches and replacing this area with imported gravel or topsoil.

SECTION 6: **References**

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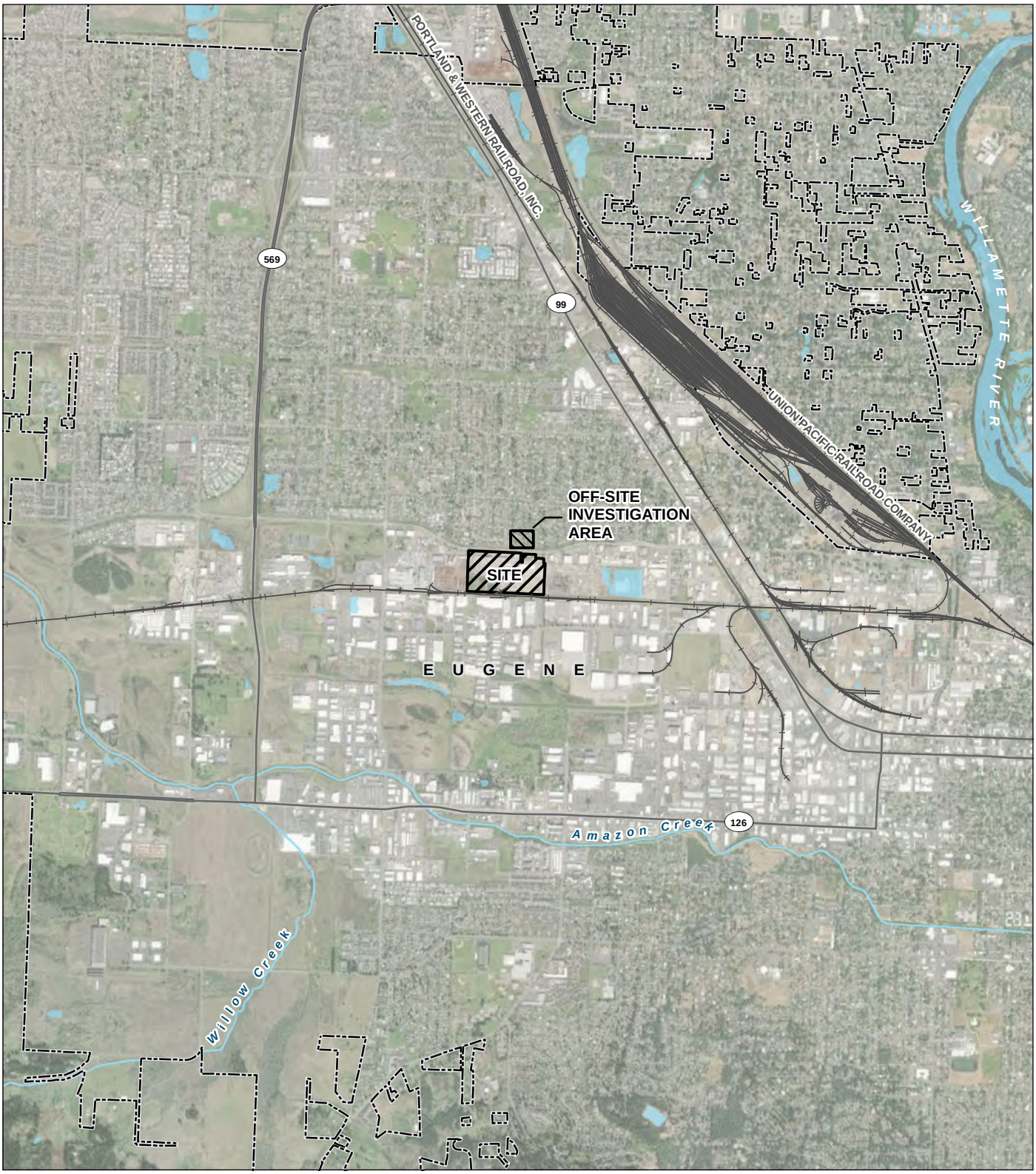
Figures



LEGEND

- City Boundary
- Railroad
- Major Road
- Watercourse
- Waterbody

Date: January 10, 2023
Data Sources: BLM, ESRI, ODOT, USGS, Maxar Imagery (2021), City of Eugene

FIGURE 1

Site Vicinity Map

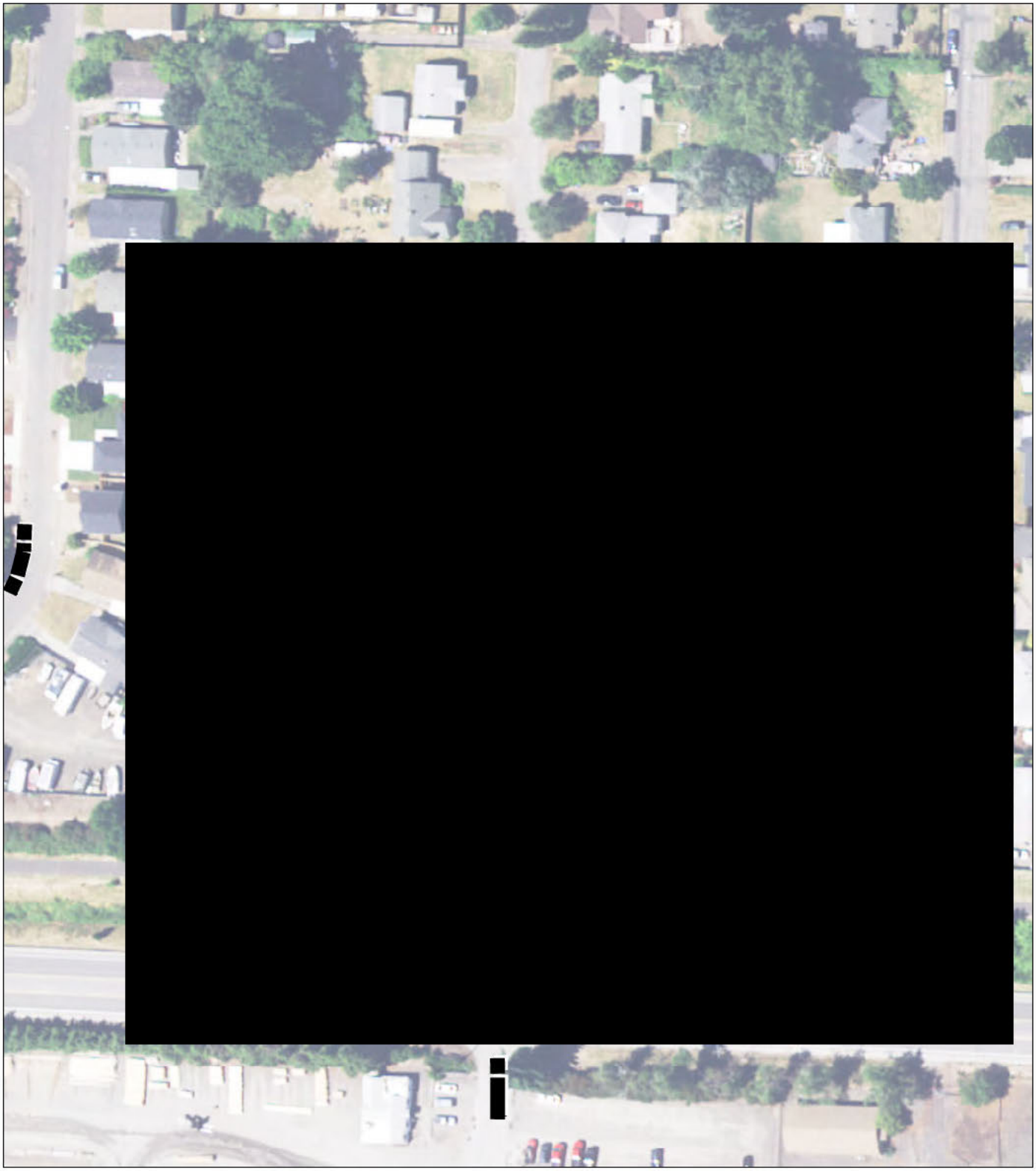
Former JH Baxter & Co. Facility
Offsite Investigation
Eugene, OR

N

0 1,000 2,000 3,000
Feet

GSI Water Solutions, Inc.

Document Path: Y:\0205_OR_DEQ\Source_Figures\041_JH_Baxter_Removal_Action_Planning\005_JH_Baxter_RA_WorkPlan\Removal_Action\Figure1_Vicinity_Map.mxd, abarry



LEGEND

Decision Unit

Surface Soil Removal Depth

- 6-inch
- 12-inch
- 18-inch
- 24-inch

Date: May 30, 2023
Data Sources: BLM, ESRI, ODOT, USGS, Aerial Photo 2019, City of Eugene

FIGURE 2

Soil Removal Depths
Former JH Baxter & Co. Facility
Offsite Investigation
Eugene, OR

N

0 50 100
Feet

GSI Water Solutions, Inc.

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APPENDIX A

Data Tables

Table A-1. Soil Chemical Data - Dioxins/Furans
Offsite Investigation Report
Former JH Baxter & Co. Facility
Eugene, Oregon

Sample Decision Unit	Laboratory Sample Designation	QC Sample Type	Sample Date	Sample Depth (feet)	Compound pg/g																	
					1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	GSI Total Dioxin TEQ (U=0) 2020	GSI Total Dioxin TEQ (U=1/2) 2020
				TCDD TEQ Factor	0.01	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	1	0.03	0.1	0.3	1	0.1	0.0003	0.0003	–	–
				Oregon Health Authority Early Action Screening Level	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	40	40
				Oregon DEQ RBC for Direct Contact by Residential Receptors	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.7	4.7
DU-09																						
DU-09	ISM-009_0622	Primary	6/20/2022	0.0-0.5	**644**	**222**	**10.8**	**8.97**	**11.2**	**25.2**	**8.02**	**16.9**	**1.89 J**	**5.21**	**1.09 J**	**9.00**	**2.44 J**	**6.23**	**0.529**	**4930**	**907**	**30.9 J**	**30.9 J**
DU-09A	COMP-09A_0622	Primary	6/20/2022	0.5-1.0	**230 J**	**68.0 J**	**4.30 J**	**3.40 J**	**5.40 J**	**9.10 J**	**3.60 J+**	**6.00 J**	**1.40 J**	**1.80 J**	**0.650 J**	**3.00 J**	**1.30 J**	**9.10 J-**	**0.370 J**	**2400 J**	**250 J**	**18.4 J**	**18.4 J**
DU-09A	DU-09A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**210**	**160 J+**	**4.50 J**	**2.20 J**	**4.30 J**	**6.50**	**1.20 J+**	**3.70 J**	**0.920 J**	**0.940 J**	0.630 U	**2.30 J**	**0.840 J+**	**4.80**	0.430 U	**3900**	**420**	**13.1 J+**	**13.2 J+**
DU-09A	DU-09A-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**46.0**	**28.0 J+**	**0.810 J**	**0.640 J**	**0.870 J**	**1.30 J**	**1.20 J+**	**1.000 J**	0.260 U	0.240 U	0.350 U	**0.450 J**	0.240 U	0.510 U	0.340 U	**680**	**68.0**	**1.52 J+**	**1.96 J+**
DU-09B	COMP-09B_0622	Primary	6/20/2022	0.5-1.0	**1200**	**540**	**27.0**	**22.0**	**16.0**	**55.0**	**42.0 J+**	**44.0**	**3.40 J**	**15.0**	**1.80 J**	**19.0**	**3.60 J**	**8.50**	**0.730 J**	**11000**	**2300**	**66.5 J+**	**66.5 J+**
DU-09B	DU-09B-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**320**	**240 J+**	**8.50**	**5.60**	**7.90**	**15.0**	**1.80 J+**	**8.80**	**1.40 J+**	**2.70 J**	**0.820 J**	**4.90 J**	**1.50 J**	**3.70**	0.460 U	**2700**	**470**	**18.1 J+**	**18.1 J+**
DU-09B	DU-09B-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**75.0**	**44.0 J+**	**1.20 J**	**1.50 J**	**1.20 J+**	**3.10 J**	**0.390 J+**	**2.10 J+**	**0.540 J**	**0.640 J+**	0.280 U	**0.740 J+**	0.240 U	**2.00**	0.310 U	**720**	**83.0**	**5.04 J+**	**5.10 J+**
DU-10																						
DU-10 *	ISM-DU-10-0921 *	Primary	9/22/2021	0.0-0.5	**1110**	**313**	**20.1**	**14.0**	**25.3**	**41.0**	**9.87**	**24.0**	**4.93**	**7.43**	**2.70 J**	**12.2**	**6.39**	**22.0**	**1.35**	**9100 J+**	**1100**	**62.3 J+**	**62.3 J+**
DU-10A	COMP-10A_0622	Primary	6/21/2022	0.5-1.0	**360 J**	**71.0 J**	**4.20 J**	**4.10 J**	**3.10 J**	**13.0 J**	**5.00 J+**	**8.40 J**	**1.10 J**	**2.50 J**	**0.600 J**	**2.90 J**	**1.20 J**	**16.0 J-**	**0.510 J**	**3100 J**	**240 J**	**28.0 J**	**28.0 J**
DU-10A	DU-10A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**71.0**	**26.0 J+**	**1.40 J**	**0.900 J**	**1.20 J**	**2.50 J**	**0.230 J**	**1.70 J**	0.250 U	**0.430 J**	0.130 U	**0.560 J+**	0.0820 U	**2.70**	0.120 U	**740**	**79.0**	**5.07 J+**	**5.10 J+**
DU-10A	DU-110A-1.0-1.5_0423	Duplicate	4/5/2023	1.0-1.5	**91.0 J**	**28.0 J**	**1.90 J**	**0.650 J+**	**1.20 J**	**2.30 J**	**2.20 J+**	**1.60 J**	**0.390 J+**	**0.270 J+**	0.460 UJ	**0.400 J+**	**0.400 J**	**1.20 J+**	0.390 UJ	**1100 J**	**120 J**	**4.04 J+**	**4.07 J+**
DU-10A	DU-10A-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**29.0**	**9.70 J+**	0.330 U	**0.480 J+**	**0.310 J+**	**1.000 J**	**0.350 J**	**0.620 J**	0.130 U	**0.170 J+**	0.0810 U	**0.300 J**	0.0560 U	**1.10**	0.200 U	**340**	**23.0**	**2.07 J+**	**2.10 J+**
DU-10B	COMP-10B_0622	Primary	6/21/2022	0.5-1.0	**480 J**	**200 J**	**9.50 J**	**4.20 J**	**7.60 J**	**29.0 J**	**9.80 J+**	**10.00 J**	**2.10 J**	**2.30 J**	**0.800 J**	**6.70 J**	**1.70 J**	**14.0 J-**	**0.430 J**	**3300 J**	**570 J**	**31.9 J**	**31.9 J**
DU-10B	DU-10B-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**55.0**	**32.0 J+**	**0.980 J**	**0.780 J**	**0.920 J**	**1.80 J**	**0.300 J+**	**1.40 J**	**0.390 J+**	**0.250 J+**	0.200 U	**0.750 J**	**0.250 J+**	**0.560 J+**	0.330 U	**580**	**71.0**	**2.59 J+**	**2.61 J+**
DU-10B	DU-10B-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**34.0**	**19.0 J+**	**0.520 J+**	**0.630 J+**	**0.420 J**	**1.40 J**	**0.310 J+**	**1.10 J**	**0.350 J+**	**0.260 J+**	0.170 U	**0.380 J+**	0.110 U	**0.990 J**	0.170 U	**340**	**40.0**	**2.36 J+**	**2.39 J+**
DU-11																						
DU-11 *	ISM-DU-11-0921 *	Primary	9/23/2021	0.0-0.5	**947**	**132**	**8.11**	**10.3**	**8.10**	**29.6**	**4.28 J**	**16.2**	**1.87 J+**	**4.87 J**	**2.01 J**	**5.80**	**2.58 J**	**89.6**	**1.94**	**7740 J+**	**356**	**117 J+**	**117 J+**
DU-11	ISM-011_0622	Primary	6/21/2022	0.0-0.5	**1380**	**295**	**21.2**	**11.6**	**71.4**	**53.0**	**17.4**	**24.1**	**11.7**	**4.97**	**3.98**	**23.0**	**18.6**	**8.08**	**1.33**	**10600**	**548**	**60.4**	**60.4**
DU-11	ISM-111_0622	Duplicate	6/21/2022	0.0-0.5	**1430**	**283**	**20.4**	**11.4**	**71.1**	**53.9**	**17.3**	**23.3**	**11.8**	**5.24**	**3.79**	**21.9**	**18.3**	**7.35**	**1.35**	**11000**	**512**	**60.2**	**60.2**
DU-11	ISM-211_0622	Triplicate	6/21/2022	0.0-0.5	**1110**	**244**	**16.7**	**9.37**	**57.4**	**43.1**	**14.1**	**18.5**	**9.46**	**4.00**	**3.12**	**18.6**	**14.2**	**5.85**	**1.06**	**8590**	**458**	**47.8**	**47.8**
DU-11A	COMP-11A_0622	Primary	6/21/2022	0.5-1.0	**370 J**	**55.0 J**	**3.00 J**	**4.30 J**	**3.40 J**	**14.0 J**	**5.90 J+**	**8.00 J**	**1.10 J**	**2.00 J**	**0.540 J**	**2.50 J**	**1.20 J**	**24.0 J-**	**0.440 J**	**3500 J**	**150 J**	**35.7 J**	**35.7 J**
DU-11A	DU-11A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**37.0**	**5.70**	0.490 U	**0.340 J+**	**0.560 J+**	**1.20 J**	**0.830 J+**	**0.850 J**	**0.280 J+**	0.220 U	0.310 U	0.310 U	0.230 U	**3.70**	0.280 U	**450**	**20.0**	**4.67 J+**	**4.86 J+**
DU-11A	DU-11A-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**79.0**	**24.0**	**2.40 J**	**0.860 J**	**5.70**	**2.60 J**	**2.60 J+**	**1.40 J**	**1.20 J**	**0.480 J**	0.520 U	**1.50 J+**	**1.60 J**	**2.90**	0.590 U	**830**	**59.0**	**6.77 J+**	**6.80 J+**
DU-11A	DU-11A-2.0-2.5_0423	Primary	4/4/2023	2.0-2.5	**43.0**	**6.70**	0.290 U	**0.590 J**	**0.910 J**	**1.50 J**	**0.380 J**	**0.950 J**	**0.210 J+**	0.380 U	0.210 U	**0.390 J**	0.230 U	**1.60**	0.240 U	**390**	**21.0**	**2.71 J+**	**2.95 J+**
DU-11A	DU-11A-2.5-3.0_0423	Primary	4/4/2023	2.5-3.0	**20.0**	**2.70 J+**	0.510 U	0.390 U	**0.370 J+**	**0.620 J+**	0.280 U	**0.500 J**	0.310 U	0.570 U	0.310 U	0.310 U	0.320 U	0.560 U	0.250 U	**170**	**8.30 J**	**0.429 J+**	**1.13 J+**
DU-11B	COMP-11B_0622	Primary	6/21/2022	0.5-1.0	**590**	**140**	**11.0**	**8.20**	**24.0**	**25.0**	**7.00**	**14.0**	**5.00 J**	**3.90 J**	**1.80 J+**	**10.00**	**6.80**	**8.40**	**1.10**	**5300**	**330**	**32.9 J+**	**32.9 J+**
DU-11B	DU-11B-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**27.0**	**7.40**	0.590 U	0.380 U	**1.50 J**	**0.700 J+**	**0.790 J**	**0.450 J+**	0.280 U	0.260 U	0.440 U	**0.340 J+**	**0.420 J**	0.310 U	0.470 U	**300**	**16.0**	**0.943 J+**	**1.29 J+**
DU-11B	DU-11B-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**15.0**	**2.80 J**	0.380 U	0.400 U	**0.460 J**	**0.440 J**	**0.370 J+**	**0.390 J**	0.260 U	0.190 U	0.250 U	0.190 U	0.170 U	**0.180 J+**	0.210 U	**160**	**7.40 J**	**0.574 J+**	**0.753 J+**
DU-14																						
DU-14	ISM-014_0622	Primary	6/20/2022	0.0-0.5	**460**	**78.2**	**3.62**	**4.86**	**2.48**	**14.8**	**2.06 J**	**8.51**	**0.901 J**	**2.34 J**	**0.745 J**	**2.98**	**1.22 J**	**1.70**	**0.616**	**4200**	**295**	**14.9 J**	**14.9 J**
DU-14A	COMP-14A_0622	Primary	6/20/2022	0.5-1.0	**300**	**59.0**	**3.30 J**	**3.90 J**	**1.60 J**	**11.0**	**1.60 J**	**7.10**	**0.780 J**	**1.80 J**	**0.630 J**	**2.40 J**	**0.950 J**	**1.30**	**0.470 J+**	**3300**	**270**	**11.0 J+**	**11.0 J+**
DU-14B	COMP-14B_0622	Primary	6/20/2022	0.5-1.0	**240**	**55.0**	**4.10 J**	**4.10 J**	**2.10 J**	**10.00**	**2.90 J**	**6.90**	**0.750 J**	**2.10 J**	**0.540 J+**	**2.60 J**	**0.890 J+**	**1.40**	**0.430 J+**	**2500**	**230**	**10.6 J+**	**10.6 J+**
DU-15																						
DU-15 *	ISM-DU-15-1021 *	Primary	10/4/2021	0.0-0.5	**1260**	**267**	**23.8**	**13.0**	**75.6**	**47.9**	**18.4**	**21.8**	**14.0**	**6.82**	**5.28**	**23.7**	**18.1**	**14.9**	**2.38**	**10200 J+**	**392**	**67.9 J+**	**67.9 J+**
DU-15 *	ISM-DU-115-1021 *	Duplicate	10/4/2021	0.0-0.5	**1650**	**422**	**39.7**	**17.2**	**146**	**72.8**	**34.5**	**30.8**	**26.5**	**9.11**	**8.45**	**41.3**	**34.3**	**13.9**	**2.94**	**13400 J+**	**476**	**96.3 J+**	**96.3 J+**
DU-15 *	ISM-DU-215-1021 *	Triplicate	10/4/2021	0.0-0.5	**1110**	**277**	**27.3**	**12.0**	**96.3**	**46.4**	**22.4**	**19.7**	**16.4**	**5.77**	**5.64**	**26.2**	**21.6**	**13.7**	**2.05**	**9170 J+**	**350**	**67.4 J+**	**67.4 J+**
DU-15A	COMP-15A_0622	Primary	6/21/2022	0.5-1.0	**350**	**57.0**	**3.90 J**	**5.00**	**3.60 J+**	**16.0**	**4.60**	**9.40**	**1.30 J**	**2.50 J**	**0.660 J+**	**3.40 J**	**1.60 J**	**14.0**	**0.660 J**	**3300**	**190**	**26.6 J+**	**26.6 J+**
DU-15A	DU-15A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**35.0**	**9.20 J+**	0.470 U	**0.630 J**	**0.400 J**	**1.60 J**	**0.500 J+**	**1.000 J**	**0.190 J**	**0.220 J+**	0.150 U	**0.300 J**	0.1000 U	**0.920 J**	0.140 U	**400**	**20.0**	**2.17 J+**	**2.20 J+**
DU-15A	DU-15A-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**25.0**	**6.60 J+**	**0.340 J+**	**0.540 J**	**0.340 J**	**0.830 J+**	**0.470 J+**	**0.710 J+**	0.170 U	**0.140 J**	0.180 U	0.230 U	0.130 U	**0.830 J**	0.200 U	**290**	**13.0**	**1.67 J+**	**1.72 J+**
DU-15B	COMP-15B_0622	Primary	6/21/2022	0.5-1.0	**330**	**63.0**	**4.40 J**	**4.80 J**	**5.70**	**15.0**	**2.80 J**	**8.80**	**1.60 J**	**2.20 J+**	**1.20 J**	**3.80 J**	**2.20 J**	**9.60**	**1.10**	**3200**	**230**	**21.9 J+**	**21.9 J+**
DU-15B	DU-15B-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**23.0**	**4.30 J**	0.290 U	**0.520 J**	**0.140 J+**	**0.830 J**	**0.530 J**	**0.540 J+**	0.260 U	0.160 U	0.230 U	**0.270 J**	0.120 U	**1.20**	0.280 U	**300**	**18.0**	**1.85 J+**	**1.98 J+**
DU-15B	DU-15B-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**13.0**	**2.00 J**	0.320 U	0.210 U	0.190 U	**0.390 J**	**0.360 J+**	**0.200 J**	0.150 U	0.150 U	0.170 U	0.170 U	0.110 U	**0.310 J**	0.200 U	**160**	**8.60 J**	**0.606 J+**	**0.747 J+**
SO-06																						
SO-06 **	JHB-15-WY-00-06-01 **	Primary	5/25/2022	0.0-0.5	**4980 JK**	**1340 JK**	**96.4 JK**	**27.7 JK**	**63.8 JK**	**120 JK**	**26.3 JK**	**58.3 JK**	**22.7 JK**	**9.44 JK**	**4.98 JK**	**32.7 JK**	**7.67 JK**	**1.36 JK**	**0.523 JK**	**30000 JK**	**7270 JK**	**124 J**	**124 J**
SO-06A	DU-06A-0.5-1.0_0423	Primary	4/5/2023	0.5-1.0	**32.0**	**12.0 J+**	**0.500 J+**	**0.540 J**	**0.300 J+**	**1.000 J+**	0.280 U	**0.800 J**	**0.260 J+**	**0.260 J**	0.200 U	**0.320 J**	0.120 U	0.450 U	0.260 U	**340**	**23.0**	**1.14 J+**	**1.41 J+**
SO-06A	DU-06A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**11.0**	**5.80 J+**	0.210 U	**0.330 J**	0.170 U	**0.500 J**	**0.330 J**	**0.250 J+**	0.160 U	0.130 U	0.120 U	0.180 U	0.0850 U	0.280 U	0.150 U	**130**	**11.0**	**0.351 J+**	**0.605 J+**
SO-06B	DU-06B-0.5-1.0_0423	Primary	4/5/2023	0.5-1.0	**95.0**	**27.0 J+**	**0.820 J**	**1.40 J**	**0.800 J**	**2.90 J**	0.110 U	**2.20 J**	**0.300 J+**	**0.880 J**	**0.310 J**	**0.730 J**	**0.280 J+**	**0.500 J**	0.160 U	**860**	**49.0**	**3.81 J+**	**3.82 J+**
SO-06B	DU-06B-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**18.0**	**5.10 J+**	0.210 U	**0.410 J+**	**0.140 J+**	**0.600 J**	**0.230 J+**	**0.490 J+**	**0.170 J+**	0.310 U	0.140 U	**0.180 J**	0.0930 U	0.260 U	0.110 U	**160**	**10.00**	**0.504 J+**	**0.812 J+**
SO-06B	DU-06B-1.5-2.0_0423	Primary	4/5/2023	1.5-2.0	**6.60**	**1.20 J**	0.400 U	**0.220 J**	**0.110 J+**	**0.190 J+**	0.110 U	**0.150 J+**	**0.180 J**	0.230 U	0.150 U	0.0910 U	0.160 U	0.210 U	0.140 U	**73.0**	**4.50 J**	**0.186 J+**	**0.452 J+**
SO-06B	DU-106B-1.5-2.0_0423	Duplicate	4/5/2023	1.5-2.0	**7.00**	**1.000 J**	0.210 U	**0.190 J+**	0.130 U	**0.180 J+**	0.110 U	**0.190 J+**	0.0880 U	0.280 U	0.170 U	0.1000 U	0.170 U	0.280 U	0.160 U	**62.0**	**4.00 J**	**0.156 J+**	**0.494 J+**
SO-07																						
SO-07 **	JHB-12-WY-00-06-01 **	Primary	5/24/2022	0.0-0.5	**626 JK**	**104 JK**	**4.72 JK**	**5.71 JK**	**6.43 JK**	**19.9 JK**	**3.54 JQK**	**9.91 JK**	0.438 UBJK	**3.13 JK**	**1.66 JQK**	**5.04 JK**	**3.86 JK**	**–**	**2.15 JK**	**5160 JK**	**392 JK**	**18.6 J**	**18.6 J**
SO-07A **	JHB-12-FY-00-03-02 **	Primary	5/24/2022	0.0-0.25	**520 JK**	**82.0 JK**	**4.30 JQK**	**7.00 JK**	**5.10 JQK**	**31.0 JK**	**4.20 JQK**	**13.0 JK**	0.440 UJK	**4.10 JQK**	**3.20 JQK**	**2.90 JQK**	**3.50 JQK**	**4.40 JK**	**6.10 JK**	**5200 JK**	**210 JK**	**24.3 J**	**24.3 J**
SO-07A **	JHB-12-FY-00-03-01 **	Primary	5/24/2022	0.0-0.25	**1700 JK**	**240 JK**	**13.0 JK**	**24.0 JK**	**13.0 JK**	**88.0 JK**	**11.0 JK**	**43.0 JK**	0.560 UJK	**12.0 JK**	**3.10 JQK**	**7.90 JK**	**3.20 JQK**	**3.40 JK**	**1.60 JK**	**12000 JK**	**540 JK**	**58.6 J**	**58.6 J**
SO-07A **	JHB-12-FY-00-03-03 **	Primary	5/24/2022	0.0-0.25	**3100 JK**	**400 JK**	**22.0 JK**	**31.0 JK**	**21.0 JK**	**140 JK**	**15.0 JK**	**63.0 JK**	1.000 UJK	**15.0 JK**	**7.20 JK**	**11.0 JK**	**7.90 JK**	**4.60 JK**	**6.10 JK**	**22000 JK**	**900 JK**	**93.0 J**	**93.0 J**
SO-07A	SU-07A-0.5-1.0_0423	Primary	4/5/2023	0.5-1.0	**190**	**35.0**	**2.00 J**	**2.10 J+**	**2.90 J**	**5.20 J+**	**2.90 J+**	**3.60 J**	**0.750 J+**	**1.20 J+**	**0.760 J**	**2.20 J**	**1.50 J**	**0.990 J+**	**0.940 J**	**1900**	**110**	**7.59 J+**	**7.59 J+**
SO-07A	SU-07A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**37.0**	**6.30**	**0.600 J**	**0.430 J+**	**0.450 J**	**1.10 J**	**0.630 J**	**0.580 J**	**0.340 J**	0.210 U	0.280 U	**0.360 J+**	**0.280 J**	**0.300 J+**	0.280 U	**390**	**23.0**	**1.34 J+**	**1.46 J+**
SO-07B **	JHB-12-BY-00-03-01 **	Primary	5/24/2022	0.0-0.25	**700 JK**	**180 JK**	**11.0 JK**	**8.40 JK**	**20.0 JK**	**37.0 JK**	**11.0 JK**	**17.0 JK**	0.560 UJK	**4.40 JQK**	**4.10 JQK**	**11.0 JK**	**7.60 JK**	**1.70 JK**	**3.10 JK**	**7200 JK**	**440 JK**	**30.5 J**	**30.5 J**
SO-07B **	JHB-12-BY-00-03-02 **	Primary	5/24/2022	0.0-0.25	**710 JK**	**140 JK**	**7.40 JK**	**8.20 JK**	**8.80 JK**	**35.0 JK**	**5.60 JQK**	**17.0 JK**	0.390 UJK	**4.40 JQK**	**1.90 JQK**	**4.70 JQK**	**2.80 JQK**	**1.70 JK**	**1.60 JK**	**7600 JK**	**390 JK**	**26.1 J**	**26.1 J**
SO-07B	SU-07B-0.5-1.0-0423	Primary	4/5/2023	0.5-1.0	**140**	**28.0**	**1.60 J**	**1.60 J+**	**1.80 J**	**4.60 J**	**3.00 J+**	**3.30 J**	**0.650 J+**	**0.800 J**	0.570 U	**1.80 J**	**0.810 J**	0.480 U	0.590 U	**1400**	**84.0**	**4.86 J+**	**5.14 J+**
SO-07B	SU-07B-1.0-1.5-0423	Primary	4/5/2023	1.0-1.5	**39.0**	**7.40**	0.780 U	**0.490 J+**	**0.290 J+**	**1.20 J**	**0.650 J+**	**0.850 J**	0.430 U	0.270 U	0.380 U	0.280 U	**0.260 J**	0.460 U	0.510 U	**380**	**25.0**	**1.01 J+**	**1.45 J+**
AP-01																						
AP-01 **	JHB-24-WY-00-06-01 **	Primary	5/24/2022	0.0-0.5	**233 JK**	**31.4 JK**	0.190 UBJK	**2.44 JQK**	**1.47 JQK**	**7.45 JK**	**1.22 JQK**	**4.66 JK**	0.217 UBJK	**1.50 JQK**	**0.487 JQK**	0.123 UBJK	**0.970 JQK**	**20.7 JK**	**0.493 JQK**	**2090 JK**	**104 JK**	**27.6 J**	**27.6 J**
AP-01A **	JHB-24-FY-00-03-01 **	Primary	5/24/2022	0.0-0.25	**390 JK**	**74.0 JK**	0.910 UJK	0.300 UJK	0.240 UJK	**19.0 JK**	0.240 UJK	**11.0 JK**	0.220 UJK	**3.00 JQK**	0.210 UJK	**2.50 JQK**	**1.000 JQK**	**6.70 JK**	0.170 UJK	**4000 JK**	**210 JK**	**19.2 J**	**19.2 J**
AP-01A **	JHB-24-FY-00-03-02 **	Primary	5/24/2022	0.0-0.25	**300 JK**	**57.0 JK**	0.520 UJK	0.200 UJK	0.220 UJK	**16.0 JK**	0.210 UJK	**8.40 JK**	0.230 UJK	**2.10 JQK**	0.180 UJK	**2.00 JQK**	**1.20 JQK**	**53.0 JK**	**1.60 JK**	**3000 JK**	**140 JK**	**62.8 J**	**62.8 J**
AP-01A	DU-01A-0.5-1.0_0423	Primary	4/5/2023	0.5-1.0	**21.0**	**6.60 J+**	0.240 U	**0.490 J+**	**0.150 J+**	**0.780 J**	**0.530 J**	**0.770 J+**	0.0960 U	**0.260 J**	0.140 U	**0.200 J**	0.0750 U	0.270 U	0.140 U	**220**	**11.0**	**0.897 J+**	**1.06 J+**
AP-01A	DU-01A-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**8.30**	**2.60 J+**	0.270 U	**0.190 J+**	0.130 U	**0.380 J**	0.130 U	**0.270 J**	**0.230 J+**	0.180 U	0.160 U	0.140 U	0.140 U	0.490 U	0.260 U	**83.0**	**3.80 J**	**0.242 J+**	**0.635 J+**
AP-01B **	JHB-24-BY-00-03-01 **	Primary	5/24/2022	0.0-0.25	**440 JK**	**87.0 JK**	1.30 UJK	0.310 UJK	0.410 UJK	**27.0 JK**	0.420 UJK	**14.0 JK**	0.420 UJK	**4.50 JQK**	0.390 UJK	**5.80 JQK**	**4.90 JQK**	**19.0 JK**	**5.40 JK**	**4500 JK**	**190 JK**	**36.9 J**	**37.0 J**
AP-01B **	JHB-24-BY-00-03-02 **	Primary	5/24/2022	0.0-0.25	**330 JK**	**58.0 JK**	1.20 UJK	0.140 UJK	0.220 UJK	**17.0 JK**	0.220 UJK	**9.00 JK**	0.200 UJK	**2.40 JQK**	0.210 UJK	**1.60 JQK**	**0.760 JQK**	**1.50 JK**	0.150 UJK	**3500 JK**	**170 JK**	**11.9 J**	**11.9 J**
AP-01B	DU-01B-0.5-1.0_0423	Primary	4/5/2023	0.5-1.0	**50.0**	**17.0 J+**	**0.600 J+**	**0.830 J+**	**0.910 J**	**2.30 J**	**0.800 J+**	**1.40 J+**	**0.430 J+**	**0.560 J**	0.480 U	**0.930 J**	**0.650 J**	**1.80**	0.710 U	**480**	**21.0**	**4.14 J+**	**4.18 J+**
AP-01B	DU-01B-1.0-1.5_0423	Primary	4/5/2023	1.0-1.5	**12.0**	**6.10 J+**	0.250 U	**0.230 J**	0.170 U	**0.440 J**	0.170 U	**0.200 J+**	0.180 U	0.0800 U	0.280 U	0.150 U	0.200 U	**0.430 J**	0.240 U	**160**	**11.0**	**0.749 J+**	**0.870 J+**

Notes

Bold concentrations indicate detected value.

Yellow shading indicates concentration above OHA early action screening level of 40 pg/g.

Pink shading indicates concentration above DEQ risk-based screening level of 4.7 pg/g.

DEQ = Oregon Department of Environmental Quality

DU = decision unit

* = Sample collected in 2021 during Baxter-funded offsite investigation.

** = Sample collected in 2022 during EPA-funded offsite investigation

J = Concentration is estimated

J+ = EMPC results either had the presence of diphenyl ethers or the isotope ratio was out of specification.

OHA = Oregon Health Authority

pg/g = picograms per gram

QC = quality control

TCDD TEQ = 2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity equivalence quotient

U = concentration under the laboratory method detection limit

EMPC = Estimated maximum possible concentration

K = EMPC results either had the presence of diphenyl ethers or the isotope ratio was out of specification (EPA Sample and QC).

Q = One or more quality control criteria failed (EPA Sample and QC)

Table A-2. Field Collected QA/QC Samples
Offsite Investigation Report
Former JH Baxter & Co. Facility
Eugene, Oregon

Laboratory Sample Designation	QC Sample Type	Sample Date	Sample Depth	Compounds																		
				1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	GSI Total Dioxin TEQ (U=0) 2020	GSI Total Dioxin TEQ (U=1/2) 2020
			TCDD TEQ Factor	0.01	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	1	0.03	0.1	0.3	1	0.1	0.0003	0.0003	–	–
				Concentrations in pg/g																		
June 2022 Field Duplicate Samples																						
DU-11																						
ISM-011_0622	Primary	6/21/2022	0-0 ft	**1,380**	**295**	**21.2**	**11.6**	**71.4**	**53**	**17.4**	**24.1**	**11.7**	**4.97**	**3.98**	**23**	**18.6**	**8.08**	**1.33**	**10,600**	**548**	**60.4**	**60.4**
ISM-111_0622	Duplicate	6/21/2022	0-0 ft	**1,430**	**283**	**20.4**	**11.4**	**71.1**	**53.9**	**17.3**	**23.3**	**11.8**	**5.24**	**3.79**	**21.9**	**18.3**	**7.35**	**1.35**	**11,000**	**512**	**60.2**	**60.2**
ISM-211_0622	Triplicate	6/21/2022	0-0 ft	**1,110**	**244**	**16.7**	**9.37**	**57.4**	**43.1**	**14.1**	**18.5**	**9.46**	**4**	**3.12**	**18.6**	**14.2**	**5.85**	**1.06**	**8,590**	**458**	**47.8**	**47.8**
			MRL (primary)	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	0.495	0.495	4.95	4.95		
			Greater than 5 times MRL?	yes	yes	yes	no	yes	yes	yes	yes	no	no	no	yes	yes	yes	no	yes	yes	–	–
Duplicate Sample			RPD Duplicate	3.6%	4.2%	3.8%	–	0.4%	1.7%	0.6%	3.4%	–	–	–	4.9%	1.6%	9.5%	–	3.7%	6.8%	0.3%	0.3%
			Average Concentration				11.50					11.75	5.11	3.89				1.34				
			Is Average Less than MRL?				no					no	no	no				no				
			Absolute Difference				0.2					0.1	0.27	0.19				0.02				
			Is Absolute Difference less than 2x MRL?				yes					yes	yes	yes				yes				
Triplicate Sample			RPD Triplicate	21.7%	18.9%	23.7%	–	21.7%	20.6%	21.0%	26.3%	–	–	–	21.2%	26.8%	32.0%	–	20.9%	17.9%	23.3%	23.3%
			Average Concentration				10.49					10.58	4.49	3.55				1.20				
			Is Average Less than MRL?				no					no	no	no				no				
			Absolute Difference				2.23					2.24	0.97	0.86				0.27				
			Is Absolute Difference less than 2x MRL?				yes					yes	yes	yes				yes				
April 2023 Field Duplicate Samples																						
DU-10																						
DU-10A-1.0-1.5_0423	Primary	4/5/2023	1-1.5 ft	**71**	**26**	**1.4**	**0.90**	**1.2**	**2.5**	**0.23**	**1.7**	0.25	**0.43**	0.13	**0.56**	0.082	**2.7**	0.12	**740**	**79**	**5.07**	**5.1**
DU-110A-1.0-1.5_0423	Duplicate	4/5/2023	1-1.5 ft	**91**	**28**	**1.9**	**0.65**	**1.2**	**2.3**	**2.2**	**1.6**	**0.39**	**0.27**	0.46	**0.40**	**0.40**	**1.2**	0.39	**1100**	**120**	**4.04**	**4.1**
			MRL (primary)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0.98	0.98	9.8	9.8		
			Greater than 5 times MRL?	yes	yes	no	no	no	no	no	no	no	no	no	no	no	no	no	yes	yes	–	–
			RPD Duplicate	24.7%	7.4%	–	–	–	–	–	–	–	–	–	–	–	–	–	39.1%	41.2%	22.6%	22.5%
			Average Concentration			1.65	0.78	1.20	2.40	1.22	1.65	0.32	0.35	0.30	0.48	0.24	1.95	0.26				
			Is Average Less than MRL?			yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
			Absolute Difference			0.5	0.25	0	0.2	1.97	0.1	0.14	0.16	0.33	0.16	0.318	1.5	0.27				
			Is Absolute Difference less than 2x MRL?			yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
S0-06																						
DU-06B-1.5-2.0_0423	Primary	4/5/2023	1.5-2 ft	**6.6**	**1.2**	0.4	**0.22**	**0.11**	**0.19**	0.11	**0.15**	**0.18**	0.23	0.15	0.091	0.16	0.21	0.14	**73**	**4.5**	**0.19**	**0.45**
DU-106B-1.5-2.0_0423	Duplicate	4/5/2023	1.5-2 ft	**7.0**	**1.0**	0.21	**0.19**	0.13	**0.18**	0.11	**0.19**	0.088	0.28	0.17	0.1	0.17	0.28	0.16	**62**	**4.0**	**0.16**	**0.49**
			MRL (primary)	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0.98	0.98	9.8	9.8		
			Greater than 5 times MRL?	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	yes	no	–	–
			RPD Duplicate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16.3%	–	17.5%	8.9%
			Average Concentration	6.80	1.10	0.31	0.21	0.12	0.19	0.11	0.17	0.13	0.26	0.16	0.10	0.17	0.25	0.15				
			Is Average Less than MRL?	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
			Absolute Difference	0.4	0.2	0.19	0.03	0.02	0.01	0	0.04	0.092	0.05	0.02	0.009	0.01	0.07	0.02				
			Is Absolute Difference less than 2x MRL?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
June 2022 and April 2023 Equipment Rinsate Blank Samples																						
				Concentrations in pg/L (parts per quadrillion)																		
Equipment Blanks																						
EB-01_0622	Blank	6/21/2022	–	1.70	2.00	2.70	**2.00**	0.900	1.30	0.760	1.10	1.00	0.710	0.400	0.520	0.280	0.550	0.310	**21.0**	3.00	**0.206**	**1.21**
			Is value less than 10% of any detection in samples from this event?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
EB-01-0423	Blank	4/5/2023	–	**5.90**	2.50	4.20	1.40	1.60	1.60	1.60	1.50	2.00	1.60	1.60	1.30	1.20	2.50	1.60	**30.0**	6.60	**0.0680**	**2.99**
			Is value less than 10% of any detection in samples from this event?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
EB-02-0423	Blank	4/5/2023	–	**15.0**	**79.0**	2.60	**3.30**	1.30	**1.40**	1.60	1.50	2.10	1.60	1.40	1.60	0.79	1.30	0.94	**160**	**72.0**	**1.48**	**3.53**
			Is value less than 10% of any detection in samples from this event?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Notes

Bold concentrations are detected or estimated values between the laboratory method detection limit and method reporting limit.

Non-bolded values were not detected above the laboratory method detection limit.

yes — Green shaded "yes" cell indicates value passes QAPP criteria.

The QAPP identifies RPD of less than 50% for solid organics.

– = not applicable

DU = decision unit

pg/g = picograms per gram (parts per trillion)

pg/L = picograms per liter (parts per quadrillion)

QC = quality control

TCDD TEQ = 2,3,7,8- tetrachlorodibenzodioxin toxicity equivalence quotient

APPENDIX B

Laboratory Reports and Data Validation

Test Report

July 15, 2022

Mr. Philip Nerenberg
Apex Laboratories
6700 S.W. Sandburg Street
Tigard, OR 97223

Dear Mr. Nerenberg,

The following results are associated with Frontier Analytical Laboratory project **14487**. This corresponds to your project number **A2F0755**. Five soil samples were received on 6/28/2022. These samples were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. The Toxic Equivalency (TEQ) for these samples has been calculated using the 2005 World Health Organization's (WHO's) toxic equivalency factors (TEFs). A turnaround time of fifteen business days was requested for this project.

The following report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains our sample tracking log and the analytical results. The Sample Receipt section contains your chain of custodies, our sample login form and a sample photo. The attached results and electronic data deliverable (EDD) are specifically for the samples referenced in this report only. These results meet all National Environmental Laboratory Accreditation Program (NELAP) requirements and shall not be reproduced except in full. Frontier Analytical Laboratory's State of Oregon NELAP certificate number is **4041** and our State of California ELAP certificate number is **2934**. This report and the EDD have been emailed to you. A hardcopy of this report will not be sent to you unless specifically requested.

If you have any questions regarding project **14487**, please contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

Thomas C. Crabtree
Director

FRONTIER ANALYTICAL LABORATORY
5172 Hillsdale Circle * El Dorado Hills, CA 95762
Tel (916) 934-0900 * Fax (916) 934-0999
www.frontieranalytical.com

Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: **14487**

Received on: **06/28/2022** Project Due: **07/21/2022** Storage: **R-4**

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
14487-001-SA	0	A2F0755	ISM-009_0622	EPA 1613 D/F	Soil	06/20/2022	12:45 pm	06/20/2023
14487-002-SA	0	A2F0755	ISM-014_0622	EPA 1613 D/F	Soil	06/20/2022	04:00 pm	06/20/2023
14487-003-SA	0	A2F0755	ISM-011_0622	EPA 1613 D/F	Soil	06/21/2022	04:00 pm	06/21/2023
14487-004-SA	0	A2F0755	ISM-111_0622	EPA 1613 D/F	Soil	06/21/2022	04:15 pm	06/21/2023
14487-005-SA	0	A2F0755	ISM-211_0622	EPA 1613 D/F	Soil	06/21/2022	04:30 pm	06/21/2023

EPA Method 1613
PCDD/F

FAL ID: 14487-001-MB
Client ID: Method Blank
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: NA
Amount: 10.0 g

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: pg/g

Acquired: 07-13-2022
2005 WHO TEQ: 0.0
Basis: Dry Weight

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.123		-	0.0286				
1,2,3,7,8-PeCDD	ND	0.165		-	0.0515				
1,2,3,4,7,8-HxCDD	ND	0.181		-	0.0555				
1,2,3,6,7,8-HxCDD	ND	0.196		-	0.0558	Total TCDD	ND	0.123	
1,2,3,7,8,9-HxCDD	ND	0.175		-	0.0528	Total PeCDD	ND	0.165	
1,2,3,4,6,7,8-HpCDD	ND	0.275		-	0.0712	Total HxCDD	ND	0.196	
OCDD	ND	0.342		-	0.195	Total HpCDD	ND	0.275	
2,3,7,8-TCDF	ND	0.0684		-	0.0231				
1,2,3,7,8-PeCDF	ND	0.136		-	0.0324				
2,3,4,7,8-PeCDF	ND	0.143		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.130		-	0.0339				
1,2,3,6,7,8-HxCDF	ND	0.140		-	0.0340				
2,3,4,6,7,8-HxCDF	ND	0.120		-	0.0353				
1,2,3,7,8,9-HxCDF	ND	0.163		-	0.0451	Total TCDF	ND	0.0684	
1,2,3,4,6,7,8-HpCDF	ND	0.117		-	0.0350	Total PeCDF	ND	0.143	
1,2,3,4,7,8,9-HpCDF	ND	0.137		-	0.0421	Total HxCDF	ND	0.163	
OCDF	ND	0.216		-	0.0820	Total HpCDF	ND	0.137	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	81.5	25.0 - 164	
13C-1,2,3,7,8-PeCDD	102	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	106	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	101	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	90.3	23.0 - 140	
13C-OCDD	73.0	17.0 - 157	
13C-2,3,7,8-TCDF	102	24.0 - 169	
13C-1,2,3,7,8-PeCDF	101	24.0 - 185	
13C-2,3,4,7,8-PeCDF	98.7	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	117	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	110	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	123	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	110	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	105	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	105	26.0 - 138	
13C-OCDF	85.2	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	108	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 7/19/2022

Reviewed By: _____

Date: 7/19/2022

EPA Method 1613
PCDD/F

FAL ID: 14487-001-OPR
Client ID: OPR
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: NA
Amount: 10.00 g

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: ng/ml

Acquired: 07-13-2022
2005 WHO TEQ: NA

Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	10.2	6.70 - 15.8	
1,2,3,7,8-PeCDD	48.4	35.0 - 71.0	
1,2,3,4,7,8-HxCDD	51.1	35.0 - 82.0	
1,2,3,6,7,8-HxCDD	52.6	38.0 - 67.0	
1,2,3,7,8,9-HxCDD	50.9	32.0 - 81.0	
1,2,3,4,6,7,8-HpCDD	53.9	35.0 - 70.0	
OCDD	109	78.0 - 144	
2,3,7,8-TCDF	9.83	7.50 - 15.8	
1,2,3,7,8-PeCDF	51.6	40.0 - 67.0	
2,3,4,7,8-PeCDF	52.0	34.0 - 80.0	
1,2,3,4,7,8-HxCDF	53.0	36.0 - 67.0	
1,2,3,6,7,8-HxCDF	52.4	42.0 - 65.0	
2,3,4,6,7,8-HxCDF	53.6	35.0 - 78.0	
1,2,3,7,8,9-HxCDF	53.7	39.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	53.4	41.0 - 61.0	
1,2,3,4,7,8,9-HpCDF	53.4	39.0 - 69.0	
OCDF	109	63.0 - 170	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	97.1	20.0 - 175	
13C-1,2,3,7,8-PeCDD	102	21.0 - 227	
13C-1,2,3,4,7,8-HxCDD	103	21.0 - 193	
13C-1,2,3,6,7,8-HxCDD	98.0	25.0 - 163	
13C-1,2,3,4,6,7,8-HpCDD	89.6	26.0 - 166	
13C-OCDD	68.0	13.0 - 198	
13C-2,3,7,8-TCDF	97.5	22.0 - 152	
13C-1,2,3,7,8-PeCDF	103	21.0 - 192	
13C-2,3,4,7,8-PeCDF	99.8	13.0 - 328	
13C-1,2,3,4,7,8-HxCDF	112	19.0 - 202	
13C-1,2,3,6,7,8-HxCDF	106	21.0 - 159	
13C-2,3,4,6,7,8-HxCDF	115	22.0 - 176	
13C-1,2,3,7,8,9-HxCDF	111	17.0 - 205	
13C-1,2,3,4,6,7,8-HpCDF	98.4	21.0 - 158	
13C-1,2,3,4,7,8,9-HpCDF	100	20.0 - 186	
13C-OCDF	81.7	13.0 - 198	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	104	31.0 - 191	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 7/19/2022

Reviewed By: _____

Date: 7/19/2022

EPA Method 1613
PCDD/F

FAL ID: 14487-001-SA
Client ID: ISM-009_0622
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: 06-28-2022
Amount: 10.1 g
% Solids: 96.86

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: pg/g

Acquired: 07-14-2022
2005 WHO TEQ: 30.9
Basis: Dry Weight

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	6.23	-		6.23	0.0286				
1,2,3,7,8-PeCDD	5.21	-		5.21	0.0515				
1,2,3,4,7,8-HxCDD	8.97	-		0.897	0.0555				
1,2,3,6,7,8-HxCDD	25.2	-		2.52	0.0558	Total TCDD	20.4	-	
1,2,3,7,8,9-HxCDD	16.9	-		1.69	0.0528	Total PeCDD	28.8	-	
1,2,3,4,6,7,8-HpCDD	644	-		6.44	0.0712	Total HxCDD	161	-	
OCDD	4930	-		1.48	0.195	Total HpCDD	1150	-	
2,3,7,8-TCDF	0.529	-		0.0529	0.0231				
1,2,3,7,8-PeCDF	1.09	-	J	0.0327	0.0324				
2,3,4,7,8-PeCDF	2.44	-	J	0.732	0.0322				
1,2,3,4,7,8-HxCDF	11.2	-		1.12	0.0339				
1,2,3,6,7,8-HxCDF	8.02	-		0.802	0.0340				
2,3,4,6,7,8-HxCDF	9.00	-		0.900	0.0353				
1,2,3,7,8,9-HxCDF	1.89	-	J	0.189	0.0451	Total TCDF	11.4	-	
1,2,3,4,6,7,8-HpCDF	222	-		2.22	0.0350	Total PeCDF	28.8	-	
1,2,3,4,7,8,9-HpCDF	10.8	-		0.108	0.0421	Total HxCDF	192	-	
OCDF	907	-		0.272	0.0820	Total HpCDF	718	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	104	25.0 - 164	
13C-1,2,3,7,8-PeCDD	104	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	111	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	107	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	105	23.0 - 140	
13C-OCDD	103	17.0 - 157	
13C-2,3,7,8-TCDF	108	24.0 - 169	
13C-1,2,3,7,8-PeCDF	103	24.0 - 185	
13C-2,3,4,7,8-PeCDF	103	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	124	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	116	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	131	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	114	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	112	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	115	26.0 - 138	
13C-OCDF	105	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	105	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 7/19/2022

Reviewed By: _____
Date: 7/19/2022

EPA Method 1613
PCDD/F

FAL ID: 14487-002-SA
Client ID: ISM-014_0622
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: 06-28-2022
Amount: 10.1 g
% Solids: 97.09

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: pg/g

Acquired: 07-14-2022
2005 WHO TEQ: 14.9
Basis: Dry Weight

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	1.70	-		1.70	0.0286				
1,2,3,7,8-PeCDD	2.34	-	J	2.34	0.0515				
1,2,3,4,7,8-HxCDD	4.86	-		0.486	0.0555				
1,2,3,6,7,8-HxCDD	14.8	-		1.48	0.0558	Total TCDD	18.5	-	
1,2,3,7,8,9-HxCDD	8.51	-		0.851	0.0528	Total PeCDD	27.8	-	
1,2,3,4,6,7,8-HpCDD	460	-		4.60	0.0712	Total HxCDD	137	-	
OCDD	4200	-		1.26	0.195	Total HpCDD	1050	-	
2,3,7,8-TCDF	0.616	-		0.0616	0.0231				
1,2,3,7,8-PeCDF	0.745	-	J	0.0224	0.0324				
2,3,4,7,8-PeCDF	1.22	-	J	0.366	0.0322				
1,2,3,4,7,8-HxCDF	2.48	-		0.248	0.0339				
1,2,3,6,7,8-HxCDF	2.06	-	J	0.206	0.0340				
2,3,4,6,7,8-HxCDF	2.98	-		0.298	0.0353				
1,2,3,7,8,9-HxCDF	0.901	-	J	0.0901	0.0451	Total TCDF	14.3	-	
1,2,3,4,6,7,8-HpCDF	78.2	-		0.782	0.0350	Total PeCDF	17.4	-	
1,2,3,4,7,8,9-HpCDF	3.62	-		0.0362	0.0421	Total HxCDF	72.8	-	
OCDF	295	-		0.0885	0.0820	Total HpCDF	264	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	108	25.0 - 164	
13C-1,2,3,7,8-PeCDD	101	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	105	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	100	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	101	23.0 - 140	
13C-OCDD	108	17.0 - 157	
13C-2,3,7,8-TCDF	103	24.0 - 169	
13C-1,2,3,7,8-PeCDF	99.4	24.0 - 185	
13C-2,3,4,7,8-PeCDF	96.3	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	115	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	108	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	123	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	108	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	109	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	110	26.0 - 138	
13C-OCDF	105	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	107	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 7/19/2022

Reviewed By: _____
Date: 7/19/2022

EPA Method 1613
PCDD/F

FAL ID: 14487-003-SA
Client ID: ISM-011_0622
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: 06-28-2022
Amount: 10.1 g
% Solids: 95.89

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: pg/g

Acquired: 07-14-2022
2005 WHO TEQ: 60.4
Basis: Dry Weight

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	8.08	-		8.08	0.0286				
1,2,3,7,8-PeCDD	4.97	-		4.97	0.0515				
1,2,3,4,7,8-HxCDD	11.6	-		1.16	0.0555				
1,2,3,6,7,8-HxCDD	53.0	-		5.30	0.0558	Total TCDD	32.9	-	
1,2,3,7,8,9-HxCDD	24.1	-		2.41	0.0528	Total PeCDD	40.9	-	
1,2,3,4,6,7,8-HpCDD	1380	-		13.8	0.0712	Total HxCDD	295	-	
OCDD	10600	-		3.18	0.195	Total HpCDD	2520	-	
2,3,7,8-TCDF	1.33	-	F	0.133	0.0231				
1,2,3,7,8-PeCDF	3.98	-		0.119	0.0324				
2,3,4,7,8-PeCDF	18.6	-		5.58	0.0322				
1,2,3,4,7,8-HxCDF	71.4	-		7.14	0.0339				
1,2,3,6,7,8-HxCDF	17.4	-		1.74	0.0340				
2,3,4,6,7,8-HxCDF	23.0	-		2.30	0.0353				
1,2,3,7,8,9-HxCDF	11.7	-		1.17	0.0451	Total TCDF	31.8	-	D,M
1,2,3,4,6,7,8-HpCDF	295	-		2.95	0.0350	Total PeCDF	130	-	
1,2,3,4,7,8,9-HpCDF	21.2	-		0.212	0.0421	Total HxCDF	554	-	D,M
OCDF	548	-		0.164	0.0820	Total HpCDF	915	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	110	25.0 - 164	
13C-1,2,3,7,8-PeCDD	107	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	103	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	102	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	109	23.0 - 140	
13C-OCDD	123	17.0 - 157	
13C-2,3,7,8-TCDF	108	24.0 - 169	
13C-1,2,3,7,8-PeCDF	105	24.0 - 185	
13C-2,3,4,7,8-PeCDF	105	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	116	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	109	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	123	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	112	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	110	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	113	26.0 - 138	
13C-OCDF	110	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	115	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 7/19/2022

Reviewed By: _____
Date: 7/19/2022

EPA Method 1613
PCDD/F

FAL ID: 14487-004-SA
Client ID: ISM-111_0622
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: 06-28-2022
Amount: 10.0 g
% Solids: 95.66

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: pg/g

Acquired: 07-14-2022
2005 WHO TEQ: 60.2
Basis: Dry Weight

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	7.35	-		7.35	0.0286				
1,2,3,7,8-PeCDD	5.24	-		5.24	0.0515				
1,2,3,4,7,8-HxCDD	11.4	-		1.14	0.0555				
1,2,3,6,7,8-HxCDD	53.9	-		5.39	0.0558	Total TCDD	33.4	-	
1,2,3,7,8,9-HxCDD	23.3	-		2.33	0.0528	Total PeCDD	40.4	-	
1,2,3,4,6,7,8-HpCDD	1430	-		14.3	0.0712	Total HxCDD	295	-	
OCDD	11000	-		3.30	0.195	Total HpCDD	2610	-	
2,3,7,8-TCDF	1.35	-	F	0.135	0.0231				
1,2,3,7,8-PeCDF	3.79	-		0.114	0.0324				
2,3,4,7,8-PeCDF	18.3	-		5.49	0.0322				
1,2,3,4,7,8-HxCDF	71.1	-		7.11	0.0339				
1,2,3,6,7,8-HxCDF	17.3	-		1.73	0.0340				
2,3,4,6,7,8-HxCDF	21.9	-		2.19	0.0353				
1,2,3,7,8,9-HxCDF	11.8	-		1.18	0.0451	Total TCDF	37.9	-	D,M
1,2,3,4,6,7,8-HpCDF	283	-		2.83	0.0350	Total PeCDF	133	-	D,M
1,2,3,4,7,8,9-HpCDF	20.4	-		0.204	0.0421	Total HxCDF	547	-	D,M
OCDF	512	-		0.154	0.0820	Total HpCDF	862	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	113	25.0 - 164	
13C-1,2,3,7,8-PeCDD	106	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	108	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	102	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	110	23.0 - 140	
13C-OCDD	125	17.0 - 157	
13C-2,3,7,8-TCDF	105	24.0 - 169	
13C-1,2,3,7,8-PeCDF	105	24.0 - 185	
13C-2,3,4,7,8-PeCDF	103	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	116	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	110	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	121	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	109	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	112	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	113	26.0 - 138	
13C-OCDF	112	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	114	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 7/19/2022

Reviewed By: _____
Date: 7/19/2022

EPA Method 1613
PCDD/F

FAL ID: 14487-005-SA
Client ID: ISM-211_0622
Matrix: Soil
Batch No: X6137

Date Extracted: 07-12-2022
Date Received: 06-28-2022
Amount: 10.2 g
% Solids: 96.32

ICal: PCDDFAL3-4-29-22
GC Column: DB5MS
Units: pg/g

Acquired: 07-14-2022
2005 WHO TEQ: 47.8
Basis: Dry Weight

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	5.85	-		5.85	0.0286				
1,2,3,7,8-PeCDD	4.00	-		4.00	0.0515				
1,2,3,4,7,8-HxCDD	9.37	-		0.937	0.0555				
1,2,3,6,7,8-HxCDD	43.1	-		4.31	0.0558	Total TCDD	26.6	-	
1,2,3,7,8,9-HxCDD	18.5	-		1.85	0.0528	Total PeCDD	34.0	-	
1,2,3,4,6,7,8-HpCDD	1110	-		11.1	0.0712	Total HxCDD	242	-	
OCDD	8590	-		2.58	0.195	Total HpCDD	2050	-	
2,3,7,8-TCDF	1.06	-	F	0.106	0.0231				
1,2,3,7,8-PeCDF	3.12	-		0.0936	0.0324				
2,3,4,7,8-PeCDF	14.2	-		4.26	0.0322				
1,2,3,4,7,8-HxCDF	57.4	-		5.74	0.0339				
1,2,3,6,7,8-HxCDF	14.1	-		1.41	0.0340				
2,3,4,6,7,8-HxCDF	18.6	-		1.86	0.0353				
1,2,3,7,8,9-HxCDF	9.46	-		0.946	0.0451	Total TCDF	22.9	-	
1,2,3,4,6,7,8-HpCDF	244	-		2.44	0.0350	Total PeCDF	107	-	
1,2,3,4,7,8,9-HpCDF	16.7	-		0.167	0.0421	Total HxCDF	459	-	
OCDF	458	-		0.137	0.0820	Total HpCDF	750	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	117	25.0 - 164	
13C-1,2,3,7,8-PeCDD	111	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	116	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	110	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	118	23.0 - 140	
13C-OCDD	127	17.0 - 157	
13C-2,3,7,8-TCDF	114	24.0 - 169	
13C-1,2,3,7,8-PeCDF	111	24.0 - 185	
13C-2,3,4,7,8-PeCDF	109	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	129	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	119	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	134	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	122	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	121	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	125	26.0 - 138	
13C-OCDF	117	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	115	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 7/19/2022

Reviewed By: _____
Date: 7/19/2022

ET

SUBCONTRACT ORDER

Apex Laboratories

ACCEL27122

A2F0755

SENDING LABORATORY:

Apex Laboratories
6700 S.W. Sandburg Street
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 336-0745
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Frontier Analytical
5172 Hillsdale Circle
El Dorado Hills, CA 95762
Phone :(916) 934-0900
Fax:

14487
0°C

Sample Name: ISM-009_0622 — After Processing — Sampled: 06/20/22 12:45 — (A2F0755-02)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/19/22 17:00	06/20/23 12:45	
Containers Supplied: (B)4 oz Glass Jar			

Sample Name: ISM-014_0622 — After Processing — Sampled: 06/20/22 16:00 — (A2F0755-04)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/19/22 17:00	06/20/23 16:00	
Containers Supplied: (B)4 oz Glass Jar			

Sample Name: ISM-011_0622 — After Processing — Sampled: 06/21/22 16:00 — (A2F0755-06)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/19/22 17:00	06/21/23 16:00	
Containers Supplied: (B)4 oz Glass Jar			

Sample Name: ISM-111_0622 — After Processing — Sampled: 06/21/22 16:15 — (A2F0755-08)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/19/22 17:00	06/21/23 16:15	
Containers Supplied: (B)4 oz Glass Jar			

Standard TAT

~~EQUIS~~

Soil matrix

Basic EDD + Enviro data EDD (if possible)

Released By	Date	Received By	Date
	6-27-22	UPS Shipper	
UPS Shipper		Kathy Zapp	6/28/22 11:25

EJ

14487

0°C

SUBCONTRACT ORDER

Apex Laboratories

A2F0755

After Processing

Sample Name: ISM-211_0622 **Sampled: 06/21/22 16:30** (A2F0755-10)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	07/19/22 17:00	06/21/23 16:30	
Containers Supplied:			
(B)4 oz Glass Jar			

Standard TAT

Released By	Date	Received By	Date
[signature]	6-27-22	UPS Shipper	
UPS Shipper		Kathy Sop	6/28/22 11:25
Released By	Date	Received By	Date

Frontier Analytical Laboratory

Sample Login Form

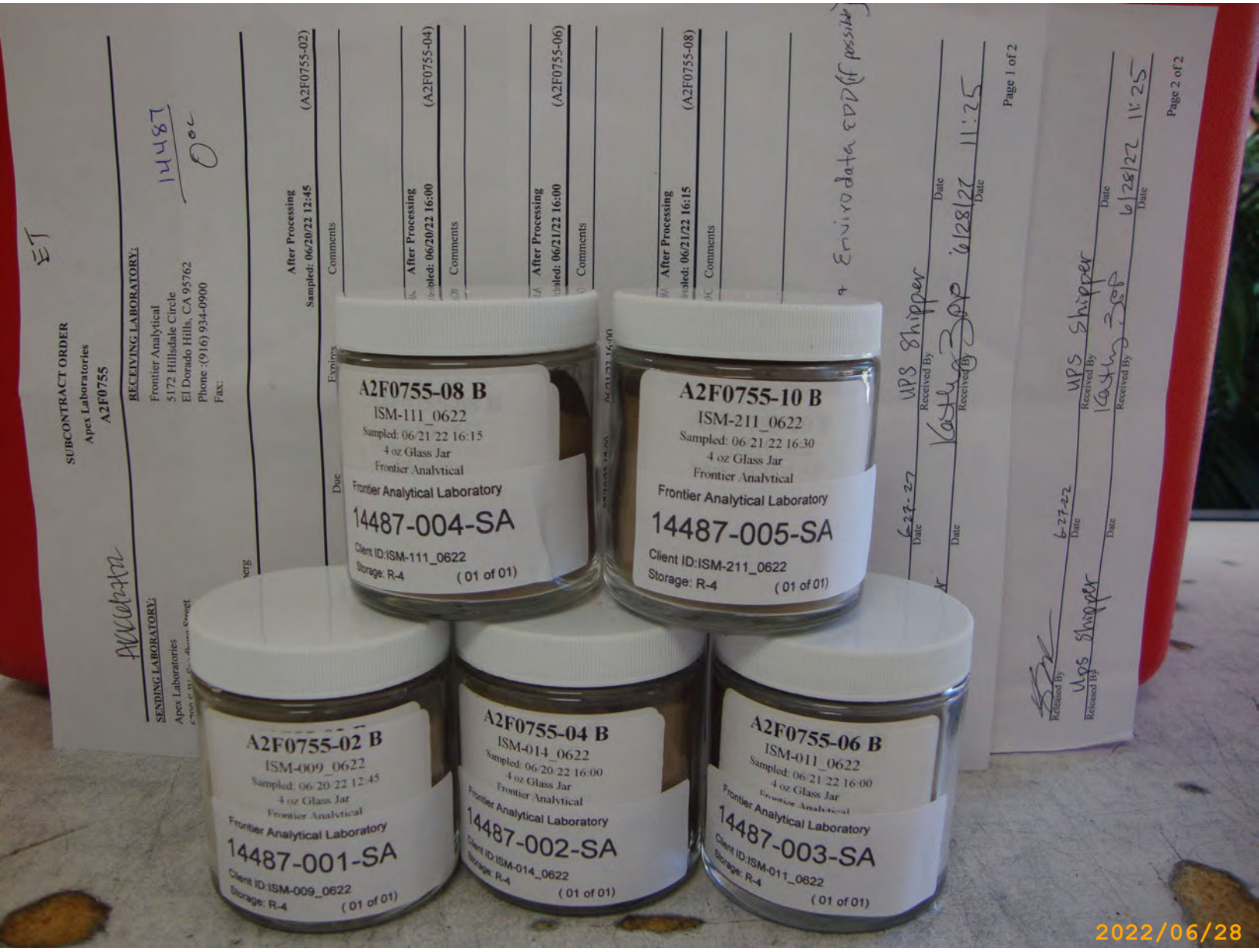
FAL Project ID: **14487**

Client:	Apex Laboratories
Client Project ID:	A2F0755
Date Received:	06/28/2022
Time Received:	11:25 am
Received By:	KZ
Logged In By:	KZ
# of Samples Received:	5
Duplicates:	0
Storage Location:	R-4

Method of Delivery:	UPS
Tracking Number:	1ZX4720R0194506473
Shipping Container Received Intact	Yes
Custody seals(s) present?	No
Custody seals(s) intact?	No
Sample Arrival Temperature (C)	0
Cooling Method	Ice
Chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
Test aqueous sample for residual Chlorine	No
Sodium Thiosulfate Added	No
Adequate Sample Volume	Yes
Appropriate Sample Container	No
pH Range of Aqueous Sample	N/A

Anomalies or additional comments:

Please note that the samples were received in clear glass jars. NELAP requires samples be received in amber glass bottles or jars. Although this anomaly will not affect your results, we are required by NELAP to make a note of it. We will proceed with analysis unless directed otherwise by you.


SUBCONTRACT ORDER
Apex Laboratories
A2F0755
RECEIVING LABORATORY:
Frontier Analytical
5172 Hillsdale Circle
El Dorado Hills, CA 95762
Phone :(916) 934-0900
Fax:
SENDING LABORATORY:
Apex Laboratories
After Processing
Sampled: 06/20/22 12:45
(A2F0755-02)
Comments
Due
Expires
After Processing
(A2F0755-04)
Comments
After Processing
(A2F0755-06)
Comments
After Processing
(A2F0755-08)
Comments
Page 1 of 2
Page 2 of 2
UPS Shipper
UPS Shipper
UPS Shipper
Released By
Received By
Date
A2F0755-08 B
ISM-111_0622
Sampled: 06/21/22 16:15
4 oz Glass Jar
Frontier Analytical
Frontier Analytical Laboratory
14487-004-SA
Client ID:ISM-111_0622
Storage: R-4
(01 of 01)
A2F0755-10 B
ISM-211_0622
Sampled: 06/21/22 16:30
4 oz Glass Jar
Frontier Analytical
Frontier Analytical Laboratory
14487-005-SA
Client ID:ISM-211_0622
Storage: R-4
(01 of 01)
A2F0755-02 B
ISM-009_0622
Sampled: 06/20/22 12:45
4 oz Glass Jar
Frontier Analytical
Frontier Analytical Laboratory
14487-001-SA
Client ID:ISM-009_0622
Storage: R-4
(01 of 01)
A2F0755-04 B
ISM-014_0622
Sampled: 06/20/22 16:00
4 oz Glass Jar
Frontier Analytical
Frontier Analytical Laboratory
14487-002-SA
Client ID:ISM-014_0622
Storage: R-4
(01 of 01)
A2F0755-06 B
ISM-011_0622
Sampled: 06/21/22 16:00
4 oz Glass Jar
Frontier Analytical
Frontier Analytical Laboratory
14487-003-SA
Client ID:ISM-011_0622
Storage: R-4
(01 of 01)
2022/06/28

Stage 2A/B Data Validation Checks
JH Baxter
Delivery Group A2F0755/14487

Comments:

- U-qualified samples assigned by the laboratory are not included in this report unless the U qualification is for some other reason other than a simple non-detect.

SUMMARY OF QUALITY CONTROL CHECKS

Quality Control Check	Checked By	Comment
Completeness	MBF	The data set is 100 percent complete, no results rejected.
Holding times	MBF	Holding times were within the method specific recommended holding times.
Preservation	MBF	Preservation was acceptable.
COC Documentation	MBF	COC was not provided in the lab report, but laboratory sample login form and did not note any discrepancies other than clear glass jar sample containers not meeting NELAP requirements. No results qualified.
Analytical methods	MBF	EPA 1613 Requested analytical methods were performed.
Initial and continuing calibrations	MBF	Not independently verified during Stage 2A/B validation.
Method blanks, trip blank, and field blanks	MBF	Method blanks were performed per batch and there were no detections and associated QC were within established control limits.
Surrogate/labeled compounds	MBF	Labeled compounds were analyzed and within control limits.
LCS/LCSD	MBF	An OPR was analyzed per batch. Recoveries were within established control limits.
MS/MSD	MBF	MS/MSD were not performed and are not required per the method.
Field duplicates	MBF	A field duplicate and triplicate were collected and analyzed: • Primary: ISM-011_0622 • Duplicate: ISM-111_0622 • Triplicate: ISM-211_0622 RSDs were within the 50% Limit for solid organic results.
Lab duplicates	MBF	Lab sample duplicates were not performed or required per the method.
Dilution	MBF	Samples did not require further dilution for analysis.

Qualitative Identification for HRGC/HRMS analyses only	MBF	The following results were EMPCs with the presence of diphenyl ethers:
		• ISM-011_0622
		  ○ Total TCDF
		  ○ Total HxCDF
		• ISM-111_0622
		  ○ Total TCDF

Quality Control Check	Checked By	Comment
		○ Total HxCDF ○ Total PeCDF Results were qualified J+. The following results were confirmed on the secondary column: • 2,3,7,8-TCDF ○ ISM-011_0622 ○ ISM-111_0622 ○ ISM-211_0622 Results not qualified due to confirmation.
Overall Assessment		**Qualifier codes added to results; table and notes below.**

Notes

TABLE 1. SUMMARY OF QUALIFIED DATA

Sample ID	Analyte	Result (pg/g)	Qualifier Assigned	Reason for Qualification
ISM-009_0622	1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF	1.89, 1.09, 2.44	J	Below reporting limit
ISM-011_0622	Total TCDF, Total HxCDF	31.8, 554	J+	EMPC, Presence of Diphenyl Ethers
ISM-014_0622	1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF	2.06, 0.901, 2.34, 0.745, 1.22	J	Below reporting limit
ISM-111_0622	Total TCDF, Total HxCDF, Total PeCDF	37.9, 547, 133	J+	EMPC, Presence of Diphenyl Ethers

ANALYTICAL REPORT

July 29, 2022

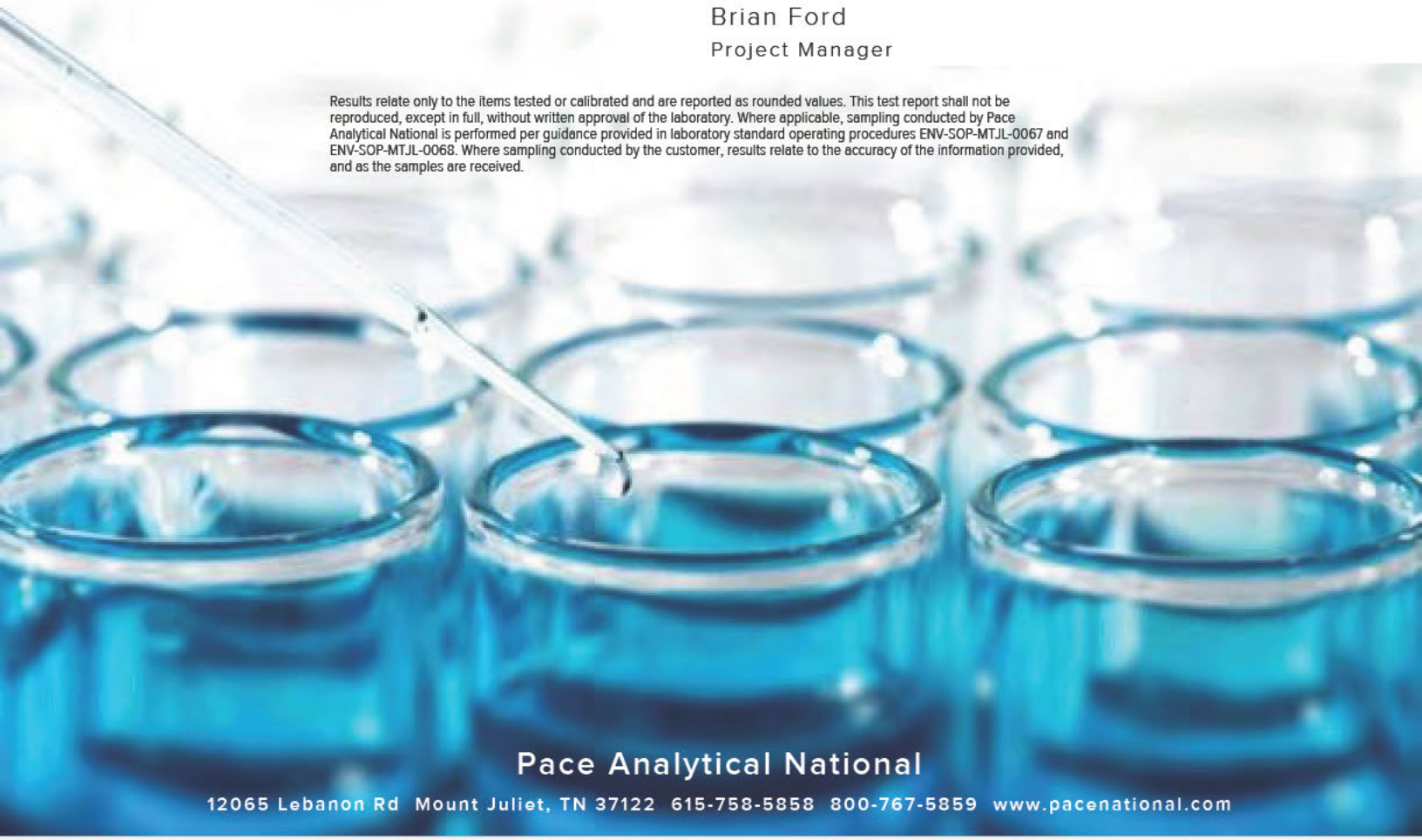
Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1508970
Samples Received:	06/26/2022
Project Number:	72-18-32
Description:	JH Baxter Removal Action Planning

Report To: Don Hanson
165 E. 7th Avenue
Suite 100
Eugene, OR 97401

Entire Report Reviewed By: Brian Ford

Brian Ford
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

COMP-09A_0622 L1508970-01 Solid

Collected by: GS/ME | Collected date/time: 06/20/22 13:00 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-09B_0622 L1508970-02 Solid

Collected by: GS/ME | Collected date/time: 06/20/22 13:15 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-10A_0622 L1508970-03 Solid

Collected by: GS/ME | Collected date/time: 06/21/22 10:15 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-10B_0622 L1508970-04 Solid

Collected by: GS/ME | Collected date/time: 06/21/22 10:30 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-11A_0622 L1508970-05 Solid

Collected by: GS/ME | Collected date/time: 06/21/22 11:00 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-11B_0622 L1508970-06 Solid

Collected by: GS/ME | Collected date/time: 06/21/22 11:15 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-14A_0622 L1508970-07 Solid

Collected by: GS/ME | Collected date/time: 06/20/22 16:30 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-14B_0622 L1508970-08 Solid

Collected by: GS/ME | Collected date/time: 06/20/22 16:45 | Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

SAMPLE SUMMARY

COMP-15A_0622 L1508970-09 Solid

Collected by: GS/ME
Collected date/time: 06/21/22 08:45
Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

COMP-15B_0622 L1508970-10 Solid

Collected by: GS/ME
Collected date/time: 06/21/22 09:00
Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1891233	1	07/29/22 00:00	07/29/22 00:00	-	Minneapolis, MN 55414

EB-01_0622 L1508970-11 GW

Collected by: GS/ME
Collected date/time: 06/21/22 16:45
Received date/time: 06/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1886865	1	07/12/22 00:00	07/12/22 00:00	-	Minneapolis, MN 55414

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

Project Narrative

L1508970 -01, -02, -03, -04, -05, -06, -07, -08, -09, -10, -11 contains subout data that is included after the chain of custody.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

C082

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent:
GSI/Haley & Aldrich for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

Contract Laboratory Name: Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

Lab Selection Criteria:
Proximity (if TAT < 48 hrs)
Prior work on same project
Cost (for anticipated analyses)
Other labs disqualified or unable to perform requested services
Emergency work

Turn Around Time:
10 days (std.)
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: OREGON DEQ-JH BAXTER REMOVAL ACTION PLANNING **(72-18-32)**

Project #: JH Baxter Removal Action Planning

Sampler Name: G Schutzius, M Elias

L1508970

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Sample Preservative: Solids NA	Requested Analyses: ISM Prep.Dioxinfurans by 1613B	Comments
Comp-09A_0622	6/20/2022	13:00	SO	1		x	-01
Comp-09B_0622	6/20/2022	13:15	SO	1		x	-02
Comp-10A_0622	6/21/2022	10:15	SO	1		x	-03
Comp-10B_0622	6/21/2022	10:30	SO	1		x	-04
Comp-11A_0622	6/21/2022	11:00	SO	1		x	-05
Comp-11B_0622	6/21/2022	11:15	SO	1		x	-06
Comp-14A_0622	6/20/2022	16:30	SO	1		x	-07
Comp-14B_0622	6/20/2022	16:45	SO	1		x	-08
Comp-15A_0622	6/21/2022	8:45	SO	1		x	-09
Comp-15B_0622	6/21/2022	9:00	SO	1		x	-10
EB-01_0622	6/21/2022	~~9:00~~ 16:45	W	4		x	-11

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Josh Bale (530-276-4188, jbale@gsiws.com) or Chris Martin (503-432-5979, cmartin@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: Genevieve Schutzius	Agency/Agent: GSI	Received By: Ranna Ramsey	Agency/Agent:
Signature:	Time & Date: 6/24/22 930	Signature: P. Ramsey	Time & Date: 6-25-22 900
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

THIS PURCHAS... E AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCOR... FLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

TT# 5671 5376 6779

PMA 6 0.9+.0=0.9

Tracking Numbers		Temperature
5671 5376 6779		PmA6 .9+.0=.9
5671 5376 6790		RRA7 5.4+.0=5.4

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Client Services
Pace Analytical National
12065 Lebanon Road
Mount Juliet TN 37122

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10614837
Sample Receipt Date: 06/29/2022
Client Project #: L1508970 WG1886865
Client Sub PO #: L1508970
State Cert #: MN300001

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kongmeng Vang, your Pace Project Manager.

This report has been reviewed by:

July 12, 2022
Kongmeng Vang, Project Manager
(612) 607-6382
(612) 607-6333 (fax)

Report Prepared Date:
July 7, 2022

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analysis performed on one sample submitted by a representative of Pace Analytical National. The sample was analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extract ranged from 63-121%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain trace levels of selected congeners. These levels were below the calibration range for the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results table and may be, at least partially, attributed to the background.

Laboratory spike samples were also prepared using clean reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 74-106% with relative percent differences of 1.2-17.3%. The recovery value obtained for 1,2,3,4,6,7,8-HpCDF in LCS-99760 was below the target range, flagged "R" on the results table, and may indicate a low bias for this congener in these determinations. Matrix spikes were not prepared with the extraction batch.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.

REPORT OF LABORATORY ANALYSIS

Report No.....10614837

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix A

Sample Management

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Pace Analytical	Report To:	Pace Analytical Subout Team	Attention:	Don Hanson
Address:	12065 Lebanon Rd.	Copy To:		Company Name:	
Mt. Juliet, TN 37122				Address:	
Email:	MTJLSuboutTeam@pacelabs.com	Purchase Order #:	L1508970	Pace Quote:	
Phone:	(615) 773-9756 Fax: (615) 758-5859	Project Name:	JH Baxter Removal Action Planning	Pace Project Manager:	Kongmeng Vang
Requested Due Date:	26-Jul	Project #:	72-18-32	Pace Profile #:	38076

Regulatory Agency

State / Location: OR

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: Dioxins and furans by 1613	Residual Chlorine (Y/N)	
1	EB-01_0622	WT				21-Jun	16:45		1								1		X		needs promium EDD 007
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

WO# : 10614837

10614837

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	James C Huckaba	28-Jun	14:12	PACE	6/29/22	8:50	3.6,3.8	Y	Y	Y
Pace Analytical Batch: WG1886865										
Pace Analytical SDGs: L1508970										
Location: Minneapolis, MN 55414										

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:			
SIGNATURE of SAMPLER:	DATE Signed:		

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

	DC#_Title: ENV-FRM-MIN4-0150 v05_Sample Condition Upon Receipt (SCUR)
Pace ANALYTICAL SERVICES	Effective Date: 04/12/2022

Sample Condition Upon Receipt

Client Name: Pace Analytical

Project #:

WO#: 10614837

PM: KV Due Date: 07/21/22

CLIENT: ESC_TN

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial

See Exceptions ☐ ENV-FRM-MIN4-0142

Tracking Number: 588275407700, 588275407711

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No Seals Intact? ☑ Yes ☐ No Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: Temp Blank? ☑ Yes ☐ No

Thermometer: ☐ T1(0461) ☐ T2(1336) ☐ T3(0459) ☑ T4(0254) ☐ T5(0489) ☐ T6(0235) ☐ T7 (0042) ☐ 01339252/1710 ☐ 122639816 ☐ 140792808

Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No Were All Container Temps Taken? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: _____ °C

Average Corrected Temp (no temp blank only): _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: True Cooler Temp Corrected w/temp blank: _____ °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____) Date/Initials of Person Examining Contents: KM 6/29/22

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist ENV-FRM-MIN4-0154 and include with SCUR/COC paperwork.

Location (check one): ☐ Duluth ☑ Minneapolis ☐ Virginia

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If Fecal: ☐ <8 hrs ☐ >8hr, <24 hrs, ☐ >24 hrs
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No		8.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other-	☑ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ **ENV-FRM-MIN4-0142**
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ **ENV-FRM-MIN4-0142**
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	13. **See Exception** ☐ **ENV-FRM-MIN4-0140**
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e.,, out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: _____

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	EB-01_0622		
Lab Sample ID	10614837001		
Filename	U220705B_04		
Injected By	MS4		
Total Amount Extracted	969 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	06/21/2022 16:45
ICAL ID	U220611	Received	06/29/2022 08:50
CCal Filename(s)	U220705A_17	Extracted	06/30/2023 11:30
Method Blank ID	BLANK-99759	Analyzed	07/06/2022 02:18

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.31		2,3,7,8-TCDF-13C	2.00	90
Total TCDF	ND	----	0.31		2,3,7,8-TCDD-13C	2.00	83
					1,2,3,7,8-PeCDF-13C	2.00	97
2,3,7,8-TCDD	ND	----	0.55		2,3,4,7,8-PeCDF-13C	2.00	99
Total TCDD	ND	----	0.55		1,2,3,7,8-PeCDD-13C	2.00	104
					1,2,3,4,7,8-HxCDF-13C	2.00	121
1,2,3,7,8-PeCDF	ND	----	0.40		1,2,3,6,7,8-HxCDF-13C	2.00	98
2,3,4,7,8-PeCDF	ND	----	0.28		2,3,4,6,7,8-HxCDF-13C	2.00	114
Total PeCDF	ND	----	0.28		1,2,3,7,8,9-HxCDF-13C	2.00	109
					1,2,3,4,7,8-HxCDD-13C	2.00	117
1,2,3,7,8-PeCDD	ND	----	0.71		1,2,3,6,7,8-HxCDD-13C	2.00	109
Total PeCDD	ND	----	0.71		1,2,3,4,6,7,8-HpCDF-13C	2.00	93
					1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	ND	----	0.90		1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	----	0.76		OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	ND	----	0.52				
1,2,3,7,8,9-HxCDF	ND	----	1.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.52		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	2.0	----	1.7	J	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	ND	----	1.3				
1,2,3,7,8,9-HxCDD	ND	----	1.1				
Total HxCDD	2.0	----	1.1	J			
1,2,3,4,6,7,8-HpCDF	ND	----	2.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	2.7		Equivalence: 0.23 pg/L		
Total HpCDF	ND	----	2.0		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	1.9	1.7	IJ			
Total HpCDD	ND	----	1.7				
OCDF	ND	----	3.0				
OCDD	21	----	3.3	BJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKMC		
Lab Sample ID	BLANK-99759	Matrix	Water
Filename	U220705A_08	Dilution	NA
Total Amount Extracted	1010 mL	Extracted	06/30/2023 11:30
ICAL ID	U220611	Analyzed	07/05/2022 16:04
CCal Filename(s)	U220705A_01	Injected By	MS4

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.72		2,3,7,8-TCDF-13C	2.00	59
Total TCDF	ND	----	0.72		2,3,7,8-TCDD-13C	2.00	54
					1,2,3,7,8-PeCDF-13C	2.00	68
2,3,7,8-TCDD	ND	----	0.53		2,3,4,7,8-PeCDF-13C	2.00	70
Total TCDD	ND	----	0.53		1,2,3,7,8-PeCDD-13C	2.00	72
					1,2,3,4,7,8-HxCDF-13C	2.00	89
1,2,3,7,8-PeCDF	ND	----	0.50		1,2,3,6,7,8-HxCDF-13C	2.00	71
2,3,4,7,8-PeCDF	ND	----	0.36		2,3,4,6,7,8-HxCDF-13C	2.00	78
Total PeCDF	ND	----	0.36		1,2,3,7,8,9-HxCDF-13C	2.00	79
					1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	ND	----	0.73		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	----	0.73		1,2,3,4,6,7,8-HpCDF-13C	2.00	65
					1,2,3,4,7,8,9-HpCDF-13C	2.00	52
1,2,3,4,7,8-HxCDF	ND	----	0.71		1,2,3,4,6,7,8-HpCDD-13C	2.00	50
1,2,3,6,7,8-HxCDF	ND	----	0.80		OCDD-13C	4.00	43
2,3,4,6,7,8-HxCDF	ND	----	0.69				
1,2,3,7,8,9-HxCDF	1.7	----	0.96	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.7	----	0.69	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.2		2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	ND	----	1.2				
1,2,3,7,8,9-HxCDD	ND	----	1.1				
Total HxCDD	ND	----	1.1				
1,2,3,4,6,7,8-HpCDF	ND	----	3.6		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	5.9		Equivalence: 0.20 pg/L		
Total HpCDF	ND	----	3.6		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	----	2.4	1.5	IJ			
Total HpCDD	ND	----	1.5				
OCDF	3.3	----	2.5	J			
OCDD	29	----	2.2	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-99760		
Filename	U220705A_02	Matrix	Water
Total Amount Extracted	965 mL	Dilution	NA
ICAL ID	U220611	Extracted	06/30/2023 11:30
CCal Filename	U220705A_01	Analyzed	07/05/2022 11:22
Method Blank ID	BLANK-99759	Injected By	MS4

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.	
2,3,7,8-TCDF	10	9.7	7.5	15.8	97	
2,3,7,8-TCDD	10	10	6.7	15.8	102	
1,2,3,7,8-PeCDF	50	44	40.0	67.0	87	
2,3,4,7,8-PeCDF	50	45	34.0	80.0	90	
1,2,3,7,8-PeCDD	50	41	35.0	71.0	83	
1,2,3,4,7,8-HxCDF	50	43	36.0	67.0	86	
1,2,3,6,7,8-HxCDF	50	43	42.0	65.0	87	
2,3,4,6,7,8-HxCDF	50	46	35.0	78.0	93	
1,2,3,7,8,9-HxCDF	50	46	39.0	65.0	93	
1,2,3,4,7,8-HxCDD	50	45	35.0	82.0	90	
1,2,3,6,7,8-HxCDD	50	46	38.0	67.0	93	
1,2,3,7,8,9-HxCDD	50	39	32.0	81.0	79	
1,2,3,4,6,7,8-HpCDF	50	40	41.0	61.0	80	R
1,2,3,4,7,8,9-HpCDF	50	39	39.0	69.0	79	
1,2,3,4,6,7,8-HpCDD	50	37	35.0	70.0	74	
OCDF	100	88	63.0	170.0	88	
OCDD	100	79	78.0	144.0	79	
2,3,7,8-TCDD-37Cl4	10	7.5	3.1	19.1	75	
2,3,7,8-TCDF-13C	100	60	22.0	152.0	60	
2,3,7,8-TCDD-13C	100	55	20.0	175.0	55	
1,2,3,7,8-PeCDF-13C	100	70	21.0	192.0	70	
2,3,4,7,8-PeCDF-13C	100	69	13.0	328.0	69	
1,2,3,7,8-PeCDD-13C	100	71	21.0	227.0	71	
1,2,3,4,7,8-HxCDF-13C	100	85	19.0	202.0	85	
1,2,3,6,7,8-HxCDF-13C	100	68	21.0	159.0	68	
2,3,4,6,7,8-HxCDF-13C	100	72	22.0	176.0	72	
1,2,3,7,8,9-HxCDF-13C	100	73	17.0	205.0	73	
1,2,3,4,7,8-HxCDD-13C	100	70	21.0	193.0	70	
1,2,3,6,7,8-HxCDD-13C	100	69	25.0	163.0	69	
1,2,3,4,6,7,8-HpCDF-13C	100	58	21.0	158.0	58	
1,2,3,4,7,8,9-HpCDF-13C	100	51	20.0	186.0	51	
1,2,3,4,6,7,8-HpCDD-13C	100	52	26.0	166.0	52	
OCDD-13C	200	92	26.0	397.0	46	

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCSD-99761		
Filename	U220705A_03	Matrix	Water
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	U220611	Extracted	06/30/2023 11:30
CCal Filename	U220705A_01	Analyzed	07/05/2022 12:08
Method Blank ID	BLANK-99759	Injected By	MS4

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10	7.5	15.8	101
2,3,7,8-TCDD	10	11	6.7	15.8	106
1,2,3,7,8-PeCDF	50	45	40.0	67.0	91
2,3,4,7,8-PeCDF	50	46	34.0	80.0	92
1,2,3,7,8-PeCDD	50	42	35.0	71.0	84
1,2,3,4,7,8-HxCDF	50	46	36.0	67.0	92
1,2,3,6,7,8-HxCDF	50	47	42.0	65.0	94
2,3,4,6,7,8-HxCDF	50	49	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	49	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	47	35.0	82.0	95
1,2,3,6,7,8-HxCDD	50	48	38.0	67.0	95
1,2,3,7,8,9-HxCDD	50	41	32.0	81.0	81
1,2,3,4,6,7,8-HpCDF	50	42	41.0	61.0	85
1,2,3,4,7,8,9-HpCDF	50	44	39.0	69.0	88
1,2,3,4,6,7,8-HpCDD	50	39	35.0	70.0	78
OCDF	100	96	63.0	170.0	96
OCDD	100	94	78.0	144.0	94
2,3,7,8-TCDD-37Cl4	10	15	3.1	19.1	148
2,3,7,8-TCDF-13C	100	120	22.0	152.0	121
2,3,7,8-TCDD-13C	100	110	20.0	175.0	110
1,2,3,7,8-PeCDF-13C	100	140	21.0	192.0	140
2,3,4,7,8-PeCDF-13C	100	140	13.0	328.0	141
1,2,3,7,8-PeCDD-13C	100	150	21.0	227.0	148
1,2,3,4,7,8-HxCDF-13C	100	170	19.0	202.0	174
1,2,3,6,7,8-HxCDF-13C	100	130	21.0	159.0	127
2,3,4,6,7,8-HxCDF-13C	100	160	22.0	176.0	156
1,2,3,7,8,9-HxCDF-13C	100	160	17.0	205.0	157
1,2,3,4,7,8-HxCDD-13C	100	150	21.0	193.0	146
1,2,3,6,7,8-HxCDD-13C	100	150	25.0	163.0	146
1,2,3,4,6,7,8-HpCDF-13C	100	130	21.0	158.0	127
1,2,3,4,7,8,9-HpCDF-13C	100	110	20.0	186.0	111
1,2,3,4,6,7,8-HpCDD-13C	100	110	26.0	166.0	112
OCDD-13C	200	200	26.0	397.0	102

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414

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Method 1613B

Spike Recovery Relative Percent Difference (RPD) Results

Client	Pace Analytical National		
Spike 1 ID	LCS-99760	Spike 2 ID	LCSD-99761
Spike 1 Filename	U220705A_02	Spike 2 Filename	U220705A_03

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	97	101	4.0
2,3,7,8-TCDD	102	106	3.8
1,2,3,7,8-PeCDF	87	91	4.5
2,3,4,7,8-PeCDF	90	92	2.2
1,2,3,7,8-PeCDD	83	84	1.2
1,2,3,4,7,8-HxCDF	86	92	6.7
1,2,3,6,7,8-HxCDF	87	94	7.7
2,3,4,6,7,8-HxCDF	93	98	5.2
1,2,3,7,8,9-HxCDF	93	98	5.2
1,2,3,4,7,8-HxCDD	90	95	5.4
1,2,3,6,7,8-HxCDD	93	95	2.1
1,2,3,7,8,9-HxCDD	79	81	2.5
1,2,3,4,6,7,8-HpCDF	80	85	6.1
1,2,3,4,7,8,9-HpCDF	79	88	10.8
1,2,3,4,6,7,8-HpCDD	74	78	5.3
OCDF	88	96	8.7
OCDD	79	94	17.3

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Client Services
Pace Analytical National
12065 Lebanon Road
Mount Juliet TN 37122

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10616029
Sample Receipt Date: 07/08/2022
Client Project #: L1508970 WG1891233
Client Sub PO #: L1508970
State Cert #: MN300001

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kongmeng Vang, your Pace Project Manager.

This report has been reviewed by:

July 29, 2022
Kongmeng Vang, Project Manager
(612) 607-6382
(612) 607-6333 (fax)

Report Prepared Date:
July 28, 2022

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on ten samples submitted by a representative of Pace Analytical National. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

Second column confirmation analyses of 2,3,7,8-TCDF values obtained from the primary (DB5-MS) column are performed only when specifically requested for a project and only when the values are above the concentration of the lowest calibration standard. Typical resolution for this isomer using the DB5-MS column ranges from 25-30%.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 10-98%. Except for eight low values, which were flagged "R" on the results tables, the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained or "P" where polychlorinated diphenyl ethers were present. Concentrations below the calibration range were flagged "J" and should be regarded as estimates. Concentrations above the calibration range were flagged "E" and should also be regarded as estimates.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show Blank-100015 to contain trace levels of selected congeners. These levels were below the calibration range for the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results tables and may be, at least partially, attributed to the background.

A laboratory spike sample was also prepared with each sample batch using clean reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 92-120%. These results were within the target ranges for the method. Matrix spikes were prepared with the sample batches using sample materials from separate projects; results from these analyses will be provided upon request.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Mississippi	MN00064
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Appendix A

Sample Management

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Report Number: 10616029_1613FC_DFR

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Pace Analytical	Report To:	Pace Analytical Subout Team	Attention:	Don Hanson
Address:	12065 Lebanon Rd	Copy To:		Company Name:	Oregon Dept of Env. Quality
	Mt Juliet, TN 37122			Address:	
Email:	MTJLSuboutTeam@pacelabs.com	Purchase Order #:	L1508970	Pace Quote:	
Phone:	(615) 773-9756 Fax (615) 758-5859	Project Name:	JH Baxter Removal Action Planning	Pace Project Manager:	Kongmeng Vang
Requested Due Date:	1-Jul	Project #:	72-18-32	Pace Profile #:	38076

Regulatory Agency
State / Location
Portland, OR

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	COMP-09A_0622	SL				20-Jun	13:00		1	1								X		needs promium EDD.	001
2	COMP-09B_0622	SL				20-Jun	13:15		1	1								X		needs promium EDD.	002
3	COMP-10A_0622	SL				21-Jun	10:15		1	1								X		needs promium EDD.	003
4	COMP-10B_0622	SL				21-Jun	10:30		1	1								X		needs promium EDD.	004
5	COMP-11A_0622	SL				21-Jun	11:00		1	1								X		needs promium EDD.	005
6	COMP-11B_0622	SL				21-Jun	11:15		1	1								X		needs promium EDD.	006
7	COMP-14A_0622	SL				20-Jun	16:30		1	1								X		needs promium EDD.	007
8	COMP-14B_0622	SL				20-Jun	16:45		1	1								X		needs promium EDD.	008
9	COMP-15A_0622	SL				21-Jun	8:45		1	1								X		needs promium EDD.	009
10	COMP-15B_0622	SL				21-Jun	9:00		1	1								X		needs promium EDD.	010
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Angela Ford	7-Jul	11:13	PACE	07/08/22	8:50	2.9	Y	Y	Y
Pace Analytical Batch: WG1891233										
Pace Analytical SDGs: L1508970										
Location: Minneapolis, MN 55414										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

WO# : 10616029

10616029

DC#_Title: ENV-FRM-MIN4-0150 v05_Sample Condition Upon Receipt (SCUR)

Effective Date: 04/12/2022

Sample Condition Upon Receipt

Client Name: P.A

Project #:

WO#: 10616029

PM: KV **Due Date: 07/29/22**

CLIENT: ESC_TN

Courier: ☑Fed Ex ☐UPS ☐USPS ☐Client ☐Pace ☐SpeeDee ☐Commercial

See Exceptions ☐ENV-FRM-MIN4-0142

Tracking Number: 5882 7592 6296

Custody Seal on Cooler/Box Present? ☑Yes ☐No **Seals Intact?** ☑Yes ☐No **Biological Tissue Frozen?** ☐Yes ☐No ☑N/A

Packing Material: ☐Bubble Wrap ☑Bubble Bags ☐None ☑Other: ziplock **Temp Blank?** ☑Yes ☐No

Thermometer: ☐T1(0461) ☐T2(1336) ☐T3(0459) ☑T4(0254) ☐T5(0489) ☐T6(0235) ☐T7 (0042) ☐01339252/1710 ☐222639816 ☐140792808

Type of Ice: ☑Wet ☐Blue ☐None ☐Dry ☐Melted

Did Samples Originate in West Virginia? ☐Yes ☑No **Were All Container Temps Taken?** ☐Yes ☐No ☑N/A

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 2.9 °C

Correction Factor: True **Cooler Temp Corrected w/temp blank:** 2.9 °C

Average Corrected Temp (no temp blank only): ____ °C ☐See Exceptions ENV-FRM-MIN4-0142 ☐1 Container

USDA Regulated Soil: (☑N/A, water sample/Other: Solid)

Date/Initials of Person Examining Contents: KN 07/09/22

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐Yes ☐No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐Yes ☐No

If Yes to either question, fill out a Regulated Soil Checklist ENV-FRM-MIN4-0154 and include with SCUR/COC paperwork.

Location (check one): ☐Duluth ☑Minneapolis ☐Virginia

Chain of Custody Present and Filled Out?	☑Yes	☐No		1.
Chain of Custody Relinquished?	☑Yes	☐No		2.
Sampler Name and/or Signature on COC?	☑Yes	☐No	☐N/A	3.
Samples Arrived within Hold Time?	☑Yes	☐No		4. If Fecal: ☐<8 hrs ☐>8hr, <24 hrs, ☐>24 hrs
Short Hold Time Analysis (<72 hr)?	☐Yes	☑No		5. ☐Fecal Coliform ☐HPC ☐Total Coliform/E coli ☐BOD/cBOD ☐Hex Chrome ☐Turbidity ☐Nitrate ☐Nitrite ☐Orthophos ☐Other
Rush Turn Around Time Requested?	☑Yes	☐No		6.
Sufficient Volume?	☑Yes	☐No		7.
Correct Containers Used?	☑Yes	☐No		8.
-Pace Containers Used?	☐Yes	☑No		
Containers Intact?	☑Yes	☐No		9.
Field Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☑N/A	10. Is sediment visible in the dissolved container? ☐Yes ☐No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☐Water ☐Soil ☐Oil ☑Other- Solid	☑Yes	☐No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐Yes	☐No	☑N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐Yes	☐No	☑N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐Yes	☐No	☑N/A	Positive for Res. Chlorine? ☐Yes ☐No **pH Paper Lot#** **See Exception** ☐ ENV-FRM-MIN4-0142
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐Yes	☐No	☑N/A	
Extra labels present on soil VOA or WIDRO containers?	☐Yes	☐No	☑N/A	13. **See Exception** ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐Yes	☐No	☑N/A	
Trip Blank Present?	☐Yes	☐No	☑N/A	14.
Trip Blank Custody Seals Present?	☐Yes	☐No	☑N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: **Date:**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e.,, out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by:

USDA REGULATED SOIL CHECKLIST

To Be Completed by SR Staff:

WO: 10616029 Date: 7/21/22 Initials: BN

Sample Origin (circle one): DOMESTIC QUARANTINED FOREIGN

(Note: soil samples from Hawaii, Guam, Puerto Rico and the US Virgin Islands are considered to be of a Foreign Source)

If Domestic, circle State of Origin: AL AR CA FL GA LA MS NC NM NY OK (OR) SC TN TX VA

(Includes: IFA, SOD, Golden Nematode, Karnal Bunt and Witchweed) List County: Multnomah

(USDA Permit/Compliance Agreement authorizes movement of samples from these domestic regulated zones)

If Quarantined, circle State of Origin: FL ID TX CA List County: _____

(Includes Fruit Fly, Giant African Snail and Pale Cyst Nematode)

(Movement is not authorized for Pale Cyst Nematode [ID or Giant African Snail [FL], remaining quarantines require additional paperwork)

If Foreign, list Country of Origin: _____

(Movement from some Canadian Providences is not allowed. Refer to CS-232 Regulated Soil Flow Chart)

REQUIREMENT	ACTION	COMPLETED
PPQ-530 Paperwork must be included for any samples from counties with a Fruit Fly Quarantine in TX. Refer to **MN-S063** through **MN-S065**	Scan PPQ-530 to the corresponding Project folder on the x drive. If PPQ-530 is not present, contact the Waste Coordinator and do not continue processing samples.	YES NO (N/A)
Samples from ID may not be moved from the quarantined region. Refer to **MN-S055**	If samples originated in a quarantined zone, contact the Waste Coordinator and do not continue processing samples.	YES NO (N/A)
Samples from Giant African Snail Quarantine in FL may not be moved from the quarantined region. Refer to **MN-S068**	If samples originated in a quarantined zone, contact the Waste Coordinator and do not continue processing samples.	YES NO (N/A)

REQUIREMENT	ACTION	COMPLETED
"Special Handling" stickers are to be placed on all samples.	Did "special handling" stickers get placed on all sample containers?	YES (NO)
Samples must be segregated and stored in designated bins, shelves and coolers.	Were samples placed in a designated cooler, containers and shelves?	YES (NO)
Samples must be double contained to prevent accidental release.	Were there any signs of breakage or leakage (check for broken glass and/or loose soil in the cooler)? *If NO, ice and melt water can be disposed of by normal process (down the drain).*	YES (NO)
	If **YES**, were ice and melt water separated from the cooler and disposed of properly?	YES NO (N/A)
	Any broken glass and/or loose soil are to be bagged and placed in a USDA Regulated satellite container or active drum (see Waste Coordinator). **Ice and melt water should be baked at a temperature range of 121-154°F for 2 hours and then cooled before going down the drain.**	
Equipment and supplies that have come into contact samples must be decontaminated.	Was the cooler(s) and/or countertop(s) decontaminated using either a fresh 10% bleach solution or 70% ethanol? *(Gloves and other lab supplies will be bagged and placed in the USDA Regulated satellite container or active drum).*	YES (NO)

Comments: _____

To Be Completed by PM and/or PC:

Sample Analysis to be conducted (circle all that apply): MN Subcontract Lab

Name of Subcontract Lab (s): _____

REQUIREMENT	ACTION	COMPLETED
Permission to ship untreated soil must be on file prior to shipping to any subcontract lab, including IR Pace Labs.	Go to: J:\SHARE\PRJ_MGR\10_Client Services Department Documents\Regulated Soils Permits – if permission to ship letter is not there, contact the Waste Coordinator.	YES NO N/A
Shipment must include a valid copy of the receiving lab's permit as well as permission to ship letter.	Is a copy of all needed paperwork included with the COC? Do **NOT** ship samples until all necessary paperwork is compiled.	YES NO N/A

Comments: _____

Project Manager Signature: _____ Date: _____

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-09A_0622		
Lab Sample ID	10616029001		
Filename	L220719B_08		
Injected By	MS4		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	4.3	Dilution	NA
Dry Weight Extracted	9.80 g	Collected	06/20/2022 13:00
ICAL ID	L220718	Received	07/08/2022 08:50
CCal Filename(s)	L220719A_14	Extracted	07/14/2022 13:00
Method Blank ID	BLANK-99979	Analyzed	07/20/2022 09:35

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	0.37	---	0.095	J	2,3,7,8-TCDF-13C	2.00	72	
Total TCDF	6.7	---	0.095		2,3,7,8-TCDD-13C	2.00	10	R
					1,2,3,7,8-PeCDF-13C	2.00	79	
2,3,7,8-TCDD	9.1	---	0.33		2,3,4,7,8-PeCDF-13C	2.00	82	
Total TCDD	68	---	0.33		1,2,3,7,8-PeCDD-13C	2.00	89	
					1,2,3,4,7,8-HxCDF-13C	2.00	85	
1,2,3,7,8-PeCDF	0.65	---	0.085	J	1,2,3,6,7,8-HxCDF-13C	2.00	78	
2,3,4,7,8-PeCDF	1.3	---	0.10	J	2,3,4,6,7,8-HxCDF-13C	2.00	72	
Total PeCDF	20	---	0.085		1,2,3,7,8,9-HxCDF-13C	2.00	72	
					1,2,3,4,7,8-HxCDD-13C	2.00	71	
1,2,3,7,8-PeCDD	1.8	---	0.095	J	1,2,3,6,7,8-HxCDD-13C	2.00	74	
Total PeCDD	15	---	0.095		1,2,3,4,6,7,8-HpCDF-13C	2.00	62	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	64	
1,2,3,4,7,8-HxCDF	5.4	---	0.096		1,2,3,4,6,7,8-HpCDD-13C	2.00	77	
1,2,3,6,7,8-HxCDF	---	3.6	0.13	PJ	OCDD-13C	4.00	58	
2,3,4,6,7,8-HxCDF	3.0	---	0.13	J				
1,2,3,7,8,9-HxCDF	1.4	---	0.16	J	1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	82	---	0.096		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	3.4	---	0.22	J	2,3,7,8-TCDD-37Cl4	0.20	11	R
1,2,3,6,7,8-HxCDD	9.1	---	0.19					
1,2,3,7,8,9-HxCDD	6.0	---	0.16					
Total HxCDD	79	---	0.16					
1,2,3,4,6,7,8-HpCDF	68	---	0.15		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	4.3	---	0.24	J	Equivalence: 18 ng/Kg			
Total HpCDF	220	---	0.15		(Lower-bound - Using 2005 WHO Factors)			
1,2,3,4,6,7,8-HpCDD	230	---	0.056					
Total HpCDD	480	---	0.056					
OCDF	250	---	0.52					
OCDD	2400	---	0.28					

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
R = Recovery outside target range
P = PCDE Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-09B_0622		
Lab Sample ID	10616029002		
Filename	L220719B_09		
Injected By	MS4		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	5.3	Dilution	NA
Dry Weight Extracted	9.68 g	Collected	06/20/2022 13:15
ICAL ID	L220718	Received	07/08/2022 08:50
CCal Filename(s)	L220719A_14	Extracted	07/14/2022 13:00
Method Blank ID	BLANK-99979	Analyzed	07/20/2022 10:34

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.73	---	0.14	J	2,3,7,8-TCDF-13C	2.00	82
Total TCDF	21	---	0.14		2,3,7,8-TCDD-13C	2.00	33
					1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	8.5	---	0.13		2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	73	---	0.13		1,2,3,7,8-PeCDD-13C	2.00	98
					1,2,3,4,7,8-HxCDF-13C	2.00	98
1,2,3,7,8-PeCDF	1.8	---	0.11	J	1,2,3,6,7,8-HxCDF-13C	2.00	90
2,3,4,7,8-PeCDF	3.6	---	0.44	J	2,3,4,6,7,8-HxCDF-13C	2.00	80
Total PeCDF	83	---	0.11		1,2,3,7,8,9-HxCDF-13C	2.00	83
					1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	15	---	0.089		1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	70	---	0.089		1,2,3,4,6,7,8-HpCDF-13C	2.00	67
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	16	---	0.30		1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	---	42	0.24	P	OCDD-13C	4.00	65
2,3,4,6,7,8-HxCDF	19	---	0.24				
1,2,3,7,8,9-HxCDF	3.4	---	0.25	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	420	---	0.24		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	22	---	0.46		2,3,7,8-TCDD-37Cl4	0.20	36
1,2,3,6,7,8-HxCDD	55	---	0.27				
1,2,3,7,8,9-HxCDD	44	---	0.36				
Total HxCDD	390	---	0.27				
1,2,3,4,6,7,8-HpCDF	540	---	0.44		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	27	---	0.48		Equivalence: 67 ng/Kg		
Total HpCDF	1700	---	0.44		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	1200	---	0.027				
Total HpCDD	2100	---	0.027				
OCDF	2300	---	0.18				
OCDD	11000	---	0.29	E			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
E = Exceeds calibration range

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-10A_0622		
Lab Sample ID	10616029003		
Filename	L220719B_10		
Injected By	MS4		
Total Amount Extracted	10.7 g	Matrix	Solid
% Moisture	4.9	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	06/21/2022 10:15
ICAL ID	L220718	Received	07/08/2022 08:50
CCal Filename(s)	L220719A_14	Extracted	07/14/2022 13:00
Method Blank ID	BLANK-99979	Analyzed	07/20/2022 11:33

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	0.51	---	0.35	J	2,3,7,8-TCDF-13C	2.00	67	
Total TCDF	9.1	---	0.35		2,3,7,8-TCDD-13C	2.00	15	R
					1,2,3,7,8-PeCDF-13C	2.00	76	
2,3,7,8-TCDD	16	---	0.22		2,3,4,7,8-PeCDF-13C	2.00	75	
Total TCDD	61	---	0.22		1,2,3,7,8-PeCDD-13C	2.00	82	
					1,2,3,4,7,8-HxCDF-13C	2.00	75	
1,2,3,7,8-PeCDF	0.60	---	0.070	J	1,2,3,6,7,8-HxCDF-13C	2.00	70	
2,3,4,7,8-PeCDF	1.2	---	0.065	J	2,3,4,6,7,8-HxCDF-13C	2.00	64	
Total PeCDF	22	---	0.065		1,2,3,7,8,9-HxCDF-13C	2.00	67	
					1,2,3,4,7,8-HxCDD-13C	2.00	64	
1,2,3,7,8-PeCDD	2.5	---	0.15	J	1,2,3,6,7,8-HxCDD-13C	2.00	65	
Total PeCDD	22	---	0.15		1,2,3,4,6,7,8-HpCDF-13C	2.00	58	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	60	
1,2,3,4,7,8-HxCDF	3.1	---	0.061	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	71	
1,2,3,6,7,8-HxCDF	---	5.0	0.095	P	OCDD-13C	4.00	57	
2,3,4,6,7,8-HxCDF	2.9	---	0.12	J				
1,2,3,7,8,9-HxCDF	1.1	---	0.065	J	1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	75	---	0.061		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	4.1	---	0.17	J	2,3,7,8-TCDD-37Cl4	0.20	16	R
1,2,3,6,7,8-HxCDD	13	---	0.14					
1,2,3,7,8,9-HxCDD	8.4	---	0.27					
Total HxCDD	130	---	0.14					
1,2,3,4,6,7,8-HpCDF	71	---	0.14		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	4.2	---	0.12	J	Equivalence: 28 ng/Kg			
Total HpCDF	220	---	0.12		(Lower-bound - Using 2005 WHO Factors)			
1,2,3,4,6,7,8-HpCDD	360	---	0.043					
Total HpCDD	770	---	0.043					
OCDF	240	---	0.21					
OCDD	3100	---	0.15					

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
R = Recovery outside target range
P = PCDE Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-10B_0622		
Lab Sample ID	10616029004		
Filename	L220719B_11		
Injected By	MS4		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	5.0	Dilution	NA
Dry Weight Extracted	9.90 g	Collected	06/21/2022 10:30
ICAL ID	L220718	Received	07/08/2022 08:50
CCal Filename(s)	L220719A_14	Extracted	07/14/2022 13:00
Method Blank ID	BLANK-99979	Analyzed	07/20/2022 12:31

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	0.43	---	0.23	J	2,3,7,8-TCDF-13C	2.00	77	
Total TCDF	11	---	0.23		2,3,7,8-TCDD-13C	2.00	17	R
					1,2,3,7,8-PeCDF-13C	2.00	86	
2,3,7,8-TCDD	14	---	0.21		2,3,4,7,8-PeCDF-13C	2.00	87	
Total TCDD	70	---	0.21		1,2,3,7,8-PeCDD-13C	2.00	93	
					1,2,3,4,7,8-HxCDF-13C	2.00	86	
1,2,3,7,8-PeCDF	0.80	---	0.057	J	1,2,3,6,7,8-HxCDF-13C	2.00	81	
2,3,4,7,8-PeCDF	1.7	---	0.090	J	2,3,4,6,7,8-HxCDF-13C	2.00	72	
Total PeCDF	39	---	0.057		1,2,3,7,8,9-HxCDF-13C	2.00	77	
					1,2,3,4,7,8-HxCDD-13C	2.00	73	
1,2,3,7,8-PeCDD	2.3	---	0.049	J	1,2,3,6,7,8-HxCDD-13C	2.00	75	
Total PeCDD	21	---	0.049		1,2,3,4,6,7,8-HpCDF-13C	2.00	65	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	67	
1,2,3,4,7,8-HxCDF	7.6	---	0.15		1,2,3,4,6,7,8-HpCDD-13C	2.00	79	
1,2,3,6,7,8-HxCDF	---	9.8	0.11	P	OCDD-13C	4.00	63	
2,3,4,6,7,8-HxCDF	6.7	---	0.11					
1,2,3,7,8,9-HxCDF	2.1	---	0.11	J	1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	200	---	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	4.2	---	0.24	J	2,3,7,8-TCDD-37Cl4	0.20	18	R
1,2,3,6,7,8-HxCDD	29	---	0.26					
1,2,3,7,8,9-HxCDD	10	---	0.18					
Total HxCDD	170	---	0.18					
1,2,3,4,6,7,8-HpCDF	200	---	0.27		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	9.5	---	0.55		Equivalence: 32 ng/Kg			
Total HpCDF	660	---	0.27		(Lower-bound - Using 2005 WHO Factors)			
1,2,3,4,6,7,8-HpCDD	480	---	0.097					
Total HpCDD	900	---	0.097					
OCDF	570	---	0.28					
OCDD	3300	---	0.24					

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
R = Recovery outside target range
P = PCDE Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-11A_0622		
Lab Sample ID	10616029005		
Filename	L220719B_12		
Injected By	MS4		
Total Amount Extracted	10.0 g	Matrix	Solid
% Moisture	5.0	Dilution	NA
Dry Weight Extracted	9.55 g	Collected	06/21/2022 11:00
ICAL ID	L220718	Received	07/08/2022 08:50
CCal Filename(s)	L220719A_14	Extracted	07/14/2022 13:00
Method Blank ID	BLANK-99979	Analyzed	07/20/2022 13:30

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	0.44	---	0.35	J	2,3,7,8-TCDF-13C	2.00	68	
Total TCDF	8.1	---	0.35		2,3,7,8-TCDD-13C	2.00	20	R
					1,2,3,7,8-PeCDF-13C	2.00	78	
2,3,7,8-TCDD	24	---	0.20		2,3,4,7,8-PeCDF-13C	2.00	78	
Total TCDD	52	---	0.20		1,2,3,7,8-PeCDD-13C	2.00	84	
					1,2,3,4,7,8-HxCDF-13C	2.00	79	
1,2,3,7,8-PeCDF	0.54	---	0.063	J	1,2,3,6,7,8-HxCDF-13C	2.00	75	
2,3,4,7,8-PeCDF	1.2	---	0.071	J	2,3,4,6,7,8-HxCDF-13C	2.00	67	
Total PeCDF	18	---	0.063		1,2,3,7,8,9-HxCDF-13C	2.00	72	
					1,2,3,4,7,8-HxCDD-13C	2.00	67	
1,2,3,7,8-PeCDD	2.0	---	0.11	J	1,2,3,6,7,8-HxCDD-13C	2.00	69	
Total PeCDD	21	---	0.11		1,2,3,4,6,7,8-HpCDF-13C	2.00	60	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	64	
1,2,3,4,7,8-HxCDF	3.4	---	0.12	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	75	
1,2,3,6,7,8-HxCDF	---	5.9	0.14	P	OCDD-13C	4.00	59	
2,3,4,6,7,8-HxCDF	2.5	---	0.15	J				
1,2,3,7,8,9-HxCDF	1.1	---	0.12	J	1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	65	---	0.12		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	4.3	---	0.41	J	2,3,7,8-TCDD-37Cl4	0.20	23	R
1,2,3,6,7,8-HxCDD	14	---	0.19					
1,2,3,7,8,9-HxCDD	8.0	---	0.21					
Total HxCDD	120	---	0.19					
1,2,3,4,6,7,8-HpCDF	55	---	0.15		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	3.0	---	0.090	J	Equivalence: 35 ng/Kg			
Total HpCDF	170	---	0.090		(Lower-bound - Using 2005 WHO Factors)			
1,2,3,4,6,7,8-HpCDD	370	---	0.043					
Total HpCDD	850	---	0.043					
OCDF	150	---	0.18					
OCDD	3500	---	0.13					

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J = Estimated value
R = Recovery outside target range
P = PCDE Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-11B_0622		
Lab Sample ID	10616029006		
Filename	U220721A_14		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	4.9	Dilution	NA
Dry Weight Extracted	9.79 g	Collected	06/21/2022 11:15
ICAL ID	U220611	Received	07/08/2022 08:50
CCal Filename(s)	U220720A_20	Extracted	07/15/2022 14:30
Method Blank ID	BLANK-100015	Analyzed	07/21/2022 13:12

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	1.1	---	0.43		2,3,7,8-TCDF-13C	2.00	63
Total TCDF	15	---	0.43		2,3,7,8-TCDD-13C	2.00	59
					1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	8.4	---	0.37		2,3,4,7,8-PeCDF-13C	2.00	72
Total TCDD	28	---	0.37		1,2,3,7,8-PeCDD-13C	2.00	76
					1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	---	1.8	0.19	IJ	1,2,3,6,7,8-HxCDF-13C	2.00	57
2,3,4,7,8-PeCDF	6.8	---	0.25		2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	77	---	0.19		1,2,3,7,8,9-HxCDF-13C	2.00	67
					1,2,3,4,7,8-HxCDD-13C	2.00	69
1,2,3,7,8-PeCDD	3.9	---	0.25	J	1,2,3,6,7,8-HxCDD-13C	2.00	67
Total PeCDD	36	---	0.25		1,2,3,4,6,7,8-HpCDF-13C	2.00	56
					1,2,3,4,7,8,9-HpCDF-13C	2.00	49
1,2,3,4,7,8-HxCDF	24	---	0.30		1,2,3,4,6,7,8-HpCDD-13C	2.00	61
1,2,3,6,7,8-HxCDF	7.0	---	0.25		OCDD-13C	4.00	45
2,3,4,6,7,8-HxCDF	10	---	0.92				
1,2,3,7,8,9-HxCDF	5.0	---	0.37	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	270	---	0.25		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	8.2	---	0.89		2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	25	---	1.2				
1,2,3,7,8,9-HxCDD	14	---	0.49				
Total HxCDD	160	---	0.49				
1,2,3,4,6,7,8-HpCDF	140	---	2.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	11	---	0.72		Equivalence: 33 ng/Kg		
Total HpCDF	440	---	0.72		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	590	---	0.41				
Total HpCDD	1100	---	0.41				
OCDF	330	---	0.73				
OCDD	5300	---	0.23				

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NC = Not Calculated

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J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-14A_0622		
Lab Sample ID	10616029007		
Filename	U220721A_15		
Injected By	SMT		
Total Amount Extracted	11.9 g	Matrix	Solid
% Moisture	4.9	Dilution	NA
Dry Weight Extracted	11.3 g	Collected	06/20/2022 16:30
ICAL ID	U220611	Received	07/08/2022 08:50
CCal Filename(s)	U220720A_20	Extracted	07/15/2022 14:30
Method Blank ID	BLANK-100015	Analyzed	07/21/2022 14:00

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	----	0.47	0.25	IJ	2,3,7,8-TCDF-13C	2.00	63
Total TCDF	7.3	----	0.25		2,3,7,8-TCDD-13C	2.00	61
					1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	1.3	----	0.23		2,3,4,7,8-PeCDF-13C	2.00	89
Total TCDD	14	----	0.23		1,2,3,7,8-PeCDD-13C	2.00	92
					1,2,3,4,7,8-HxCDF-13C	2.00	87
1,2,3,7,8-PeCDF	0.63	----	0.13	J	1,2,3,6,7,8-HxCDF-13C	2.00	65
2,3,4,7,8-PeCDF	0.95	----	0.10	J	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	20	----	0.10		1,2,3,7,8,9-HxCDF-13C	2.00	75
					1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	1.8	----	0.093	J	1,2,3,6,7,8-HxCDD-13C	2.00	77
Total PeCDD	27	----	0.093		1,2,3,4,6,7,8-HpCDF-13C	2.00	69
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	1.6	----	0.25	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	1.6	----	0.16	J	OCDD-13C	4.00	52
2,3,4,6,7,8-HxCDF	2.4	----	0.20	J			
1,2,3,7,8,9-HxCDF	0.78	----	0.11	BJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	62	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	3.9	----	0.74	J	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	11	----	0.61				
1,2,3,7,8,9-HxCDD	7.1	----	0.37				
Total HxCDD	110	----	0.37				
1,2,3,4,6,7,8-HpCDF	59	----	0.34		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	3.3	----	0.28	J	Equivalence: 11 ng/Kg		
Total HpCDF	210	----	0.28		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	300	----	0.12				
Total HpCDD	680	----	0.12				
OCDF	270	----	0.41				
OCDD	3300	----	0.31				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
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ND = Not Detected
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NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
B = Less than 10x higher than method blank level
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-14B_0622		
Lab Sample ID	10616029008		
Filename	U220721A_11		
Injected By	SMT		
Total Amount Extracted	12.1 g	Matrix	Solid
% Moisture	4.4	Dilution	NA
Dry Weight Extracted	11.5 g	Collected	06/20/2022 16:45
ICAL ID	U220611	Received	07/08/2022 08:50
CCal Filename(s)	U220720A_20	Extracted	07/15/2022 14:30
Method Blank ID	BLANK-100015	Analyzed	07/21/2022 10:51

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	----	0.43	0.30	IJ	2,3,7,8-TCDF-13C	2.00	61
Total TCDF	9.7	----	0.30		2,3,7,8-TCDD-13C	2.00	59
					1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	1.4	----	0.13		2,3,4,7,8-PeCDF-13C	2.00	89
Total TCDD	20	----	0.13		1,2,3,7,8-PeCDD-13C	2.00	94
					1,2,3,4,7,8-HxCDF-13C	2.00	86
1,2,3,7,8-PeCDF	----	0.54	0.049	IJ	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	----	0.89	0.085	IJ	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	17	----	0.049		1,2,3,7,8,9-HxCDF-13C	2.00	81
					1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	2.1	----	0.067	J	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD	28	----	0.067		1,2,3,4,6,7,8-HpCDF-13C	2.00	70
					1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	2.1	----	0.14	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	2.9	----	0.13	J	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	2.6	----	0.11	J			
1,2,3,7,8,9-HxCDF	0.75	----	0.15	BJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	61	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	4.1	----	0.33	J	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	10	----	0.21				
1,2,3,7,8,9-HxCDD	6.9	----	0.24				
Total HxCDD	89	----	0.21				
1,2,3,4,6,7,8-HpCDF	55	----	0.95		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	4.1	----	0.32	J	Equivalence: 11 ng/Kg		
Total HpCDF	190	----	0.32		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	240	----	0.17				
Total HpCDD	500	----	0.17				
OCDF	230	----	0.086				
OCDD	2500	----	0.043				

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B = Less than 10x higher than method blank level
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-15A_0622		
Lab Sample ID	10616029009		
Filename	U220721A_12		
Injected By	SMT		
Total Amount Extracted	11.7 g	Matrix	Solid
% Moisture	4.5	Dilution	NA
Dry Weight Extracted	11.2 g	Collected	06/21/2022 08:45
ICAL ID	U220611	Received	07/08/2022 08:50
CCal Filename(s)	U220720A_20	Extracted	07/15/2022 14:30
Method Blank ID	BLANK-100015	Analyzed	07/21/2022 11:38

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.66	----	0.48	J	2,3,7,8-TCDF-13C	2.00	62
Total TCDF	6.4	----	0.48		2,3,7,8-TCDD-13C	2.00	60
					1,2,3,7,8-PeCDF-13C	2.00	79
2,3,7,8-TCDD	14	----	0.45		2,3,4,7,8-PeCDF-13C	2.00	83
Total TCDD	37	----	0.45		1,2,3,7,8-PeCDD-13C	2.00	87
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	----	0.66	0.037	IJ	1,2,3,6,7,8-HxCDF-13C	2.00	60
2,3,4,7,8-PeCDF	1.6	----	0.12	J	2,3,4,6,7,8-HxCDF-13C	2.00	67
Total PeCDF	29	----	0.037		1,2,3,7,8,9-HxCDF-13C	2.00	72
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	2.5	----	0.060	J	1,2,3,6,7,8-HxCDD-13C	2.00	65
Total PeCDD	35	----	0.060		1,2,3,4,6,7,8-HpCDF-13C	2.00	62
					1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	----	3.6	0.15	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	72
1,2,3,6,7,8-HxCDF	4.6	----	0.11		OCDD-13C	4.00	54
2,3,4,6,7,8-HxCDF	3.4	----	0.26	J			
1,2,3,7,8,9-HxCDF	1.3	----	0.25	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	81	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	5.0	----	0.38		2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	16	----	0.33				
1,2,3,7,8,9-HxCDD	9.4	----	0.34				
Total HxCDD	140	----	0.33				
1,2,3,4,6,7,8-HpCDF	57	----	0.27		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	3.9	----	0.23	J	Equivalence: 27 ng/Kg		
Total HpCDF	180	----	0.23		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	350	----	0.12				
Total HpCDD	900	----	0.12				
OCDF	190	----	0.053				
OCDD	3300	----	0.094				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	COMP-15B_0622		
Lab Sample ID	10616029010		
Filename	U220721A_13		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	4.7	Dilution	NA
Dry Weight Extracted	9.79 g	Collected	06/21/2022 09:00
ICAL ID	U220611	Received	07/08/2022 08:50
CCal Filename(s)	U220720A_20	Extracted	07/15/2022 14:30
Method Blank ID	BLANK-100015	Analyzed	07/21/2022 12:25

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	1.1	----	0.25		2,3,7,8-TCDF-13C	2.00	67
Total TCDF	21	----	0.25		2,3,7,8-TCDD-13C	2.00	63
					1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	9.6	----	0.66		2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	29	----	0.66		1,2,3,7,8-PeCDD-13C	2.00	79
					1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	1.2	----	0.26	J	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	2.2	----	0.26	J	2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	40	----	0.26		1,2,3,7,8,9-HxCDF-13C	2.00	64
					1,2,3,4,7,8-HxCDD-13C	2.00	77
1,2,3,7,8-PeCDD	----	2.2	0.14	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	66
Total PeCDD	28	----	0.14		1,2,3,4,6,7,8-HpCDF-13C	2.00	48
					1,2,3,4,7,8,9-HpCDF-13C	2.00	41
1,2,3,4,7,8-HxCDF	5.7	----	0.17		1,2,3,4,6,7,8-HpCDD-13C	2.00	57
1,2,3,6,7,8-HxCDF	2.8	----	0.26	J	OCDD-13C	4.00	27
2,3,4,6,7,8-HxCDF	3.8	----	0.28	J			
1,2,3,7,8,9-HxCDF	1.6	----	0.26	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	66	----	0.17		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	4.8	----	0.63	J	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,6,7,8-HxCDD	15	----	0.65				
1,2,3,7,8,9-HxCDD	8.8	----	0.27				
Total HxCDD	130	----	0.27				
1,2,3,4,6,7,8-HpCDF	63	----	0.46		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	4.4	----	0.52	J	Equivalence: 22 ng/Kg		
Total HpCDF	67	----	0.46		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	330	----	0.14				
Total HpCDD	730	----	0.14				
OCDF	230	----	0.66				
OCDD	3200	----	0.62				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKPG		
Lab Sample ID	BLANK-99979	Matrix	Solid
Filename	U220719A_03	Dilution	NA
Total Amount Extracted	10.3 g	Extracted	07/14/2022 13:00
ICAL ID	U220611	Analyzed	07/19/2022 11:25
CCal Filename(s)	U220718A_27	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.23	2,3,7,8-TCDF-13C	2.00	69
Total TCDF	ND	----	0.23	2,3,7,8-TCDD-13C	2.00	58
				1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	----	0.34	2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	ND	----	0.34	1,2,3,7,8-PeCDD-13C	2.00	104
				1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	----	0.24	1,2,3,6,7,8-HxCDF-13C	2.00	68
2,3,4,7,8-PeCDF	ND	----	0.18	2,3,4,6,7,8-HxCDF-13C	2.00	63
Total PeCDF	ND	----	0.18	1,2,3,7,8,9-HxCDF-13C	2.00	68
				1,2,3,4,7,8-HxCDD-13C	2.00	82
1,2,3,7,8-PeCDD	ND	----	0.27	1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	----	0.27	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	73
1,2,3,4,7,8-HxCDF	ND	----	0.92	1,2,3,4,6,7,8-HpCDD-13C	2.00	103
1,2,3,6,7,8-HxCDF	ND	----	0.99	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	ND	----	0.94			
1,2,3,7,8,9-HxCDF	ND	----	1.2	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.92	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.0	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,6,7,8-HxCDD	ND	----	0.90			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	0.90			
1,2,3,4,6,7,8-HpCDF	ND	----	0.82	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.3	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	----	0.82	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.49			
Total HpCDD	ND	----	0.49			
OCDF	ND	----	2.4			
OCDD	ND	----	2.6			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKPX		
Lab Sample ID	BLANK-100015	Matrix	Solid
Filename	F220719B_06	Dilution	NA
Total Amount Extracted	10.7 g	Extracted	07/15/2022 14:30
ICAL ID	F220529	Analyzed	07/19/2022 18:08
CCal Filename(s)	F220719B_01	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.048		2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	----	0.048		2,3,7,8-TCDD-13C	2.00	57
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	ND	----	0.11		2,3,4,7,8-PeCDF-13C	2.00	68
Total TCDD	ND	----	0.11		1,2,3,7,8-PeCDD-13C	2.00	66
					1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.063		1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	ND	----	0.041		2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	ND	----	0.041		1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	ND	----	0.051		1,2,3,6,7,8-HxCDD-13C	2.00	74
Total PeCDD	ND	----	0.051		1,2,3,4,6,7,8-HpCDF-13C	2.00	59
					1,2,3,4,7,8,9-HpCDF-13C	2.00	53
1,2,3,4,7,8-HxCDF	ND	----	0.050		1,2,3,4,6,7,8-HpCDD-13C	2.00	55
1,2,3,6,7,8-HxCDF	ND	----	0.053		OCDD-13C	4.00	46
2,3,4,6,7,8-HxCDF	ND	----	0.045				
1,2,3,7,8,9-HxCDF	0.12	----	0.061	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.12	----	0.045	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.16	----	0.083	J	2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,6,7,8-HxCDD	ND	----	0.079				
1,2,3,7,8,9-HxCDD	ND	----	0.075				
Total HxCDD	0.16	----	0.075	J			
1,2,3,4,6,7,8-HpCDF	ND	----	0.049		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.079		Equivalence: 0.030 ng/Kg		
Total HpCDF	ND	----	0.049		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	0.18	----	0.085	J			
Total HpCDD	0.18	----	0.085	J			
OCDF	ND	----	0.17				
OCDD	0.64	----	0.19	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

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J = Estimated value

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-99980		
Filename	U220719A_01	Matrix	Solid
Total Amount Extracted	10.5 g	Dilution	NA
ICAL ID	U220611	Extracted	07/14/2022 13:00
CCal Filename	U220718A_27	Analyzed	07/19/2022 09:52
Method Blank ID	BLANK-99979	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10	7.5	15.8	102
2,3,7,8-TCDD	10	10	6.7	15.8	104
1,2,3,7,8-PeCDF	50	53	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	53	36.0	67.0	106
1,2,3,6,7,8-HxCDF	50	56	42.0	65.0	112
2,3,4,6,7,8-HxCDF	50	57	35.0	78.0	115
1,2,3,7,8,9-HxCDF	50	56	39.0	65.0	113
1,2,3,4,7,8-HxCDD	50	53	35.0	82.0	106
1,2,3,6,7,8-HxCDD	50	53	38.0	67.0	107
1,2,3,7,8,9-HxCDD	50	49	32.0	81.0	99
1,2,3,4,6,7,8-HpCDF	50	49	41.0	61.0	98
1,2,3,4,7,8,9-HpCDF	50	51	39.0	69.0	102
1,2,3,4,6,7,8-HpCDD	50	47	35.0	70.0	93
OCDF	100	93	63.0	170.0	93
OCDD	100	120	78.0	144.0	116
2,3,7,8-TCDD-37Cl4	10	5.3	3.1	19.1	53
2,3,7,8-TCDF-13C	100	68	22.0	152.0	68
2,3,7,8-TCDD-13C	100	50	20.0	175.0	50
1,2,3,7,8-PeCDF-13C	100	78	21.0	192.0	78
2,3,4,7,8-PeCDF-13C	100	80	13.0	328.0	80
1,2,3,7,8-PeCDD-13C	100	100	21.0	227.0	105
1,2,3,4,7,8-HxCDF-13C	100	73	19.0	202.0	73
1,2,3,6,7,8-HxCDF-13C	100	69	21.0	159.0	69
2,3,4,6,7,8-HxCDF-13C	100	63	22.0	176.0	63
1,2,3,7,8,9-HxCDF-13C	100	68	17.0	205.0	68
1,2,3,4,7,8-HxCDD-13C	100	82	21.0	193.0	82
1,2,3,6,7,8-HxCDD-13C	100	78	25.0	163.0	78
1,2,3,4,6,7,8-HpCDF-13C	100	78	21.0	158.0	78
1,2,3,4,7,8,9-HpCDF-13C	100	73	20.0	186.0	73
1,2,3,4,6,7,8-HpCDD-13C	100	100	26.0	166.0	103
OCDD-13C	200	120	26.0	397.0	58

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-100016		
Filename	F220719B_02	Matrix	Solid
Total Amount Extracted	10.8 g	Dilution	NA
ICAL ID	F220529	Extracted	07/15/2022 14:30
CCal Filename	F220719B_01	Analyzed	07/19/2022 15:06
Method Blank ID	BLANK-100015	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	11	7.5	15.8	110
2,3,7,8-TCDD	10	11	6.7	15.8	114
1,2,3,7,8-PeCDF	50	50	40.0	67.0	100
2,3,4,7,8-PeCDF	50	49	34.0	80.0	98
1,2,3,7,8-PeCDD	50	50	35.0	71.0	101
1,2,3,4,7,8-HxCDF	50	51	36.0	67.0	101
1,2,3,6,7,8-HxCDF	50	52	42.0	65.0	103
2,3,4,6,7,8-HxCDF	50	52	35.0	78.0	104
1,2,3,7,8,9-HxCDF	50	51	39.0	65.0	102
1,2,3,4,7,8-HxCDD	50	54	35.0	82.0	109
1,2,3,6,7,8-HxCDD	50	52	38.0	67.0	104
1,2,3,7,8,9-HxCDD	50	50	32.0	81.0	99
1,2,3,4,6,7,8-HpCDF	50	54	41.0	61.0	108
1,2,3,4,7,8,9-HpCDF	50	56	39.0	69.0	112
1,2,3,4,6,7,8-HpCDD	50	51	35.0	70.0	102
OCDF	100	120	63.0	170.0	118
OCDD	100	120	78.0	144.0	120
2,3,7,8-TCDD-37Cl4	10	12	3.1	19.1	119
2,3,7,8-TCDF-13C	100	110	22.0	152.0	108
2,3,7,8-TCDD-13C	100	97	20.0	175.0	97
1,2,3,7,8-PeCDF-13C	100	110	21.0	192.0	106
2,3,4,7,8-PeCDF-13C	100	100	13.0	328.0	102
1,2,3,7,8-PeCDD-13C	100	100	21.0	227.0	102
1,2,3,4,7,8-HxCDF-13C	100	130	19.0	202.0	128
1,2,3,6,7,8-HxCDF-13C	100	110	21.0	159.0	114
2,3,4,6,7,8-HxCDF-13C	100	120	22.0	176.0	115
1,2,3,7,8,9-HxCDF-13C	100	110	17.0	205.0	109
1,2,3,4,7,8-HxCDD-13C	100	110	21.0	193.0	114
1,2,3,6,7,8-HxCDD-13C	100	120	25.0	163.0	123
1,2,3,4,6,7,8-HpCDF-13C	100	94	21.0	158.0	94
1,2,3,4,7,8,9-HpCDF-13C	100	82	20.0	186.0	82
1,2,3,4,6,7,8-HpCDD-13C	100	87	26.0	166.0	87
OCDD-13C	200	150	26.0	397.0	75

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Stage 2A/B Data Validation Checks
JH Baxter
Delivery Group L1508970/10616029

Comments:

- U-qualified samples assigned by the laboratory are not included in this report unless the U qualification is for some other reason other than a simple non-detect.

SUMMARY OF QUALITY CONTROL CHECKS

Quality Control Check	Checked By	Comment
Completeness	MBF	The data set is 100 percent complete, no results rejected.
Holding times	MBF	Holding times were within the method specific recommended holding times.
Preservation	MBF	Preservation was acceptable.
COC Documentation	MBF	COC was provided in the lab report.
Analytical methods	MBF	EPA 1613B Requested analytical methods were performed.
Initial and continuing calibrations	MBF	Not independently verified during Stage 2A/B validation.
Method blanks, trip blank, and field blanks	MBF	Method blanks were performed per batch and there were no detections and associated QC were within established control limits except for: • Blank-1000015 o 1,2,3,7,8,9-HxCDF 0.12 J o Total HxCDF 0.12 J o 1,2,3,4,7,8-HxCDD 0.16 J o Total HxCDD 0.16 J o 1,2,3,4,6,7,8-HpCDD 0.18 J, o Total HpCDD 0.18 J o OCDD 0.64 J Associated sample results were greater than 3X method blank contamination. Results not qualified. • Equipment Blank (EB-01_0622) o 1,2,3,4,7,8-HxCDD 1.7 J o Total HxCDD 1.1 J o 1,2,3,4,6,7,8-HpCDD 1.9 J+ o OCDD 21 J Raw results not reviewed during 2A/B. Equipment blank results (pg/L) and sample results (ng/kg) not directly comparable. Results not qualified.
Surrogate/labeled compounds	MBF	Labeled compounds were analyzed and within control limits except for: • 2,3,7,8-TCDD-13C o COMP-11A_0622 10% o COMP-10B_0622 15% o COMP-10A_0622 17%

Quality Control Check	Checked By	Comment
		○ COMP-09A_0622 20% Associated 2,3,7,8-TCDD analytes qualified J-. • 2,3,7,8-TCDD-37Cl4 (Cleanup Recovery STD) ○ COMP-09A_0622 11% ○ COMP-10A_0622 16% ○ COMP-10B_0622 18% ○ COMP-11A_0622 23% Unless additional qualifications were necessary, all associated sample analytes qualified J due to low CRS recovery.
LCS/LCSD	MBF	An LCS was analyzed per batch. Recoveries were within established control limits.
MS/MSD	MBF	MS/MSD were not performed and are not required per the method.
Field duplicates	MBF	Field duplicates were not collected or analyzed.
Lab duplicates	MBF	Lab sample duplicates were not performed or required per the method.
Dilution	MBF	Samples did not require further dilution for analysis.
Qualitative Identification for HRGC/HRMS analyses only	MBF	The following results were EMPCs with the presence of diphenyl ethers: • 1,2,3,6,7,8-HxCDF ○ COMP-09A_0622 ○ COMP-09B_0622 ○ COMP-10A_0622 ○ COMP-10B_0622 ○ COMP-11A_0622 Results were qualified J+. The following results were EMPCs with an isotope ratio out of specification: • COMP-11B_0622 ○ 1,2,3,7,8-PeCDF • COMP-14A_0622 ○ 2,3,7,8-TCDF • COMP-14B_0622 ○ 1,2,3,7,8-PeCDF ○ 2,3,4,7,8-PeCDF ○ 2,3,7,8-TCDF • COMP-15A_0622 ○ 1,2,3,4,7,8-HxCDF ○ 1,2,3,7,8-PeCDF • COMP-15B_0622 ○ 1,2,3,7,8-PeCDD Results qualified J+.

Quality Control Check	Checked By	Comment
Overall Assessment		**Qualifier codes added to results; table and notes below.**

Notes

TABLE 1. SUMMARY OF QUALIFIED DATA

Sample ID	Analyte	Result (ng/kg)	Qualifier Assigned	Reason for Qualification
COMP-09A_0622	1,2,3,6,7,8-HxCDF	3.6	J+	EMPC, Presence of PCDEs, CRS < LCL, Below reporting limit
COMP-09A_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	4.3, 3.4, 1.4, 1.8, 0.65, 3.0, 1.3, 0.37	J	CRS < LCL, Below reporting limit
COMP-09A_0622	2,3,7,8-Tcdd	9.1	J-	SUR < LCL, CRS < LCL
COMP-09A_0622	1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, OCDD, OCDF, Total TCDF, Total HpCDD, Total HpCDF, Total HxCDD, Total HxCDF, Total PeCDD, Total PeCDF, Total TCDD	230, 68, 5.4, 9.1, 6.0, 2400, 250, 6.7, 480, 220, 79, 82, 15, 20, 68	J	CRS < LCL
COMP-09B_0622	1,2,3,6,7,8-HxCDF	42	J+	EMPC, Presence of PCDEs
COMP-09B_0622	1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	3.4, 1.8, 3.6, 0.73	J	Below reporting limit
COMP-10A_0622	1,2,3,6,7,8-HxCDF	5.0	J+	EMPC, Presence of PBDEs, CRS < LCL

COMP-10A_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	4.2, 4.1, 3.1, 1.1, 2.5, 0.60, 2.9, 1.2, 0.51	J	CRS < LCL, Below reporting limit
COMP-10A_0622	2,3,7,8-TCDD	16	J-	Labeled Standard < LCL, CRS < LCL
COMP-10A_0622	1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, OCDD, OCDF, Total TCDF, Total HpCDD, Total HpCDF, Total HxCDD, Total HxCDF, Total PeCDD, Total PeCDF, Total TCDD	360, 71, 13, 8.4, 3100, 240, 9.1, 770, 220, 130, 75, 22, 22, 61	J	CRS < LCL
COMP-10B_0622	1,2,3,6,7,8-HxCDF	9.8	J+	EMPC, Presence of PCDEs, CRS < LCL
COMP-10B_0622	1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	4.2, 2.1, 2.3, 0.80, 1.7, 0.43	J	CRS < LCL, Below reporting limit
COMP-10B_0622	2,3,7,8-TCDD	14	J-	SUR < LCL, CRS < LCL
COMP-10B_0622	1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 2,3,4,6,7,8-HxCDF, OCDD, OCDF, Total TCDF, Total HpCDD, Total HpCDF, Total HxCDD, Total HxCDF, Total PeCDD,	480, 200, 9.5, 7.6, 29, 10, 6.7, 3300, 570, 11, 900, 660, 170, 200, 21,	J	CRS < LCL

	Total PeCDF, Total TCDD	39, 70		
COMP-11A_0622	1,2,3,6,7,8-HxCDF	5.9	J+	EMPC, Presence of PCDEs, CRS < LCL
COMP-11A_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	3.0, 4.3, 3.4, 1.1, 2.0, 0.54, 2.5, 1.2, 0.44	J	CRS < LCL, Below reporting limit
COMP-11A_0622	2,3,7,8-TCDD	24	J-	SUR < LCL, CRS < LCL
COMP-11A_0622	1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, OCDD, OCDF, Total TCDF, Total HpCDD, Total HpCDF, Total HxCDD, Total HxCDF, Total PeCDD, Total PeCDF, Total TCDD	370, 55, 14, 8.0, 3500, 150, 8.1, 850, 170, 120, 65, 21, 18, 52	J	CRS < LCL
COMP-11B_0622	1,2,3,7,8-PeCDF	1.8	J+	EMPC, Isotope ratio out of spec, Below reporting limit
COMP-11B_0622	1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD	5.0, 3.9	J	Below reporting limit
COMP-14A_0622	2,3,7,8-TCDF	0.47	J+	EMPC, Isotope ratio out of spec, Below reporting limit
COMP-14A_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF	3.3, 3.9, 1.6, 1.6, 0.78, 1.8, 0.63, 2.4, 0.95	J	Below reporting limit

COMP-14B_0622	1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	0.54, 0.89, 0.43	J+	EMPC, Isotope ratio out of spec, Below reporting limit
COMP-14B_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 2,3,4,6,7,8-HxCDF	4.1, 4.1, 2.1, 2.9, 0.75, 2.1, 2.6	J	Below reporting limit
COMP-15A_0622	1,2,3,4,7,8-HxCDF, 1,2,3,7,8-PeCDF	3.6, 0.66	J+	EMPC, Isotope ratio out of spec, Below reporting limit
COMP-15A_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDF	3.9, 1.3, 2.5, 3.4, 1.6, 0.66	J	Below reporting limit
COMP-15B_0622	1,2,3,7,8-PeCDD	2.2	J+	EMPC, Isotope ratio out of spec, Below reporting limit
COMP-15B_0622	1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF	4.4, 4.8, 2.8, 1.6, 1.2, 3.8, 2.2	J	Below reporting limit

ANALYTICAL REPORT

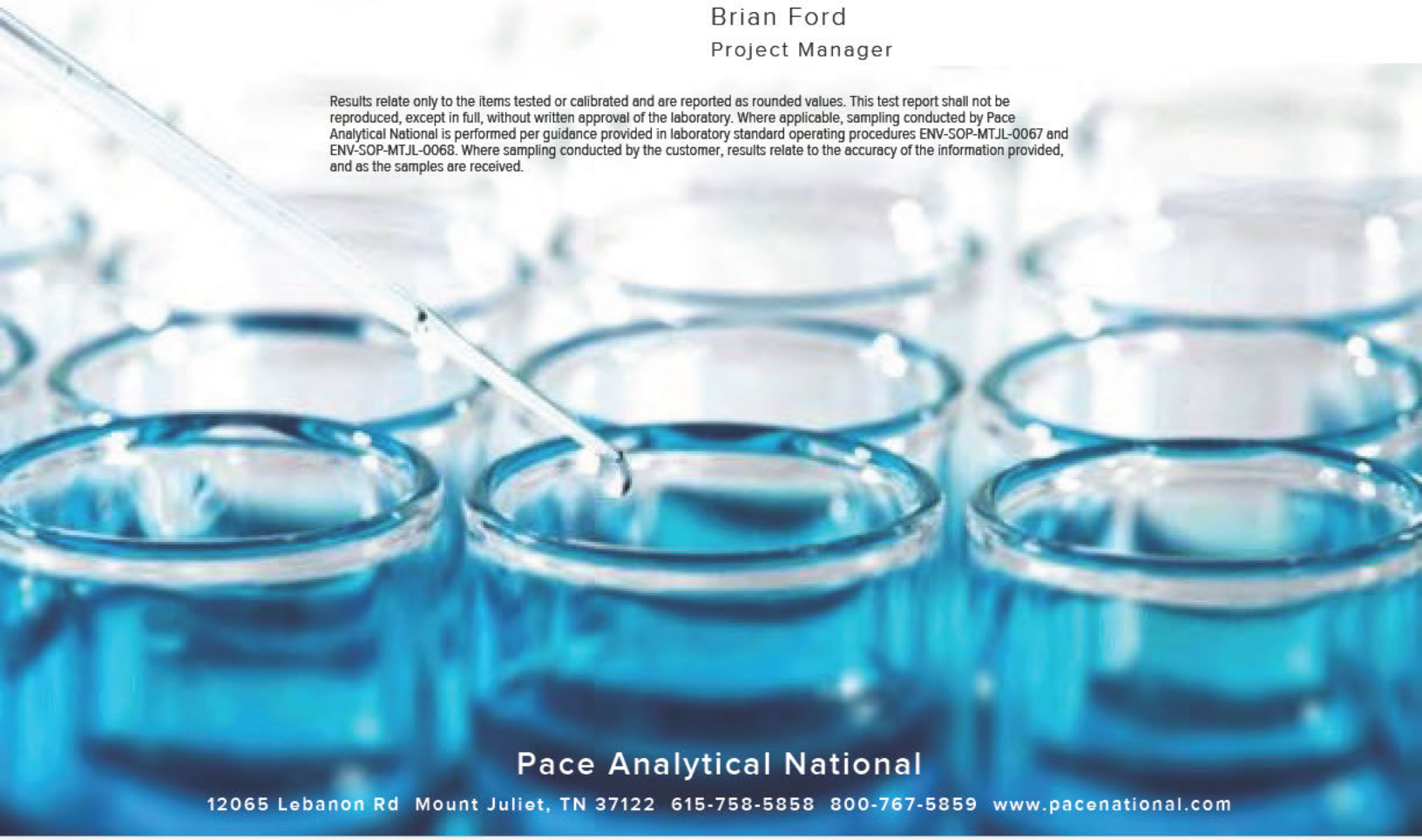
May 08, 2023

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1603081
Samples Received:	04/07/2023
Project Number:	02060.005.004
Description:	Oregon DEQ-JH Baxter Offsite Investigation (TO #2060.005)
Report To:	Don Hanson
	165 E. 7th Avenue
	Suite 100
	Eugene, OR 97401

Entire Report Reviewed By: Brian Ford

Brian Ford
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

DU-06B-0.5-1.0_0423 L1603081-04 Solid

Collected by: GSI | Collected date/time: 04/05/23 14:30 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-06B-1.0-1.5_0423 L1603081-05 Solid

Collected by: GSI | Collected date/time: 04/05/23 14:35 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-01A-0.5-1.0_0423 L1603081-10 Solid

Collected by: GSI | Collected date/time: 04/05/23 15:30 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-01A-1.0-1.5_0423 L1603081-11 Solid

Collected by: GSI | Collected date/time: 04/05/23 15:35 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-01B-0.5-1.0_0423 L1603081-15 Solid

Collected by: GSI | Collected date/time: 04/05/23 15:55 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-110A-1.0-1.5_0423 L1603081-16 Solid

Collected by: GSI | Collected date/time: 04/05/23 09:50 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-10B-1.0-1.5_0423 L1603081-17 Solid

Collected by: GSI | Collected date/time: 04/05/23 10:20 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-10B-1.5-2.0_0423 L1603081-18 Solid

Collected by: GSI | Collected date/time: 04/05/23 09:50 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-09A-1.0-1.5_0423 L1603081-21 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 11:30	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-09A-1.5-2.0_0423 L1603081-22 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 11:35	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-09B-1.0-1.5_0423 L1603081-25 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 12:15	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-09B-1.5-2.0_0423 L1603081-26 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 12:20	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-06A-0.5-1.0_0423 L1603081-29 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 13:00	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-06A-1.0-1.5_0423 L1603081-30 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 13:05	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-15A-1.0-1.5_0423 L1603081-31 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 10:00	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-15A-1.5-2.0_0423 L1603081-32 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 10:05	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-15B-1.0-1.5_0423 L1603081-35 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 11:00	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-15B-1.5-2.0_0423 L1603081-36 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 11:05	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

SU-07A-0.5-1.0_0423 L1603081-39 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 11:35	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

SU-07A-1.0-1.5_0423 L1603081-40 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 11:40	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

SU-07B-0.5-1.0-0423 L1603081-44 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 12:00	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

SU-07B-1.0-1.5-0423 L1603081-45 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 12:05	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-11A-1.0-1.5_0423 L1603081-49 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 14:05	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-11A-1.5-2.0_0423 L1603081-50 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 14:10	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-11B-1.0-1.5_0423 L1603081-53 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 14:30	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-11B-1.5-2.0_0423 L1603081-54 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 14:35	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-10A-1.0-1.5_0423 L1603081-57 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 09:30	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-10A-1.5-2.0_0423 L1603081-58 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 09:35	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

DU-01B-1.0-1.5_0423 L1603081-61 Solid

Collected by	Collected date/time	Received date/time
GSI	04/05/23 16:00	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2039826	1	05/08/23 00:00	05/08/23 00:00	-	Minneapolis, MN 55414

EB-01-0423 L1603081-65 GW

Collected by	Collected date/time	Received date/time
GSI	04/05/23 15:00	04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2038179	1	05/03/23 00:00	05/03/23 00:00	-	Minneapolis, MN 55414

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

Project Narrative

L1603081 -04, -05, -10, -11, -15, -16, -17, -18, -21, -22, -25, -26, -29, -30, -31, -32, -35, -36, -39, -40, -44, -45, -49, -50, -53, -54, -57, -58, -61, -65 contains subout data that is included after the chain of custody.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

D153

Contract Laboratory Name: Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

Lab Selection Criteria:
Proximity (if TAT < 48 hrs)
Prior work on same project
Cost (for anticipated analyses)
Other labs disqualified or unable to perform requested services
Emergency work

Turn Around Time:
10 days (std.)
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: **OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)**

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Solids: NA								

Requested Analyses

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	ISM Prep:Dioxin/furans by 1613B							Arsenic	Comments
DU-06A-1.5-2.0_0423	4/5/23	1310	SE	1								X	L1603081 -01
DU-06A-2.0-2.5_0423	4/5/23	1315	SE	1								X	-02
DU-06A-2.5-3.0_0423	4/5/23	1320	SE	1								X	-03
DU-06B-0.5-1.0_0423	4/5/23	1430	SE	1	X								-04
DU-06B-1.0-1.5_0423	4/5/23	1435	SE	1	X								-05
DU-06B-1.5-2.0_0423	4/5/23	1440	SE	1								X	-06
DU-06B-2.0-2.5_0423	4/5/23	1445	SE	1								X	-07
DU-06B-2.5-3.0_0423	4/5/23	1450	SE	1								X	-08
DU-106B-1.5-2.0_0423	4/5/23	1455	SE	1								X	-09
DU-01A-0.5-1.0_0423	4/5/23	1530	SE	1	X								-10
DU-01A-1.0-1.5_0423	4/5/23	1535	SE	1	X								-11
DU-01A-1.5-2.0_0423	4/5/23	1540	SE	1								X	-12
DU-01A-2.0-2.5_0423	4/5/23	1545	SE	1								X	-13
DU-01A-2.5-3.0_0423	4/5/23	1550	SE	1								X	-14
DU-01B-0.5-1.0_0423	4/5/23	1555	SE	1	X								-15

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G. Schultzius	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie T	Time & Date: 4/7/23 920

THIS PURC
HEREBY IN

PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

Contract Laboratory Name: Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

Lab Selection Criteria:
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Prior work on same project
(Cost (for anticipated analyses))
Other labs disqualified or unable to perform requested services
Emergency work

Turn Around Time:
(10 days (std.))
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: **OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)**

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA									Comments
					Requested Analyses									
					ISM Prep.Dioxin/furans by 1613B								Archive	L1603081
DU10A-1.0-1.5_0423	4/5/23	950	SE	1	X									-16
DU-10B-1.0-1.5_0423	4/5/23	1020	SE	1	X									-17
DU-10B-1.5-2.0_0423	4/5/23	1025	SE	1	X									-18
DU-10B-2.0-2.5_0423	4/5/23	1030	SE	1									X	-19
DU-10B-2.5-3.0_0423	4/5/23	1035	SE	1									X	-20
DU-09A-1.0-1.5_0423	4/5/23	1130	SE	1	X									-21
DU-09A-1.5-2.0_0423	4/5/23	1135	SE	1	X									-22
DU-09A-2.0-2.5-0423	4/5/23	1140	SE	1									X	-23
DU-09A-2.5-3.0_0423	4/5/23	1145	SE	1									X	-24
DU-09B-1.0-1.5_0423	4/5/23	1215	SE	1	X									-25
DU-09B-1.5-2.0_0423	4/5/23	1220	SE	1	X									-26
DU-09B-2.0-2.5_0423	4/5/23	1225	SE	1									X	-27
DU-09B-2.5-3.0_0423	4/5/23	1230	SE	1									X	-28
DU-06A-0.5-1.0_0423	4/5/23	1300	SE	1	X									-29
DU-06A-1.0-1.5_0423	4/5/23	1305	SE	1	X									-30

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G.Schuyler	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By: *	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie	Time & Date: 4/7/23 920

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION **#102-1098-07** AND PRICE AGREEMENT # 8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

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Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

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- 5 days
- 72 hours
- 48 hours
- 24 hours
- Other _____

Project Name: **OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)**

Project #: JH Baxter Offsite Investigation

Sampler Name: G81

Sample Preservative

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA								Comments
					Requested Analyses								
					ISM Prep,Dioxin/furans by 1613B							Archive	L1603081
DU-15A-1.0-1.5-0423	4/4/23	10:00	SE	1	X								-31
DU-15A-1.5-2.0-0423	4/4/23	10:05	SE	1	X								-32
DU-15A-2.0-2.5-0423	4/4/23	10:10	SE	1								X	-33
DU-15A-2.5-3.0-0423	4/4/23	10:15	SE	1								X	-34
DU-15B-1.0-1.5-0423	4/4/23	11:00	SE	1	X								-35
DU-15B-1.5-2.0-0423	4/4/23	11:05	SE	1	X								-36
DU-15B-2.0-2.5-0423	4/4/23	11:10	SE	1								X	-37
DU-15B-2.5-3.0-0423	4/4/23	11:15	SE	1								X	-38
SU-07A-0.5-1.0-0423	4/4/23	11:35	SE	1	X								-39
SU-07A-1.0-1.5-0423	4/4/23	11:40	SE	1	X								-40
SU-07A-1.5-2.0-0423	4/4/23	11:45	SE	1								X	-41
SU-07A-2.0-2.5-0423	4/4/23	11:50	SE	1								X	-42
SU-07A-2.5-3.0-0423	4/4/23	11:55	SE	1								X	-43
SU-07B-0.5-1.0-0423	4/4/23	1200	SE	1	X								-44
SU-07B-1.0-1.5-0423	4/4/23	1205	SE	1	X								-45

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G. Schutzius	Agency/Agent: G81	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kayci T (9)	Time & Date: 4/7/23 920

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GSI for ODEQ

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Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

Contract Laboratory Name:
Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

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(10 days (std))
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: **OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)**

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA									Comments
					Requested Analyses									
					ISM Prep,Dioxin/furans by 1613B								X Hold	
SU-07B-1.5-2.0-0423	4/4/23	1210	SE	1	X								X	L1603081 -46
SU-07B-2.0-2.5-0423	4/4/23	1215	SE	1									X	-47
SU-07B-2.5-3.0-0423	4/4/23	1220	SE	1									X	-48
DU-11A-1.0-1.5-0423	4/4/23	1405	SE	1	X									-49
DU-11A-1.5-2.0-0423	4/4/23	1410	SE	1	X									-50
DU-11A-2.0-2.5-0423	4/4/23	1415	SE	1									X	-51
DU-11A-2.5-3.0-0423	4/4/23	1420	SE	1									X	-52
DU-11B-1.0-1.5-0423	4/4/23	1430	SE	1	X									-53
DU-11B-1.5-2.0-0423	4/4/23	1435	SE	1	X									-54
DU-11B-2.0-2.5-0423	4/4/23	1440	SE	1									X	-55
DU-11B-2.5-3.0-0423	4/4/23	1445	SE	1									X	-56
DU-10A-1.0-1.5_0423	4/5/23	930	SE	1	X									-57
DU-10A-1.5-2.0_0423	4/5/23	935	SE	1	X									-58
DU-10A-2.0-2.5_0423	4/5/23	940	SE	1									X	-59
DU-10A-2.5-3.0_0423	4/5/23	945	SE	1									X	-60

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
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Relinquished By: G. Schuetzius	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
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72 hours
48 hours
24 hours
Other _____

Project Name: **OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)**

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Solids: NA								

Requested Analyses

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	ISM Prep Dioxin/furans by 1613B	Dioxin/furan						Archive	Comments
													L1603081
DU-01B-1.0-1.5_0423	4/5/23	1600	SE	1	X								-61
DU-01B-1.5-2.0_0423	4/5/23	1605	SE	1								X	-62
DU-01B-2.0-2.5_0423	4/5/23	1610	SE	1								X	-63
DU-01B-2.5-3.0_0423	4/5/23	1615	SE	1								X	-64
EB-01_0423	4/5/23	1500	SW	X 2		X							-65
EB-02_0423	4/5/23	1505	SW	X 2		X						X	-66
				KF									

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
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Relinquished By: G Schutzius	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie T	Time & Date: 4/7/23 930

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L1603081

Tracking Numbers	Temperature
6357 9924 1663	NSAG 3.2+0=3.2
6357 9924 1674	NSAG 5.1+0=5.1
6357 9924 1685	NSAG 1.5+0=1.5
6357 9924 1696	NSAG 2.5+0=2.5
6357 9924 1722	NSAG 4.3+0=4.3
6357 9924 1733	NSAG 1.8+0=1.8
6357 9924 1700	NSAG 1.6+0=1.6
6357 9924 1711	NSAG 4.6+0=4.6

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Client Services
Pace Analytical National
12065 Lebanon Rd
Mt. Juliet TN 37122

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Prepared Date:
May 1, 2023

Report Information:

Pace Project #: 10648781
Sample Receipt Date: 04/11/2023
Client Project #: L1603081 WG2038179
Client Sub PO #: L1603081
State Cert #: N/A

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kongmeng Vang, your Pace Project Manager.

This report has been reviewed by:

May 02, 2023

Kongmeng Vang, Project Manager
(612) 607-6382
(612) 607-6444 (fax)
kongmeng.vang@pacelabs.com

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analysis performed on one sample submitted by a representative of Pace Analytical National. The sample was analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extract ranged from 46-85%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain trace levels of selected congeners. These levels were below the calibration range for the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results table and may be, at least partially, attributed to the background.

A laboratory spike sample was also prepared using clean reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 73-94%. These results were within the target ranges for the method. Matrix spikes were prepared with the sample batch using sample material from a separate project; results from these analyses will be provided upon request.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon-Primary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

Report No.....10648781

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix A

Sample Management

REPORT OF LABORATORY ANALYSIS

WO#: 10648781

10648781

CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Pace Analytical	Report To:	Pace Analytical Subout Team	Attention:	Don Hanson
Address:	12065 Lebanon Rd.	Copy To:		Company Name:	
Mt. Juliet, TN 37122				Address:	
Email:	MTJLSuboutTeam@pacelabs.com	Purchase Order #:	L1603081	Pace Quote:	
Phone: (615) 773-9756	Fax (615) 758-5859	Project Name:	Oregon DEQ-JH Baxter Offsite Investigati	Pace Project Manager:	Kongmeng Vang
Requested Due Date:	28-Apr	Project #:	02060.005.004	Pace Profile #:	38076

Page : 1 Of

Regulatory Agency
State / Location
OR

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Dioxins and furans by 1613	Residual Chlorine (Y/N)	
1	EB-01-0423	WT				05-Apr	15:00		1								1		X		premium EDD 001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	James C Huckaba	7-Apr	17:28	[signature] / PACE	4/11/23	9:20	1.6	Y	Y	Y
Pace Analytical Batch: WG2038179										
Pace Analytical SDGs: L1603081										
Location: Minneapolis, MN 55414										
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: **DATE Signed:**

Sample Condition Upon Receipt

Client Name: PACE - National

Project #: WO#: 10648781

PM: KV Due Date: 05/02/23
CLIENT: ESC_TN

Courier: [X] FedEx [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial

Tracking Number: 633922427960 [ ] See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? [X] Yes [ ] No **Seals Intact?** [X] Yes [ ] No **Biological Tissue Frozen?** [ ] Yes [ ] No [X] N/A

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [ ] None [ ] Other **Temp Blank?** [X] Yes [ ] No

Thermometer: [ ] T1 (0461) [X] T2 (1336) [ ] T3 (0459) [ ] T4 (0254) [ ] T5 (0178) [ ] T6 (0235) [ ] T7 (0042) [ ] T8 (0775) [ ] T9(0727) [ ] 01339252/1710

Type of Ice: [X] Wet [ ] Blue [ ] Dry [ ] None [ ] Melted

Did Samples Originate in West Virginia? [ ] Yes [X] No **Were All Container Temps Taken?** [ ] Yes [ ] No [X] N/A

Temp should be above freezing to 6 °C **Cooler temp Read w/Temp Blank:** 1.6 °C

Correction Factor: TRUE **Cooler Temp Corrected w/temp blank:** 1.6 °C

Average Corrected Temp (no temp blank only): _____ °C [ ] See Exceptions ENV-FRM-MIN4-0142 [ ] 1 Container

USDA Regulated Soil: ([X] N/A, water sample/other: _____)

Date/Initials of Person Examining Contents: TO 4/4/23

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? [ ] Yes [ ] No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [ ] No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): [ ] Duluth [X] Minneapolis [ ] Virginia

				COMMENTS
Chain of Custody Present and Filled Out?	[X] Yes	[ ] No		1.
Chain of Custody Relinquished?	[X] Yes	[ ] No		2.
Sampler Name and/or Signature on COC?	[ ] Yes	[X] No	[ ] N/A	3.
Samples Arrived within Hold Time?	[X] Yes	[ ] No		4. If fecal: [ ] <8 hrs [ ] >8 hr, <24 [ ] No
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[X] No		5. [ ] Fecal Coliform [ ] HPC [ ] Total Coliform/E.coli [ ] BOD/cBOD [ ] Hex Chrom [ ] Turbidity [ ] Nitrate [ ] Nitrite [ ] Orthophos [ ] Other _____
Rush Turn Around Time Requested?	[ ] Yes	[X] No		6.
Sufficient Sample Volume?	[X] Yes	[ ] No		7.
Correct Containers Used?	[X] Yes	[ ] No	[ ] N/A	8.
-Pace Containers Used?	[X] Yes	[ ] No		
Containers Intact?	[X] Yes	[ ] No		9.
Field Filtered Volume Received for Dissolved Tests?	[ ] Yes	[ ] No	[X] N/A	10. Is sediment visible in the dissolved container? [ ] Yes [ ] No
Is sufficient information available to reconcile the samples to the COC?	[X] Yes	[ ] No		11. **If no, write ID/Date/Time of container below:** [ ] See Exceptions ENV-FRM-MIN4-0142
Matrix: [X] Water [ ] Soil [ ] Oil [ ] Other				
All containers needing acid/base preservation have been checked?	[ ] Yes	[ ] No	[X] N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	[ ] Yes	[ ] No	[X] N/A	[ ] NaOH [ ] HNO3 [ ] H2SO4 [ ] Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	[ ] Yes	[ ] No	[X] N/A	Positive for Residual Chlorine? [ ] Yes [ ] No [ ] See Exceptions ENV-FRM-MIN4-0142
				pH Paper Lot # Residual Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	[ ] Yes	[ ] No	[X] N/A	13.
Extra labels present on soil VOA or WIDRO containers?	[ ] Yes	[ ] No	[X] N/A	14. [ ] See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	[ ] Yes	[ ] No	[X] N/A	
3 Trip Blanks Present?	[ ] Yes	[ ] No	[X] N/A	15.
Trip Blank Custody Seals Present?	[ ] Yes	[ ] No	[X] N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** [ ] Yes [ ] No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** _____

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: TO **Line:** 3

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

H2 = Extracted outside of holding time

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
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Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	EB-01-0423		
Lab Sample ID	10648781001		
Filename	F230429A_10		
Injected By	JRH		
Total Amount Extracted	1010 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	04/05/2023 15:00
ICAL ID	F230426	Received	04/11/2023 09:20
CCal Filename(s)	F230429A_02	Extracted	04/12/2023 14:00
Method Blank ID	BLANK-105253	Analyzed	04/29/2023 17:53

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.6		2,3,7,8-TCDF-13C	2.00	68
Total TCDF	ND	----	1.6		2,3,7,8-TCDD-13C	2.00	63
					1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	ND	----	2.5		2,3,4,7,8-PeCDF-13C	2.00	72
Total TCDD	ND	----	2.5		1,2,3,7,8-PeCDD-13C	2.00	73
					1,2,3,4,7,8-HxCDF-13C	2.00	79
1,2,3,7,8-PeCDF	ND	----	1.6		1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	----	1.2		2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	1.2		1,2,3,7,8,9-HxCDF-13C	2.00	68
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	ND	----	1.6		1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	----	1.6		1,2,3,4,6,7,8-HpCDF-13C	2.00	60
					1,2,3,4,7,8,9-HpCDF-13C	2.00	54
1,2,3,4,7,8-HxCDF	ND	----	1.6		1,2,3,4,6,7,8-HpCDD-13C	2.00	58
1,2,3,6,7,8-HxCDF	ND	----	1.6		OCDD-13C	4.00	46
2,3,4,6,7,8-HxCDF	ND	----	1.3				
1,2,3,7,8,9-HxCDF	ND	----	2.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.3	----	1.3	BJ	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	1.6	1.4	IJ	2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	ND	----	1.6				
1,2,3,7,8,9-HxCDD	ND	----	1.5				
Total HxCDD	ND	----	1.4				
1,2,3,4,6,7,8-HpCDF	ND	----	2.5		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	4.2		Equivalence: 0.23 pg/L		
Total HpCDF	ND	----	2.5		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	5.9	----	3.9	J			
Total HpCDD	5.9	----	3.9	J			
OCDF	ND	----	6.6				
OCDD	30	----	9.8	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKIA		
Lab Sample ID	BLANK-105253	Matrix	Water
Filename	L230420A_07	Dilution	NA
Total Amount Extracted	1010 mL	Extracted	04/12/2023 14:00
ICAL ID	L230302	Analyzed	04/20/2023 11:20
CCal Filename(s)	L230420A_01	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.59		2,3,7,8-TCDF-13C	2.00	59
Total TCDF	ND	----	0.59		2,3,7,8-TCDD-13C	2.00	55
					1,2,3,7,8-PeCDF-13C	2.00	71
2,3,7,8-TCDD	ND	----	0.84		2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	----	0.84		1,2,3,7,8-PeCDD-13C	2.00	79
					1,2,3,4,7,8-HxCDF-13C	2.00	64
1,2,3,7,8-PeCDF	----	1.2	0.54	IJ	1,2,3,6,7,8-HxCDF-13C	2.00	59
2,3,4,7,8-PeCDF	1.2	----	0.44	J	2,3,4,6,7,8-HxCDF-13C	2.00	61
Total PeCDF	1.2	----	0.44	J	1,2,3,7,8,9-HxCDF-13C	2.00	56
					1,2,3,4,7,8-HxCDD-13C	2.00	55
1,2,3,7,8-PeCDD	1.5	----	0.67	J	1,2,3,6,7,8-HxCDD-13C	2.00	59
Total PeCDD	1.5	----	0.67	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	53
					1,2,3,4,7,8,9-HpCDF-13C	2.00	52
1,2,3,4,7,8-HxCDF	1.2	----	0.58	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	60
1,2,3,6,7,8-HxCDF	1.00	----	0.51	J	OCDD-13C	4.00	44
2,3,4,6,7,8-HxCDF	0.82	----	0.56	J			
1,2,3,7,8,9-HxCDF	1.9	----	0.76	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.9	----	0.51	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	2.8	----	0.76	J	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,6,7,8-HxCDD	0.82	----	0.52	J			
1,2,3,7,8,9-HxCDD	1.1	----	0.61	J			
Total HxCDD	4.8	----	0.52	J			
1,2,3,4,6,7,8-HpCDF	1.4	----	0.99	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.5		Equivalence: 2.9 pg/L		
Total HpCDF	1.4	----	0.99	J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	1.2				
Total HpCDD	ND	----	1.2				
OCDF	ND	----	3.2				
OCDD	ND	----	2.3				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-105254		
Filename	L230420A_03	Matrix	Water
Total Amount Extracted	1030 mL	Dilution	NA
ICAL ID	L230302	Extracted	04/12/2023 14:00
CCal Filename	L230420A_01	Analyzed	04/20/2023 08:22
Method Blank ID	BLANK-105253	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	8.9	7.5	15.8	89
2,3,7,8-TCDD	10	8.9	6.7	15.8	89
1,2,3,7,8-PeCDF	50	43	40.0	67.0	86
2,3,4,7,8-PeCDF	50	43	34.0	80.0	85
1,2,3,7,8-PeCDD	50	39	35.0	71.0	77
1,2,3,4,7,8-HxCDF	50	43	36.0	67.0	85
1,2,3,6,7,8-HxCDF	50	43	42.0	65.0	86
2,3,4,6,7,8-HxCDF	50	44	35.0	78.0	89
1,2,3,7,8,9-HxCDF	50	45	39.0	65.0	90
1,2,3,4,7,8-HxCDD	50	47	35.0	82.0	94
1,2,3,6,7,8-HxCDD	50	43	38.0	67.0	85
1,2,3,7,8,9-HxCDD	50	46	32.0	81.0	92
1,2,3,4,6,7,8-HpCDF	50	41	41.0	61.0	83
1,2,3,4,7,8,9-HpCDF	50	43	39.0	69.0	85
1,2,3,4,6,7,8-HpCDD	50	37	35.0	70.0	73
OCDF	100	77	63.0	170.0	77
OCDD	100	89	78.0	144.0	89
2,3,7,8-TCDD-37Cl4	10	6.6	3.1	19.1	66
2,3,7,8-TCDF-13C	100	64	22.0	152.0	64
2,3,7,8-TCDD-13C	100	60	20.0	175.0	60
1,2,3,7,8-PeCDF-13C	100	74	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	77	13.0	328.0	77
1,2,3,7,8-PeCDD-13C	100	83	21.0	227.0	83
1,2,3,4,7,8-HxCDF-13C	100	66	19.0	202.0	66
1,2,3,6,7,8-HxCDF-13C	100	64	21.0	159.0	64
2,3,4,6,7,8-HxCDF-13C	100	64	22.0	176.0	64
1,2,3,7,8,9-HxCDF-13C	100	59	17.0	205.0	59
1,2,3,4,7,8-HxCDD-13C	100	59	21.0	193.0	59
1,2,3,6,7,8-HxCDD-13C	100	64	25.0	163.0	64
1,2,3,4,6,7,8-HpCDF-13C	100	55	21.0	158.0	55
1,2,3,4,7,8,9-HpCDF-13C	100	53	20.0	186.0	53
1,2,3,4,6,7,8-HpCDD-13C	100	65	26.0	166.0	65
OCDD-13C	200	90	26.0	397.0	45

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Client Services
Pace Analytical National
12065 Lebanon Rd
Mt. Juliet TN 37122

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10649075
Sample Receipt Date: 04/12/2023
Client Project #: L1603081 WG2039826
Client Sub PO #: L1603081
State Cert #: N/A

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kongmeng Vang, your Pace Project Manager.

This report has been reviewed by:

May 08, 2023

Kongmeng Vang, Project Manager
(612) 607-6382
(612) 607-6444 (fax)
kongmeng.vang@pacelabs.com

Report Prepared Date:
May 8, 2023

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on twenty-nine samples submitted by a representative of Pace Analytical National. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 33-109%. Except for one low value, which was flagged "R" on the results table, the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained or "P" where polychlorinated diphenyl ethers were present. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks to contain trace levels of selected congeners. These levels were below the calibration range for the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results table and may be, at least partially, attributed to the background.

Laboratory and matrix spike samples were also prepared using clean reference matrix or sample matrix that had been fortified with native standard materials. The recoveries of the spiked native compounds ranged from 91-144% with relative percent differences (RPDs) ranging from 0.3-7.3%. These results were within the target ranges for the method. Matrix spikes were prepared with the sample batch associated with Blank-105366 using sample material from a separate project; results from these analyses will be provided upon request.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon-Primary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix A

Sample Management

REPORT OF LABORATORY ANALYSIS

CHAIN-OF-CUSTODY / Analytical Reque

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fiel

WO# : 10649075

10649075

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Pace Analytical	Report To: Pace Analytical Subout Team	Attention: Don Hanson
Address: 12065 Lebanon Rd.	Copy To:	Company Name:
Mt. Juliet, TN 37122		Address:
Email: MTJLSuboutTeam@pacelabs.com	Purchase Order #: L1603081	Pace Quote:
Phone: (615) 773-9756 Fax: (615) 758-5859	Project Name: Oregon DEQ-JH Baxter Offsite Investigati	Pace Project Manager: Kongmeng Vang
Requested Due Date: 3-May	Project #: 02060.005.004	Pace Profile #: 38076

Regulatory Agency

State / Location: OR

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique MATRIX CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	DU-06B-0.5-1.0_0423	SL				05-Apr	14:30		1	1								X		promium EDD 001
2	DU-06B-1.0-1.5_0423	SL				05-Apr	14:35		1	1								X		promium EDD 002
3	DU-01A-0.5-1.0_0423	SL				05-Apr	15:30		1	1								X		promium EDD 003
4	DU-01A-1.0-1.5_0423	SL				05-Apr	15:35		1	1								X		promium EDD 004
5	DU-01B-0.5-1.0_0423	SL				05-Apr	15:55		1	1								X		promium EDD 005
6	DU-110A-1.0-1.5_0423	SL				05-Apr	9:50		1	1								X		promium EDD 006
7	DU-10B-1.0-1.5_0423	SL				05-Apr	10:20		1	1								X		promium EDD 007
8	DU-10B-1.5-2.0_0423	SL				05-Apr	9:50		1	1								X		promium EDD 008
9	DU-09A-1.0-1.5_0423	SL				05-Apr	11:30		1	1								X		promium EDD 009
10	DU-09A-1.5-2.0_0423	SL				05-Apr	11:35		1	1								X		promium EDD 010
11	DU-09B-1.0-1.5_0423	SL				05-Apr	12:15		1	1								X		promium EDD 011
12	DU-09B-1.5-2.0_0423	SL				05-Apr	12:20		1	1								X		promium EDD 012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	James C Huckaba	11-Apr	13:41	Pace	4/12/23	8:50	4.2 Y Y N
Pace Analytical Batch: WG2039826							L4
Pace Analytical SDGs: L1603081							
Location: Minneapolis, MN 55414							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:

Company:	Pace Analytical
Address:	12065 Lebanon Rd.
	Mt. Juliet, TN 37122
Email:	MTJLSuboutTeam@pacelabs.com
Phone:	(615) 773-9756 Fax: (615) 758-5859
Requested Due Date:	3-May

Section B
Required Project Information:

Report To:	Pace Analytical Subout Team
Copy To:	
Purchase Order #:	L1603081
Project Name:	Oregon DEQ-JH Baxter Offsite Investigati
Project #:	02060.005.004

Section C
Invoice Information:

Attention:	Don Hanson
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	Kongmeng Vang
Pace Profile #:	38076

Regulatory Agency	
State / Location	OR

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N Analyses Test	Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	DU-06A-0.5-1.0_0423	SL				05-Apr	13:00		1	1									X		premium EDD 013
2	DU-06A-1.0-1.5_0423	SL				05-Apr	13:05		1	1									X		premium EDD 014
3	DU-15A-1.0-1.5_0423	SL				05-Apr	10:00		1	1									X		premium EDD 015
4	DU-15A-1.5-2.0_0423	SL				05-Apr	10:05		1	1									X		premium EDD 016
5	DU-15B-1.0-1.5_0423	SL				05-Apr	11:00		1	1									X		premium EDD 017
6	DU-15B-1.5-2.0_0423	SL				05-Apr	11:05		1	1									X		premium EDD 018
7	SU-07A-0.5-1.0_0423	SL				05-Apr	11:35		1	1									X		premium EDD 019
8	SU-07A-1.0-1.5_0423	SL				05-Apr	11:40		1	1									X		premium EDD 020
9	SU-07B-0.5-1.0-0423	SL				05-Apr	12:00		1	1									X		premium EDD 021
10	SU-07B-1.0-1.5-0423	SL				05-Apr	12:05		1	1									X		premium EDD 022
11	DU-11A-1.0-1.5_0423	SL				05-Apr	14:05		1	1									X		premium EDD 023
12	DU-11A-1.5-2.0_0423	SL				05-Apr	14:10		1	1									X		premium EDD 024

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	James C Huckaba	11-Apr	13:41	[signature] Pace	4/12/23	9:50	
Pace Analytical Batch: WG2039826							
Pace Analytical SDGs: L1603081							
Location: Minneapolis, MN 55414							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

Report No 10649075_613BFC_L2_dfr

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
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Company: Pace Analytical
Address: 12065 Lebanon Rd.
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Purchase Order #: L1603081
Project Name: Oregon DEQ-JH Baxter Offsite Investigati
Project #: 02060.005.004

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Invoice Information:

Attention: Don Hanson
Company Name:
Address:
Pace Quote:
Pace Project Manager: Kongmeng Vang
Pace Profile #: 38076

Regulatory Agency

State / Location
OR

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

SAMPLE ID — One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	DU-11B-1.0-1.5_0423	SL				05-Apr	14:30		1	1									X		promium EDD 025
2	DU-11B-1.5-2.0_0423	SL				05-Apr	14:35		1	1									X		promium EDD 026
3	DU-10A-1.0-1.5_0423	SL				05-Apr	9:30		1	1									X		promium EDD 027
4	DU-10A-1.5-2.0_0423	SL				05-Apr	9:35		1	1									X		promium EDD 028
5	DU-01B-1.0-1.5_0423	SL				05-Apr	16:00		1	1									X		promium EDD 029
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	James C Huckaba	11-Apr	13:41	[signature] Pace	4/12/23	8:50	
Pace Analytical Batch: WG2039826							
Pace Analytical SDGs: L1603081							
Location: Minneapolis, MN 55414							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

Sample Condition Upon Receipt

Client Name: Pace MT. Juliet

Project #: **WO#: 10649075**

PM: KV Due Date: 05/03/23
CLIENT: ESC_TN

Courier: ☑ FedEx ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: 7718 1723 8400 ☐ See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No Seals Intact? ☑ Yes ☐ No Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other Temp Blank? ☑ Yes ☐ No

Thermometer: ☐ T1 (0461) ☐ T2 (1336) ☐ T3 (0459) ☑ T4 (0254) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ T9(0727) ☐ 01339252/1710 Type of Ice: ☑ Wet ☐ Blue ☐ Dry ☐ None ☑ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No Were All Container Temps Taken? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: 4.1, 1.3 °C

Correction Factor: add 0.1 Cooler Temp Corrected w/temp blank: 4.2, 1.4 °C

Average Corrected Temp (no temp blank only): ____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☐ N/A, water sample/other: ____) Date/Initials of Person Examining Contents: 4/12/23 ADC

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☑ Yes ☐ No — 4.12.23

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): ☐ Duluth ☑ Minneapolis ☐ Virginia				COMMENTS
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If fecal: ☐ <8 hrs ☐ >8 hr, <24 ☐ No
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other ____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Sample Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	8.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☑ Yes	☐ No		11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
Matrix: ☐ Water ☑ Soil ☐ Oil ☐ Other ____				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☐ Yes	☐ No	☑ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142
				pH Paper Lot #
				Residual Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	13.
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	14. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): ____

CLIENT NOTIFICATION/RESOLUTION Field Data Required? ☐ Yes ☐ No

Person Contacted: ____ Date/Time: ____

Comments/Resolution: ____

Project Manager Review: ____ **Date:** ____

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: ADC **Line:** 3

USDA Regulated Soil Checklist

To be Completed by Sample Receiving:

WO: 10649075 **Date:** 5/4/2023 **Initials:** EMC2

Sample Origin (check one): ☐ DOMESTIC ☐ QUARANTINED ☐ FOREIGN

NOTE: Soil samples from Hawaii, Guam, Puerto Rico, and the US Virgin Islands are Foreign originated.

If **DOMESTIC**, circle state of origin: AL AR AZ CA FL GA LA MS NC NM NY OK (OR) SC TN TX VA

Includes: IFA, SOD, Golden Nematode, Karnal Bunt, and Witchweed List County: Lane

(USDA Permit/Compliance Agreement authorizes movement of samples from these domestic regulated zones)

If **QUARANTINED**, circle state of origin: CA ID NY TX

Includes: Fruit Fly and Pale Cyst Nematode List County: _____

(Movement is not authorized for Pale Cyst Nematode (ID)—remaining quarantines require additional paperwork)

If **FOREIGN**, list country of origin: _____

(Movement from some Canadian Provinces is not allowed. Refer to ENV-FRM-MIN4-0137 *Regulated Soil Flow Chart*)

REQUIREMENT	ACTION	COMPLETED		
PPQ-530 Paperwork must be included for any samples from counties with a Fruit Fly Quarantine in CA, NY, and TX. Reference ENV-SOP-MIN4-0095.	Scan PPQ-530 to the corresponding Project folder on the X:drive. If PPQ-530 is not present, contact the laboratory's designated USDA permit holder. **Do NOT continue processing samples.**	YES	NO	(N/A)
Samples from ID may not be moved from the quarantined region. Reference ENV-SOP-MIN4-0095.	If samples originated in a quarantined zone, contact the laboratory's designated USDA permit holder. **Do NOT continue processing samples.**	YES	NO	(N/A)

REQUIREMENT	ACTION	COMPLETED		
"Special Handling" stickers are to be placed on all samples.	Did "special handling" stickers get placed on all sample containers?	YES	NO	(N/A)
Samples must be segregated and stored in designated bins, shelves, and coolers.	Were samples placed in a designated cooler, containers, and shelves?	YES	NO	(N/A)
Samples must be double contained to prevent accidental release.	Were there any signs of breakage or leakage (check for broken glass and/or loose soil in the cooler)? *NOTE: If NO, ice and melt water can be disposed of by normal process (ex: down the drain).*	YES	NO	(N/A)
	If **YES**, were ice and melt water separated from the cooler and disposed of properly?	YES	NO	(N/A)
	Any broken glass and/or loose soil are to be bagged and placed in a USDA Regulated satellite container or active drum (see Waste Coordinator). **Ice and melt water should be baked at a temperature range of 121-154°F for 2 hours and then cooled before going down the drain.**			
Equipment and supplies that have come into contact samples must be decontaminated.	Was the cooler(s) and/or countertop(s) decontaminated using either a fresh 10% bleach solution or 70% ethanol? (Gloves and other lab supplies will be bagged and placed in the USDA Regulated satellite container or active drum).	YES	(N/A)	

COMMENTS:

To be Completed by Project Management (PM and/or PC):

Sample analysis will be conducted (circle all that apply): MN Subcontract Lab

If **subcontract**, list lab(s): _____

REQUIREMENT	ACTION	COMPLETED		
Permission to ship untreated soil must be on file prior to shipping to any subcontract lab, including IR Pace Labs.	Go to: *S:\CLIENTSVR\10_Client Services Department Documents\Regulated Soils Permits\Permission to Ship* If permission to ship letter is not there, contact the laboratory's designated USDA permit holder.	YES	NO	(N/A)
Shipment must include a valid copy of the receiving lab's permit as well as permission to ship letter.	Is a copy of all needed paperwork included with the COC? **Do NOT ship samples until all necessary paperwork is compiled.**	YES	NO	(N/A)

COMMENTS:

_____

PM Signature: _____ **Date:** _____

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Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

H2 = Extracted outside of holding time

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-06B-0.5-1.0_0423		
Lab Sample ID	10649075001		
Filename	U230503C_02		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	3.9	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	04/05/2023 14:30
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/03/2023 22:54

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.16		2,3,7,8-TCDF-13C	2.00	72
Total TCDF	2.0	----	0.16		2,3,7,8-TCDD-13C	2.00	68
					1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	0.50	----	0.47	J	2,3,4,7,8-PeCDF-13C	2.00	80
Total TCDD	5.6	----	0.47		1,2,3,7,8-PeCDD-13C	2.00	89
					1,2,3,4,7,8-HxCDF-13C	2.00	71
1,2,3,7,8-PeCDF	0.31	----	0.13	J	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	----	0.28	0.088	IJ	2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	3.4	----	0.088	J	1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	0.88	----	0.16	J	1,2,3,6,7,8-HxCDD-13C	2.00	77
Total PeCDD	8.2	----	0.16		1,2,3,4,6,7,8-HpCDF-13C	2.00	70
					1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	0.80	----	0.13	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	79
1,2,3,6,7,8-HxCDF	ND	----	0.11		OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	0.73	----	0.13	J			
1,2,3,7,8,9-HxCDF	----	0.30	0.14	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	15	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.4	----	0.29	J	2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,6,7,8-HxCDD	2.9	----	0.16	J			
1,2,3,7,8,9-HxCDD	2.2	----	0.25	J			
Total HxCDD	39	----	0.16				
1,2,3,4,6,7,8-HpCDF	----	27	0.19	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	0.82	----	0.16	J	Equivalence: 3.8 ng/Kg		
Total HpCDF	35	----	0.16		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	95	----	0.27				
Total HpCDD	250	----	0.27				
OCDF	49	----	0.39				
OCDD	860	----	0.32				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-06B-1.0-1.5_0423		
Lab Sample ID	10649075002		
Filename	U230503C_03		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.0	Dilution	NA
Dry Weight Extracted	9.95 g	Collected	04/05/2023 14:35
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/03/2023 23:41

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.11		2,3,7,8-TCDF-13C	2.00	67
Total TCDF	0.14	----	0.11	J	2,3,7,8-TCDD-13C	2.00	55
					1,2,3,7,8-PeCDF-13C	2.00	79
2,3,7,8-TCDD	ND	----	0.26		2,3,4,7,8-PeCDF-13C	2.00	80
Total TCDD	ND	----	0.26		1,2,3,7,8-PeCDD-13C	2.00	90
					1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	----	0.14		1,2,3,6,7,8-HxCDF-13C	2.00	71
2,3,4,7,8-PeCDF	ND	----	0.093		2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	ND	----	0.093		1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	68
1,2,3,7,8-PeCDD	ND	----	0.31		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	1.2	----	0.31	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	71
					1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	----	0.14	0.098	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	----	0.23	0.12	IJ	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	0.18	----	0.063	J			
1,2,3,7,8,9-HxCDF	----	0.17	0.070	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.5	----	0.063	BJ	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.41	0.20	IJ	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	0.60	----	0.15	J			
1,2,3,7,8,9-HxCDD	----	0.49	0.11	IJ			
Total HxCDD	6.6	----	0.11				
1,2,3,4,6,7,8-HpCDF	----	5.1	0.18	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.21		Equivalence: 0.50 ng/Kg		
Total HpCDF	6.3	----	0.18		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	18	----	0.30				
Total HpCDD	47	----	0.30				
OCDF	10	----	0.43				
OCDD	160	----	0.45				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
B = Less than 10x higher than method blank level
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-01A-0.5-1.0_0423		
Lab Sample ID	10649075003		
Filename	U230503C_04		
Injected By	SMT		
Total Amount Extracted	10.7 g	Matrix	Solid
% Moisture	4.0	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	04/05/2023 15:30
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 00:28

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.14		2,3,7,8-TCDF-13C	2.00	71
Total TCDF	1.00	----	0.14		2,3,7,8-TCDD-13C	2.00	66
					1,2,3,7,8-PeCDF-13C	2.00	81
2,3,7,8-TCDD	ND	----	0.27		2,3,4,7,8-PeCDF-13C	2.00	82
Total TCDD	1.5	----	0.27	B	1,2,3,7,8-PeCDD-13C	2.00	91
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.14		1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.075		2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	2.3	----	0.075	J	1,2,3,7,8,9-HxCDF-13C	2.00	66
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	0.26	----	0.14	J	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	2.2	----	0.14	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	75
					1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	----	0.15	0.13	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	86
1,2,3,6,7,8-HxCDF	0.53	----	0.16	J	OCDD-13C	4.00	65
2,3,4,6,7,8-HxCDF	0.20	----	0.15	J			
1,2,3,7,8,9-HxCDF	ND	----	0.096		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.2	----	0.096	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.49	0.20	IJ	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,6,7,8-HxCDD	0.78	----	0.19	J			
1,2,3,7,8,9-HxCDD	----	0.77	0.18	IJ			
Total HxCDD	4.6	----	0.18	J			
1,2,3,4,6,7,8-HpCDF	----	6.6	0.19	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.24		Equivalence: 0.90 ng/Kg		
Total HpCDF	7.1	----	0.19		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	21	----	0.29				
Total HpCDD	50	----	0.29				
OCDF	11	----	0.37				
OCDD	220	----	0.83				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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EDL = Estimated Detection Limit

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NC = Not Calculated

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J = Estimated value
B = Less than 10x higher than method blank level
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-01A-1.0-1.5_0423		
Lab Sample ID	10649075004		
Filename	U230503C_05		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.5	Dilution	NA
Dry Weight Extracted	9.89 g	Collected	04/05/2023 15:35
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 01:14

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.26		2,3,7,8-TCDF-13C	2.00	78
Total TCDF	ND	----	0.26		2,3,7,8-TCDD-13C	2.00	65
					1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	ND	----	0.49		2,3,4,7,8-PeCDF-13C	2.00	89
Total TCDD	ND	----	0.49		1,2,3,7,8-PeCDD-13C	2.00	99
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.16		1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	ND	----	0.14		2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	0.45	----	0.14	J	1,2,3,7,8,9-HxCDF-13C	2.00	74
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.18		1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	ND	----	0.18		1,2,3,4,6,7,8-HpCDF-13C	2.00	74
					1,2,3,4,7,8,9-HpCDF-13C	2.00	74
1,2,3,4,7,8-HxCDF	ND	----	0.13		1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	----	0.13		OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	ND	----	0.14				
1,2,3,7,8,9-HxCDF	----	0.23	0.14	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.95	----	0.13	BJ	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.19	0.16	IJ	2,3,7,8-TCDD-37Cl4	0.20	68
1,2,3,6,7,8-HxCDD	0.38	----	0.16	J			
1,2,3,7,8,9-HxCDD	0.27	----	0.15	J			
Total HxCDD	3.0	----	0.15	J			
1,2,3,4,6,7,8-HpCDF	----	2.6	0.23	PJ	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.27		Equivalence: 0.24 ng/Kg		
Total HpCDF	2.8	----	0.23	J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	8.3	----	0.46				
Total HpCDD	18	----	0.46				
OCDF	3.8	----	0.34	J			
OCDD	83	----	0.32				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
B = Less than 10x higher than method blank level
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-01B-0.5-1.0_0423		
Lab Sample ID	10649075005		
Filename	U230503C_06		
Injected By	SMT		
Total Amount Extracted	10.7 g	Matrix	Solid
% Moisture	3.4	Dilution	NA
Dry Weight Extracted	10.4 g	Collected	04/05/2023 15:55
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 02:01

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.71		2,3,7,8-TCDF-13C	2.00	72
Total TCDF	0.94	----	0.71	J	2,3,7,8-TCDD-13C	2.00	68
					1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	1.8	----	0.46		2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	2.9	----	0.46		1,2,3,7,8-PeCDD-13C	2.00	96
					1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	----	0.48		1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	0.65	----	0.50	J	2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	6.0	----	0.48		1,2,3,7,8,9-HxCDF-13C	2.00	67
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	0.56	----	0.20	J	1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	4.5	----	0.20	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
					1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	0.91	----	0.092	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	83
1,2,3,6,7,8-HxCDF	----	0.80	0.17	PJ	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	0.93	----	0.12	J			
1,2,3,7,8,9-HxCDF	----	0.43	0.14	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	13	----	0.092		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.83	0.41	IJ	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	2.3	----	0.36	J			
1,2,3,7,8,9-HxCDD	----	1.4	0.37	IJ			
Total HxCDD	22	----	0.36				
1,2,3,4,6,7,8-HpCDF	----	17	0.21	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.60	0.27	IJ	Equivalence: 4.1 ng/Kg		
Total HpCDF	15	----	0.21		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	50	----	0.35				
Total HpCDD	110	----	0.35				
OCDF	21	----	0.46				
OCDD	480	----	0.34				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
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NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-110A-1.0-1.5_0423		
Lab Sample ID	10649075006		
Filename	F230503A_08		
Injected By	SM		
Total Amount Extracted	10.7 g	Matrix	Solid
% Moisture	4.1	Dilution	NA
Dry Weight Extracted	10.3 g	Collected	04/05/2023 09:50
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230502B_18	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/03/2023 10:12

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	ND	----	0.39		2,3,7,8-TCDF-13C	2.00	59	
Total TCDF	1.6	----	0.39		2,3,7,8-TCDD-13C	2.00	33	
					1,2,3,7,8-PeCDF-13C	2.00	71	
2,3,7,8-TCDD	----	1.2	0.60	I	2,3,4,7,8-PeCDF-13C	2.00	77	
Total TCDD	ND	----	0.60		1,2,3,7,8-PeCDD-13C	2.00	79	
					1,2,3,4,7,8-HxCDF-13C	2.00	71	
1,2,3,7,8-PeCDF	ND	----	0.46		1,2,3,6,7,8-HxCDF-13C	2.00	76	
2,3,4,7,8-PeCDF	0.40	----	0.23	J	2,3,4,6,7,8-HxCDF-13C	2.00	72	
Total PeCDF	2.1	----	0.23	J	1,2,3,7,8,9-HxCDF-13C	2.00	62	
					1,2,3,4,7,8-HxCDD-13C	2.00	67	
1,2,3,7,8-PeCDD	----	0.27	0.085	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	77	
Total PeCDD	2.9	----	0.085	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	66	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	67	
1,2,3,4,7,8-HxCDF	1.2	----	0.26	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	75	
1,2,3,6,7,8-HxCDF	----	2.2	0.27	PJ	OCDD-13C	4.00	62	
2,3,4,6,7,8-HxCDF	----	0.40	0.21	IJ				
1,2,3,7,8,9-HxCDF	----	0.39	0.36	IJ	1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	18	----	0.21		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	----	0.65	0.15	IJ	2,3,7,8-TCDD-37Cl4	0.20	33	R
1,2,3,6,7,8-HxCDD	2.3	----	0.13	J				
1,2,3,7,8,9-HxCDD	1.6	----	0.18	J				
Total HxCDD	24	----	0.13					
1,2,3,4,6,7,8-HpCDF	28	----	0.74		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	1.9	----	0.52	J	Equivalence: 4.1 ng/Kg			
Total HpCDF	93	----	0.52		(Lower-bound - Using 2005 WHO Factors)			
1,2,3,4,6,7,8-HpCDD	91	----	0.32					
Total HpCDD	250	----	0.32					
OCDF	120	----	0.46					
OCDD	1100	----	0.56					

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
R = Recovery outside target range
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-10B-1.0-1.5_0423		
Lab Sample ID	10649075007		
Filename	U230503C_07		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	9.90 g	Collected	04/05/2023 10:20
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 02:48

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.33		2,3,7,8-TCDF-13C	2.00	72
Total TCDF	0.51	----	0.33	J	2,3,7,8-TCDD-13C	2.00	62
					1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	----	0.56	0.35	IJ	2,3,4,7,8-PeCDF-13C	2.00	84
Total TCDD	1.8	----	0.35	B	1,2,3,7,8-PeCDD-13C	2.00	93
					1,2,3,4,7,8-HxCDF-13C	2.00	71
1,2,3,7,8-PeCDF	ND	----	0.20		1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	----	0.25	0.15	IJ	2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	2.0	----	0.15	J	1,2,3,7,8,9-HxCDF-13C	2.00	68
					1,2,3,4,7,8-HxCDD-13C	2.00	68
1,2,3,7,8-PeCDD	----	0.25	0.15	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	77
Total PeCDD	1.6	----	0.15	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	71
					1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	0.92	----	0.12	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	83
1,2,3,6,7,8-HxCDF	----	0.30	0.12	PJ	OCDD-13C	4.00	65
2,3,4,6,7,8-HxCDF	0.75	----	0.11	J			
1,2,3,7,8,9-HxCDF	0.39	----	0.12	BJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	14	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.78	----	0.37	J	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,6,7,8-HxCDD	1.8	----	0.43	J			
1,2,3,7,8,9-HxCDD	1.4	----	0.27	J			
Total HxCDD	18	----	0.27				
1,2,3,4,6,7,8-HpCDF	----	32	0.31	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	0.98	----	0.50	J	Equivalence: 2.6 ng/Kg		
Total HpCDF	37	----	0.31		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	55	----	0.086				
Total HpCDD	120	----	0.086				
OCDF	71	----	0.22				
OCDD	580	----	0.24				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
B = Less than 10x higher than method blank level
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-10B-1.5-2.0_0423		
Lab Sample ID	10649075008		
Filename	U230503C_08		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	3.9	Dilution	NA
Dry Weight Extracted	9.99 g	Collected	04/05/2023 09:50
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 03:35

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.17		2,3,7,8-TCDF-13C	2.00	74
Total TCDF	ND	----	0.17		2,3,7,8-TCDD-13C	2.00	45
					1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	0.99	----	0.44	J	2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	0.99	----	0.44	BJ	1,2,3,7,8-PeCDD-13C	2.00	97
					1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	0.17		1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	ND	----	0.11		2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	ND	----	0.11		1,2,3,7,8,9-HxCDF-13C	2.00	67
					1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	----	0.26	0.15	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	0.65	----	0.15	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	72
					1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	0.42	----	0.23	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	86
1,2,3,6,7,8-HxCDF	----	0.31	0.21	IJ	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	----	0.38	0.22	IJ			
1,2,3,7,8,9-HxCDF	----	0.35	0.13	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	7.3	----	0.13		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.63	0.25	IJ	2,3,7,8-TCDD-37Cl4	0.20	43
1,2,3,6,7,8-HxCDD	1.4	----	0.26	J			
1,2,3,7,8,9-HxCDD	1.1	----	0.24	J			
Total HxCDD	10	----	0.24				
1,2,3,4,6,7,8-HpCDF	----	19	0.19	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.52	0.26	IJ	Equivalence: 2.4 ng/Kg		
Total HpCDF	18	----	0.19		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	34	----	0.12				
Total HpCDD	68	----	0.12				
OCDF	40	----	0.60				
OCDD	340	----	0.20				

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NC = Not Calculated

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-09A-1.0-1.5_0423		
Lab Sample ID	10649075009		
Filename	U230503C_09		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	9.96 g	Collected	04/05/2023 11:30
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 04:21

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.43		2,3,7,8-TCDF-13C	2.00	71
Total TCDF	1.3	----	0.43		2,3,7,8-TCDD-13C	2.00	67
					1,2,3,7,8-PeCDF-13C	2.00	81
2,3,7,8-TCDD	4.8	----	0.75		2,3,4,7,8-PeCDF-13C	2.00	83
Total TCDD	4.8	----	0.75		1,2,3,7,8-PeCDD-13C	2.00	93
					1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	ND	----	0.63		1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	----	0.84	0.30	IJ	2,3,4,6,7,8-HxCDF-13C	2.00	68
Total PeCDF	9.1	----	0.30		1,2,3,7,8,9-HxCDF-13C	2.00	68
					1,2,3,4,7,8-HxCDD-13C	2.00	69
1,2,3,7,8-PeCDD	0.94	----	0.24	J	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD	7.5	----	0.24		1,2,3,4,6,7,8-HpCDF-13C	2.00	70
					1,2,3,4,7,8,9-HpCDF-13C	2.00	67
1,2,3,4,7,8-HxCDF	4.3	----	0.41	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	79
1,2,3,6,7,8-HxCDF	----	1.2	0.55	PJ	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	2.3	----	0.39	J			
1,2,3,7,8,9-HxCDF	0.92	----	0.44	BJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	59	----	0.39		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	2.2	----	0.82	J	2,3,7,8-TCDD-37Cl4	0.20	70
1,2,3,6,7,8-HxCDD	6.5	----	0.54				
1,2,3,7,8,9-HxCDD	3.7	----	0.46	J			
Total HxCDD	49	----	0.46				
1,2,3,4,6,7,8-HpCDF	----	160	0.51	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	4.5	----	0.67	J	Equivalence: 13 ng/Kg		
Total HpCDF	200	----	0.51		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	210	----	0.14				
Total HpCDD	420	----	0.14				
OCDF	420	----	0.66				
OCDD	3900	----	0.98				

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REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-09A-1.5-2.0_0423		
Lab Sample ID	10649075010		
Filename	U230503C_10		
Injected By	SMT		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	9.78 g	Collected	04/05/2023 11:35
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 05:08

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.34		2,3,7,8-TCDF-13C	2.00	77
Total TCDF	0.40	----	0.34	J	2,3,7,8-TCDD-13C	2.00	61
					1,2,3,7,8-PeCDF-13C	2.00	90
2,3,7,8-TCDD	ND	----	0.51		2,3,4,7,8-PeCDF-13C	2.00	92
Total TCDD	1.2	----	0.51	B	1,2,3,7,8-PeCDD-13C	2.00	101
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.35		1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.24		2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	2.3	----	0.24	J	1,2,3,7,8,9-HxCDF-13C	2.00	72
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.24		1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.24		1,2,3,4,6,7,8-HpCDF-13C	2.00	79
					1,2,3,4,7,8,9-HpCDF-13C	2.00	77
1,2,3,4,7,8-HxCDF	0.87	----	0.30	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	92
1,2,3,6,7,8-HxCDF	----	1.2	0.33	PJ	OCDD-13C	4.00	73
2,3,4,6,7,8-HxCDF	0.45	----	0.23	J			
1,2,3,7,8,9-HxCDF	ND	----	0.26		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	12	----	0.23		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.64	----	0.28	J	2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	1.3	----	0.29	J			
1,2,3,7,8,9-HxCDD	1.0	----	0.28	J			
Total HxCDD	12	----	0.28				
1,2,3,4,6,7,8-HpCDF	----	28	0.29	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	0.81	----	0.35	J	Equivalence: 1.5 ng/Kg		
Total HpCDF	33	----	0.29		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	46	----	0.43				
Total HpCDD	92	----	0.43				
OCDF	68	----	1.1				
OCDD	680	----	0.98				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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J = Estimated value
B = Less than 10x higher than method blank level
P = PCDE Interference

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-09B-1.0-1.5_0423		
Lab Sample ID	10649075011		
Filename	U230503C_11		
Injected By	SMT		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	9.84 g	Collected	04/05/2023 12:15
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 05:54

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.46		2,3,7,8-TCDF-13C	2.00	67
Total TCDF	3.4	----	0.46		2,3,7,8-TCDD-13C	2.00	55
					1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	3.7	----	0.74		2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	19	----	0.74		1,2,3,7,8-PeCDD-13C	2.00	86
					1,2,3,4,7,8-HxCDF-13C	2.00	65
1,2,3,7,8-PeCDF	0.82	----	0.39	J	1,2,3,6,7,8-HxCDF-13C	2.00	66
2,3,4,7,8-PeCDF	1.5	----	0.14	J	2,3,4,6,7,8-HxCDF-13C	2.00	63
Total PeCDF	22	----	0.14		1,2,3,7,8,9-HxCDF-13C	2.00	63
					1,2,3,4,7,8-HxCDD-13C	2.00	64
1,2,3,7,8-PeCDD	2.7	----	0.30	J	1,2,3,6,7,8-HxCDD-13C	2.00	68
Total PeCDD	18	----	0.30		1,2,3,4,6,7,8-HpCDF-13C	2.00	67
					1,2,3,4,7,8,9-HpCDF-13C	2.00	67
1,2,3,4,7,8-HxCDF	7.9	----	0.24		1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	----	1.8	0.38	PJ	OCDD-13C	4.00	61
2,3,4,6,7,8-HxCDF	4.9	----	0.29	J			
1,2,3,7,8,9-HxCDF	----	1.4	0.36	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	120	----	0.24		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	5.6	----	0.56		2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	15	----	0.51				
1,2,3,7,8,9-HxCDD	8.8	----	0.50				
Total HxCDD	110	----	0.50				
1,2,3,4,6,7,8-HpCDF	----	240	0.39	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	8.5	----	0.62		Equivalence: 18 ng/Kg		
Total HpCDF	280	----	0.39		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	320	----	0.34				
Total HpCDD	640	----	0.34				
OCDF	470	----	0.28				
OCDD	2700	----	0.28				

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REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-09B-1.5-2.0_0423		
Lab Sample ID	10649075012		
Filename	U230503C_12		
Injected By	SMT		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	3.7	Dilution	NA
Dry Weight Extracted	9.87 g	Collected	04/05/2023 12:20
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 06:41

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.31		2,3,7,8-TCDF-13C	2.00	77
Total TCDF	0.71	----	0.31	J	2,3,7,8-TCDD-13C	2.00	52
					1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	2.0	----	0.62		2,3,4,7,8-PeCDF-13C	2.00	91
Total TCDD	5.9	----	0.62		1,2,3,7,8-PeCDD-13C	2.00	101
					1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	----	0.28		1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	----	0.24		2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	0.37	----	0.24	J	1,2,3,7,8,9-HxCDF-13C	2.00	72
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	----	0.64	0.18	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	83
Total PeCDD	3.5	----	0.18	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	78
					1,2,3,4,7,8,9-HpCDF-13C	2.00	79
1,2,3,4,7,8-HxCDF	----	1.2	0.46	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	90
1,2,3,6,7,8-HxCDF	----	0.39	0.32	IJ	OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	----	0.74	0.36	IJ			
1,2,3,7,8,9-HxCDF	0.54	----	0.31	BJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	20	----	0.31		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.5	----	0.26	J	2,3,7,8-TCDD-37Cl4	0.20	46
1,2,3,6,7,8-HxCDD	3.1	----	0.26	J			
1,2,3,7,8,9-HxCDD	----	2.1	0.20	IJ			
Total HxCDD	25	----	0.20				
1,2,3,4,6,7,8-HpCDF	----	44	0.20	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	1.2	----	0.30	J	Equivalence: 5.0 ng/Kg		
Total HpCDF	47	----	0.20		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	75	----	0.15				
Total HpCDD	160	----	0.15				
OCDF	83	----	0.24				
OCDD	720	----	0.43				

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J = Estimated value
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REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-06A-0.5-1.0_0423		
Lab Sample ID	10649075013		
Filename	U230503C_13		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.0	Dilution	NA
Dry Weight Extracted	9.96 g	Collected	04/05/2023 13:00
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 07:28

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.26		2,3,7,8-TCDF-13C	2.00	77
Total TCDF	ND	----	0.26		2,3,7,8-TCDD-13C	2.00	53
					1,2,3,7,8-PeCDF-13C	2.00	91
2,3,7,8-TCDD	ND	----	0.45		2,3,4,7,8-PeCDF-13C	2.00	91
Total TCDD	2.4	----	0.45		1,2,3,7,8-PeCDD-13C	2.00	101
					1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	0.20		1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.12		2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	----	0.12		1,2,3,7,8,9-HxCDF-13C	2.00	71
					1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	0.26	----	0.14	J	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	2.7	----	0.14	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
					1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	----	0.30	0.29	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	91
1,2,3,6,7,8-HxCDF	ND	----	0.28		OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	0.32	----	0.31	J			
1,2,3,7,8,9-HxCDF	----	0.26	0.18	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.2	----	0.18	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.54	----	0.20	J	2,3,7,8-TCDD-37Cl4	0.20	53
1,2,3,6,7,8-HxCDD	----	1.00	0.15	IJ			
1,2,3,7,8,9-HxCDD	0.80	----	0.31	J			
Total HxCDD	11	----	0.15				
1,2,3,4,6,7,8-HpCDF	----	12	0.14	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.50	0.19	IJ	Equivalence: 1.1 ng/Kg		
Total HpCDF	14	----	0.14		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	32	----	0.17				
Total HpCDD	75	----	0.17				
OCDF	23	----	0.18				
OCDD	340	----	0.25				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-06A-1.0-1.5_0423		
Lab Sample ID	10649075014		
Filename	U230503C_14		
Injected By	SMT		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	4.2	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	04/05/2023 13:05
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105366	Analyzed	05/04/2023 08:15

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.15		2,3,7,8-TCDF-13C	2.00	75
Total TCDF	0.27	----	0.15	J	2,3,7,8-TCDD-13C	2.00	54
					1,2,3,7,8-PeCDF-13C	2.00	89
2,3,7,8-TCDD	ND	----	0.28		2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	ND	----	0.28		1,2,3,7,8-PeCDD-13C	2.00	100
					1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	0.12		1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	----	0.085		2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	ND	----	0.085		1,2,3,7,8,9-HxCDF-13C	2.00	73
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.13		1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.13		1,2,3,4,6,7,8-HpCDF-13C	2.00	77
					1,2,3,4,7,8,9-HpCDF-13C	2.00	76
1,2,3,4,7,8-HxCDF	ND	----	0.17		1,2,3,4,6,7,8-HpCDD-13C	2.00	89
1,2,3,6,7,8-HxCDF	0.33	----	0.16	J	OCDD-13C	4.00	67
2,3,4,6,7,8-HxCDF	ND	----	0.18				
1,2,3,7,8,9-HxCDF	ND	----	0.16		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.9	----	0.16	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.33	----	0.12	J	2,3,7,8-TCDD-37Cl4	0.20	53
1,2,3,6,7,8-HxCDD	0.50	----	0.11	J			
1,2,3,7,8,9-HxCDD	----	0.25	0.10	IJ			
Total HxCDD	3.5	----	0.10	J			
1,2,3,4,6,7,8-HpCDF	----	5.8	0.15	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.21		Equivalence: 0.35 ng/Kg		
Total HpCDF	7.3	----	0.15		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	11	----	0.21				
Total HpCDD	24	----	0.21				
OCDF	11	----	0.47				
OCDD	130	----	0.10				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
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NC = Not Calculated

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J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-15A-1.0-1.5_0423		
Lab Sample ID	10649075015		
Filename	U230505A_12		
Injected By	AH5		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	4.0	Dilution	NA
Dry Weight Extracted	9.79 g	Collected	04/05/2023 10:00
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230505A_02	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/05/2023 17:03

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.14		2,3,7,8-TCDF-13C	2.00	75
Total TCDF	1.2	----	0.14		2,3,7,8-TCDD-13C	2.00	76
					1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	0.92	----	0.31	J	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	2.0	----	0.31		1,2,3,7,8-PeCDD-13C	2.00	89
					1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	----	0.15		1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.10		2,3,4,6,7,8-HxCDF-13C	2.00	83
Total PeCDF	1.6	----	0.10	J	1,2,3,7,8,9-HxCDF-13C	2.00	76
					1,2,3,4,7,8-HxCDD-13C	2.00	82
1,2,3,7,8-PeCDD	----	0.22	0.14	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	2.1	----	0.14	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	75
					1,2,3,4,7,8,9-HpCDF-13C	2.00	74
1,2,3,4,7,8-HxCDF	0.40	----	0.15	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	83
1,2,3,6,7,8-HxCDF	----	0.50	0.14	PJ	OCDD-13C	4.00	74
2,3,4,6,7,8-HxCDF	0.30	----	0.12	J			
1,2,3,7,8,9-HxCDF	0.19	----	0.11	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	7.1	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.63	----	0.28	J	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	1.6	----	0.34	J			
1,2,3,7,8,9-HxCDD	1.0	----	0.37	J			
Total HxCDD	9.5	----	0.28				
1,2,3,4,6,7,8-HpCDF	----	9.2	0.55	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.47		Equivalence: 2.2 ng/Kg		
Total HpCDF	13	----	0.47		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	35	----	0.21				
Total HpCDD	94	----	0.21				
OCDF	20	----	0.43				
OCDD	400	----	0.63				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-15A-1.5-2.0_0423		
Lab Sample ID	10649075016		
Filename	U230503C_15		
Injected By	SMT		
Total Amount Extracted	10.7 g	Matrix	Solid
% Moisture	4.2	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	04/05/2023 10:05
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230503B_17	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/04/2023 09:01

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.20		2,3,7,8-TCDF-13C	2.00	74
Total TCDF	0.21	----	0.20	J	2,3,7,8-TCDD-13C	2.00	70
					1,2,3,7,8-PeCDF-13C	2.00	86
2,3,7,8-TCDD	0.83	----	0.25	J	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	0.83	----	0.25	J	1,2,3,7,8-PeCDD-13C	2.00	95
					1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	ND	----	0.18		1,2,3,6,7,8-HxCDF-13C	2.00	84
2,3,4,7,8-PeCDF	ND	----	0.13		2,3,4,6,7,8-HxCDF-13C	2.00	78
Total PeCDF	ND	----	0.13		1,2,3,7,8,9-HxCDF-13C	2.00	70
					1,2,3,4,7,8-HxCDD-13C	2.00	81
1,2,3,7,8-PeCDD	0.14	----	0.10	J	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	1.5	----	0.10	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	82
					1,2,3,4,7,8,9-HpCDF-13C	2.00	79
1,2,3,4,7,8-HxCDF	0.34	----	0.21	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	94
1,2,3,6,7,8-HxCDF	----	0.47	0.22	PJ	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	0.23				
1,2,3,7,8,9-HxCDF	ND	----	0.17		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.3	----	0.17	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.54	----	0.25	J	2,3,7,8-TCDD-37Cl4	0.20	70
1,2,3,6,7,8-HxCDD	----	0.83	0.24	IJ			
1,2,3,7,8,9-HxCDD	----	0.71	0.20	IJ			
Total HxCDD	8.5	----	0.20				
1,2,3,4,6,7,8-HpCDF	----	6.6	0.26	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	----	0.34	0.20	IJ	Equivalence: 1.7 ng/Kg		
Total HpCDF	8.1	----	0.20		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	25	----	0.13				
Total HpCDD	60	----	0.13				
OCDF	13	----	0.24				
OCDD	290	----	0.42				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-15B-1.0-1.5_0423		
Lab Sample ID	10649075017		
Filename	F230503B_06		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	4.1	Dilution	NA
Dry Weight Extracted	9.90 g	Collected	04/05/2023 11:00
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 17:34

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.28		2,3,7,8-TCDF-13C	2.00	60
Total TCDF	1.6	----	0.28		2,3,7,8-TCDD-13C	2.00	53
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	1.2	----	0.36		2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	2.6	----	0.36		1,2,3,7,8-PeCDD-13C	2.00	78
					1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.23		1,2,3,6,7,8-HxCDF-13C	2.00	78
2,3,4,7,8-PeCDF	ND	----	0.12		2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	----	0.12		1,2,3,7,8,9-HxCDF-13C	2.00	60
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	ND	----	0.16		1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	0.60	----	0.16	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	70
					1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	----	0.14	0.13	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	0.53	----	0.15	J	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	0.27	----	0.15	J			
1,2,3,7,8,9-HxCDF	ND	----	0.26		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.0	----	0.13	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.52	----	0.26	J	2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	0.83	----	0.21	J			
1,2,3,7,8,9-HxCDD	----	0.54	0.19	IJ			
Total HxCDD	8.1	----	0.19				
1,2,3,4,6,7,8-HpCDF	4.3	----	0.21	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.29		Equivalence: 1.9 ng/Kg		
Total HpCDF	12	----	0.21		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	23	----	0.14				
Total HpCDD	60	----	0.14				
OCDF	18	----	0.49				
OCDD	300	----	0.32				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-15B-1.5-2.0_0423		
Lab Sample ID	10649075018		
Filename	F230503B_07		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.4	Dilution	NA
Dry Weight Extracted	9.93 g	Collected	04/05/2023 11:05
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 18:17

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.20		2,3,7,8-TCDF-13C	2.00	63
Total TCDF	ND	----	0.20		2,3,7,8-TCDD-13C	2.00	57
					1,2,3,7,8-PeCDF-13C	2.00	63
2,3,7,8-TCDD	0.31	----	0.24	J	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	0.31	----	0.24	J	1,2,3,7,8-PeCDD-13C	2.00	67
					1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.17		1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	0.11		2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	0.30	----	0.11	J	1,2,3,7,8,9-HxCDF-13C	2.00	64
					1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	ND	----	0.15		1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD	ND	----	0.15		1,2,3,4,6,7,8-HpCDF-13C	2.00	68
					1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	ND	----	0.19		1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	----	0.36	0.18	PJ	OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	ND	----	0.17				
1,2,3,7,8,9-HxCDF	ND	----	0.15		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.0	----	0.15	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.21		2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	0.39	----	0.19	J			
1,2,3,7,8,9-HxCDD	0.20	----	0.17	J			
Total HxCDD	3.9	----	0.17	J			
1,2,3,4,6,7,8-HpCDF	2.0	----	0.24	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.32		Equivalence: 0.61 ng/Kg		
Total HpCDF	6.1	----	0.24		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	13	----	0.31				
Total HpCDD	32	----	0.31				
OCDF	8.6	----	0.30	J			
OCDD	160	----	0.66				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	SU-07A-0.5-1.0_0423		
Lab Sample ID	10649075019		
Filename	F230503B_08		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	3.7	Dilution	NA
Dry Weight Extracted	9.96 g	Collected	04/05/2023 11:35
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 19:01

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.94	----	0.33	J	2,3,7,8-TCDF-13C	2.00	67
Total TCDF	19	----	0.33		2,3,7,8-TCDD-13C	2.00	62
					1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	----	0.99	0.22	IJ	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	12	----	0.22		1,2,3,7,8-PeCDD-13C	2.00	74
					1,2,3,4,7,8-HxCDF-13C	2.00	66
1,2,3,7,8-PeCDF	0.76	----	0.45	J	1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	1.5	----	0.31	J	2,3,4,6,7,8-HxCDF-13C	2.00	75
Total PeCDF	17	----	0.31		1,2,3,7,8,9-HxCDF-13C	2.00	67
					1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	----	1.2	0.36	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	86
Total PeCDD	13	----	0.36		1,2,3,4,6,7,8-HpCDF-13C	2.00	64
					1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	2.9	----	0.30	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	----	2.9	0.28	PJ	OCDD-13C	4.00	69
2,3,4,6,7,8-HxCDF	2.2	----	0.24	J			
1,2,3,7,8,9-HxCDF	----	0.75	0.23	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	41	----	0.23		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	2.1	0.36	IJ	2,3,7,8-TCDD-37Cl4	0.20	66
1,2,3,6,7,8-HxCDD	----	5.2	0.38	I			
1,2,3,7,8,9-HxCDD	3.6	----	0.35	J			
Total HxCDD	53	----	0.35				
1,2,3,4,6,7,8-HpCDF	35	----	0.47		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	2.0	----	1.1	J	Equivalence: 7.7 ng/Kg		
Total HpCDF	120	----	0.47		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	190	----	0.29				
Total HpCDD	470	----	0.29				
OCDF	110	----	0.39				
OCDD	1900	----	0.42				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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EDL = Estimated Detection Limit

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NC = Not Calculated

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J = Estimated value
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I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	SU-07A-1.0-1.5_0423		
Lab Sample ID	10649075020		
Filename	F230503B_09		
Injected By	SMT		
Total Amount Extracted	10.2 g	Matrix	Solid
% Moisture	4.1	Dilution	NA
Dry Weight Extracted	9.83 g	Collected	04/05/2023 11:40
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 19:44

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.28		2,3,7,8-TCDF-13C	2.00	75
Total TCDF	2.1	----	0.28		2,3,7,8-TCDD-13C	2.00	67
					1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	----	0.30	0.27	IJ	2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	1.3	----	0.27		1,2,3,7,8-PeCDD-13C	2.00	94
					1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	ND	----	0.28		1,2,3,6,7,8-HxCDF-13C	2.00	88
2,3,4,7,8-PeCDF	0.28	----	0.18	J	2,3,4,6,7,8-HxCDF-13C	2.00	86
Total PeCDF	0.91	----	0.18	J	1,2,3,7,8,9-HxCDF-13C	2.00	72
					1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	----	0.21		1,2,3,6,7,8-HxCDD-13C	2.00	92
Total PeCDD	ND	----	0.21		1,2,3,4,6,7,8-HpCDF-13C	2.00	75
					1,2,3,4,7,8,9-HpCDF-13C	2.00	60
1,2,3,4,7,8-HxCDF	0.45	----	0.15	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	78
1,2,3,6,7,8-HxCDF	0.63	----	0.14	J	OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	----	0.36	0.13	IJ			
1,2,3,7,8,9-HxCDF	0.34	----	0.18	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	7.2	----	0.13		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.43	0.27	IJ	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,6,7,8-HxCDD	1.1	----	0.31	J			
1,2,3,7,8,9-HxCDD	0.58	----	0.20	J			
Total HxCDD	9.8	----	0.20				
1,2,3,4,6,7,8-HpCDF	6.3	----	0.23		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	0.60	----	0.48	J	Equivalence: 1.3 ng/Kg		
Total HpCDF	21	----	0.23		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	37	----	0.22				
Total HpCDD	84	----	0.22				
OCDF	23	----	0.42				
OCDD	390	----	0.42				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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NC = Not Calculated

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I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	SU-07B-0.5-1.0-0423		
Lab Sample ID	10649075021		
Filename	F230503B_10		
Injected By	SMT		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	9.94 g	Collected	04/05/2023 12:00
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 20:27

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.59		2,3,7,8-TCDF-13C	2.00	72
Total TCDF	6.5	----	0.59		2,3,7,8-TCDD-13C	2.00	68
					1,2,3,7,8-PeCDF-13C	2.00	83
2,3,7,8-TCDD	ND	----	0.48		2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	4.4	----	0.48		1,2,3,7,8-PeCDD-13C	2.00	78
					1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	0.57		1,2,3,6,7,8-HxCDF-13C	2.00	80
2,3,4,7,8-PeCDF	0.81	----	0.26	J	2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	8.4	----	0.26		1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	71
1,2,3,7,8-PeCDD	0.80	----	0.22	J	1,2,3,6,7,8-HxCDD-13C	2.00	83
Total PeCDD	9.2	----	0.22		1,2,3,4,6,7,8-HpCDF-13C	2.00	69
					1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	1.8	----	0.099	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	----	3.0	0.13	PJ	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	1.8	----	0.079	J			
1,2,3,7,8,9-HxCDF	----	0.65	0.22	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	31	----	0.079		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	1.6	0.43	IJ	2,3,7,8-TCDD-37Cl4	0.20	67
1,2,3,6,7,8-HxCDD	4.6	----	0.49	J			
1,2,3,7,8,9-HxCDD	3.3	----	0.45	J			
Total HxCDD	45	----	0.43				
1,2,3,4,6,7,8-HpCDF	28	----	0.44		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	1.6	----	0.67	J	Equivalence: 4.9 ng/Kg		
Total HpCDF	88	----	0.44		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	140	----	0.26				
Total HpCDD	330	----	0.26				
OCDF	84	----	0.51				
OCDD	1400	----	0.48				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
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NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
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I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	SU-07B-1.0-1.5-0423		
Lab Sample ID	10649075022		
Filename	F230503B_11		
Injected By	SMT		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	4.2	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	04/05/2023 12:05
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 21:11

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.51		2,3,7,8-TCDF-13C	2.00	60
Total TCDF	0.81	----	0.51	J	2,3,7,8-TCDD-13C	2.00	50
					1,2,3,7,8-PeCDF-13C	2.00	64
2,3,7,8-TCDD	ND	----	0.46		2,3,4,7,8-PeCDF-13C	2.00	71
Total TCDD	0.77	----	0.46	J	1,2,3,7,8-PeCDD-13C	2.00	69
					1,2,3,4,7,8-HxCDF-13C	2.00	93
1,2,3,7,8-PeCDF	ND	----	0.38		1,2,3,6,7,8-HxCDF-13C	2.00	103
2,3,4,7,8-PeCDF	0.26	----	0.24	J	2,3,4,6,7,8-HxCDF-13C	2.00	89
Total PeCDF	1.2	----	0.24	J	1,2,3,7,8,9-HxCDF-13C	2.00	58
					1,2,3,4,7,8-HxCDD-13C	2.00	82
1,2,3,7,8-PeCDD	ND	----	0.27		1,2,3,6,7,8-HxCDD-13C	2.00	109
Total PeCDD	ND	----	0.27		1,2,3,4,6,7,8-HpCDF-13C	2.00	88
					1,2,3,4,7,8,9-HpCDF-13C	2.00	69
1,2,3,4,7,8-HxCDF	----	0.29	0.25	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	88
1,2,3,6,7,8-HxCDF	----	0.65	0.24	IJ	OCDD-13C	4.00	65
2,3,4,6,7,8-HxCDF	ND	----	0.28				
1,2,3,7,8,9-HxCDF	ND	----	0.43		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.0	----	0.24	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.49	0.44	IJ	2,3,7,8-TCDD-37Cl4	0.20	48
1,2,3,6,7,8-HxCDD	1.2	----	0.42	J			
1,2,3,7,8,9-HxCDD	0.85	----	0.28	J			
Total HxCDD	10	----	0.28				
1,2,3,4,6,7,8-HpCDF	7.4	----	0.43		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.78		Equivalence: 1.0 ng/Kg		
Total HpCDF	23	----	0.43		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	39	----	0.18				
Total HpCDD	82	----	0.18				
OCDF	25	----	0.85				
OCDD	380	----	0.56				

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J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-11A-1.0-1.5_0423		
Lab Sample ID	10649075023		
Filename	F230503B_12		
Injected By	SMT		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	4.5	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	04/05/2023 14:05
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 21:54

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.28		2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	----	0.28		2,3,7,8-TCDD-13C	2.00	60
					1,2,3,7,8-PeCDF-13C	2.00	78
2,3,7,8-TCDD	3.7	----	0.39		2,3,4,7,8-PeCDF-13C	2.00	81
Total TCDD	3.7	----	0.39		1,2,3,7,8-PeCDD-13C	2.00	83
					1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.31		1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	ND	----	0.23		2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	0.71	----	0.23	J	1,2,3,7,8,9-HxCDF-13C	2.00	72
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.22		1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD	0.73	----	0.22	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
					1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	----	0.56	0.26	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	----	0.83	0.23	PJ	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	ND	----	0.31				
1,2,3,7,8,9-HxCDF	----	0.28	0.24	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	6.3	----	0.23		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.34	0.29	IJ	2,3,7,8-TCDD-37Cl4	0.20	63
1,2,3,6,7,8-HxCDD	1.2	----	0.27	J			
1,2,3,7,8,9-HxCDD	0.85	----	0.24	J			
Total HxCDD	10	----	0.24				
1,2,3,4,6,7,8-HpCDF	5.7	----	0.53		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.49		Equivalence: 4.7 ng/Kg		
Total HpCDF	18	----	0.49		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	37	----	0.42				
Total HpCDD	87	----	0.42				
OCDF	20	----	0.52				
OCDD	450	----	0.46				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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EDL = Estimated Detection Limit

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I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-11A-1.5-2.0_0423		
Lab Sample ID	10649075024		
Filename	F230503B_13		
Injected By	SMT		
Total Amount Extracted	10.5 g	Matrix	Solid
% Moisture	4.2	Dilution	NA
Dry Weight Extracted	10.0 g	Collected	04/05/2023 14:10
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 22:38

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.59		2,3,7,8-TCDF-13C	2.00	55
Total TCDF	ND	----	0.59		2,3,7,8-TCDD-13C	2.00	52
					1,2,3,7,8-PeCDF-13C	2.00	52
2,3,7,8-TCDD	2.9	----	0.46		2,3,4,7,8-PeCDF-13C	2.00	54
Total TCDD	4.1	----	0.46		1,2,3,7,8-PeCDD-13C	2.00	56
					1,2,3,4,7,8-HxCDF-13C	2.00	67
1,2,3,7,8-PeCDF	ND	----	0.52		1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	1.6	----	0.26	J	2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	6.2	----	0.26		1,2,3,7,8,9-HxCDF-13C	2.00	59
					1,2,3,4,7,8-HxCDD-13C	2.00	59
1,2,3,7,8-PeCDD	0.48	----	0.26	J	1,2,3,6,7,8-HxCDD-13C	2.00	75
Total PeCDD	2.4	----	0.26	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	66
					1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	5.7	----	0.64		1,2,3,4,6,7,8-HpCDD-13C	2.00	71
1,2,3,6,7,8-HxCDF	----	2.6	0.66	PJ	OCDD-13C	4.00	55
2,3,4,6,7,8-HxCDF	----	1.5	0.25	IJ			
1,2,3,7,8,9-HxCDF	1.2	----	0.62	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	51	----	0.25		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.86	----	0.59	J	2,3,7,8-TCDD-37Cl4	0.20	52
1,2,3,6,7,8-HxCDD	2.6	----	0.54	J			
1,2,3,7,8,9-HxCDD	1.4	----	0.41	J			
Total HxCDD	15	----	0.41				
1,2,3,4,6,7,8-HpCDF	24	----	0.40		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	2.4	----	0.59	J	Equivalence: 6.7 ng/Kg		
Total HpCDF	84	----	0.40		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	79	----	0.31				
Total HpCDD	170	----	0.31				
OCDF	59	----	0.59				
OCDD	830	----	0.77				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-11B-1.0-1.5_0423		
Lab Sample ID	10649075025		
Filename	F230503B_14		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.4	Dilution	NA
Dry Weight Extracted	9.91 g	Collected	04/05/2023 14:30
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/03/2023 23:21

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.47		2,3,7,8-TCDF-13C	2.00	62
Total TCDF	ND	----	0.47		2,3,7,8-TCDD-13C	2.00	61
					1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	0.31		2,3,4,7,8-PeCDF-13C	2.00	68
Total TCDD	0.38	----	0.31	J	1,2,3,7,8-PeCDD-13C	2.00	71
					1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	ND	----	0.44		1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	0.42	----	0.24	J	2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	1.7	----	0.24	J	1,2,3,7,8,9-HxCDF-13C	2.00	66
					1,2,3,4,7,8-HxCDD-13C	2.00	64
1,2,3,7,8-PeCDD	ND	----	0.26		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	----	0.26		1,2,3,4,6,7,8-HpCDF-13C	2.00	66
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	1.5	----	0.35	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	72
1,2,3,6,7,8-HxCDF	0.79	----	0.36	J	OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	----	0.34	0.29	IJ			
1,2,3,7,8,9-HxCDF	ND	----	0.28		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	13	----	0.28		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.38		2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	----	0.70	0.35	IJ			
1,2,3,7,8,9-HxCDD	----	0.45	0.29	IJ			
Total HxCDD	3.4	----	0.29	J			
1,2,3,4,6,7,8-HpCDF	7.4	----	0.52		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.59		Equivalence: 0.94 ng/Kg		
Total HpCDF	23	----	0.52		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	27	----	0.32				
Total HpCDD	63	----	0.32				
OCDF	16	----	0.66				
OCDD	300	----	0.59				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

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NC = Not Calculated

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J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-11B-1.5-2.0_0423		
Lab Sample ID	10649075026		
Filename	F230503B_15		
Injected By	SMT		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.7	Dilution	NA
Dry Weight Extracted	9.95 g	Collected	04/05/2023 14:35
ICAL ID	F230426	Received	04/12/2023 08:50
CCal Filename(s)	F230503A_12	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/04/2023 00:05

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.21		2,3,7,8-TCDF-13C	2.00	71
Total TCDF	ND	----	0.21		2,3,7,8-TCDD-13C	2.00	70
					1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	----	0.18	0.15	IJ	2,3,4,7,8-PeCDF-13C	2.00	75
Total TCDD	ND	----	0.15		1,2,3,7,8-PeCDD-13C	2.00	81
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.25		1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.17		2,3,4,6,7,8-HxCDF-13C	2.00	76
Total PeCDF	0.51	----	0.17	J	1,2,3,7,8,9-HxCDF-13C	2.00	70
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.19		1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.19		1,2,3,4,6,7,8-HpCDF-13C	2.00	69
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	0.46	----	0.19	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	74
1,2,3,6,7,8-HxCDF	----	0.37	0.21	PJ	OCDD-13C	4.00	54
2,3,4,6,7,8-HxCDF	ND	----	0.19				
1,2,3,7,8,9-HxCDF	ND	----	0.26		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.9	----	0.19	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.40		2,3,7,8-TCDD-37Cl4	0.20	66
1,2,3,6,7,8-HxCDD	0.44	----	0.41	J			
1,2,3,7,8,9-HxCDD	0.39	----	0.34	J			
Total HxCDD	2.2	----	0.34	J			
1,2,3,4,6,7,8-HpCDF	2.8	----	0.26	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.38		Equivalence: 0.58 ng/Kg		
Total HpCDF	2.8	----	0.26	J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	15	----	0.37				
Total HpCDD	34	----	0.37				
OCDF	7.4	----	0.41	J			
OCDD	160	----	0.26				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
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NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-10A-1.0-1.5_0423		
Lab Sample ID	10649075027		
Filename	U230505A_13		
Injected By	AH5		
Total Amount Extracted	10.5 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	04/05/2023 09:30
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230505A_02	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/05/2023 17:50

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.12		2,3,7,8-TCDF-13C	2.00	72
Total TCDF	0.46	----	0.12	J	2,3,7,8-TCDD-13C	2.00	72
					1,2,3,7,8-PeCDF-13C	2.00	83
2,3,7,8-TCDD	2.7	----	0.36		2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	4.5	----	0.36		1,2,3,7,8-PeCDD-13C	2.00	94
					1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	ND	----	0.13		1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	----	0.082		2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	2.3	----	0.082	J	1,2,3,7,8,9-HxCDF-13C	2.00	70
					1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	0.43	----	0.12	J	1,2,3,6,7,8-HxCDD-13C	2.00	75
Total PeCDD	4.0	----	0.12	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
					1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	1.2	----	0.21	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	90
1,2,3,6,7,8-HxCDF	0.23	----	0.19	J	OCDD-13C	4.00	73
2,3,4,6,7,8-HxCDF	----	0.56	0.22	IJ			
1,2,3,7,8,9-HxCDF	ND	----	0.25		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	18	----	0.19		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.90	----	0.28	J	2,3,7,8-TCDD-37Cl4	0.20	70
1,2,3,6,7,8-HxCDD	2.5	----	0.40	J			
1,2,3,7,8,9-HxCDD	1.7	----	0.36	J			
Total HxCDD	27	----	0.28				
1,2,3,4,6,7,8-HpCDF	----	26	0.31	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	1.4	----	0.42	J	Equivalence: 5.0 ng/Kg		
Total HpCDF	48	----	0.31		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	71	----	0.45				
Total HpCDD	170	----	0.45				
OCDF	79	----	0.35				
OCDD	740	----	0.41				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
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NC = Not Calculated

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REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-10A-1.5-2.0_0423		
Lab Sample ID	10649075028		
Filename	U230505A_14		
Injected By	AH5		
Total Amount Extracted	10.3 g	Matrix	Solid
% Moisture	3.9	Dilution	NA
Dry Weight Extracted	9.92 g	Collected	04/05/2023 09:35
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230505A_02	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/05/2023 18:36

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.20		2,3,7,8-TCDF-13C	2.00	77
Total TCDF	0.35	----	0.20	J	2,3,7,8-TCDD-13C	2.00	78
					1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	1.1	----	0.25		2,3,4,7,8-PeCDF-13C	2.00	90
Total TCDD	1.9	----	0.25		1,2,3,7,8-PeCDD-13C	2.00	99
					1,2,3,4,7,8-HxCDF-13C	2.00	87
1,2,3,7,8-PeCDF	ND	----	0.081		1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	ND	----	0.056		2,3,4,6,7,8-HxCDF-13C	2.00	84
Total PeCDF	ND	----	0.056		1,2,3,7,8,9-HxCDF-13C	2.00	77
					1,2,3,4,7,8-HxCDD-13C	2.00	84
1,2,3,7,8-PeCDD	----	0.17	0.060	IJ	1,2,3,6,7,8-HxCDD-13C	2.00	93
Total PeCDD	0.62	----	0.060	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	85
					1,2,3,4,7,8,9-HpCDF-13C	2.00	83
1,2,3,4,7,8-HxCDF	----	0.31	0.13	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	100
1,2,3,6,7,8-HxCDF	0.35	----	0.17	J	OCDD-13C	4.00	77
2,3,4,6,7,8-HxCDF	0.30	----	0.11	J			
1,2,3,7,8,9-HxCDF	ND	----	0.13		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	6.1	----	0.11		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.48	0.23	IJ	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	1.00	----	0.17	J			
1,2,3,7,8,9-HxCDD	0.62	----	0.20	J			
Total HxCDD	8.9	----	0.17				
1,2,3,4,6,7,8-HpCDF	----	9.7	0.24	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.33		Equivalence: 2.0 ng/Kg		
Total HpCDF	13	----	0.24		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	29	----	0.25				
Total HpCDD	65	----	0.25				
OCDF	23	----	0.36				
OCDD	340	----	0.42				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
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NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-01B-1.0-1.5_0423		
Lab Sample ID	10649075029		
Filename	U230505A_15		
Injected By	AH5		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	3.8	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	04/05/2023 16:00
ICAL ID	U230503	Received	04/12/2023 08:50
CCal Filename(s)	U230505A_02	Extracted	04/19/2023 14:30
Method Blank ID	BLANK-105368	Analyzed	05/05/2023 19:23

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.24		2,3,7,8-TCDF-13C	2.00	76
Total TCDF	ND	----	0.24		2,3,7,8-TCDD-13C	2.00	76
					1,2,3,7,8-PeCDF-13C	2.00	88
2,3,7,8-TCDD	0.43	----	0.26	J	2,3,4,7,8-PeCDF-13C	2.00	90
Total TCDD	0.43	----	0.26	J	1,2,3,7,8-PeCDD-13C	2.00	102
					1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	----	0.28		1,2,3,6,7,8-HxCDF-13C	2.00	83
2,3,4,7,8-PeCDF	ND	----	0.20		2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	0.90	----	0.20	J	1,2,3,7,8,9-HxCDF-13C	2.00	75
					1,2,3,4,7,8-HxCDD-13C	2.00	83
1,2,3,7,8-PeCDD	ND	----	0.080		1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	1.4	----	0.080	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	82
					1,2,3,4,7,8,9-HpCDF-13C	2.00	82
1,2,3,4,7,8-HxCDF	ND	----	0.17		1,2,3,4,6,7,8-HpCDD-13C	2.00	98
1,2,3,6,7,8-HxCDF	ND	----	0.17		OCDD-13C	4.00	74
2,3,4,6,7,8-HxCDF	ND	----	0.15				
1,2,3,7,8,9-HxCDF	ND	----	0.18		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.7	----	0.15	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.23	----	0.13	J	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	0.44	----	0.12	J			
1,2,3,7,8,9-HxCDD	----	0.20	0.11	IJ			
Total HxCDD	5.0	----	0.11				
1,2,3,4,6,7,8-HpCDF	----	6.1	0.29	P	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.25		Equivalence: 0.75 ng/Kg		
Total HpCDF	5.4	----	0.25		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	12	----	0.19				
Total HpCDD	29	----	0.19				
OCDF	11	----	0.41				
OCDD	160	----	0.57				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
P = PCDE Interference
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKJJ		
Lab Sample ID	BLANK-105366	Matrix	Solid
Filename	L230422A_07	Dilution	NA
Total Amount Extracted	10.4 g	Extracted	04/19/2023 14:30
ICAL ID	L230302	Analyzed	04/22/2023 04:52
CCal Filename(s)	L230421A_19	Injected By	JRH

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.11		2,3,7,8-TCDF-13C	2.00	74
Total TCDF	ND	----	0.11		2,3,7,8-TCDD-13C	2.00	49
					1,2,3,7,8-PeCDF-13C	2.00	89
2,3,7,8-TCDD	ND	----	0.22		2,3,4,7,8-PeCDF-13C	2.00	89
Total TCDD	0.23	----	0.22	J	1,2,3,7,8-PeCDD-13C	2.00	93
					1,2,3,4,7,8-HxCDF-13C	2.00	85
1,2,3,7,8-PeCDF	ND	----	0.065		1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	ND	----	0.048		2,3,4,6,7,8-HxCDF-13C	2.00	80
Total PeCDF	ND	----	0.048		1,2,3,7,8,9-HxCDF-13C	2.00	68
					1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	ND	----	0.098		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	----	0.098		1,2,3,4,6,7,8-HpCDF-13C	2.00	66
					1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	ND	----	0.066		1,2,3,4,6,7,8-HpCDD-13C	2.00	71
1,2,3,6,7,8-HxCDF	ND	----	0.057		OCDD-13C	4.00	51
2,3,4,6,7,8-HxCDF	ND	----	0.058				
1,2,3,7,8,9-HxCDF	0.15	----	0.11	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.15	----	0.057	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.11		2,3,7,8-TCDD-37Cl4	0.20	48
1,2,3,6,7,8-HxCDD	ND	----	0.10				
1,2,3,7,8,9-HxCDD	ND	----	0.093				
Total HxCDD	ND	----	0.093				
1,2,3,4,6,7,8-HpCDF	ND	----	0.095		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.14		Equivalence: 0.015 ng/Kg		
Total HpCDF	ND	----	0.095		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.14				
Total HpCDD	0.25	----	0.14	J			
OCDF	ND	----	0.27				
OCDD	----	0.46	0.40	IJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKJK		
Lab Sample ID	BLANK-105368	Matrix	Solid
Filename	F230501A_09	Dilution	NA
Total Amount Extracted	20.4 g	Extracted	04/19/2023 14:30
ICAL ID	F230426	Analyzed	05/01/2023 13:56
CCal Filename(s)	F230501A_01	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.077		2,3,7,8-TCDF-13C	2.00	66
Total TCDF	ND	----	0.077		2,3,7,8-TCDD-13C	2.00	65
					1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	ND	----	0.10		2,3,4,7,8-PeCDF-13C	2.00	71
Total TCDD	ND	----	0.10		1,2,3,7,8-PeCDD-13C	2.00	78
					1,2,3,4,7,8-HxCDF-13C	2.00	92
1,2,3,7,8-PeCDF	ND	----	0.080		1,2,3,6,7,8-HxCDF-13C	2.00	93
2,3,4,7,8-PeCDF	ND	----	0.053		2,3,4,6,7,8-HxCDF-13C	2.00	85
Total PeCDF	ND	----	0.053		1,2,3,7,8,9-HxCDF-13C	2.00	76
					1,2,3,4,7,8-HxCDD-13C	2.00	77
1,2,3,7,8-PeCDD	ND	----	0.048		1,2,3,6,7,8-HxCDD-13C	2.00	97
Total PeCDD	ND	----	0.048		1,2,3,4,6,7,8-HpCDF-13C	2.00	74
					1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	ND	----	0.088		1,2,3,4,6,7,8-HpCDD-13C	2.00	79
1,2,3,6,7,8-HxCDF	ND	----	0.11		OCDD-13C	4.00	66
2,3,4,6,7,8-HxCDF	ND	----	0.10				
1,2,3,7,8,9-HxCDF	ND	----	0.14		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.088		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.10		2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	ND	----	0.10				
1,2,3,7,8,9-HxCDD	ND	----	0.090				
Total HxCDD	ND	----	0.090				
1,2,3,4,6,7,8-HpCDF	ND	----	0.15		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.19		Equivalence: 0.0090 ng/Kg		
Total HpCDF	ND	----	0.15		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	0.68	----	0.18	J			
Total HpCDD	1.4	----	0.18	J			
OCDF	----	0.32	0.25	IJ			
OCDD	6.9	----	0.31				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-105367		
Filename	L230422A_02	Matrix	Solid
Total Amount Extracted	10.2 g	Dilution	NA
ICAL ID	L230302	Extracted	04/19/2023 14:30
CCal Filename	L230421A_19	Analyzed	04/22/2023 01:09
Method Blank ID	BLANK-105366	Injected By	JRH

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10	7.5	15.8	103
2,3,7,8-TCDD	10	10	6.7	15.8	104
1,2,3,7,8-PeCDF	50	51	40.0	67.0	101
2,3,4,7,8-PeCDF	50	51	34.0	80.0	102
1,2,3,7,8-PeCDD	50	46	35.0	71.0	93
1,2,3,4,7,8-HxCDF	50	52	36.0	67.0	104
1,2,3,6,7,8-HxCDF	50	54	42.0	65.0	107
2,3,4,6,7,8-HxCDF	50	53	35.0	78.0	105
1,2,3,7,8,9-HxCDF	50	53	39.0	65.0	107
1,2,3,4,7,8-HxCDD	50	55	35.0	82.0	110
1,2,3,6,7,8-HxCDD	50	51	38.0	67.0	102
1,2,3,7,8,9-HxCDD	50	54	32.0	81.0	108
1,2,3,4,6,7,8-HpCDF	50	49	41.0	61.0	99
1,2,3,4,7,8,9-HpCDF	50	50	39.0	69.0	100
1,2,3,4,6,7,8-HpCDD	50	46	35.0	70.0	91
OCDF	100	110	63.0	170.0	107
OCDD	100	120	78.0	144.0	116
2,3,7,8-TCDD-37Cl4	10	4.0	3.1	19.1	40
2,3,7,8-TCDF-13C	100	63	22.0	152.0	63
2,3,7,8-TCDD-13C	100	39	20.0	175.0	39
1,2,3,7,8-PeCDF-13C	100	82	21.0	192.0	82
2,3,4,7,8-PeCDF-13C	100	82	13.0	328.0	82
1,2,3,7,8-PeCDD-13C	100	93	21.0	227.0	93
1,2,3,4,7,8-HxCDF-13C	100	73	19.0	202.0	73
1,2,3,6,7,8-HxCDF-13C	100	68	21.0	159.0	68
2,3,4,6,7,8-HxCDF-13C	100	68	22.0	176.0	68
1,2,3,7,8,9-HxCDF-13C	100	59	17.0	205.0	59
1,2,3,4,7,8-HxCDD-13C	100	62	21.0	193.0	62
1,2,3,6,7,8-HxCDD-13C	100	70	25.0	163.0	70
1,2,3,4,6,7,8-HpCDF-13C	100	63	21.0	158.0	63
1,2,3,4,7,8,9-HpCDF-13C	100	59	20.0	186.0	59
1,2,3,4,6,7,8-HpCDD-13C	100	68	26.0	166.0	68
OCDD-13C	200	96	26.0	397.0	48

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-105369		
Filename	F230501A_10	Matrix	Solid
Total Amount Extracted	20.5 g	Dilution	NA
ICAL ID	F230426	Extracted	04/19/2023 14:30
CCal Filename	F230501A_01	Analyzed	05/01/2023 14:40
Method Blank ID	BLANK-105368	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	11	7.5	15.8	107
2,3,7,8-TCDD	10	11	6.7	15.8	112
1,2,3,7,8-PeCDF	50	49	40.0	67.0	98
2,3,4,7,8-PeCDF	50	52	34.0	80.0	105
1,2,3,7,8-PeCDD	50	48	35.0	71.0	97
1,2,3,4,7,8-HxCDF	50	56	36.0	67.0	112
1,2,3,6,7,8-HxCDF	50	53	42.0	65.0	105
2,3,4,6,7,8-HxCDF	50	56	35.0	78.0	113
1,2,3,7,8,9-HxCDF	50	56	39.0	65.0	112
1,2,3,4,7,8-HxCDD	50	56	35.0	82.0	113
1,2,3,6,7,8-HxCDD	50	53	38.0	67.0	105
1,2,3,7,8,9-HxCDD	50	52	32.0	81.0	103
1,2,3,4,6,7,8-HpCDF	50	54	41.0	61.0	109
1,2,3,4,7,8,9-HpCDF	50	54	39.0	69.0	108
1,2,3,4,6,7,8-HpCDD	50	50	35.0	70.0	101
OCDF	100	110	63.0	170.0	112
OCDD	100	130	78.0	144.0	127
2,3,7,8-TCDD-37Cl4	10	5.7	3.1	19.1	57
2,3,7,8-TCDF-13C	100	61	22.0	152.0	61
2,3,7,8-TCDD-13C	100	57	20.0	175.0	57
1,2,3,7,8-PeCDF-13C	100	66	21.0	192.0	66
2,3,4,7,8-PeCDF-13C	100	68	13.0	328.0	68
1,2,3,7,8-PeCDD-13C	100	72	21.0	227.0	72
1,2,3,4,7,8-HxCDF-13C	100	81	19.0	202.0	81
1,2,3,6,7,8-HxCDF-13C	100	87	21.0	159.0	87
2,3,4,6,7,8-HxCDF-13C	100	63	22.0	176.0	63
1,2,3,7,8,9-HxCDF-13C	100	61	17.0	205.0	61
1,2,3,4,7,8-HxCDD-13C	100	73	21.0	193.0	73
1,2,3,6,7,8-HxCDD-13C	100	91	25.0	163.0	91
1,2,3,4,6,7,8-HpCDF-13C	100	72	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	65	20.0	186.0	65
1,2,3,4,6,7,8-HpCDD-13C	100	76	26.0	166.0	76
OCDD-13C	200	120	26.0	397.0	60

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Spiked Sample Report

Client - Pace Analytical National

Client's Sample ID	DU-15A-1.0-1.5_0423-MS		
Lab Sample ID	10649075015-MS		
Filename	F230504A_07	Matrix	Solid
Total Amount Extracted	10.4 g	Dilution	NA
ICAL ID	F230426	Extracted	04/19/2023 14:30
CCal Filename(s)	F230504A_01	Analyzed	05/04/2023 05:09
Method Blank ID	BLANK-105368	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	104	2,3,7,8-TCDF-13C	2.00	64
Total TCDF				2,3,7,8-TCDD-13C	2.00	62
				1,2,3,7,8-PeCDF-13C	2.00	60
2,3,7,8-TCDD	0.20	0.24	115	2,3,4,7,8-PeCDF-13C	2.00	65
Total TCDD				1,2,3,7,8-PeCDD-13C	2.00	68
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	1.00	1.05	105	1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	1.00	1.04	104	2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	71
1,2,3,7,8-PeCDD	1.00	0.96	96	1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.00	69
				1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	1.00	1.08	107	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	1.00	1.10	110	OCDD-13C	4.00	48
2,3,4,6,7,8-HxCDF	1.00	1.05	105			
1,2,3,7,8,9-HxCDF	1.00	1.01	101	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.10	109	2,3,7,8-TCDD-37Cl4	0.20	61
1,2,3,6,7,8-HxCDD	1.00	1.02	100			
1,2,3,7,8,9-HxCDD	1.00	1.04	103			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.00	1.15	115			
1,2,3,4,7,8,9-HpCDF	1.00	0.97	97			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.00	1.31	96			
Total HpCDD						
OCDF	2.00	2.32	106			
OCDD	2.00	6.62	132			

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent)

Results reported on a total weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Spiked Sample Report

Client - Pace Analytical National

Client's Sample ID	DU-15A-1.0-1.5_0423-MSD		
Lab Sample ID	10649075015-MSD		
Filename	F230504A_08	Matrix	Solid
Total Amount Extracted	10.5 g	Dilution	NA
ICAL ID	F230426	Extracted	04/19/2023 14:30
CCal Filename(s)	F230504A_01	Analyzed	05/04/2023 05:52
Method Blank ID	BLANK-105368	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	107	2,3,7,8-TCDF-13C	2.00	63
Total TCDF				2,3,7,8-TCDD-13C	2.00	62
				1,2,3,7,8-PeCDF-13C	2.00	61
2,3,7,8-TCDD	0.20	0.23	111	2,3,4,7,8-PeCDF-13C	2.00	64
Total TCDD				1,2,3,7,8-PeCDD-13C	2.00	65
				1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	1.00	0.98	98	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	1.00	1.03	103	2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.00	67
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	1.00	0.97	97	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.00	66
				1,2,3,4,7,8,9-HpCDF-13C	2.00	60
1,2,3,4,7,8-HxCDF	1.00	1.03	103	1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	1.00	1.07	107	OCDD-13C	4.00	49
2,3,4,6,7,8-HxCDF	1.00	1.05	105			
1,2,3,7,8,9-HxCDF	1.00	1.04	103	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.05	105	2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	1.00	1.02	101			
1,2,3,7,8,9-HxCDD	1.00	1.10	109			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.00	1.12	112			
1,2,3,4,7,8,9-HpCDF	1.00	1.02	102			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.00	1.32	97			
Total HpCDD						
OCDF	2.00	2.34	107			
OCDD	2.00	6.93	144			

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent)

Results reported on a total weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613 Spike Sample Results

Client - Pace Analytical National

Client Sample ID	DU-15A-1.0-1.5_0423		
Lab Sample ID	10649075015	Sample Filename	U230505A_12
MS ID	10649075015-MS	MS Filename	F230504A_07
MSD ID	10649075015-MSD	MSD Filename	F230504A_08

	Quantity	Unspiked Sample Contribution		Quantity Measured			Subtracted Recovery	
	Spiked	to MS	to MSD	MS	MSD		MS	MSD
Analyte	(ng)	(ng)	(ng)	(ng)	(ng)	RPD	(%)	(%)
2,3,7,8-TCDF	0.20	ND	ND	0.21	0.21	3.4	104	107
2,3,7,8-TCDD	0.20	0.00914	0.00926	0.24	0.23	3.6	115	111
1,2,3,7,8-PeCDF	1.00	ND	ND	1.05	0.98	7.3	105	98
2,3,4,7,8-PeCDF	1.00	ND	ND	1.04	1.03	1.8	104	103
1,2,3,7,8-PeCDD	1.00	0.00276	0.00280	0.96	0.97	0.4	96	97
1,2,3,4,7,8-HxCDF	1.00	0.00404	0.00410	1.08	1.03	4.5	107	103
1,2,3,6,7,8-HxCDF	1.00	0.00496	0.00502	1.10	1.07	3.4	110	107
2,3,4,6,7,8-HxCDF	1.00	0.00304	0.00308	1.05	1.05	0.3	105	105
1,2,3,7,8,9-HxCDF	1.00	0.00185	0.00188	1.01	1.04	2.5	101	103
1,2,3,4,7,8-HxCDD	1.00	0.00631	0.00639	1.10	1.05	4.5	109	105
1,2,3,6,7,8-HxCDD	1.00	0.0163	0.0165	1.02	1.02	0.5	100	101
1,2,3,7,8,9-HxCDD	1.00	0.0101	0.0102	1.04	1.10	6.2	103	109
1,2,3,4,6,7,8-HpCDF	1.00	0.0921	0.0934	1.15	1.12	2.4	115	112
1,2,3,4,7,8,9-HpCDF	1.00	ND	ND	0.97	1.02	4.3	97	102
1,2,3,4,6,7,8-HpCDD	1.00	0.352	0.356	1.31	1.32	0.6	96	97
OCDF	2.00	0.201	0.204	2.32	2.34	0.7	106	107
OCDD	2.00	3.99	4.04	6.62	6.93	4.5	132	144

Quantity Spiked - the amount of analyte spiked into the spiked samples
Unspiked Sample Contribution - calculated based on the amount found in the sample and the extracted amounts of the spiked and unspiked samples
Quantity Measured - the total amount of analyte measured in the spiked samples
RPD - the Relative Percent Difference of the spiked sample Quantity Measured values
Subtracted Recovery - calculated after subtracting the unspiked sample contribution

Stage 2A/B Data Validation Checks
JH Baxter
Delivery Group L1603081/10649075

Comments:

- U-qualified samples assigned by the laboratory are not included in this report unless the U qualification is for some other reason other than a simple non-detect.

SUMMARY OF QUALITY CONTROL CHECKS

Quality Control Check	Checked By	Comment
Completeness	MBF	The data set is 100 percent complete, no results rejected.
Holding times	MBF	Holding times were within the method specific recommended holding times.
Preservation	MBF	Preservation was acceptable.
COC Documentation	MBF	COC was provided in the lab report.
Analytical methods	MBF	EPA 1613B Requested analytical methods were performed.
Initial and continuing calibrations	MBF	Not independently verified during Stage 2A/B validation.
Method blanks, trip blank, and field blanks	MBF	Method blanks were performed per batch and there were no detections and associated QC were within established control limits except for: • Blank-105366 o Total TCDD 0.23 J o 1,2,3,7,8,9-HxCDF 0.15 J ▪ DU-10B-1.0-1.5_0423 0.39 J+ o Total HxCDF 0.15 J o Total HpCDD 0.25 J o OCDD 0.46 J+ • Blank-105368 o 1,2,3,4,6,7,8-HpCDD 0.68 J o Total HpCDD 1.4 J o OCDF 0.32 J+ o OCDD 6.9 Associated sample results were greater than 3X method blank contamination. Only 1 result qualified J+. • Equipment Blank (EB-01_0423) o Total HxCDF 3.3 J o 1,2,3,4,7,8-HxCDD 1.6 J+ o 1,2,3,4,6,7,8-HpCDD 5.9 J o Total HpCDD 5.9 J o OCDD 30 J Raw results not reviewed during 2A/B. Equipment blank results (pg/L) and sample results (ng/kg) not directly comparable. Results not qualified.

Quality Control Check	Checked By	Comment
Surrogate/labeled compounds	MBF	Labeled compounds were analyzed and within control limits except for: • 2,3,7,8-TCDD-37Cl4 (Cleanup Recovery STD) o DU-110A-1.0-1.5_0423 33% Unless additional qualifications were necessary, all associated sample analytes qualified J due to low CRS recovery.
LCS/LCSD	MBF	An LCS was analyzed per batch. Recoveries were within established control limits.
MS/MSD	MBF	MS/MSD on non-SDG samples were performed. Results were within control limits. Non-SDG sample results not used for SDG sample qualification.
Field duplicates	MBF	Field duplicates were collected and analyzed: • Primary: DU-10A-1.0-1.5_0423 • Duplicate: DU-110A-1.0-1.5_0423 Results were within 50% solid organic RPD limit except for: • Total HpCDF o 64% RPD • Total TCDD o Absolute difference of 3.9 > 2X RL (1.96) Results qualified J/UJ.
Lab duplicates	MBF	Lab sample duplicates were not performed or required per the method.
Dilution	MBF	Samples did not require further dilution for analysis.
Qualitative Identification for HRGC/HRMS analyses only	MBF	Due to the number of EMPC results (106), see Table 1 for sample result qualification breakdown. EMPC results either had the presence of diphenyl ethers or the isotope ratio was out of specification. EMPC results qualified J+.
Overall Assessment		**Qualifier codes added to results; table and notes below.**

Notes

TABLE 1. SUMMARY OF QUALIFIED DATA

Sample ID	Analyte	Result (ng/kg)	Qualifier Assigned	Reason for Qualification
DU-01A-0.5-1.0_0423	1,2,3,6,7,8-HxCDD	0.78	J	Below reporting limit
	1,2,3,6,7,8-HxCDF	0.53		
	1,2,3,7,8-PeCDD	0.26		
	2,3,4,6,7,8-HxCDF	0.2		
	Total HxCDD	4.6		
	Total HxCDF	4.2		
	Total PeCDD	2.2		
	Total PeCDF	2.3		

DU-01A-0.5-1.0_0423	1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDD	0.49 0.15 0.77	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-01A-0.5-1.0_0423	1,2,3,4,6,7,8-HpCDF	6.6	J+	EMPC, Presence of PCDEs
DU-01A-1.0-1.5_0423	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD OCDF Total HpCDF Total HxCDD Total HxCDF Total PeCDF	0.38 0.27 3.8 2.8 3 0.95 0.45	J	Below reporting limit
DU-01A-1.0-1.5_0423	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDF	0.19 0.23	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-01A-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	2.6	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-01B-0.5-1.0_0423	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF Total TCDF Total PeCDD	0.91 2.3 0.56 0.93 0.65 0.94 4.5	J	Below reporting limit
DU-01B-0.5-1.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF	0.6 0.83 1.4 0.43	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-01B-0.5-1.0_0423	1,2,3,4,6,7,8-HpCDF	17	J+	EMPC, Presence of PCDEs
DU-01B-0.5-1.0_0423	1,2,3,6,7,8-HxCDF	0.80	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-01B-1.0-1.5_0423	2,3,7,8-Tcdd 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD Total HxCDF Total PeCDD Total PeCDF Total TCDD	0.43 0.23 0.44 1.7 1.4 0.9 0.43	J	Below reporting limit

DU-01B-1.0-1.5_0423	1,2,3,7,8,9-HxCDD	0.11	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-01B-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	6.1	J+	EMPC, Presence of PCDEs
DU-06A-0.5-1.0_0423	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF Total HxCDF Total PeCDD	0.54 0.8 0.26 0.32 3.2 2.7	J	Below reporting limit
DU-06A-0.5-1.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDF	0.5 0.3 1 0.26	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-06A-0.5-1.0_0423	1,2,3,4,6,7,8-HpCDF	12	J+	EMPC, Presence of PCDEs
DU-06A-1.0-1.5_0423	1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF Total TCDF Total HxCDD Total HxCDF	0.33 0.5 0.33 0.27 3.5 1.9	J	Below reporting limit
DU-06A-1.0-1.5_0423	1,2,3,7,8,9-HxCDD	0.25	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-06A-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	5.8	J+	EMPC, Presence of PCDEs
DU-06B-0.5-1.0_0423	2,3,7,8-Tcdd 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF Total PeCDF	0.5 0.82 1.4 0.8 2.9 2.2 0.88 0.31 0.73 3.4	J	Below reporting limit
DU-06B-0.5-1.0_0423	1,2,3,7,8,9-HxCDF 2,3,4,7,8-PeCDF	0.30, 0.28	J+	EMPC, Isotope ratio out of spec, Below reporting limit

DU-06B-0.5-1.0_0423	1,2,3,4,6,7,8-HpCDF	27	J+	EMPC, Presence of PCDEs
DU-06B-1.0-1.5_0423	1,2,3,6,7,8-HxCDD 2,3,4,6,7,8-HxCDF Total TCDF Total HxCDF Total PeCDD	0.6 0.18 0.14 1.5 1.2	J	Below reporting limit
DU-06B-1.0-1.5_0423	1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF	0.41 0.14 0.23 0.49 0.17	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-06B-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	5.1	J+	EMPC, Presence of PCDEs
DU-09A-1.0-1.5_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF	4.5 2.2 4.3 3.7 0.92 0.94 2.3	J	Below reporting limit
DU-09A-1.0-1.5_0423	2,3,4,7,8-PeCDF	0.84	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-09A-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	160	J+	EMPC, Presence of PCDEs
DU-09A-1.0-1.5_0423	1,2,3,6,7,8-HxCDF	1.2	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-09A-1.5-2.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 2,3,4,6,7,8-HxCDF Total TCDF Total PeCDF	0.81 0.64 0.87 1.3 1 0.45 0.4 2.3	J	Below reporting limit
DU-09A-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	28	J+	EMPC, Presence of PCDEs
DU-09A-1.5-2.0_0423	1,2,3,6,7,8-HxCDF	1.2	J+	EMPC, Presence of PCDEs, Below reporting limit

DU-09B-1.0-1.5_0423	1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF	2.7 0.82 4.9 1.5	J	Below reporting limit
DU-09B-1.0-1.5_0423	1,2,3,7,8,9-HxCDF	1.4	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-09B-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	240	J+	EMPC, Presence of PCDEs
DU-09B-1.0-1.5_0423	1,2,3,6,7,8-HxCDF	1.8	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-09B-1.5-2.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDF Total TCDF Total PeCDD Total PeCDF	1.2 1.5 3.1 0.54 0.71 3.5 0.37	J	Below reporting limit
DU-09B-1.5-2.0_0423	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF	1.2 0.39 2.1 0.64 0.74	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-09B-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	44	J+	EMPC, Presence of PCDEs
DU-10A-1.0-1.5_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDD Total TCDF Total PeCDD Total PeCDF	1.4 0.9 1.2 2.5 0.23 1.7 0.43 0.46 4 2.3	J	Below reporting limit
DU-10A-1.0-1.5_0423	2,3,4,6,7,8-HxCDF	0.56	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-10A-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	26	J+	EMPC, Presence of PCDEs
DU-10A-1.0-1.5_0423	Total HpCDF Total TCDD	48 4.5	J	FD RPD 64% > 50% Limit, FD Absolute difference > 2X RL

DU-10A-1.5-2.0_0423	1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 2,3,4,6,7,8-HxCDF Total TCDF Total PeCDD	1 0.35 0.62 0.3 0.35 0.62	J	Below reporting limit
DU-10A-1.5-2.0_0423	1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8-PeCDD	0.48 0.31 0.17	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-10A-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	9.7	J+	EMPC, Presence of PCDEs
DU-10B-1.0-1.5_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 2,3,4,6,7,8-HxCDF Total TCDF Total PeCDD Total PeCDF	0.98 0.78 0.92 1.8 1.4 0.75 0.51 1.6 2	J	Below reporting limit
DU-10B-1.0-1.5_0423	2,3,7,8-Tcdd 1,2,3,7,8-PeCDD 2,3,4,7,8-PeCDF	0.56 0.25 0.25	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-10B-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	32	J+	EMPC, Presence of PCDEs
DU-10B-1.0-1.5_0423	1,2,3,6,7,8-HxCDF	0.30	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-10B-1.0-1.5_0423	1,2,3,7,8,9-HxCDF	0.39	J+	Result > 2X Method Blank, Result < 3X Method Blank
DU-10B-1.5-2.0_0423	2,3,7,8-Tcdd 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total PeCDD Total TCDD	0.99 0.42 1.4 1.1 0.65 0.99	J	Below reporting limit
DU-10B-1.5-2.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF	0.52 0.63 0.31 0.35 0.26 0.38	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-10B-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	19	J+	EMPC, Presence of PCDEs

DU-110A-1.0-1.5_0423	1,2,3,6,7,8-HxCDF	2.2	J+	EMPC, Presence of PCDEs, CRS < LCL, Below reporting limit
DU-110A-1.0-1.5_0423	2,3,7,8-Tcdd	1.2	J+	EMPC, Isotope ratio out of spec, CRS < LCL
DU-110A-1.0-1.5_0423	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF	0.65 0.39 0.27 0.4	J+	EMPC, Isotope ratio out of spec, CRS < LCL, Below reporting limit
DU-110A-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,7,8-PeCDF 2,3,7,8-TCDF OCDD OCDF Total TCDF Total HpCDD Total HxCDD Total HxCDF	91 28 0.46 0.39 1100 120 1.6 250 24 18	J J UJ UJ J J J J J J	CRS < LCL
DU-110A-1.0-1.5_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 2,3,4,7,8-PeCDF Total PeCDD Total PeCDF	1.9 1.2 2.3 1.6 0.4 2.9 2.1	J	CRS < LCL, Below reporting limit
DU-110A-1.0-1.5_0423	Total HpCDF Total TCDD	93 0.6	J, UJ	FD RPD 64% > 50% Limit, FD Absolute difference > 2X RL, CRS < LCL (both analytes)
DU-11A-1.0-1.5_0423	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total PeCDD Total PeCDF	1.2 0.85 0.73 0.71	J	Below reporting limit
DU-11A-1.0-1.5_0423	1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDF	0.34 0.56 0.28	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-11A-1.0-1.5_0423	1,2,3,6,7,8-HxCDF	0.83	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-11A-1.5-2.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 2,3,4,7,8-PeCDF Total PeCDD	2.4 0.86 2.6 1.4 1.2 0.48 1.6 2.4	J	Below reporting limit

DU-11A-1.5-2.0_0423	2,3,4,6,7,8-HxCDF	1.5	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-11A-1.5-2.0_0423	1,2,3,6,7,8-HxCDF	2.6	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-11B-1.0-1.5_0423	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,7,8-PeCDF Total HxCDD Total PeCDF Total TCDD	1.5 0.79 0.42 3.4 1.7 0.38	J	Below reporting limit
DU-11B-1.0-1.5_0423	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 2,3,4,6,7,8-HxCDF	0.7 0.45 0.34	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-11B-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD OCDF Total HpCDF Total HxCDD Total HxCDF Total PeCDF	2.8 0.46 0.44 0.39 7.4 2.8 2.2 3.9 0.51	J	Below reporting limit
DU-11B-1.5-2.0_0423	2,3,7,8-Tcdd	0.18	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-11B-1.5-2.0_0423	1,2,3,6,7,8-HxCDF	0.37	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-15A-1.0-1.5_0423	2,3,7,8-Tcdd 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF Total PeCDD Total PeCDF	0.92 0.63 0.4 1.6 1 0.19 0.3 2.1 1.6	J	Below reporting limit
DU-15A-1.0-1.5_0423	1,2,3,7,8-PeCDD	0.22	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-15A-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF	9.2	J+	EMPC, Presence of PCDEs
DU-15A-1.0-1.5_0423	1,2,3,6,7,8-HxCDF	0.50	J+	EMPC, Presence of PCDEs, Below reporting limit

DU-15A-1.5-2.0_0423	2,3,7,8-Tcdd 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8-PeCDD Total TCDF Total HxCDF Total PeCDD Total TCDD	0.83 0.54 0.34 0.14 0.21 4.3 1.5 0.83	J	Below reporting limit
DU-15A-1.5-2.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.34 0.83 0.71	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-15A-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	6.6	J+	EMPC, Presence of PCDEs
DU-15A-1.5-2.0_0423	1,2,3,6,7,8-HxCDF	0.47	J+	EMPC, Presence of PCDEs, Below reporting limit
DU-15B-1.0-1.5_0423	1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF Total HxCDF Total PeCDD	4.3 0.52 0.83 0.53 0.27 3 0.6	J	Below reporting limit
DU-15B-1.0-1.5_0423	1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDD	0.14 0.54	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-15B-1.5-2.0_0423	2,3,7,8-Tcdd 1,2,3,4,6,7,8-HpCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD OCDF Total HxCDD Total HxCDF Total PeCDF Total TCDD	0.31 2 0.39 0.2 8.6 3.9 1 0.3 0.31	J	Below reporting limit
DU-15B-1.5-2.0_0423	1,2,3,6,7,8-HxCDF	0.36	J+	EMPC, Presence of PCDEs, Below reporting limit
SU-07A-0.5-1.0_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF 2,3,7,8-TCDF	2 2.9 3.6 0.76 2.2 1.5 0.94	J	Below reporting limit
SU-07A-0.5-1.0_0423	1,2,3,6,7,8-HxCDD	5.2	J+	EMPC, Isotope ratio out of spec

SU-07A-0.5-1.0_0423	2,3,7,8-Tcdd 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD	0.99 2.1 0.75 1.2	J+	EMPC, Isotope ratio out of spec, Below reporting limit
SU-07A-0.5-1.0_0423	1,2,3,6,7,8-HxCDF	2.9	J+	EMPC, Presence of PCDEs, Below reporting limit
SU-07A-1.0-1.5_0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 2,3,4,7,8-PeCDF Total PeCDF	0.6 0.45 1.1 0.63 0.58 0.34 0.28 0.91	J	Below reporting limit
SU-07A-1.0-1.5_0423	2,3,7,8-Tcdd 1,2,3,4,7,8-HxCDD 2,3,4,6,7,8-HxCDF	0.3 0.43 0.36	J+	EMPC, Isotope ratio out of spec, Below reporting limit
SU-07B-0.5-1.0-0423	1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDD 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF	1.6 1.8 4.6 3.3 0.8 1.8 0.81	J	Below reporting limit
SU-07B-0.5-1.0-0423	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDF	1.6, 0.65	J+	EMPC, Isotope ratio out of spec, Below reporting limit
SU-07B-0.5-1.0-0423	1,2,3,6,7,8-HxCDF	3.0	J+	EMPC, Presence of PCDEs, Below reporting limit
SU-07B-1.0-1.5-0423	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 2,3,4,7,8-PeCDF Total TCDF Total HxCDF Total PeCDF Total TCDD	1.2 0.85 0.26 0.81 3 1.2 0.77	J	Below reporting limit
SU-07B-1.0-1.5-0423	1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF	0.49 0.29 0.65	J+	EMPC, Isotope ratio out of spec, Below reporting limit

ANALYTICAL REPORT

June 06, 2023

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1605173
Samples Received:	04/07/2023
Project Number:	02060.005.004
Description:	Oregon DEQ-JH Baxter Offsite Investigation (TO #2060.005)
Report To:	Don Hanson
	165 E. 7th Avenue
	Suite 100
	Eugene, OR 97401

Entire Report Reviewed By: Brian Ford

Brian Ford
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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DU-06A-1.5-2.0_0423 L1605173-01 Solid

Collected by: GSI | Collected date/time: 04/05/23 13:10 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-06A-2.0-2.5_0423 L1605173-02 Solid

Collected by: GSI | Collected date/time: 04/05/23 13:15 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-06A-2.5-3.0_0423 L1605173-03 Solid

Collected by: GSI | Collected date/time: 04/05/23 13:20 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-06B-1.5-2.0_0423 L1605173-04 Solid

Collected by: GSI | Collected date/time: 04/05/23 14:40 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-06B-2.0-2.5_0423 L1605173-05 Solid

Collected by: GSI | Collected date/time: 04/05/23 14:45 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-06B-2.5-3.0_0423 L1605173-06 Solid

Collected by: GSI | Collected date/time: 04/05/23 14:50 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-106B-1.5-2.0_0423 L1605173-07 Solid

Collected by: GSI | Collected date/time: 04/05/23 14:55 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-01A-1.5-2.0_0423 L1605173-08 Solid

Collected by: GSI | Collected date/time: 04/05/23 15:40 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-01A-2.0-2.5_0423 L1605173-09 Solid

Collected by: GSI | Collected date/time: 04/05/23 15:45 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-01A-2.5-3.0_0423 L1605173-10 Solid

Collected by: GSI | Collected date/time: 04/05/23 15:50 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-10B-2.0-2.5_0423 L1605173-11 Solid

Collected by: GSI | Collected date/time: 04/05/23 10:30 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-10B-2.5-3.0_0423 L1605173-12 Solid

Collected by: GSI | Collected date/time: 04/05/23 10:35 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-09A-2.0-2.5_0423 L1605173-13 Solid

Collected by: GSI | Collected date/time: 04/05/23 11:40 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-09A-2.5-3.0_0423 L1605173-14 Solid

Collected by: GSI | Collected date/time: 04/05/23 11:45 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-09B-2.0-2.5_0423 L1605173-15 Solid

Collected by: GSI | Collected date/time: 04/05/23 12:25 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-09B-2.5-3.0_0423 L1605173-16 Solid

Collected by: GSI | Collected date/time: 04/05/23 12:30 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-15A-2.0-2.5_0423 L1605173-17 Solid

Collected by: GSI | Collected date/time: 04/04/23 10:10 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-15A-2.5-3.0_0423 L1605173-18 Solid

Collected by: GSI | Collected date/time: 04/04/23 10:15 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-15B-2.0-2.5_0423 L1605173-19 Solid

Collected by: GSI | Collected date/time: 04/04/23 11:10 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-15B-2.5-3.0_0423 L1605173-20 Solid

Collected by: GSI | Collected date/time: 04/04/23 11:15 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

SU-07A-1.5-2.0_0423 L1605173-21 Solid

Collected by: GSI | Collected date/time: 04/04/23 11:45 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

SU-07A-2.0-2.5_0423 L1605173-22 Solid

Collected by: GSI | Collected date/time: 04/04/23 11:50 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

SU-07A-2.5-3.0_0423 L1605173-23 Solid

Collected by: GSI | Collected date/time: 04/04/23 11:55 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

SU-07B-1.5-2.0-0423 L1605173-24 Solid

Collected by: GSI | Collected date/time: 04/04/23 12:10 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

SU-07B-2.0-2.5-0423 L1605173-25 Solid

Collected by: GSI | Collected date/time: 04/04/23 12:15 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

SU-07B-2.5-3.0-0423 L1605173-26 Solid

Collected by: GSI | Collected date/time: 04/04/23 12:20 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-11A-2.0-2.5_0423 L1605173-27 Solid

Collected by: GSI | Collected date/time: 04/04/23 14:15 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-11A-2.5-3.0_0423 L1605173-28 Solid

Collected by: GSI | Collected date/time: 04/04/23 14:20 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-11B-2.0-2.5_0423 L1605173-29 Solid

Collected by: GSI | Collected date/time: 04/04/23 14:40 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-11B-2.5-3.0_0423 L1605173-30 Solid

Collected by: GSI | Collected date/time: 04/04/23 14:45 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-10A-2.0-2.5_0423 L1605173-31 Solid

Collected by: GSI | Collected date/time: 04/05/23 09:40 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-10A-2.5-3.0_0423 L1605173-32 Solid

Collected by: GSI | Collected date/time: 04/05/23 09:45 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-01B-1.5-2.0_0423 L1605173-33 Solid

Collected by: GSI | Collected date/time: 04/05/23 16:05 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-01B-2.0-2.5_0423 L1605173-34 Solid

Collected by: GSI | Collected date/time: 04/05/23 16:10 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

DU-01B-2.5-3.0_0423 L1605173-35 Solid

Collected by: GSI | Collected date/time: 04/05/23 16:15 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

EB-02-0423 L1605173-36 GW

Collected by: GSI | Collected date/time: 04/05/23 15:05 | Received date/time: 04/07/23 09:20

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2043854	1	06/05/23 00:00	06/05/23 00:00	-	Minneapolis, MN 55414

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

Project Narrative

L1605173 -01, -02, -03, -04, -05, -06, -07, -08, -09, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36 contains subout data that is included after the chain of custody.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ **Send Lab Report To:** Don Hanson, RG Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401 Tel. #: 541-687-7349 E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com	D153	**Contract Laboratory Name:** Pace Analytical National **Lab Batch #:** **Invoice:** ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011	**Lab Selection Criteria:** Proximity (if TAT < 48 hrs) Prior work on same project Cost (for anticipated analyses) Other labs disqualified or unable to perform requested services Emergency work	**Turn Around Time:** 10 days (std) 5 days 72 hours 48 hours 24 hours Other _____

Project Name: OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Sample Preservative: Solids: NA	Requested Analyses: ISM Prep,Dioxin/furans by 1613B	Archive	Comments
								L1605173 N 4/14/23 L1603081
DU-06A-1.5-2.0_0423	4/5/23	1310	SE	1			X	~~01~~ -01
DU-06A-2.0-2.5_0423	4/5/23	1315	SE	1			X	~~02~~ 02
DU-06A-2.5-3.0_0423	4/5/23	1320	SE	1			X	~~03~~ 03
DU-06B-0.5-1.0_0423	4/5/23	1430	SE	1		X		~~04~~
DU-06B-1.0-1.5_0423	4/5/23	1435	SE	1		X		~~05~~
DU-06B-1.5-2.0_0423	4/5/23	1440	SE	1			X	~~06~~ 04
DU-06B-2.0-2.5_0423	4/5/23	1445	SE	1			X	~~07~~ 05
DU-06B-2.5-3.0_0423	4/5/23	1450	SE	1			X	~~08~~ 06
DU-106B-1.5-2.0_0423	4/5/23	1455	SE	1			X	~~09~~ 07
DU-01A-0.5-1.0_0423	4/5/23	1530	SE	1		X		~~10~~
DU-01A-1.0-1.5_0423	4/5/23	1535	SE	1		X		~~11~~
DU-01A-1.5-2.0_0423	4/5/23	1540	SE	1			X	~~12~~ 08
DU-01A-2.0-2.5_0423	4/5/23	1545	SE	1			X	~~13~~ 09
DU-01A-2.5-3.0_0423	4/5/23	1550	SE	1			X	~~14~~ 10
DU-01B-0.5-1.0_0423	4/5/23	1555	SE	1		X		~~15~~

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G. Schultzke	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie T (9)	Time & Date: 4/7/23 920

THIS PURC
HEREBY IN

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

Contract Laboratory Name: Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel #: (800) 452-4011

Lab Selection Criteria:
Proximity (if TAT < 48 hrs)
Prior work on same project
Cost (for anticipated analyses)
Other labs disqualified or unable to perform requested services
Emergency work

Turn Around Time:
10 days (std.)
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA									Comments
					Requested Analyses									
					ISM Prep_Dioxin/furans by 1613B								Archive	L1605173
DU10A-1.0-1.5_0423	4/5/23	950	SE	1	X									L1603081
DU-10B-1.0-1.5_0423	4/5/23	1020	SE	1	X									~~10~~
DU-10B-1.5-2.0_0423	4/5/23	1025	SE	1	X									~~17~~
DU-10B-2.0-2.5_0423	4/5/23	1030	SE	1									X	~~18~~
DU-10B-2.5-3.0_0423	4/5/23	1035	SE	1									X	~~19~~ 11
DU-09A-1.0-1.5_0423	4/5/23	1130	SE	1	X									~~20~~ 12
DU-09A-1.5-2.0_0423	4/5/23	1135	SE	1	X									~~21~~
DU-09A-2.0-2.5-0423	4/5/23	1140	SE	1									X	~~22~~
DU-09A-2.5-3.0_0423	4/5/23	1145	SE	1									X	~~23~~ 13
DU-09B-1.0-1.5_0423	4/5/23	1215	SE	1	X									~~24~~ 14
DU-09B-1.5-2.0_0423	4/5/23	1220	SE	1	X									~~25~~
DU-09B-2.0-2.5_0423	4/5/23	1225	SE	1									X	~~26~~
DU-09B-2.5-3.0_0423	4/5/23	1230	SE	1									X	~~27~~ 15
DU-06A-0.5-1.0_0423	4/5/23	1300	SE	1	X									~~28~~ 16
DU-06A-1.0-1.5_0423	4/5/23	1305	SE	1	X									~~29~~
														~~30~~

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G.Schaffer	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie T (9)	Time & Date: 4/7/23 920

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

Contract Laboratory Name: Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

Lab Selection Criteria:
Proximity (if TAT < 48 hrs)
Prior work on same project
Cost (for anticipated analyses)
Other labs disqualified or unable to perform requested services
Emergency work

Turn Around Time:
(10 days (std.))
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)

Project #: JH Baxter Offsite Investigation

Sampler Name: GS1

Sample Preservative

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA									Comments
					Requested Analyses									L1605173
					ISM Prep;Dioxin/furans by 1613B								Archive	L1603087
DU-15A-1.0-1.5-0423	4/4/23	10:00	SE	1	X									-31
DU-15A-1.5-2.0-0423	4/4/23	10:05	SE	1	X									-32
DU-15A-2.0-2.5-0423	4/4/23	10:10	SE	1									X	-33 17
DU-15A-2.5-3.0-0423	4/4/23	10:15	SE	1									X	-34 18
DU-15B-1.0-1.5-0423	4/4/23	11:00	SE	1	X									-35
DU-15B-1.5-2.0-0423	4/4/23	11:05	SE	1	X									-36
DU-15B-2.0-2.5-0423	4/4/23	11:10	SE	1									X	-37 19
DU-15B-2.5-3.0-0423	4/4/23	11:15	SE	1									X	-38 20
SU-07A-0.5-1.0-0423	4/4/23	11:35	SE	1	X									-39
SU-07A-1.0-1.5-0423	4/4/23	11:40	SE	1	X									-40
SU-07A-1.5-2.0-0423	4/4/23	11:45	SE	1									X	-41 21
SU-07A-2.0-2.5-0423	4/4/23	11:50	SE	1									X	-42 22
SU-07A-2.5-3.0-0423	4/4/23	11:55	SE	1									X	-43 23
SU-07B-0.5-1.0-0423	4/4/23	1200	SE	1	X									-44
SU-07B-1.0-1.5-0423	4/4/23	1205	SE	1	X									-45

NOTES: Conduct Incremental Sampling Methodology processing prior to analysis.
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4186, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G. Schutzius	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kayci	Time & Date: 4/7/23 920

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # 8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

State of Oregon Chain of Custody (Pace)

Agency, Authorized Purchaser or Agent: GSI for ODEQ

Send Lab Report To: Don Hanson, RG
Address: 165 E. 7th Avenue, Suite 100, Eugene, OR 97401
Tel. #: 541-687-7349
E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

Contract Laboratory Name: Pace Analytical National
Lab Batch #:
Invoice: ODEQ/Business Office, 811 SW 6th Ave, Portland, OR 97204, Tel. #: (800) 452-4011

Lab Selection Criteria:
Proximity (if TAT < 48 hrs)
Prior work on same project
Cost (for anticipated analyses)
Other labs disqualified or unable to perform requested services
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10 days (std.)
5 days
72 hours
48 hours
24 hours
Other _____

Project Name: OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Requested Analyses

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA	ISM Prep:Dioxin/furans by 1613B							Archive	Comments
														L1605173
SU-07B-1.5-2.0-0423	4/4/23	1210	SE	1		X							X	L1603081 -46 24
SU-07B-2.0-2.5-0423	4/4/23	1215	SE	1									X	-47 25
SU-07B-2.5-3.0-0423	4/4/23	1220	SE	1									X	-48 26
DU-11A-1.0-1.5-0423	4/4/23	1405	SE	1		X								-49
DU-11A-1.5-2.0-0423	4/4/23	1410	SE	1		X								-50
DU-11A-2.0-2.5-0423	4/4/23	1415	SE	1									X	-51 27
DU-11A-2.5-3.0-0423	4/4/23	1420	SE	1									X	-52 28
DU-11B-1.0-1.5-0423	4/4/23	1430	SE	1		X								-53
DU-11B-1.5-2.0-0423	4/4/23	1435	SE	1		X								-54
DU-11B-2.0-2.5-0423	4/4/23	1440	SE	1									X	-55 29
DU-11B-2.5-3.0-0423	4/4/23	1445	SE	1									X	-56 30
DU-10A-1.0-1.5_0423	4/5/23	930	SE	1		X								-57
DU-10A-1.5-2.0_0423	4/5/23	935	SE	1		X								-58
DU-10A-2.0-2.5_0423	4/5/23	940	SE	1									X	-59 31
DU-10A-2.5-3.0_0423	4/5/23	945	SE	1									X	-60 32

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G. Schutzius	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie T (9)	Time & Date: 4/7/23 920

State of Oregon Chain of Custody (Pace)

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E-mail: don.hanson@deq.state.or.us, jbale@gsiws.com, cmartin@gsiws.com, mfargher@gsiws.com, GIS@gsiws.com

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Turn Around Time:
- (10 days (std.))
- 5 days
- 72 hours
- 48 hours
- 24 hours
- Other _____

Project Name: **OREGON DEQ-JH BAXTER OFFSITE INVESTIGATION (TO #2060.005)**

Project #: JH Baxter Offsite Investigation

Sampler Name: GSI

Sample Preservative

Sample ID#	Collection Date	Collection Time	Matrix	Number of Containers	Solids: NA								
Requested Analyses					ISM Prep,Dioxin/furans by 1613B	Dioxin/ furan							Archive
DU-01B-1.0-1.5_0423	4/5/23	1600	SE	1	X								
DU-01B-1.5-2.0_0423	4/5/23	1605	SE	1									X
DU-01B-2.0-2.5_0423	4/5/23	1610	SE	1									X
DU-01B-2.5-3.0_0423	4/5/23	1615	SE	1									X
EB-01_0423	4/5/23	1500	SW	X 2		X							
EB-02_0423	4/5/23	1505	SW	X 2 KF		X							X

L1605173

Comments

L1603081

-61
~~-62~~ 33
~~-63~~ 34
~~-64~~ 35
~~-65~~
~~-66~~ 36

NOTES: **Conduct Incremental Sampling Methodology processing prior to analysis.**
Contact Chris Martin (503-432-5979, cmartin@gsiws.com) or Josh Bale (530-276-4188, jbale@gsiws.com) with questions. Include DEQ EDD with final lab report.

Relinquished By: G Schuttais	Agency/Agent: GSI	Received By:	Agency/Agent:
Signature:	Time & Date: 4/6/23 1215	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: Kaycie T (9)	Time & Date: 4/7/23 920

L1603081

Tracking Numbers	Temperature
6357 9924 1663	NSAG 3.2+0=3.2
6357 9924 1674	NSAG 5.1+0=5.1
6357 9924 1685	NSAG 1.5+0=1.5
6357 9924 1696	NSAG 2.5+0=2.5
6357 9924 1722	NSAG 4.3+0=4.3
6357 9924 1733	NSAG 1.8+0=1.8
6357 9924 1700	NSAG 1.6+0=1.6
6357 9924 1711	NSAG 4.6+0=4.6

L1603081 OREGONDEQ re-log

R5

Please re-log all samples which are currently on HOLD to a new SDG for MISPREP "promium EDD. after misprep sample need SUB1613" as R5 due 04/21.

L1603081-66 will be matrix 1 DIOXIN rather than misprep.

Time estimate: oh **Time spent:** oh

Members

Brian Ford

Comments

Andy Vann *14 April 2023 09:39*

Relogged to L1603505

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Client Services
Pace Analytical National
12065 Lebanon Rd
Mt. Juliet TN 37122

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10650019
Sample Receipt Date: 04/19/2023
Client Project #: L1605173 WG2043854
Client Sub PO #: L1605173
State Cert #: N/A

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Kongmeng Vang, your Pace Project Manager.

This report has been reviewed by:

June 06, 2023

Kongmeng Vang, Project Manager
(612) 607-6382
(612) 607-6444 (fax)
kongmeng.vang@pacelabs.com

Report Prepared Date:
June 1, 2023

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on five of thirty-six samples submitted by a representative of Pace Analytical National. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The estimated detection limits (EDLs) were based on signal-to-noise measurements. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations. Per request, the analyses of the remaining samples were canceled.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 50-104%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show two of the three blanks to contain trace levels of selected congeners. These levels were below the calibration range for the method. Sample levels similar to the corresponding blank levels were flagged "B" on the results tables and may be, at least partially, attributed to the background.

Laboratory spike samples were also prepared using clean reference matrix that had been fortified with native standard materials. The recoveries of the spiked native compounds ranged from 80-117% with relative percent differences (RPDs) ranging from 0.0-6.0%. These results were within the target ranges for the method. Matrix spikes were prepared with the solid sample extraction batches using canceled sample materials or sample materials from separate projects; results from these analyses will be provided upon request. Matrix spikes were not prepared with the water sample extraction batch.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon-Primary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix A

Sample Management

REPORT OF LABORATORY ANALYSIS

WO# : 10650019

10650019

CHAIN-OF-CUSTODY / Analyti

The Chain-of-Custody is a LEGAL DOCUMENT.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Pace Analytical	Report To: Pace Analytical Subout Team	Attention: Don Hanson
Address: 12065 Lebanon Rd.	Copy To:	Company Name:
Mt. Juliet, TN 37122		Address:
Email: MTJLSuboutTeam@pacelabs.com	Purchase Order #: L1605173	Pace Quote:
Phone: (615) 773-9756 Fax: (615) 758-5859	Project Name: Oregon DEQ-JH Baxter Offsite Investigati	Pace Project Manager: Kongmeng Vang
Requested Due Date: 28-Apr	Project #: 02060.005.004	Pace Profile #: 38076

Regulatory Agency
State / Location
OR

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N): Y/N	Analyses Test: Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	DU-06A-1.5-2.0_0423	SL				05-Apr	13:10		1	1									X		promium EDD
2	DU-06A-2.0-2.5_0423	SL				05-Apr	13:15		1	1									X		promium EDD
3	DU-06A-2.5-3.0_0423	SL				05-Apr	13:20		1	1									X		promium EDD
4	DU-06B-1.5-2.0_0423	SL				05-Apr	14:40		1	1									X		promium EDD
5	DU-06B-2.0-2.5_0423	SL				05-Apr	14:45		1	1									X		promium EDD
6	DU-06B-2.5-3.0_0423	SL				05-Apr	14:50		1	1									X		promium EDD
7	DU-106B-1.5-2.0_0423	SL				05-Apr	14:55		1	1									X		promium EDD
8	DU-01A-1.5-2.0_0423	SL				05-Apr	15:40		1	1									X		promium EDD
9	DU-01A-2.0-2.5_0423	SL				05-Apr	15:45		1	1									X		promium EDD
10	DU-01A-2.5-3.0_0423	SL				05-Apr	15:50		1	1									X		promium EDD
11	DU-10B-2.0-2.5_0423	SL				05-Apr	10:30		1	1									X		promium EDD
12	DU-10B-2.5-3.0_0423	SL				05-Apr	10:35		1	1									X		promium EDD

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	James C Huckaba	18-Apr	10:56		4/19/23	8:50	2.8	Y	Y	Y
Pace Analytical Batch: WG2043854							3.4			
Pace Analytical SDGs: L1605173							3.7			
Location: Minneapolis, MN 55414										

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:			
SIGNATURE of SAMPLER:	DATE Signed:		

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A — Required Client Information:
Company: Pace Analytical
Address: 12065 Lebanon Rd.
Mt. Juliet, TN 37122
Email: MTJLSuboutTeam@pacelabs.com
Phone: (615) 773-9756 Fax (615) 758-5859
Requested Due Date: 28-Apr

Section B — Required Project Information:
Report To: Pace Analytical Subout Team
Copy To:
Purchase Order #: L1605173
Project Name: Oregon DEQ-JH Baxter Offsite Investigati
Project #: 02060.005.004

Section C — Invoice Information:
Attention: Don Hanson
Company Name:
Address:
Pace Quote:
Pace Project Manager: Kongmeng Vang
Pace Profile #: 38076

Regulatory Agency
State / Location
OR

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	DU-09A-2.0-2.5_0423	SL				05-Apr	11:40		1	1									X		promium EDD 013
2	DU-09A-2.5-3.0_0423	SL				05-Apr	11:45		1	1									X		promium EDD 014
3	DU-09B-2.0-2.5_0423	SL				05-Apr	12:25		1	1									X		promium EDD 015
4	DU-09B-2.5-3.0_0423	SL				05-Apr	12:30		1	1									X		promium EDD 016
5	DU-15A-2.0-2.5_0423	SL				04-Apr	10:10		1	1									X		promium EDD 017
6	DU-15A-2.5-3.0_0423	SL				04-Apr	10:15		1	1									X		promium EDD 018
7	DU-15B-2.0-2.5_0423	SL				04-Apr	11:10		1	1									X		promium EDD 019
8	DU-15B-2.5-3.0_0423	SL				04-Apr	11:15		1	1									X		promium EDD 020
9	SU-07A-1.5-2.0_0423	SL				04-Apr	11:45		1	1									X		promium EDD 021
10	SU-07A-2.0-2.5_0423	SL				04-Apr	11:50		1	1									X		promium EDD 022
11	SU-07A-2.5-3.0_0423	SL				04-Apr	11:55		1	1									X		promium EDD 023
12	SU-07B-1.5-2.0-0423	SL				04-Apr	12:10		1	1									X		promium EDD 024

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	James C Huckaba	18-Apr	10:56		4/19/13	8:50	2.8	Y	Y	Y
Pace Analytical Batch: WG2043854							3.4			
Pace Analytical SDGs: L1605173							2.7			
Location: Minneapolis, MN 55414										

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed:

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Report No.: 1605019, 1613BFC_L2.dfr

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Pace Analytical	Report To:	Pace Analytical Subout Team	Attention:	Don Hanson
Address:	12065 Lebanon Rd.	Copy To:		Company Name:	
	Mt. Juliet, TN 37122			Address:	
Email:	MTJLSuboutTeam@pacelabs.com	Purchase Order #:	L1605173	Pace Quote:	
Phone:	(615) 773-9756 Fax: (615) 758-5859	Project Name:	Oregon DEQ-JH Baxter Offsite Investigati	Pace Project Manager:	Kongmeng Vang
Requested Due Date:	28-Apr	Project #:	02060.005.004	Pace Profile #:	38076

Regulatory Agency

State / Location: OR

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS	MATRIX CODE (use valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Y/N	Dioxins and Furans 1613	Residual Chlorine (Y/N)	
1	SU-07B-2.0-2.5-0423	SL				04-Apr	12:15		1	1								X		promium EDD	025
2	SU-07B-2.5-3.0-0423	SL				04-Apr	12:20		1	1								X		promium EDD	026
3	DU-11A-2.0-2.5_0423	SL				04-Apr	14:15		1	1								X		promium EDD	027
4	DU-11A-2.5-3.0_0423	SL				04-Apr	14:20		1	1								X		promium EDD	028
5	DU-11B-2.0-2.5_0423	SL				04-Apr	14:40		1	1								X		promium EDD	029
6	DU-11B-2.5-3.0_0423	SL				04-Apr	14:45		1	1								X		promium EDD	030
7	DU-10A-2.0-2.5_0423	SL				05-Apr	9:40		1	1								X		promium EDD	031
8	DU-10A-2.5-3.0_0423	SL				05-Apr	9:45		1	1								X		promium EDD	032
9	DU-01B-1.5-2.0_0423	SL				05-Apr	16:05		1	1								X		promium EDD	033
10	DU-01B-2.0-2.5_0423	SL				05-Apr	16:10		1	1								X		promium EDD	034
11	DU-01B-2.5-3.0_0423	SL				05-Apr	16:15		1	1								X		promium EDD	035
12	EB-02-0423	W				05-Apr	1505		1	1								X		"	036

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	James C Huckaba	18-Apr	10:56		4/19/13	8:50	28 Y Y Y
Pace Analytical Batch: WG2043854							34
Pace Analytical SDGs: L1605173							37
Location: Minneapolis, MN 55414							

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:					
SIGNATURE of SAMPLER:	DATE Signed:				

Sample Condition Upon Receipt

Client Name: Pace TN

Project #: **WO#: 10650019**

PM: KV Due Date: 05/10/23

CLIENT: ESC_TN

Courier: ☑ FedEx ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: 633722441518 1507 1520 ☐ See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☑ Yes ☐ No Seals Intact: ☑ Yes ☐ No Biological Tissue Frozen: ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other Temp Blank: ☑ Yes ☐ No

Thermometer: ☐ T1 (0461) ☐ T2 (1336) ☐ T3 (0459) ☐ T4 (0254) ☐ T5 (0178) ☑ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ T9(0727) ☐ 01339252/1710

Type of Ice: ☑ Wet ☐ Blue ☐ Dry ☐ None ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No Were All Container Temps Taken? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6 °C

Cooler temp Read w/Temp Blank: 2.7, 3.3, 3.4 °C

Correction Factor: -.1

Cooler Temp Corrected w/temp blank: 2.8, 3.4 °C 3.7

Average Corrected Temp (no temp blank only): ____ °C

☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☐ N/A, water sample/other: _____)

Date/Initials of Person Examining Contents: 4/19/23 A

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): ☐ Duluth ☑ Minneapolis ☐ Virginia

				COMMENTS
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If fecal: ☐ <8 hrs ☐ >8 hr, <24 ☐ No
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Sample Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	8.
-Pace Containers Used?	☐ Yes	☑ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☐ Yes	☐ No		11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
Matrix: ☐ Water ☐ Soil ☐ Oil ☐ Other				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☑ Yes	☐ No	☐ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142
				pH Paper Lot # — Residual Chlorine: ____ 0-6 Roll: ____ 0-6 Strip: ____ 0-14 Strip: ____
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	13.
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	14. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): ____

CLIENT NOTIFICATION/RESOLUTION Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** _____

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: _____ **Line:** 3

	DC#_Title: ENV-FRM-MIN4-0154 v02_USDA Regulated Soil Checklist
Pace	Effective Date: 08/19/2022

USDA Regulated Soil Checklist

To be Completed by Sample Receiving:

WO: 10650019 **Date:** 4/20/22 **Initials:** EMCR

Sample Origin (check one): ☒ DOMESTIC ☐ QUARANTINED ☐ FOREIGN

NOTE: Soil samples from Hawaii, Guam, Puerto Rico, and the US Virgin Islands are Foreign originated.

If **DOMESTIC**, circle state of origin: AL AR AZ CA FL GA LA MS NC NM NY OK (OR) SC TN TX VA

Includes: IFA, SOD, Golden Nematode, Karnal Bunt, and Witchweed List County: Lane County

(USDA Permit/Compliance Agreement authorizes movement of samples from these domestic regulated zones)

If **QUARANTINED**, circle state of origin: CA ID NY TX

Includes: Fruit Fly and Pale Cyst Nematode List County: _____

(Movement is not authorized for Pale Cyst Nematode (ID)—remaining quarantines require additional paperwork)

If **FOREIGN**, list country of origin: _____

(Movement from some Canadian Provinces is not allowed. Refer to ENV-FRM-MIN4-0137 *Regulated Soil Flow Chart*)

REQUIREMENT	ACTION	COMPLETED		
PPQ-530 Paperwork must be included for any samples from counties with a Fruit Fly Quarantine in CA, NY, and TX. Reference ENV-SOP-MIN4-0095.	Scan PPQ-530 to the corresponding Project folder on the X:drive. If PPQ-530 is not present, contact the laboratory's designated USDA permit holder. **Do NOT continue processing samples.**	YES	NO	(N/A)
Samples from ID may not be moved from the quarantined region. Reference ENV-SOP-MIN4-0095.	If samples originated in a quarantined zone, contact the laboratory's designated USDA permit holder. **Do NOT continue processing samples.**	YES	NO	(N/A)

REQUIREMENT	ACTION	COMPLETED		
"Special Handling" stickers are to be placed on all samples.	Did "special handling" stickers get placed on all sample containers?	YES	NO	(N/A)
Samples must be segregated and stored in designated bins, shelves, and coolers.	Were samples placed in a designated cooler, containers, and shelves?	YES	NO	(N/A)
Samples must be double contained to prevent accidental release.	Were there any signs of breakage or leakage (check for broken glass and/or loose soil in the cooler)? *NOTE: If NO, ice and melt water can be disposed of by normal process (ex: down the drain).*	YES	NO	(N/A)
	If **YES**, were ice and melt water separated from the cooler and disposed of properly?	YES	NO	(N/A)
	Any broken glass and/or loose soil are to be bagged and placed in a USDA Regulated satellite container or active drum (see Waste Coordinator). **Ice and melt water should be baked at a temperature range of 121-154°F for 2 hours and then cooled before going down the drain.**			
Equipment and supplies that have come into contact samples must be decontaminated.	Was the cooler(s) and/or countertop(s) decontaminated using either a fresh 10% bleach solution or 70% ethanol? (Gloves and other lab supplies will be bagged and placed in the USDA Regulated satellite container or active drum).	YES	(NO)	

COMMENTS:

To be Completed by Project Management (PM and/or PC):

Sample analysis will be conducted (circle all that apply): MN Subcontract Lab

If **subcontract**, list lab(s): _____

REQUIREMENT	ACTION	COMPLETED		
Permission to ship untreated soil must be on file prior to shipping to any subcontract lab, including IR Pace Labs.	Go to: *S:\CLIENTSVR\10_Client Services Department Documents\Regulated Soils Permits\Permission to Ship* If permission to ship letter is not there, contact the laboratory's designated USDA permit holder.	YES	NO	N/A
Shipment must include a valid copy of the receiving lab's permit as well as permission to ship letter.	Is a copy of all needed paperwork included with the COC? **Do NOT ship samples until all necessary paperwork is compiled.**	YES	NO	N/A

COMMENTS:

_____

_____

_____

_____

_____

PM Signature: _____ **Date:** _____

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

H2 = Extracted outside of holding time

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-06B-1.5-2.0_0423		
Lab Sample ID	10650019004		
Filename	Y230519A_04		
Injected By	AH5		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	4.2	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	04/05/2023 14:40
ICAL ID	Y211220	Received	04/19/2023 08:50
CCal Filename(s)	Y230519A_02	Extracted	04/21/2023 14:15
Method Blank ID	BLANK-105427	Analyzed	05/19/2023 15:53

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.14		2,3,7,8-TCDF-13C	2.00	57
Total TCDF	ND	----	0.14		2,3,7,8-TCDD-13C	2.00	50
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	ND	----	0.21		2,3,4,7,8-PeCDF-13C	2.00	65
Total TCDD	0.23	----	0.21	J	1,2,3,7,8-PeCDD-13C	2.00	70
					1,2,3,4,7,8-HxCDF-13C	2.00	69
1,2,3,7,8-PeCDF	ND	----	0.15		1,2,3,6,7,8-HxCDF-13C	2.00	66
2,3,4,7,8-PeCDF	ND	----	0.16		2,3,4,6,7,8-HxCDF-13C	2.00	65
Total PeCDF	ND	----	0.15		1,2,3,7,8,9-HxCDF-13C	2.00	63
					1,2,3,4,7,8-HxCDD-13C	2.00	68
1,2,3,7,8-PeCDD	ND	----	0.23		1,2,3,6,7,8-HxCDD-13C	2.00	66
Total PeCDD	ND	----	0.23		1,2,3,4,6,7,8-HpCDF-13C	2.00	59
					1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	----	0.11	0.094	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	59
1,2,3,6,7,8-HxCDF	ND	----	0.11		OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	ND	----	0.091				
1,2,3,7,8,9-HxCDF	0.18	----	0.099	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.18	----	0.091	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.22	----	0.14	J	2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	----	0.19	0.12	IJ			
1,2,3,7,8,9-HxCDD	----	0.15	0.12	IJ			
Total HxCDD	1.9	----	0.12	J			
1,2,3,4,6,7,8-HpCDF	1.2	----	0.35	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.40		Equivalence: 0.19 ng/Kg		
Total HpCDF	1.2	----	0.35	J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	6.6	----	0.090				
Total HpCDD	17	----	0.090				
OCDF	4.5	----	0.12	J			
OCDD	73	----	0.14				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-106B-1.5-2.0_0423		
Lab Sample ID	10650019007		
Filename	Y230519A_05		
Injected By	AH5		
Total Amount Extracted	10.4 g	Matrix	Solid
% Moisture	4.0	Dilution	NA
Dry Weight Extracted	10.00 g	Collected	04/05/2023 14:55
ICAL ID	Y211220	Received	04/19/2023 08:50
CCal Filename(s)	Y230519A_02	Extracted	04/21/2023 14:15
Method Blank ID	BLANK-105427	Analyzed	05/19/2023 16:32

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.16		2,3,7,8-TCDF-13C	2.00	61
Total TCDF	ND	----	0.16		2,3,7,8-TCDD-13C	2.00	53
					1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.28		2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	0.42	----	0.28	J	1,2,3,7,8-PeCDD-13C	2.00	80
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.17		1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	ND	----	0.17		2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	ND	----	0.17		1,2,3,7,8,9-HxCDF-13C	2.00	67
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.28		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	----	0.28		1,2,3,4,6,7,8-HpCDF-13C	2.00	66
					1,2,3,4,7,8,9-HpCDF-13C	2.00	69
1,2,3,4,7,8-HxCDF	ND	----	0.13		1,2,3,4,6,7,8-HpCDD-13C	2.00	63
1,2,3,6,7,8-HxCDF	ND	----	0.11		OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	ND	----	0.10				
1,2,3,7,8,9-HxCDF	ND	----	0.088		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.33	----	0.088	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	0.19	0.14	IJ	2,3,7,8-TCDD-37Cl4	0.20	57
1,2,3,6,7,8-HxCDD	----	0.18	0.13	IJ			
1,2,3,7,8,9-HxCDD	----	0.19	0.12	IJ			
Total HxCDD	1.2	----	0.12	J			
1,2,3,4,6,7,8-HpCDF	1.0	----	0.17	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.21		Equivalence: 0.16 ng/Kg		
Total HpCDF	2.9	----	0.17	J	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	7.0	----	0.21				
Total HpCDD	15	----	0.21				
OCDF	4.0	----	0.25	J			
OCDD	62	----	0.13				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-11A-2.0-2.5_0423		
Lab Sample ID	10650019027		
Filename	Y230519A_06		
Injected By	AH5		
Total Amount Extracted	10.5 g	Matrix	Solid
% Moisture	3.9	Dilution	NA
Dry Weight Extracted	10.1 g	Collected	04/04/2023 14:15
ICAL ID	Y211220	Received	04/19/2023 08:50
CCal Filename(s)	Y230519A_02	Extracted	04/24/2023 14:30
Method Blank ID	BLANK-105447	Analyzed	05/19/2023 17:11

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.24		2,3,7,8-TCDF-13C	2.00	60
Total TCDF	ND	----	0.24		2,3,7,8-TCDD-13C	2.00	55
					1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	1.6	----	0.33		2,3,4,7,8-PeCDF-13C	2.00	70
Total TCDD	1.9	----	0.33		1,2,3,7,8-PeCDD-13C	2.00	74
					1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	ND	----	0.21		1,2,3,6,7,8-HxCDF-13C	2.00	71
2,3,4,7,8-PeCDF	ND	----	0.23		2,3,4,6,7,8-HxCDF-13C	2.00	67
Total PeCDF	1.4	----	0.21	J	1,2,3,7,8,9-HxCDF-13C	2.00	70
					1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	0.38		1,2,3,6,7,8-HxCDD-13C	2.00	71
Total PeCDD	0.57	----	0.38	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	62
					1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	0.91	----	0.21	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	57
1,2,3,6,7,8-HxCDF	0.38	----	0.20	J	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	0.39	----	0.20	J			
1,2,3,7,8,9-HxCDF	----	0.21	0.17	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	9.0	----	0.17		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.59	----	0.27	BJ	2,3,7,8-TCDD-37Cl4	0.20	53
1,2,3,6,7,8-HxCDD	1.5	----	0.24	J			
1,2,3,7,8,9-HxCDD	0.95	----	0.25	J			
Total HxCDD	12	----	0.24				
1,2,3,4,6,7,8-HpCDF	6.7	----	0.28		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.29		Equivalence: 2.7 ng/Kg		
Total HpCDF	20	----	0.28		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	43	----	0.054				
Total HpCDD	92	----	0.054				
OCDF	21	----	0.18				
OCDD	390	----	0.23				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Estimated value
B = Less than 10x higher than method blank level
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	DU-11A-2.5-3.0_0423		
Lab Sample ID	10650019028		
Filename	Y230519A_07		
Injected By	AH5		
Total Amount Extracted	10.6 g	Matrix	Solid
% Moisture	4.0	Dilution	NA
Dry Weight Extracted	10.2 g	Collected	04/04/2023 14:20
ICAL ID	Y211220	Received	04/19/2023 08:50
CCal Filename(s)	Y230519A_02	Extracted	04/24/2023 14:30
Method Blank ID	BLANK-105447	Analyzed	05/19/2023 17:50

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.25		2,3,7,8-TCDF-13C	2.00	76
Total TCDF	ND	----	0.25		2,3,7,8-TCDD-13C	2.00	67
					1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	ND	----	0.56		2,3,4,7,8-PeCDF-13C	2.00	87
Total TCDD	ND	----	0.56		1,2,3,7,8-PeCDD-13C	2.00	86
					1,2,3,4,7,8-HxCDF-13C	2.00	92
1,2,3,7,8-PeCDF	ND	----	0.31		1,2,3,6,7,8-HxCDF-13C	2.00	95
2,3,4,7,8-PeCDF	ND	----	0.32		2,3,4,6,7,8-HxCDF-13C	2.00	90
Total PeCDF	ND	----	0.31		1,2,3,7,8,9-HxCDF-13C	2.00	78
					1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	ND	----	0.57		1,2,3,6,7,8-HxCDD-13C	2.00	99
Total PeCDD	ND	----	0.57		1,2,3,4,6,7,8-HpCDF-13C	2.00	83
					1,2,3,4,7,8,9-HpCDF-13C	2.00	80
1,2,3,4,7,8-HxCDF	----	0.37	0.26	IJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	ND	----	0.28		OCDD-13C	4.00	73
2,3,4,6,7,8-HxCDF	ND	----	0.31				
1,2,3,7,8,9-HxCDF	ND	----	0.31		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.3	----	0.26	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.39		2,3,7,8-TCDD-37Cl4	0.20	66
1,2,3,6,7,8-HxCDD	----	0.62	0.35	IJ			
1,2,3,7,8,9-HxCDD	0.50	----	0.40	J			
Total HxCDD	2.4	----	0.35	J			
1,2,3,4,6,7,8-HpCDF	----	2.7	0.43	IJ	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.51		Equivalence: 0.43 ng/Kg		
Total HpCDF	5.6	----	0.43		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	20	----	0.49				
Total HpCDD	43	----	0.49				
OCDF	8.3	----	0.49	J			
OCDD	170	----	0.59				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
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NC = Not Calculated

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J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Sample Analysis Results

Client - Pace Analytical National

Client's Sample ID	EB-02-0423		
Lab Sample ID	10650019037		
Filename	U230522B_12		
Injected By	SMT		
Total Amount Extracted	979 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	04/05/2023 15:05
ICAL ID	U230517	Received	04/19/2023 08:50
CCal Filename(s)	U230522A_18	Extracted	04/21/2023 11:00
Method Blank ID	BLANK-105422	Analyzed	05/23/2023 07:17

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.94		2,3,7,8-TCDF-13C	2.00	88
Total TCDF	ND	----	0.94		2,3,7,8-TCDD-13C	2.00	77
					1,2,3,7,8-PeCDF-13C	2.00	104
2,3,7,8-TCDD	ND	----	1.3		2,3,4,7,8-PeCDF-13C	2.00	99
Total TCDD	ND	----	1.3		1,2,3,7,8-PeCDD-13C	2.00	100
					1,2,3,4,7,8-HxCDF-13C	2.00	93
1,2,3,7,8-PeCDF	ND	----	1.4		1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	----	0.79		2,3,4,6,7,8-HxCDF-13C	2.00	87
Total PeCDF	ND	----	0.79		1,2,3,7,8,9-HxCDF-13C	2.00	86
					1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	ND	----	1.6		1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	ND	----	1.6		1,2,3,4,6,7,8-HpCDF-13C	2.00	64
					1,2,3,4,7,8,9-HpCDF-13C	2.00	60
1,2,3,4,7,8-HxCDF	ND	----	1.3		1,2,3,4,6,7,8-HpCDD-13C	2.00	71
1,2,3,6,7,8-HxCDF	ND	----	1.6		OCDD-13C	4.00	55
2,3,4,6,7,8-HxCDF	ND	----	1.6				
1,2,3,7,8,9-HxCDF	ND	----	2.1		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	18	----	1.3	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	3.3	----	1.4	J	2,3,7,8-TCDD-37Cl4	0.20	87
1,2,3,6,7,8-HxCDD	----	1.4	1.4	IJ			
1,2,3,7,8,9-HxCDD	ND	----	1.5				
Total HxCDD	3.3	----	1.4	J			
1,2,3,4,6,7,8-HpCDF	79	----	2.4		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	2.6		Equivalence: 1.5 pg/L		
Total HpCDF	140	----	2.4		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	15	----	1.3	J			
Total HpCDD	27	----	1.3	J			
OCDF	72	----	4.9	J			
OCDD	160	----	6.0				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

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NC = Not Calculated

J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKKC		
Lab Sample ID	BLANK-105422	Matrix	Water
Filename	L230425A_12	Dilution	NA
Total Amount Extracted	1000 mL	Extracted	04/21/2023 11:00
ICAL ID	L230302	Analyzed	04/25/2023 16:41
CCal Filename(s)	L230425A_01	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.3		2,3,7,8-TCDF-13C	2.00	72
Total TCDF	ND	----	1.3		2,3,7,8-TCDD-13C	2.00	64
					1,2,3,7,8-PeCDF-13C	2.00	73
2,3,7,8-TCDD	ND	----	1.7		2,3,4,7,8-PeCDF-13C	2.00	75
Total TCDD	ND	----	1.7		1,2,3,7,8-PeCDD-13C	2.00	75
					1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.91		1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	----	0.63		2,3,4,6,7,8-HxCDF-13C	2.00	76
Total PeCDF	ND	----	0.63		1,2,3,7,8,9-HxCDF-13C	2.00	65
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	ND	----	1.2		1,2,3,6,7,8-HxCDD-13C	2.00	75
Total PeCDD	ND	----	1.2		1,2,3,4,6,7,8-HpCDF-13C	2.00	58
					1,2,3,4,7,8,9-HpCDF-13C	2.00	53
1,2,3,4,7,8-HxCDF	ND	----	0.96		1,2,3,4,6,7,8-HpCDD-13C	2.00	64
1,2,3,6,7,8-HxCDF	ND	----	0.91		OCDD-13C	4.00	46
2,3,4,6,7,8-HxCDF	ND	----	0.67				
1,2,3,7,8,9-HxCDF	----	1.5	1.2	IJ	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.67		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	2.0		2,3,7,8-TCDD-37Cl4	0.20	70
1,2,3,6,7,8-HxCDD	ND	----	1.7				
1,2,3,7,8,9-HxCDD	ND	----	1.6				
Total HxCDD	ND	----	1.6				
1,2,3,4,6,7,8-HpCDF	ND	----	2.7		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	3.1		Equivalence: 0.16 pg/L		
Total HpCDF	ND	----	2.7		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	3.4				
Total HpCDD	ND	----	3.4				
OCDF	ND	----	5.1				
OCDD	7.1	----	5.9	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKKM		
Lab Sample ID	BLANK-105447	Matrix	Solid
Filename	L230428B_08	Dilution	NA
Total Amount Extracted	20.5 g	Extracted	04/24/2023 14:30
ICAL ID	L230302	Analyzed	04/28/2023 21:08
CCal Filename(s)	L230428B_01	Injected By	JRH

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.069		2,3,7,8-TCDF-13C	2.00	69
Total TCDF	ND	----	0.069		2,3,7,8-TCDD-13C	2.00	57
					1,2,3,7,8-PeCDF-13C	2.00	87
2,3,7,8-TCDD	ND	----	0.084		2,3,4,7,8-PeCDF-13C	2.00	88
Total TCDD	ND	----	0.084		1,2,3,7,8-PeCDD-13C	2.00	89
					1,2,3,4,7,8-HxCDF-13C	2.00	73
1,2,3,7,8-PeCDF	ND	----	0.043		1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	ND	----	0.036		2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	ND	----	0.036		1,2,3,7,8,9-HxCDF-13C	2.00	66
					1,2,3,4,7,8-HxCDD-13C	2.00	61
1,2,3,7,8-PeCDD	ND	----	0.062		1,2,3,6,7,8-HxCDD-13C	2.00	71
Total PeCDD	ND	----	0.062		1,2,3,4,6,7,8-HpCDF-13C	2.00	58
					1,2,3,4,7,8,9-HpCDF-13C	2.00	57
1,2,3,4,7,8-HxCDF	ND	----	0.046		1,2,3,4,6,7,8-HpCDD-13C	2.00	63
1,2,3,6,7,8-HxCDF	ND	----	0.047		OCDD-13C	4.00	54
2,3,4,6,7,8-HxCDF	ND	----	0.040				
1,2,3,7,8,9-HxCDF	ND	----	0.068		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.040		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.11	----	0.080	J	2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	ND	----	0.073				
1,2,3,7,8,9-HxCDD	ND	----	0.081				
Total HxCDD	0.11	----	0.073	J			
1,2,3,4,6,7,8-HpCDF	ND	----	0.091		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.19		Equivalence: 0.011 ng/Kg		
Total HpCDF	ND	----	0.091		(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.090				
Total HpCDD	ND	----	0.090				
OCDF	ND	----	0.21				
OCDD	----	0.39	0.23	IJ			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.
J = Estimated value
I = Isotope ratio out of specification

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKKE		
Lab Sample ID	BLANK-105427	Matrix	Solid
Filename	L230502B_03	Dilution	NA
Total Amount Extracted	10.3 g	Extracted	04/21/2023 14:15
ICAL ID	L230501	Analyzed	05/03/2023 01:31
CCal Filename(s)	L230502A_24	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	EDL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.16	2,3,7,8-TCDF-13C	2.00	60
Total TCDF	ND	----	0.16	2,3,7,8-TCDD-13C	2.00	56
				1,2,3,7,8-PeCDF-13C	2.00	64
2,3,7,8-TCDD	ND	----	0.27	2,3,4,7,8-PeCDF-13C	2.00	70
Total TCDD	ND	----	0.27	1,2,3,7,8-PeCDD-13C	2.00	71
				1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	----	0.090	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	----	0.079	2,3,4,6,7,8-HxCDF-13C	2.00	73
Total PeCDF	ND	----	0.079	1,2,3,7,8,9-HxCDF-13C	2.00	61
				1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	ND	----	0.14	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.14	1,2,3,4,6,7,8-HpCDF-13C	2.00	65
				1,2,3,4,7,8,9-HpCDF-13C	2.00	59
1,2,3,4,7,8-HxCDF	ND	----	0.13	1,2,3,4,6,7,8-HpCDD-13C	2.00	65
1,2,3,6,7,8-HxCDF	ND	----	0.12	OCDD-13C	4.00	49
2,3,4,6,7,8-HxCDF	ND	----	0.11			
1,2,3,7,8,9-HxCDF	ND	----	0.18	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.11	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.11	2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,6,7,8-HxCDD	ND	----	0.13			
1,2,3,7,8,9-HxCDD	ND	----	0.11			
Total HxCDD	ND	----	0.11			
1,2,3,4,6,7,8-HpCDF	ND	----	0.16	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.29	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	----	0.16	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.21			
Total HpCDD	ND	----	0.21			
OCDF	ND	----	0.54			
OCDD	ND	----	0.62			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-105423		
Filename	L230425A_09	Matrix	Water
Total Amount Extracted	1010 mL	Dilution	NA
ICAL ID	L230302	Extracted	04/21/2023 11:00
CCal Filename	L230425A_01	Analyzed	04/25/2023 14:27
Method Blank ID	BLANK-105422	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.4	7.5	15.8	94
2,3,7,8-TCDD	10	9.6	6.7	15.8	96
1,2,3,7,8-PeCDF	50	47	40.0	67.0	93
2,3,4,7,8-PeCDF	50	48	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43	35.0	71.0	86
1,2,3,4,7,8-HxCDF	50	48	36.0	67.0	96
1,2,3,6,7,8-HxCDF	50	49	42.0	65.0	98
2,3,4,6,7,8-HxCDF	50	50	35.0	78.0	100
1,2,3,7,8,9-HxCDF	50	49	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52	35.0	82.0	104
1,2,3,6,7,8-HxCDD	50	48	38.0	67.0	97
1,2,3,7,8,9-HxCDD	50	52	32.0	81.0	103
1,2,3,4,6,7,8-HpCDF	50	46	41.0	61.0	92
1,2,3,4,7,8,9-HpCDF	50	47	39.0	69.0	95
1,2,3,4,6,7,8-HpCDD	50	42	35.0	70.0	84
OCDF	100	99	63.0	170.0	99
OCDD	100	100	78.0	144.0	105
2,3,7,8-TCDD-37Cl4	10	7.0	3.1	19.1	70
2,3,7,8-TCDF-13C	100	75	22.0	152.0	75
2,3,7,8-TCDD-13C	100	66	20.0	175.0	66
1,2,3,7,8-PeCDF-13C	100	75	21.0	192.0	75
2,3,4,7,8-PeCDF-13C	100	75	13.0	328.0	75
1,2,3,7,8-PeCDD-13C	100	76	21.0	227.0	76
1,2,3,4,7,8-HxCDF-13C	100	81	19.0	202.0	81
1,2,3,6,7,8-HxCDF-13C	100	82	21.0	159.0	82
2,3,4,6,7,8-HxCDF-13C	100	80	22.0	176.0	80
1,2,3,7,8,9-HxCDF-13C	100	70	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	74	25.0	163.0	74
1,2,3,4,6,7,8-HpCDF-13C	100	60	21.0	158.0	60
1,2,3,4,7,8,9-HpCDF-13C	100	56	20.0	186.0	56
1,2,3,4,6,7,8-HpCDD-13C	100	65	26.0	166.0	65
OCDD-13C	200	93	26.0	397.0	46

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-105448		
Filename	L230428B_02	Matrix	Solid
Total Amount Extracted	20.4 g	Dilution	NA
ICAL ID	L230302	Extracted	04/24/2023 14:30
CCal Filename	L230428B_01	Analyzed	04/28/2023 16:42
Method Blank ID	BLANK-105447	Injected By	JRH

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.0	7.5	15.8	100
2,3,7,8-TCDD	10	11	6.7	15.8	108
1,2,3,7,8-PeCDF	50	48	40.0	67.0	96
2,3,4,7,8-PeCDF	50	48	34.0	80.0	97
1,2,3,7,8-PeCDD	50	47	35.0	71.0	93
1,2,3,4,7,8-HxCDF	50	50	36.0	67.0	100
1,2,3,6,7,8-HxCDF	50	52	42.0	65.0	104
2,3,4,6,7,8-HxCDF	50	50	35.0	78.0	100
1,2,3,7,8,9-HxCDF	50	49	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	54	35.0	82.0	107
1,2,3,6,7,8-HxCDD	50	51	38.0	67.0	102
1,2,3,7,8,9-HxCDD	50	51	32.0	81.0	101
1,2,3,4,6,7,8-HpCDF	50	51	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	49	39.0	69.0	99
1,2,3,4,6,7,8-HpCDD	50	46	35.0	70.0	92
OCDF	100	110	63.0	170.0	107
OCDD	100	110	78.0	144.0	114
2,3,7,8-TCDD-37Cl4	10	5.6	3.1	19.1	56
2,3,7,8-TCDF-13C	100	67	22.0	152.0	67
2,3,7,8-TCDD-13C	100	56	20.0	175.0	56
1,2,3,7,8-PeCDF-13C	100	81	21.0	192.0	81
2,3,4,7,8-PeCDF-13C	100	82	13.0	328.0	82
1,2,3,7,8-PeCDD-13C	100	81	21.0	227.0	81
1,2,3,4,7,8-HxCDF-13C	100	70	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	72	21.0	159.0	72
2,3,4,6,7,8-HxCDF-13C	100	69	22.0	176.0	69
1,2,3,7,8,9-HxCDF-13C	100	61	17.0	205.0	61
1,2,3,4,7,8-HxCDD-13C	100	60	21.0	193.0	60
1,2,3,6,7,8-HxCDD-13C	100	73	25.0	163.0	73
1,2,3,4,6,7,8-HpCDF-13C	100	57	21.0	158.0	57
1,2,3,4,7,8,9-HpCDF-13C	100	53	20.0	186.0	53
1,2,3,4,6,7,8-HpCDD-13C	100	60	26.0	166.0	60
OCDD-13C	200	99	26.0	397.0	49

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-105428		
Filename	L230502B_01	Matrix	Solid
Total Amount Extracted	10.4 g	Dilution	NA
ICAL ID	L230501	Extracted	04/21/2023 14:15
CCal Filename	L230502A_24	Analyzed	05/03/2023 00:02
Method Blank ID	BLANK-105427	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	11	7.5	15.8	109
2,3,7,8-TCDD	10	11	6.7	15.8	110
1,2,3,7,8-PeCDF	50	50	40.0	67.0	100
2,3,4,7,8-PeCDF	50	52	34.0	80.0	104
1,2,3,7,8-PeCDD	50	49	35.0	71.0	98
1,2,3,4,7,8-HxCDF	50	50	36.0	67.0	101
1,2,3,6,7,8-HxCDF	50	53	42.0	65.0	106
2,3,4,6,7,8-HxCDF	50	54	35.0	78.0	107
1,2,3,7,8,9-HxCDF	50	53	39.0	65.0	106
1,2,3,4,7,8-HxCDD	50	56	35.0	82.0	113
1,2,3,6,7,8-HxCDD	50	54	38.0	67.0	109
1,2,3,7,8,9-HxCDD	50	49	32.0	81.0	98
1,2,3,4,6,7,8-HpCDF	50	55	41.0	61.0	109
1,2,3,4,7,8,9-HpCDF	50	55	39.0	69.0	109
1,2,3,4,6,7,8-HpCDD	50	51	35.0	70.0	101
OCDF	100	120	63.0	170.0	116
OCDD	100	120	78.0	144.0	117
2,3,7,8-TCDD-37Cl4	10	5.4	3.1	19.1	54
2,3,7,8-TCDF-13C	100	56	22.0	152.0	56
2,3,7,8-TCDD-13C	100	52	20.0	175.0	52
1,2,3,7,8-PeCDF-13C	100	67	21.0	192.0	67
2,3,4,7,8-PeCDF-13C	100	74	13.0	328.0	74
1,2,3,7,8-PeCDD-13C	100	75	21.0	227.0	75
1,2,3,4,7,8-HxCDF-13C	100	71	19.0	202.0	71
1,2,3,6,7,8-HxCDF-13C	100	76	21.0	159.0	76
2,3,4,6,7,8-HxCDF-13C	100	72	22.0	176.0	72
1,2,3,7,8,9-HxCDF-13C	100	61	17.0	205.0	61
1,2,3,4,7,8-HxCDD-13C	100	70	21.0	193.0	70
1,2,3,6,7,8-HxCDD-13C	100	78	25.0	163.0	78
1,2,3,4,6,7,8-HpCDF-13C	100	60	21.0	158.0	60
1,2,3,4,7,8,9-HpCDF-13C	100	53	20.0	186.0	53
1,2,3,4,6,7,8-HpCDD-13C	100	58	26.0	166.0	58
OCDD-13C	200	86	26.0	397.0	43

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCSD-105424		
Filename	L230425A_10	Matrix	Water
Total Amount Extracted	987 mL	Dilution	NA
ICAL ID	L230302	Extracted	04/21/2023 11:00
CCal Filename	L230425A_01	Analyzed	04/25/2023 15:12
Method Blank ID	BLANK-105422	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.4	7.5	15.8	94
2,3,7,8-TCDD	10	9.6	6.7	15.8	96
1,2,3,7,8-PeCDF	50	46	40.0	67.0	92
2,3,4,7,8-PeCDF	50	46	34.0	80.0	92
1,2,3,7,8-PeCDD	50	43	35.0	71.0	86
1,2,3,4,7,8-HxCDF	50	48	36.0	67.0	96
1,2,3,6,7,8-HxCDF	50	49	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	48	35.0	78.0	96
1,2,3,7,8,9-HxCDF	50	49	39.0	65.0	99
1,2,3,4,7,8-HxCDD	50	51	35.0	82.0	102
1,2,3,6,7,8-HxCDD	50	46	38.0	67.0	92
1,2,3,7,8,9-HxCDD	50	48	32.0	81.0	97
1,2,3,4,6,7,8-HpCDF	50	45	41.0	61.0	90
1,2,3,4,7,8,9-HpCDF	50	46	39.0	69.0	92
1,2,3,4,6,7,8-HpCDD	50	40	35.0	70.0	80
OCDF	100	95	63.0	170.0	95
OCDD	100	100	78.0	144.0	103
2,3,7,8-TCDD-37Cl4	10	7.8	3.1	19.1	78
2,3,7,8-TCDF-13C	100	87	22.0	152.0	87
2,3,7,8-TCDD-13C	100	77	20.0	175.0	77
1,2,3,7,8-PeCDF-13C	100	89	21.0	192.0	89
2,3,4,7,8-PeCDF-13C	100	90	13.0	328.0	90
1,2,3,7,8-PeCDD-13C	100	89	21.0	227.0	89
1,2,3,4,7,8-HxCDF-13C	100	93	19.0	202.0	93
1,2,3,6,7,8-HxCDF-13C	100	94	21.0	159.0	94
2,3,4,6,7,8-HxCDF-13C	100	92	22.0	176.0	92
1,2,3,7,8,9-HxCDF-13C	100	80	17.0	205.0	80
1,2,3,4,7,8-HxCDD-13C	100	80	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	89	25.0	163.0	89
1,2,3,4,6,7,8-HpCDF-13C	100	69	21.0	158.0	69
1,2,3,4,7,8,9-HpCDF-13C	100	65	20.0	186.0	65
1,2,3,4,6,7,8-HpCDD-13C	100	77	26.0	166.0	77
OCDD-13C	200	110	26.0	397.0	56

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Method 1613B

Spike Recovery Relative Percent Difference (RPD) Results

Client	Pace Analytical National		
Spike 1 ID	LCS-105423	Spike 2 ID	LCSD-105424
Spike 1 Filename	L230425A_09	Spike 2 Filename	L230425A_10

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	94	94	0.0
2,3,7,8-TCDD	96	96	0.0
1,2,3,7,8-PeCDF	93	92	1.1
2,3,4,7,8-PeCDF	96	92	4.3
1,2,3,7,8-PeCDD	86	86	0.0
1,2,3,4,7,8-HxCDF	96	96	0.0
1,2,3,6,7,8-HxCDF	98	97	1.0
2,3,4,6,7,8-HxCDF	100	96	4.1
1,2,3,7,8,9-HxCDF	98	99	1.0
1,2,3,4,7,8-HxCDD	104	102	1.9
1,2,3,6,7,8-HxCDD	97	92	5.3
1,2,3,7,8,9-HxCDD	103	97	6.0
1,2,3,4,6,7,8-HpCDF	92	90	2.2
1,2,3,4,7,8,9-HpCDF	95	92	3.2
1,2,3,4,6,7,8-HpCDD	84	80	4.9
OCDF	99	95	4.1
OCDD	105	103	1.9

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

Stage 2A/B Data Validation Checks
JH Baxter
Delivery Group L1605173/10650019

Comments:

- U-qualified samples assigned by the laboratory are not included in this report unless the U qualification is for some other reason other than a simple non-detect.

SUMMARY OF QUALITY CONTROL CHECKS

Quality Control Check	Checked By	Comment
Completeness	MBF	The data set is 100 percent complete, no results rejected.
Holding times	MBF	Holding times were within the method specific recommended holding times.
Preservation	MBF	Preservation was acceptable.
COC Documentation	MBF	COC was provided in the lab report.
Analytical methods	MBF	EPA 1613B Requested analytical methods were performed.
Initial and continuing calibrations	MBF	Not independently verified during Stage 2A/B validation.
Method blanks, trip blank, and field blanks	MBF	Method blanks were performed per batch and there were no detections and associated QC were within established control limits except for: • Blank-105422 o 1,2,3,7,8,9-HxCDF 1.5 J+ o OCDD 7.1 J • Blank-105477 o 1,2,3,4,7,8-HxCDD 0.11 J o Total HxCDD 0.073 J o OCDD 0.39 J+ Associated sample results were greater than 5X method blank contamination. • Equipment Blank (EB-02_0423) o Total HxCDF 18 J o 1,2,3,4,7,8-HxCDD 1.4 J o 1,2,3,6,7,8-HxCDD 1.4 J+ o Total HxCDD 3.3 J o 1,2,3,4,6,7,8-HpCDF 79 o Total HpCDF 140 o 1,2,3,4,6,7,8-HpCDD 15 J o Total HpCDD 27 J o OCDF 72 J o OCDD 160 Raw results not reviewed during 2A/B. Equipment blank results (pg/L) and sample results (ng/kg) not directly comparable. Results not qualified.

Quality Control Check	Checked By	Comment
Surrogate/labeled compounds	MBF	Labeled compounds were analyzed and within control limits.
LCS/LCSD	MBF	An LCS was analyzed per batch. Recoveries were within established control limits.
MS/MSD	MBF	MS/MSD on non-SDG samples were performed and stated in the narrative to be within control limits. Results not included in lab report.
Field duplicates	MBF	Field duplicates were collected and analyzed: • Primary: DU-06B-1.5-2.0_0423 • Duplicate: DU-106B-1.5-2.0_0423 Results were within 50% solid organic RPD limit except.
Lab duplicates	MBF	Lab sample duplicates were not performed or required per the method.
Dilution	MBF	Samples did not require further dilution for analysis.
Qualitative Identification for HRGC/HRMS analyses only	MBF	The following results were EMPCS: • DU-06B-1.5-2.0_0423 o 1,2,3,4,7,8-HxCDF o 1,2,3,6,7,8-HxCDD o 1,2,3,7,8,9-HxCDD • DU-106B-1.5-2.0_0423 o 1,2,3,4,7,8-HxCDD o 1,2,3,6,7,8-HxCDD o 1,2,3,7,8,9-HxCDD • DU-11A-2.0-2.5_0423 o 1,2,3,7,8,9-HxCDF • DU-11A-2.5-3.0_0423 o 1,2,3,4,6,7,8-HpCDF o 1,2,3,4,7,8-HxCDF o 1,2,3,6,7,8-HxCDD • EB-02-0423 o 1,2,3,6,7,8-HxCDD EMPC results had isotope ratios that were out of specification. EMPC results qualified J+.
Overall Assessment		**Qualifier codes added to results; table and notes below.**

Notes

TABLE 1. SUMMARY OF QUALIFIED DATA

Sample ID	Analyte	Result (ng/kg)	Qualifier Assigned	Reason for Qualification
DU-06B-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	1.2	J	Below reporting limit
	1,2,3,4,7,8-HxCDD	0.22		
	1,2,3,7,8,9-HxCDF	0.18		
	OCDF	4.5		
	Total HpCDF	1.2		
	Total HxCDD	1.9		
	Total HxCDF	0.18		
	Total TCDD	0.23		
DU-06B-1.5-2.0_0423	1,2,3,4,7,8-HxCDF	0.11	J+	EMPC, Isotope ratio out of spec, Below reporting limit
	1,2,3,6,7,8-HxCDD	0.19		
	1,2,3,7,8,9-HxCDD	0.15		
DU-106B-1.5-2.0_0423	1,2,3,4,6,7,8-HpCDF	1	J	Below reporting limit
	OCDF	4		
	Total HpCDF	2.9		
	Total HxCDD	1.2		
	Total HxCDF	0.33		
	Total TCDD	0.42		
DU-106B-1.5-2.0_0423	1,2,3,4,7,8-HxCDD	0.19	J+	EMPC, Isotope ratio out of spec, Below reporting limit
	1,2,3,6,7,8-HxCDD	0.18		
	1,2,3,7,8,9-HxCDD	0.19		
DU-11A-2.0-2.5_0423	1,2,3,4,7,8-HxCDD	0.59	J	Below reporting limit
	1,2,3,4,7,8-HxCDF	0.91		
	1,2,3,6,7,8-HxCDD	1.5		
	1,2,3,6,7,8-HxCDF	0.38		
	1,2,3,7,8,9-HxCDD	0.95		
	2,3,4,6,7,8-HxCDF	0.39		
	Total PeCDD	0.57		
	Total PeCDF	1.4		
DU-11A-2.0-2.5_0423	1,2,3,7,8,9-HxCDF	0.21	J+	EMPC, Isotope ratio out of spec, Below reporting limit
DU-11A-2.5-3.0_0423	1,2,3,7,8,9-HxCDD	0.5	J	Below reporting limit
	OCDF	8.3		
	Total HxCDD	2.4		
	Total HxCDF	1.3		
DU-11A-2.5-3.0_0423	1,2,3,4,6,7,8-HpCDF	2.7	J+	EMPC, Isotope ratio out of spec, Below reporting limit
	1,2,3,4,7,8-HxCDF	0.37		
	1,2,3,6,7,8-HxCDD	0.62		
EB-02-0423	1,2,3,4,6,7,8-HpCDD	15 pg/l	J	Below reporting limit
	1,2,3,4,7,8-HxCDD	3.3 pg/l		
	OCDF	72 pg/l		
	Total HpCDD	27 pg/l		
	Total HxCDD	3.3 pg/l		
	Total HxCDF	18 pg/l		
EB-02-0423	1,2,3,6,7,8-HxCDD	1.4 pg/l	J+	EMPC, Isotope ratio out of spec, Below reporting limit

APPENDIX C

June 2022 Discrete and Increment Sample Locations

FIGURE C-1

2022 DU-09
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- ISM
- Composite A
- Composite B
- Surface Soil Area (2,248 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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FIGURE C-2

2022 DU-10
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (3,376 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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FIGURE C-3

2022 DU-11
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- ISM
- Composite A
- Composite B
- Total Surface Soil Area (8325 SF)
  Backyard Soil Area (5,763 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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FIGURE C-4

2022 DU-14
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- ISM
- Composite A
- Composite B
- Surface Soil Area (2,334 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

Document Path: Y:\2060_DEQ\005_JH_Baxter\Source_Figures\Offsite_Investigation_Report\AppendixC\FigureC4_DU-14.mxd, npalmer

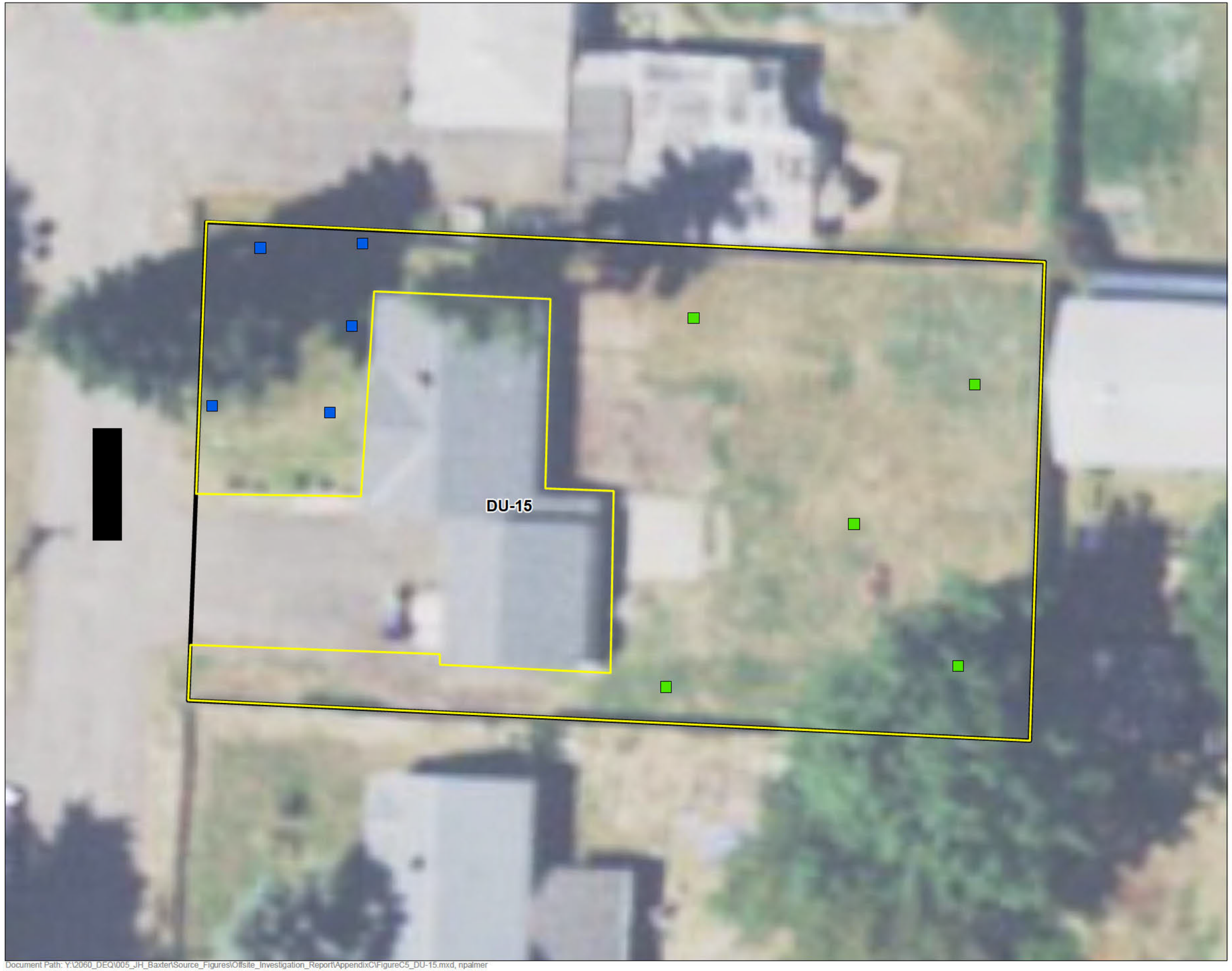

FIGURE C-5

2022 DU-15
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- ISM
- Composite A
- Composite B
- Surface Soil Area (8,321 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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APPENDIX D

April 2023 Discrete and Increment Sample Locations

FIGURE D-1

2023 DU-09
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (2,248 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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FIGURE D-2

2023 DU-10
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (3,376 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

Document Path: Y:\2060_DEQ\005_JH_Baxter\Source_Figures\Offsite_Investigation_Report\AppendixD\FigureD2_DU-10_2023.mxd, npalmer

FIGURE D-3

2023 DU-11
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Total Surface Soil Area (8325 SF)
  Backyard Soil Area (5,763 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

Document Path: Y:\2060_DEQ\005_JH_Baxter\Source_Figures\Offsite_Investigation_Report\AppendixD\FigureD3_DU-11_2023.mxd, npalmer

FIGURE D-4

2023 DU-15
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (8,321 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

Document Path: Y:\2060_DEQ\005_JH_Baxter\Source_Figures\Offsite_Investigation_Report\AppendixD\FigureD4_DU-15_2023.mxd, npalmer

FIGURE D-5

2023 AP-01
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (8,028 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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FIGURE D-6

2023 SO-06
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (8,522 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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FIGURE D-7

2023 SO-07
Soil Sample Increment Locations

Former JH Baxter & Co. Facility
Offsite Investigation Report
Eugene, OR

LEGEND

- Composite A
- Composite B
- Surface Soil Area (6,886 SF)
- Decision Unit

NOTE

ISM and Composite points locations are estimates. Point locations were collected using GPS equipment at the time of sampling; however, some data point locations have been adjusted due to GPS accuracy or variations between the GPS coordinate system and the base map imagery.

N

0 8 16 24
Feet

Date: September 6, 2024
Data Sources: BLM, ESRI, ODOT, USGS, OSIP Imagery (2018)

GSI Water Solutions, Inc.

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APPENDIX E

Arborist Reports