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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775 • Olympia, Washington 98504-7775 • 360-407-6300

December 4, 2025

Ethan Perry
Executive Director of the Port of Ridgefield
101 Mill Street Suite 100
Ridgefield, WA 98642
eperry@portridgefield.org

Re: Completion of Lake River Sediment Sampling

- **Site Name:** Pacific Wood Treating Corporation
- **Site Address:** 111 West Division Street, Ridgefield, WA
- **Facility/ Site ID:** 1019
- **Cleanup Site ID:** 3020

Dear Ethan Perry (Project Coordinator):

This work is being done under Consent Decree No. 13-2-03830-1 (Consent Decree) between Washington State Department of Ecology (Ecology), the Port of Ridgefield, and The City of Ridgefield and in compliance with the Model Toxics Control Act, Chapter 70A.305 RCW.

Post remedy sediment sampling at Lake River began in 2015 and was conducted at a frequency of 0, 2, 5, and 10 years post remedy. Sediment samples collected during the 2025 sampling event, indicate that dioxin TEQ concentrations remain below the approved cleanup level of 5 ng/kg. Trends post remedy indicate that dioxin concentrations in Lake River sediments appear to be stable and below the approved cleanup level. **Unless site conditions change or new evidence is presented to Ecology, post remedy monitoring of Lake River sediments is considered complete.**

If you have any questions, please contact me at 360-999-9590 or cam.penner-ash@ecy.wa.gov.

Sincerely,

Cam Penner-Ash, LG
Cleanup Project Manager
Toxics Cleanup Program
Southwest Region Office

Enclosure: Lake River 2025 Sediment Monitoring Report, November 13, 2025

cc: Penny Hughes, Port of Ridgefield, phughes@portridgefield.org
Steve Stuart, City of Ridgefield, steve.stuart@ridgefieldwa.us
Marian Abbett, PE, Ecology, marian.abbett@ecy.wa.gov
Ecology Site File

Enclosure

Lake River 2025 Sediment Monitoring Report

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Lake River 2025 Sediment Monitoring Report

Former Pacific Wood Treating Co. Site
Facility ID 1019, Cleanup Site ID 3020

Prepared for:

Port of Ridgefield

November 13, 2025
Project No. M9003.01.056

Prepared by:

Maul Foster & Alongi, Inc.
330 E Mill Plain Boulevard, Suite 405, Vancouver, WA 98660

MAUL FOSTER ALONGI

Lake River 2025 Sediment Monitoring Report

Former Pacific Wood Treating Co. Site
Facility ID 1019, Cleanup Site ID 3020

The material and data in this report were prepared under the supervision and direction of the undersigned.

Maul Foster & Alongi, Inc.

Phil Wiescher, PhD
Principal Environmental Scientist

11/13/2025

Meaghan Pollock, LG
Project Geologist

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Abbreviations

Apex	Apex Laboratories, LLC
bml	below mud line
CAP	cleanup action plan
cm	centimeter(s)
CUL	cleanup level
dioxins	polychlorinated dibenzo-p-dioxins and furans
DU	decision unit
Ecology	Washington State Department of Ecology
ENR	enhanced natural recovery
EPA	U.S. Environmental Protection Agency
ISM	incremental sampling methodology
MFA	Maul Foster & Alongi, Inc.
ng/kg	nanograms per kilogram
the Port	Port of Ridgefield
PWT	Pacific Wood Treating Co.
QA/QC	quality assurance and quality control
REL	remediation level
SAP	sampling and analysis plan
TEQ	toxicity equivalent
TOC	total organic carbon

1 Introduction

On behalf of the Port of Ridgefield (the Port), Maul Foster & Alongi, Inc. (MFA), has prepared this report to summarize Year 10 (2025) Lake River post remedy sediment monitoring results. Lake River is offshore of the former Pacific Wood Treating Co. (PWT) site in Ridgefield, Washington (see Figure 1-1). PWT operated a wood treating facility from 1964 to 1993 at the site.

On November 5, 2013, the Port entered into a consent decree with the State of Washington requiring remedial action to address contamination at the former PWT site. The selected cleanup action for the Lake River portion of the former PWT site consisted of mechanical dredging and placement of an enhanced natural recovery (ENR) sand layer and is described in the cleanup action plan (CAP) (Washington State Department of Ecology [Ecology] 2013). The remedy includes sediment chemical monitoring to assess cleanup efficacy in years 0, 2, 5, and 10.

Year 0 monitoring was completed in 2015 (MFA 2015b), Year 2 in 2017 (MFA 2018), and Year 5 in 2020 (MFA 2021). This report provides the results of the final Year 10 (2025) monitoring, including sampling methodology and analysis, quality assurance protocols, and laboratory analytical results and interpretation. Sampling and reporting were conducted in accordance with the Ecology-approved sampling and analysis plan (SAP) (MFA 2015a); any exceptions are noted in this report.

As described below, the long-term monitoring has demonstrated that the cleanup action is effective. Sediment concentrations are stable and remain below the cleanup level (CUL) of 5 nanograms per kilogram (ng/kg) dioxin toxicity equivalent (TEQ). Post remedy monitoring is considered complete.

1.1 Background

The CAP identifies a remediation level (REL; 30 ng/kg dioxin TEQ) and a CUL (5 ng/kg dioxin TEQ) for polychlorinated dibenzo-p-dioxins and furans (collectively referred to as dioxins) in Lake River sediments. These numeric criteria guided the remedial action substantively completed in 2015. Areas exceeding the REL were dredged and treated with a clean ENR sand layer, whereas areas above the CUL but below the REL were treated with clean sand only (see Figure 1-2). After remedy completion, Year 0 (baseline) monitoring was conducted in July 2015 to assess cleanup effectiveness. Years 2 and 5 monitoring were completed in 2017 and 2020, respectively, to quantify any changes compared to previous monitoring results.

The 2015 results showed that sediment dioxin TEQ concentrations were below the CUL and that a significant reduction in dioxin concentrations had been attained (MFA 2015b). The Year 2 (2017) results showed that although the average incremental sampling methodology (ISM) sample dioxin TEQ had increased slightly (3.53 ng/kg in Year 2 compared to 1.16 ng/k g in Year 0), average dioxin TEQ concentrations were still below the CUL. The Year 5 (2020) results showed a reduction in the average ISM dioxin TEQ (1.47 ng/kg in Year 5 compared to 3.53 ng/kg in Year 2).

The Year 10 (2025) monitoring described in this report was conducted to quantify any concentration changes relative to results from 2015, 2017, and 2020. This monitoring event was conducted to further quantify concentration trends over time, to confirm that natural recovery is effective in

meeting the CUL in the long term, and to support decisions regarding the necessity of continued monitoring.

2 Site Conditions

Lake River is a slow, flat slough of the Columbia River. Lake River is hydraulically connected to the Columbia River through a tide gate/flushing structure along the western shoreline of Vancouver Lake and at the mouth of Lake River on the Columbia River, 11 miles downstream of the Vancouver Lake tide gate. Overall river flow is from Vancouver Lake to the mouth of Lake River, and flow direction in Lake River reverses as a result of tidal influences from the Columbia River. Low water velocity, bathymetric analysis, and grain size distribution all indicate that Lake River is a predominantly depositional fluvial environment, and that natural attenuation of sediment concentrations should be expected to occur over time (MFA 2013b).

An approximately 1-foot-thick, clean sand layer was placed over the entire remedy area as part of the sediment remedy (see Figure 1-2). Based on visual observations of riverbed exposed during low tide in 2025, it appears that more fines have deposited over the sand layer since the previous (2020) observations. No evidence of significant sand scour (e.g., exposed native sandy silt) was observed. Surface (0 to 10 centimeters [cm] below mudline [bml]) sediment samples retrieved during the 2025 event were generally sands (representing the clean sand layer placed as part of the remedy) with overlying silt. The samples with little to no overlying silt were generally observed near the fish mix rock, where there is likely more wave activity (see Figure 1-2).

Based on previous investigations, the subsurface (deeper than 10 cm bml) sediment characteristics in Lake River vary with depth. In the remedy area, the current depth to native sediment below the placed clean sand layer likely varies (e.g., because of propwash and mixing processes). Generally, in the nearshore slope areas, the native subsurface sediment is characterized as a fine sandy silt to a depth of approximately 5 feet bml that then transitions to a fine to medium sand. Subsurface sediment in the channel areas of Lake River is generally very fine sandy silt down to 11 feet bml, with the exception of some fine to medium sand encountered in two cores in the Lake River channel area at approximately 6 to 7 feet bml (MFA 2013a).

3 Sampling Program

ISM was used to characterize dioxins in sediments. ISM characterizes the average concentration of contaminants in a predefined area termed a decision unit (DU). Samples (called increments) were collected from multiple locations in the DU under evaluation. The increments were combined into one sample (called an ISM sample), which was analyzed to obtain a representative average contaminant concentration for the entire DU. Three ISM samples, called replicates, were collected to define variability resulting from sampling error or spatial heterogeneity. ISM provides data that are

more representative of average concentrations than areawide concentrations derived from discrete or traditional composite samples (HDOH 2009; ITRC 2020).

3.1 Incremental Sampling Methodology Design

The sampling objective was to characterize the average concentration of dioxins in surface sediments in the remedy area. The DU sampled extends from the surface to 10 cm bml across the entire remedy area, as shown in Figure 3-1. Three replicate samples (ISM samples A, B, and C) consisting of 30 increments each were collected to assess sample variability. The increment locations are consistent with those sampled in 2015, 2017, and 2020, and were selected based on a stratified random approach using a triangular grid (using ArcGIS 10 and Visual Sample Plan 6). Using a systematic random grid, as opposed to a simple random sampling approach, reduces the probability of missing areas with significantly elevated concentrations.

3.2 Sampling Methods

MFA conducted sediment sampling on September 30 and October 1, 2025. Water levels were normal. Most samples were collected from the boat and the remaining samples were collected on foot from the shoreline. Figure 3-1 shows sampling locations and Table 3-1 presents sediment sample descriptions.

All sediment increments retrieved from the boat were collected using a handheld Van Veen (clamshell) sampler. The locked (open) sampler was manually lowered to the riverbed. The latch would unlock upon contact with the riverbed and close the two halves of the clamshell around the sediment before being manually raised back into the boat. The contents were deposited onto a clean work surface where the sample was bisected and characterized before being placed in the laboratory-supplied sampling container. If increment recovery was poor at certain locations, the increment was discarded and resampled within a few feet of the original location. Sediment increments retrieved on foot were collected with a stainless steel trowel. Approximately 100 grams per increment, for a total of approximately 3 kg per ISM sample, was collected to provide the overall mass required by the analytical laboratory. The ISM sample was analyzed for dioxins and total organic carbon (TOC).

A differential global positioning system was used to navigate to the locations shown on Figure 3-1. Locations were determined to an accuracy of ±3 meters. Horizontal coordinates were referenced to the Washington South State Plane High Accuracy Reference Network (North American Datum of 1983).

All equipment was decontaminated in accordance with the SAP. All sample containers were kept on ice before submittal, with chain-of-custody documentation, to the laboratory for analysis. Use of dedicated (nondisposable) sampling equipment significantly reduced the amount of decontamination fluids generated. Nondisposable incremental sampling equipment was decontaminated only between replicates (i.e., not decontaminated between increments within the unit). Decontamination of nondisposable sampling equipment (i.e., incremental sampling equipment) used disposable, single-use paper towels that were subsequently containerized, along with used personal protective equipment, and disposed of in a sanitary landfill.

3.3 Quality Assurance and Quality Control Samples

The following quality assurance and quality control (QA/QC) sampling was conducted.

Three replicate ISM samples were collected across the DU. Replicates were processed and analyzed (consistent with the methods used for the primary sample) to assess sample variability. In addition, an equipment rinsate blank was collected from decontaminated reusable equipment coming into direct contact with sediment samples (i.e., the Van Veen sampler, trowel, bowls, and spoons).

3.4 Sample Transport

Samples for ISM processing and TOC analysis were submitted to the Ecology-approved Apex Laboratories, LLC (Apex), of Tigard, Oregon. Following ISM processing, Apex submitted sample aliquots to the Ecology-approved Cape Fear Analytical, LLC, for dioxin analysis. Chain-of-custody documentation was maintained throughout the sample handling and testing process and is included in the laboratory analytical reports (see Appendix A).

3.5 Laboratory Chemical Sample Process and Analysis

Prior to analysis, Apex used SAP-identified ISM procedures to process the ISM samples. As discussed above, the approximately equal mass collected from each increment was field-consolidated to generate a sample of approximately 3 kg (wet weight). The laboratory air dried each DU sample at room temperature. The entire volume of each sample was chopped and sieved to facilitate obtaining a representative subsample and improve analyte extraction efficiency. The sample was sieved using an ASTM International No. 10 (2-millimeter) sieve. Once the sample was dried and sieved, the laboratory performed the "1-dimensional slabcake" subsampling procedure to sub-aliquot sample volume to be used for analysis. The slabcake procedure involves spreading the sample at a consistent depth in a line, using 20 or more passes, and then using a square scoop to cut across the line as needed to create an aliquot for each analysis. Samples for TOC were ground prior to analysis. Precise volumes (as identified in the SAP) of samples were collected as aliquots for each individual laboratory analysis and for QA/QC requirements. The following analyses of ISM aliquots, by the methods indicated, were conducted:

- TOC by Puget Sound Estuary Program/Standard Method 5310B Modified
- Dioxins by U.S. Environmental Protection Agency (EPA) Method 1613B

Laboratory QA/QC requirements were maintained using standard EPA methods, based on EPA test methods for evaluating solid waste, physical/chemical methods (also known as SW-846) requirements, as amended (EPA 1986).

3.6 Data Reduction, Validation, and Reporting

The laboratory data produced were independently reviewed by MFA for data quality (see Appendix B). Analytical results were evaluated according to applicable sections of EPA procedures (EPA 2014, 2020) and appropriate laboratory and method-specific guidelines (Apex 2019, EPA 1986) and are reported consistent with recent dioxin data treatment guidance (Ecology 2021). ISM sample replicates were assessed as part of the data validation. Sample results were qualified appropriately

to reflect any criteria not satisfied during the aforementioned assessments. All data are considered acceptable for use, with associated qualifiers. Consistent with Washington Administrative Code 173 340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data will be submitted in both written (this report) and electronic (the Ecology Environmental Information Management system) formats (Ecology 2016).

4 Results

The 2015 through 2025 sediment monitoring results are provided in Table 4-1. For the 2025 monitoring event, most dioxin congener results are at or near the estimated detection limits. The dioxin TEQ concentrations for each sample (A, B, and C) were below the CUL of 5 ng/kg, with concentrations of 1.42 ng/kg, 1.6 ng/kg, and 1.43 ng/kg, respectively. The average ISM concentrations for samples collected since 2015 have all been below the CUL of 5 ng/kg.

Before the remedial action, dioxin TEQ concentrations in Lake River were as high as 910 ng/kg, and it was estimated that post remedy concentrations would range up to 23 ng/kg (MFA 2015a), with an areawide average concentration of approximately 4.4 ng/kg following natural recovery and mixing of placed clean sand with native sediment (MFA 2013a). The 2015, 2017, 2020, and 2025 average ISM concentrations are consistent with the areawide projection and are below the CUL of 5 ng/kg. The combination of the remedial action, continued mixing of sand with underlying sandy silt via bioturbation and anthropogenic events, and deposition from upstream sediments have resulted in the desired long-term effect. The long-term monitoring has demonstrated that the cleanup action is effective.

Monitoring has been conducted at the required frequency of 0, 2, 5, and 10 years post remedy consistent with the SAP. Dioxin TEQ concentrations are stable and remain below the CUL of 5 ng/kg. Post remedy monitoring is considered complete.

References

Apex. 2019. *Quality Assurance Manual.* Rev 77. Apex Laboratories, LLC: Tigard, Oregon. February 11.

Ecology. 2013. *Cleanup Action Plan, Former Pacific Wood Treating Co. Site.* Washington State Department of Ecology. November 5.

Ecology. 2016. *Policy 840: Data Submittal Requirements.* Washington State Department of Ecology. Washington State Department of Ecology. April 12.

Ecology. 2021. *Sediment Cleanup Users Manual II, Guidance for Implementing the Cleanup Provisions of the Sediment Management Standards, Chapter 173-204 WAC. Publication No. 12-09-057.* Washington State Department of Ecology. December.

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. EPA publication SW-846. 3d ed*. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI Phase I (2017), VI Phase II (2018), and VI Phase III (2019).

EPA. 2014. *R10 data Validation and Review Guidelines For Polychlorinated Dibenzo-P-Dioxin And Polychlorinated Dibenzofuran Data (PCDD/PCDF) Using Method 1613B, and SW846 Method 8290A. EPA-910-R-14-003.* U.S. Environmental Protection Agency, Office of Environmental Assessment. May.

EPA. 2020. *EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review. EPA 540/R-10/011.* U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

HDOH. 2009. *Technical Guidance Manual for The Implementation of The Hawai'i State Contingency Plan.* Office of Hazard Evaluation and Emergency Response. Hawai'i Department of Health. November 12.

ITRC. 2020. *Technical and Regulatory Guidance: Incremental Sampling Methodology (ISM) Update.* The Interstate Technology & Regulatory Council Incremental Sampling Methodology Team. October.

MFA. 2013a. *Lake River Remedy Predesign Sampling Report.* Prepared for the Port of Ridgefield. Maul Foster & Alongi, Inc.: Vancouver, Washington. June 14.

MFA. 2013b. *Former PWT Site Remedial Investigation and Feasibility Study.* Prepared for the Port of Ridgefield. Maul Foster & Alongi, Inc.: Vancouver, Washington. July 1.

MFA. 2015a. *Lake River Sediment Monitoring Sampling And Analysis Plan, Former Pacific Wood Treating Co. Site, Facility ID 1019, Cleanup Site ID 3020.* Prepared for the Port of Ridgefield. Maul Foster & Alongi, Inc.: Vancouver, Washington. April 9.

MFA. 2015b. *Lake River Sediment Monitoring Report, Former Pacific Wood Treating Co. Site, Facility ID 1019, Cleanup Site ID 3020*. Prepared for the Port of Ridgefield. Maul Foster & Alongi, Inc.: Vancouver, Washington. July 1.

MFA. 2018. *Lake River 2017 Sediment Monitoring Report, Former Pacific Wood Treating Co. Site, Facility ID 1019, Cleanup Site ID 3020.* Prepared for the Port of Ridgefield. Maul Foster & Alongi, Inc.: Vancouver, Washington. January 25.

MFA. 2021. *Lake River 2020 Sediment Monitoring Report, Former Pacific Wood Treating Co. Site, Facility ID 1019, Cleanup Site ID 3020*. Prepared for the Port of Ridgefield. Maul Foster & Alongi, Inc.: Vancouver, Washington. February 1.

Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Figures

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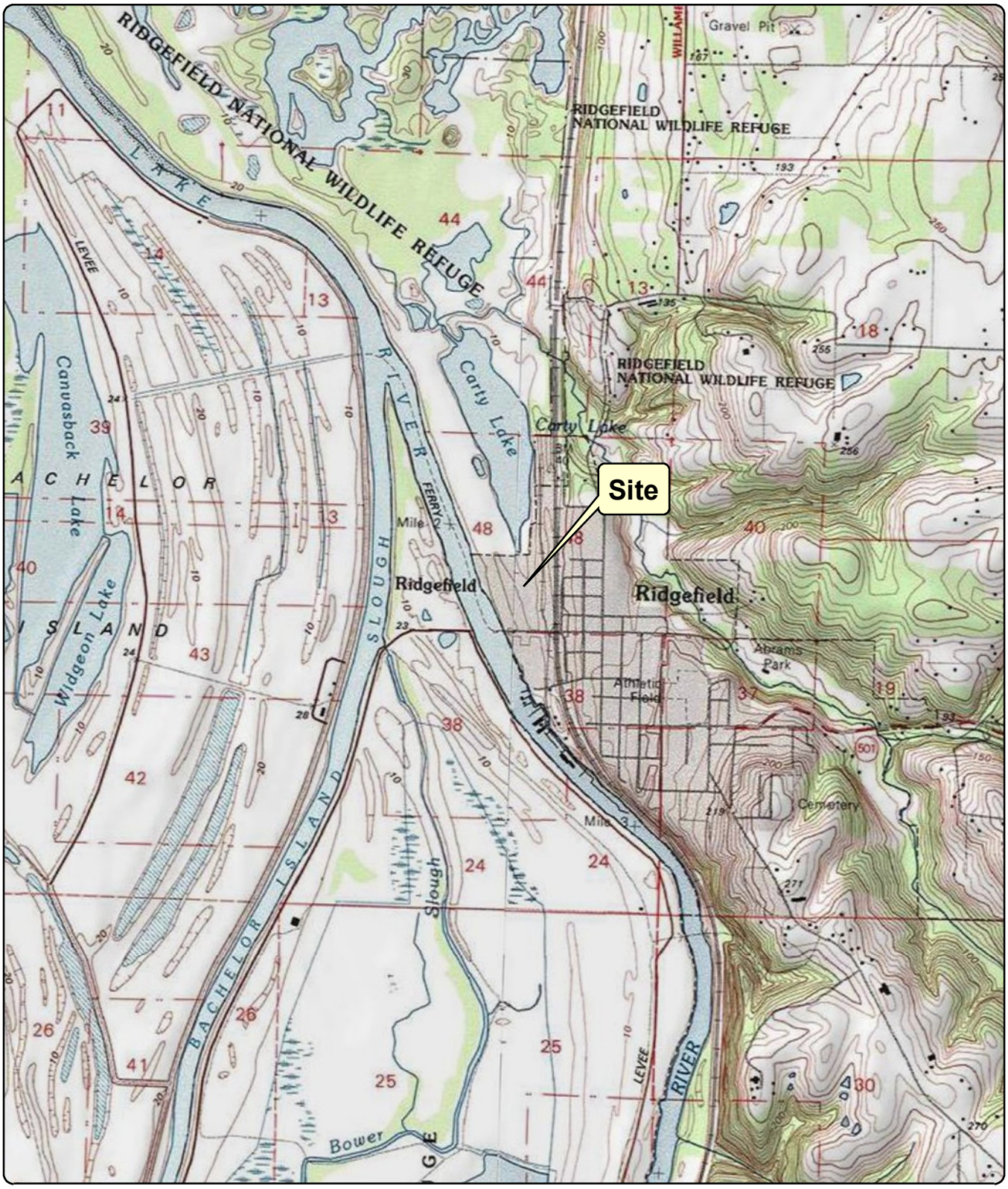

Source: Topographic Quadrangle obtained from ArcGIS Online Services/NGS-USGS TOPO! U.S. Geological Survey (1999)
7.5-minute topographic quadrangle: Ridgefield
Address: Lake River Industrial Site
111 W. Division Street, Ridgefield, WA 98642
Section: 24 Township: 4N Range: 1W of Willamette Meridian

PWT = Pacific Wood Treating Co.

Figure 1-1
Site Location

Former PWT Site
Ridgefield, Washington

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0 1,000 2,000
Feet

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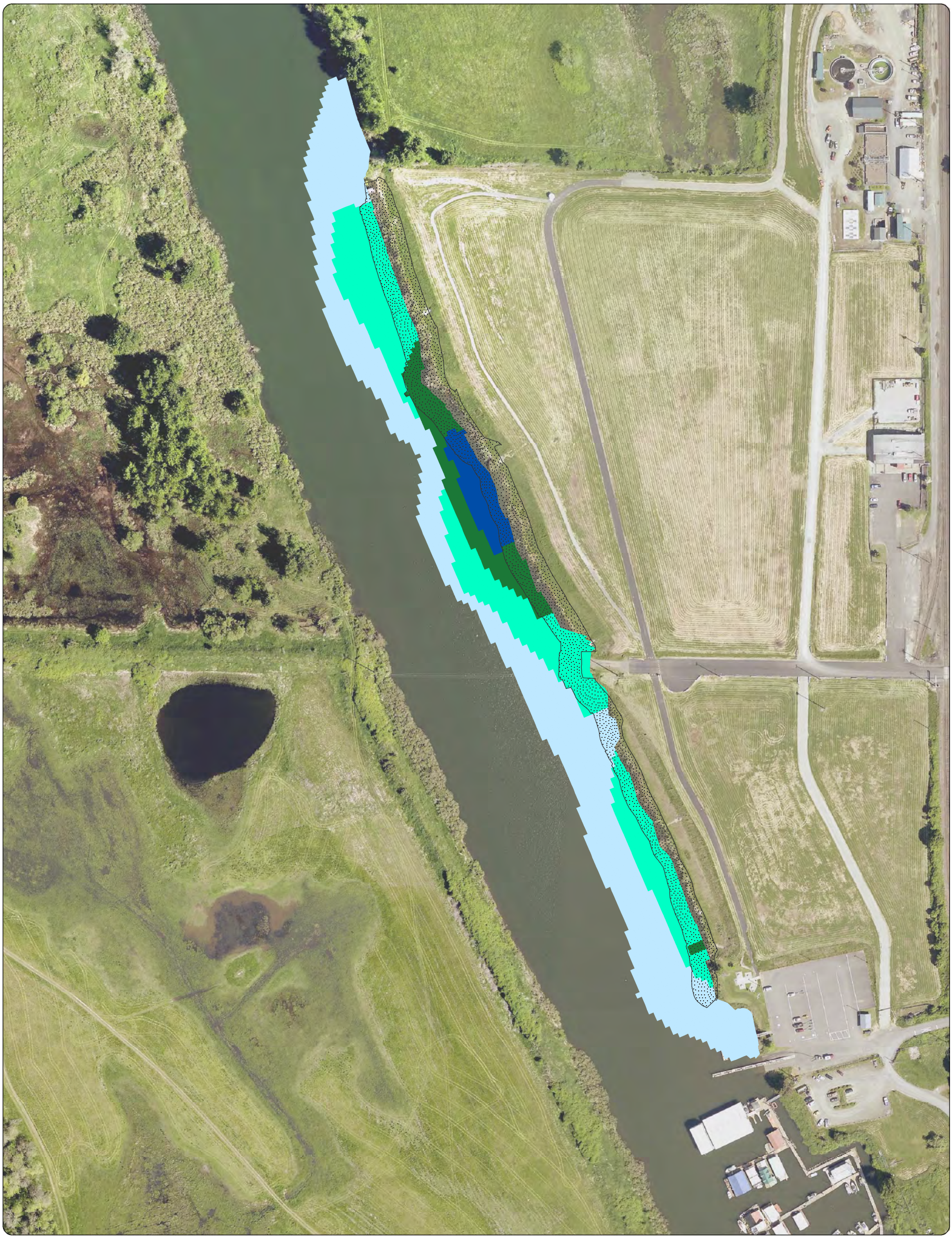
Approved By: P. Wiescher Print Date: 6/29/2015
Produced By: R. Callihan
Project: 9003.01.40



Source: Aerial photograph (2014) obtained from Clark County GIS.

Notes:
1. PWT = Pacific Wood Treating Co.
2. ENR = Enhanced Natural Recovery.
3. Dredge depths denote neatline.
4. Dredged areas will also receive 1 foot of ENR treatment.
5. Analysis extent has been clipped to the bank-sediment interface. Dredge boundaries near the shore were generally determined by projection of a 3:1 horizontal to vertical slope down from the shoreline inflection point to the required dredge depth. ENR boundaries near the shore were determined by the point where the shore slope transitions to less than a 5:1 horizontal to vertical slope.

Legend

Fish Mix

Remedial Action Areas

ENR Only
1-ft Dredge
2-ft Dredge
3-ft Dredge

Figure 1-2
Lake River Remedy Area

Former PWT Site
Ridgefield, Washington

0 100 200
Feet

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Print Date: 11/10/2017
Approved By: mnovak
Produced By: rroberts
Project: 9003.01.40/06

NOTES:
Bankward sample locations extent was clipped to the extent of fish plus 5 feet riverward.
ISM = incremental sampling methodology.
PWT = Pacific Wood Treating Co.

Source: Aerial photograph (2014) obtained from Clark County GIS.

Legend

- ISM Sample Location (A)
- ISM Sample Location (B)
- ISM Sample Location (C)
- ISM Sample Boundary
- Fish Mix

Figure 3-1
Sample Locations
Former PWT Site
Ridgefield, Washington

0 100 200
Feet

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Project: 9003.01.40.06 Produced By: mjosef Reviewed By: JGlenn Print Date: 1/27/2021

Tables

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Table 3-1
Sediment Sample Descriptions
Former PWT Site
Ridgefield, Washington

Increment Number	Group	Date Collected	Comments
0	A	10/01/2025	Brown sand.
1	A	09/30/2025	Brownish-gray sand with silt.
2	A	09/30/2025	Brownish-gray sand with silt; red flecks.
3	A	09/30/2025	Brownish-gray sandy silt; trace organics.
4	A	10/01/2025	Gray silty sand.
5	A	09/30/2025	Brownish-gray silty sand; trace organics.
6	A	09/30/2025	Gray sand with silt; trace organics overlaying.
7	A	10/01/2025	Gray sand with silt overlay.
8	A	09/30/2025	Brownish-gray silty sand.
9	A	09/30/2025	Brownish-gray silty sand.
10	A	09/30/2025	Brownish-gray silty sand.
11	A	10/01/2025	Gray sand.
12	A	09/30/2025	Gray silty sand.
13	A	10/01/2025	Gray sandy silt.
14	A	09/30/2025	Brownish gray silty sand.
15	A	09/30/2025	Gray silty sand.
16	A	09/30/2025	Gray sand with silt.
17	A	09/30/2025	Gray sand with silt.
18	A	09/30/2025	Gray sand with silt; red flecks.
19	A	10/01/2025	Gray sand with silt overlay.
20	A	09/30/2025	Brownish-gray sand with silt.
21	A	10/01/2025	Gray sand.
22	A	09/30/2025	Brownish-gray sandy silt.
23	A	10/01/2025	Gray silt with sand.
24	A	09/30/2025	Brownish-gray silt with sand.
25	A	09/30/2025	Brownish-gray silt with sand.
26	A	10/01/2025	Gray silt with sand; significant organics.
27	A	10/01/2025	Gray sand with silt overlay.
28	A	10/01/2025	Brown and gray sand.
29	A	10/01/2025	Gray silt with sand; organic-like odor; blocky sheen.
30	B	10/01/2025	Brown sand overlying gray sand.
31	B	09/30/2025	Gray sand with silt overlay.
32	B	10/01/2025	Gray sand.
33	B	10/01/2025	Gray sand with silt overlay.
34	B	09/30/2025	Brownish gray sand; trace organics.
35	B	09/30/2025	Gray sand with silt overlay.
36	B	09/30/2025	Gray silty sand; trace organics.
37	B	09/30/2025	Gray sand with silt overlay.
38	B	09/30/2025	Gray sandy silt.
39	B	10/01/2025	Gray sandy silt.
40	B	10/01/2025	Gray sandy silt.
41	B	09/30/2025	Gray sandy silt with organics.

Table 3-1
Sediment Sample Descriptions
Former PWT Site
Ridgefield, Washington

Increment Number	Group	Date Collected	Comments
42	B	10/01/2025	Gray sand with silt overlay.
43	B	09/30/2025	Gray silt with sand.
44	B	10/01/2025	Silty sand.
45	B	09/30/2025	Gray silty sand.
46	B	10/01/2025	Gray sand.
47	B	09/30/2025	Gray sandy silt with sand below.
48	B	10/01/2025	Grayish-brown sandy silt.
49	B	09/30/2025	Gray sand with silt overlay.
50	B	09/30/2025	Gray sand with silt; red flecks.
51	B	09/30/2025	Gray silty sand.
52	B	10/01/2025	Gray sand with silt overlay.
53	B	10/01/2025	Brownish gray sand with silt overlay.
54	B	10/01/2025	Gray sand with silt overlay.
55	B	10/01/2025	Gray sandy silt.
56	B	09/30/2025	Gray silty sand.
57	B	09/30/2025	Gray sand with silt; red flecks.
58	B	09/30/2025	Gray sand with silt overlay.
59	B	10/01/2025	Gray silt with sand; organic-like odor; blocky sheen.
60	C	10/01/2025	Gray sand with brown silt overlay.
61	C	10/01/2025	Brown sand.
62	C	09/30/2025	Gray sand with silt overlay.
63	C	09/30/2025	Gray sandy silt with silt overlay.
64	C	09/30/2025	Gray sandy silt.
65	C	10/01/2025	Gray sand.
66	C	09/30/2025	Gray sandy silt.
67	C	09/30/2025	Gray sandy silt.
68	C	09/30/2025	Gray sandy silt.
69	C	09/30/2025	Gray silty sand.
70	C	09/30/2025	Gray silty sand.
71	C	09/30/2025	Gray silty sand.
72	C	09/30/2025	Gray silty sand.
73	C	10/01/2025	Sandy silt with silt overlay.
74	C	09/30/2025	Gray silty sand.
75	C	10/01/2025	Gray sand with silt overlay.
76	C	10/01/2025	Gray silty sand.
77	C	09/30/2025	Gray sand/silt.
78	C	09/30/2025	Gray sand with silt.
79	C	09/30/2025	Gray sand with silty overlay.
80	C	09/30/2025	Gray sand with silt overlay; red flecks.
81	C	09/30/2025	Gray sand/silt.
82	C	09/30/2025	Gray sand with silt overlay.
83	C	10/01/2025	Gray sand with silt overlay.

Table 3-1
Sediment Sample Descriptions
Former PWT Site
Ridgefield, Washington

Increment Number	Group	Date Collected	Comments
84	C	10/01/2025	Gray sand with silt overlay.
85	C	10/01/2025	Gray sand with silt overlay.
86	C	09/30/2025	Gray sandy silt.
87	C	09/30/2025	Gray sand; trace silt.
88	C	10/01/2025	Brown silty sand with silt overlay.
89	C	09/30/2025	Gray sand; trace silt; red flecks.

NOTE:
PWT = Pacific Wood Treating Co.

Table 4-1
Sediment Sample Results
Former PWT Site
Ridgefield, Washington

Location		ISM Sample A	ISM Sample B	ISM Sample C	ISM Sample A	ISM Sample B	ISM Sample C	ISM Sample A	ISM Sample B	ISM Sample C	ISM Sample A	ISM Sample B	ISM Sample C
Sample ID		ISM-A-150240	ISM-B-150421	ISM-C-150422	ISM-A-170925	ISM-B-170926	ISM-C-170927	ISM-A-20201203	ISM-B-20201204	ISM-C-20201204	ISM-A-20250930	ISM-B-20250930	ISM-C-20250930
Date Collected		04/20/2015	04/21/2015	04/22/2015	09/25/2017	09/26/2017	09/27/2017	12/03/2020	12/04/2020	12/04/2020	09/30/2025	09/30/2025	09/30/2025
Sample Type		ISM	ISM	ISM	ISM	ISM	ISM	ISM	ISM	ISM	ISM	ISM	ISM
Start Depth (cm bml)		0	0	0	0	0	0	0	0	0	0	0	0
End Depth (cm bml)		10	10	10	10	10	10	10	10	10	10	10	10
	Cleanup Level[1]	**YEAR 0 (2015)**			**YEAR 2 (2017)**			**YEAR 5 (2020)**			**YEAR 10 (2025)**		
Dioxins and Furans (ng/kg)													
1,2,3,4,6,7,8-HpCDD	--	30.3	9.9	6.23	30.7 J	248 J	77.5 J	44.3	60.2	61.6	46.8	54.1	47.1
1,2,3,4,6,7,8-HpCDF	--	4.03	1.65	0.969 U	4.89 J	32 J	9.38 J	7.65	10.4	10.4	9.25	12.2	8.12
1,2,3,4,7,8,9-HpCDF	--	0.806 J	0.276 J	0.291 J	1.22 U	2.25 J	0.819 J	0.627 UJ	0.646 UJ	0.686 UJ	0.655 J	0.748 UJ	0.595 UJ
1,2,3,4,7,8-HxCDD	--	0.77 J	0.216 J	0.282 J	0.746 U	1.33 J	0.506 J	0.385 UJ	0.369 UJ	0.459 UJ	0.309 J	0.396 J	0.394 UJ
1,2,3,4,7,8-HxCDF	--	1.15	0.278 U	0.345 J	1.07 J	4.82 J	1.37 J	0.685 UJ	1.03 UJ	1.11 UJ	0.832 UJ	0.938 UJ	0.923 UJ
1,2,3,6,7,8-HxCDD	--	2.08	0.546 J	0.527 J	1.45 J	7.26 J	2.95 J	1.87 J	2.57 J	2.48 J	1.72 UJ	2.02 J	1.94 J
1,2,3,6,7,8-HxCDF	--	0.884 J	0.251 J	0.267 J	0.541 U	1.71 J	0.62 UJ	0.368 UJ	0.532 UJ	0.521 UJ	0.395 UJ	0.486 UJ	0.453 UJ
1,2,3,7,8,9-HxCDD	--	1.2	0.316 J	0.331 J	0.676 U	2.33 J	0.899 UJ	0.762 UJ	0.868 UJ	1.01 UJ	0.495 UJ	0.692 UJ	0.689 J
1,2,3,7,8,9-HxCDF	--	0.675 J	0.238 UJ	0.233 J	0.963 U	1.33 J	0.53 U	0.392 UJ	0.55 UJ	0.509 UJ	0.379 J	0.352 J	0.362 J
1,2,3,7,8-PeCDD	--	0.607 J	0.281 U	0.208 J	0.284 U	0.404 J	0.244 U	0.275 UJ	0.145 U	0.287 UJ	0.22 J	0.24 U	0.195 U
1,2,3,7,8-PeCDF	--	0.666 J	0.229 U	0.255 J	0.42 U	0.428 UJ	0.425 J	0.281 J	0.32 J	0.303 J	0.22 U	0.298 J	0.206 U
2,3,4,6,7,8-HxCDF	--	0.76 J	0.21 UJ	0.2 J	0.586 U	1.95 J	0.759 UJ	0.54 UJ	0.572 UJ	0.661 UJ	0.505 UJ	0.846 UJ	0.535 J
2,3,4,7,8-PeCDF	--	0.585 J	0.222 U	0.241 J	0.414 UJ	2.04 J	0.672 UJ	0.381 UJ	0.497 UJ	0.491 UJ	0.341 J	0.382 J	0.449 UJ
2,3,7,8-TCDD	--	0.218 J	0.117 U	0.166 U	0.523 U	0.566 U	0.33 U	0.102 U	0.095 U	0.0833 U	0.228 U	0.224 U	0.238 U
2,3,7,8-TCDF	--	0.216 J	0.169 U	0.143 U	0.502 U	0.532 U	0.365 U	0.232 UJ	0.298 UJ	0.285 UJ	0.321 U	0.274 UJ	0.272 U
OCDD	--	264	76	53.1	298 J	2,570 J	864 J	370	467	484	404	445	417
OCDF	--	7.36	2.11	1.81 J	8.34 J	52.9 J	27.1 J	16.2	18.3	15.8	17.6	20.9	14.5
Total HpCDDs	--	54.3	18.1	11.9	61.9 J	466 J	150 J	87.5	107	117	86.6	99.3	90.3
Total HpCDFs	--	11.3	4.48	1.84	15 J	105 J	30.5 J	25.3 J	35.5 J	32.5 J	30.4 J	35.4 J	26.1 J
Total HxCDDs	--	7.75	2.29	2.05	5.85	62.6 U	17 U	10.1 J	11.1 J	14.6 J	8.4 J	13.2 J	10.1 J
Total HxCDFs	--	9.57	2.54	2.44	9.93 U	75	18.9 U	12.1 J	18.7 J	18.2 J	13.6 J	18.2 J	13.6 J
Total PeCDDs	--	0.607 J	0.281 U	0.208 J	0.284 U	14.7 U	2.07 UJ	0.733 J	0.874 J	2.07 UJ	0.543 J	1.56 J	0.635 UJ
Total PeCDFs	--	1.74	0.225 U	0.668 J	2.65 UJ	28.9 U	6.38 U	3.67 J	4.29 J	5.27 J	2.73 UJ	4.95	3.09 UJ
Total TCDDs	--	0.218	0.117 U	0.166 U	0.523 U	9.24	0.33 U	0.102 U	0.095 U	0.103 J	0.228 U	0.224 U	0.238 U
Total TCDFs	--	0.216	0.169 U	0.143 U	0.502 U	17 U	0.365 U	1.09 UJ	0.738 UJ	1 UJ	0.321 UJ	1 UJ	0.567 J
Dioxin/furan TEQ [(a)(2)(3)]	5	2.23	0.555	0.683	1.38	7.01	2.19	1.25	1.53	1.62	1.42	1.6	1.43
Average TEQ[(b)]		**1.16**			**3.53**			**1.47**			**1.48**		
Conventionals (%)													
Total organic carbon	--	1.2	0.74	0.66	3.8	6.2	4.9	0.58	0.44	0.40	0.7	0.59	0.63
Average total organic carbon	--	**0.87**			**4.97**			**0.47**			**0.64**		

Table 4-1
Sediment Sample Results
Former PWT Site
Ridgefield, Washington

Notes

Gray shading indicates TEQs that exceed the cleanup level.

Average results are in **bold** font.

cm bml = centimeters below mudline.

DU = decision unit.

ISM = incremental sampling methodology.

J = result is estimated.

ng/kg = nanograms per kilogram.

PWT = Pacific Wood Treating Co.

TEQ = toxicity equivalent.

U = result is non-detect at the detection limit.

UJ = result is non-detect with an estimated detection limit.

[a]Dioxin/furan TEQ calculated as the sum of each congener concentration multiplied by the corresponding mammalian toxic equivalent factor. Non-detect values are multiplied by one-half.

[b]The average of all three ISM TEQ results for the sampling year.

References

[1]MFA. 2015. *Lake River Sediment Monitoring Sampling and Analysis Plan. Former Pacific Wood Treating Co. Site.* Prepared for Port of Ridgefield. Maul Foster Alongi. April 9.

[2]Ecology. 2007. *Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures Using Toxicity Equivalency Factors. Supporting Material for CLARC* . Washington State Department of Ecology.

[3]Van den Berg, M. et al. 2006. "The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds." Toxicological Sciences, 93(2): 223–241. [doi:10.1093/toxsci/kfl055]

Appendix A

Analytical Reports

MAUL FOSTER ALONGI

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Wednesday, October 29, 2025

Meaghan Pollock
Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

RE: A5J1074 - Lake River-Sediment - M9003.01.056

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A5J1074, which was received by the laboratory on 10/2/2025 at 10:41:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information
Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.
(See Cooler Receipt Form for details)
Default Cooler 3.5 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: Lake River-Sediment	
3140 NE Broadway Street	Project Number: M9003.01.056	Report ID:
Portland, OR 97232	Project Manager: Meaghan Pollock	A5J1074 - 10 29 25 1209

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ISM-A-20250930	A5J1074-01	Sediment	09/30/25 10:00	10/02/25 10:41
ISM-A-20250930	A5J1074-02	Sediment	09/30/25 10:00	10/02/25 10:41
ISM-B-20250930	A5J1074-03	Sediment	09/30/25 10:00	10/02/25 10:41
ISM-B-20250930	A5J1074-04	Sediment	09/30/25 10:00	10/02/25 10:41
ISM-C-20250930	A5J1074-05	Sediment	09/30/25 10:00	10/02/25 10:41
ISM-C-20250930	A5J1074-06	Sediment	09/30/25 10:00	10/02/25 10:41
RB-20251001	A5J1074-07	Water	10/01/25 16:00	10/02/25 10:41

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Philip Nerenberg, Lab Director

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

ANALYTICAL SAMPLE RESULTS

Demand Parameters

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-A-20250930 (A5J1074-02RE1)				**Matrix: Sediment**				
Batch: 25J0635								
Total Organic Carbon	**7000**	---	200	mg/kg dry	1	10/17/25 11:44	PSEP_SM 5310B MOD	**PRO**
ISM-B-20250930 (A5J1074-04RE1)				**Matrix: Sediment**				
Batch: 25J0635								
Total Organic Carbon	**5900**	---	200	mg/kg dry	1	10/17/25 12:16	PSEP_SM 5310B MOD	**PRO**
ISM-C-20250930 (A5J1074-06RE1)				**Matrix: Sediment**				
Batch: 25J0635								
Total Organic Carbon	**6300**	---	200	mg/kg dry	1	10/17/25 12:27	PSEP_SM 5310B MOD	**PRO**

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
ISM-A-20250930 (A5J1074-02)				**Matrix: Sediment**		**Batch: 25J0437**		**PRO**
% Solids	**99.0**	---	1.00	%	1	10/14/25 08:38	EPA 8000D	
ISM-B-20250930 (A5J1074-04)				**Matrix: Sediment**		**Batch: 25J0437**		**PRO**
% Solids	**99.1**	---	1.00	%	1	10/14/25 08:38	EPA 8000D	
ISM-C-20250930 (A5J1074-06)				**Matrix: Sediment**		**Batch: 25J0437**		**PRO**
% Solids	**99.0**	---	1.00	%	1	10/14/25 08:38	EPA 8000D	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

QUALITY CONTROL (QC) SAMPLE RESULTS

Demand Parameters

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25J0635 - PSEP-5310B TOC							**Soil**					
Blank (25J0635-BLK1)			Prepared: 10/14/25 18:13		Analyzed: 10/17/25 11:22							
PSEP_SM 5310B MOD												
Total Organic Carbon	ND	---	200	mg/kg wet	1	---	---	---	---	---	---	
LCS (25J0635-BS1)			Prepared: 10/14/25 18:13		Analyzed: 10/17/25 11:33							
PSEP_SM 5310B MOD												
Total Organic Carbon	10000	---	200	mg/kg wet	1	10000	---	101	86-110%	---	---	
Duplicate (25J0635-DUP1)			Prepared: 10/14/25 18:13		Analyzed: 10/17/25 11:55							
QC Source Sample: ISM-A-20250930 (A5J1074-02RE1)												
PSEP_SM 5310B MOD												
Total Organic Carbon	**7000**	---	200	mg/kg dry	1	---	7000	---	---	0.2	30%	PRO
Duplicate (25J0635-DUP2)			Prepared: 10/14/25 18:13		Analyzed: 10/17/25 12:06							
QC Source Sample: ISM-A-20250930 (A5J1074-02RE1)												
PSEP_SM 5310B MOD												
Total Organic Carbon	**6600**	---	200	mg/kg dry	1	---	7000	---	---	7	30%	PRO

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Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25J0437 - Dry Weight Prep (EPA 8000D)							**Soil**					
Duplicate (25J0437-DUP1)			Prepared: 10/13/25 10:11		Analyzed: 10/14/25 08:38							**CONT**
QC Source Sample: Non-SDG (A5G0982-01)												
% Solids	**79.0**	---	1.00	%	1	---	79.2	---	---	0.2	10%	
Duplicate (25J0437-DUP2)			Prepared: 10/13/25 10:11		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1369-01)												
% Solids	**90.4**	---	1.00	%	1	---	90.4	---	---	0.04	10%	
Duplicate (25J0437-DUP3)			Prepared: 10/13/25 10:11		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1394-01)												
% Solids	**69.0**	---	1.00	%	1	---	69.4	---	---	0.6	10%	
Duplicate (25J0437-DUP4)			Prepared: 10/13/25 10:11		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1365-01)												
% Solids	**87.6**	---	1.00	%	1	---	88.9	---	---	1	10%	
Duplicate (25J0437-DUP5)			Prepared: 10/13/25 18:40		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1426-01)												
% Solids	**79.1**	---	1.00	%	1	---	79.0	---	---	0.09	10%	
Duplicate (25J0437-DUP6)			Prepared: 10/13/25 18:40		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1442-01)												
% Solids	**86.1**	---	1.00	%	1	---	88.4	---	---	3	10%	
Duplicate (25J0437-DUP7)			Prepared: 10/13/25 18:40		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1427-01)												
% Solids	**90.8**	---	1.00	%	1	---	90.8	---	---	0.02	10%	
Duplicate (25J0437-DUP8)			Prepared: 10/13/25 18:40		Analyzed: 10/14/25 08:38							
QC Source Sample: Non-SDG (A5J1429-01)												
% Solids	**82.6**	---	1.00	%	1	---	84.5	---	---	2	10%	

Apex Laboratories

Philip Nerenberg, Lab Director

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ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories

Philip Nerenberg, Lab Director

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3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

SAMPLE PREPARATION INFORMATION

Demand Parameters

Prep: PSEP-5310B TOC

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 25J0635							
A5J1074-02RE1	Sediment	PSEP_SM 5310B MOD	09/30/25 10:00	10/14/25 18:13			NA
A5J1074-04RE1	Sediment	PSEP_SM 5310B MOD	09/30/25 10:00	10/14/25 18:13			NA
A5J1074-06RE1	Sediment	PSEP_SM 5310B MOD	09/30/25 10:00	10/14/25 18:13			NA

Percent Dry Weight

Prep: Dry Weight Prep (EPA 8000D)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 25J0437							
A5J1074-02	Sediment	EPA 8000D	09/30/25 10:00	10/13/25 11:00	1g	1g	1.00
A5J1074-04	Sediment	EPA 8000D	09/30/25 10:00	10/13/25 11:00	1g	1g	1.00
A5J1074-06	Sediment	EPA 8000D	09/30/25 10:00	10/13/25 11:00	1g	1g	1.00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

CONT	The Sample Container provided for this analysis was not provided by Apex Laboratories, and has not been verified as part of the Apex Quality System.
PRO	Sample has undergone sample processing prior to extraction and analysis.

Apex Laboratories

Philip Nerenberg, Lab Director

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ANALYTICAL REPORT

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3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported

RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting and Detection Limits: Default Limits

Default Reporting and Detection Limits are based on 100% dry weight with the minimum dilution for the analysis. Reporting and Detection Limits are raised due to moisture content, additional dilutions required for analysis, matrix interferences and in other cases, as necessary.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a “dry weight” basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an “As Received” basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.
Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Philip Nerenberg, Lab Director

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Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

Decanted Samples:

Soils/Sediments:
Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:
Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)
Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight corretion as for normal analyses. In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

Apex Laboratories

Philip Nerenberg, Lab Director

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Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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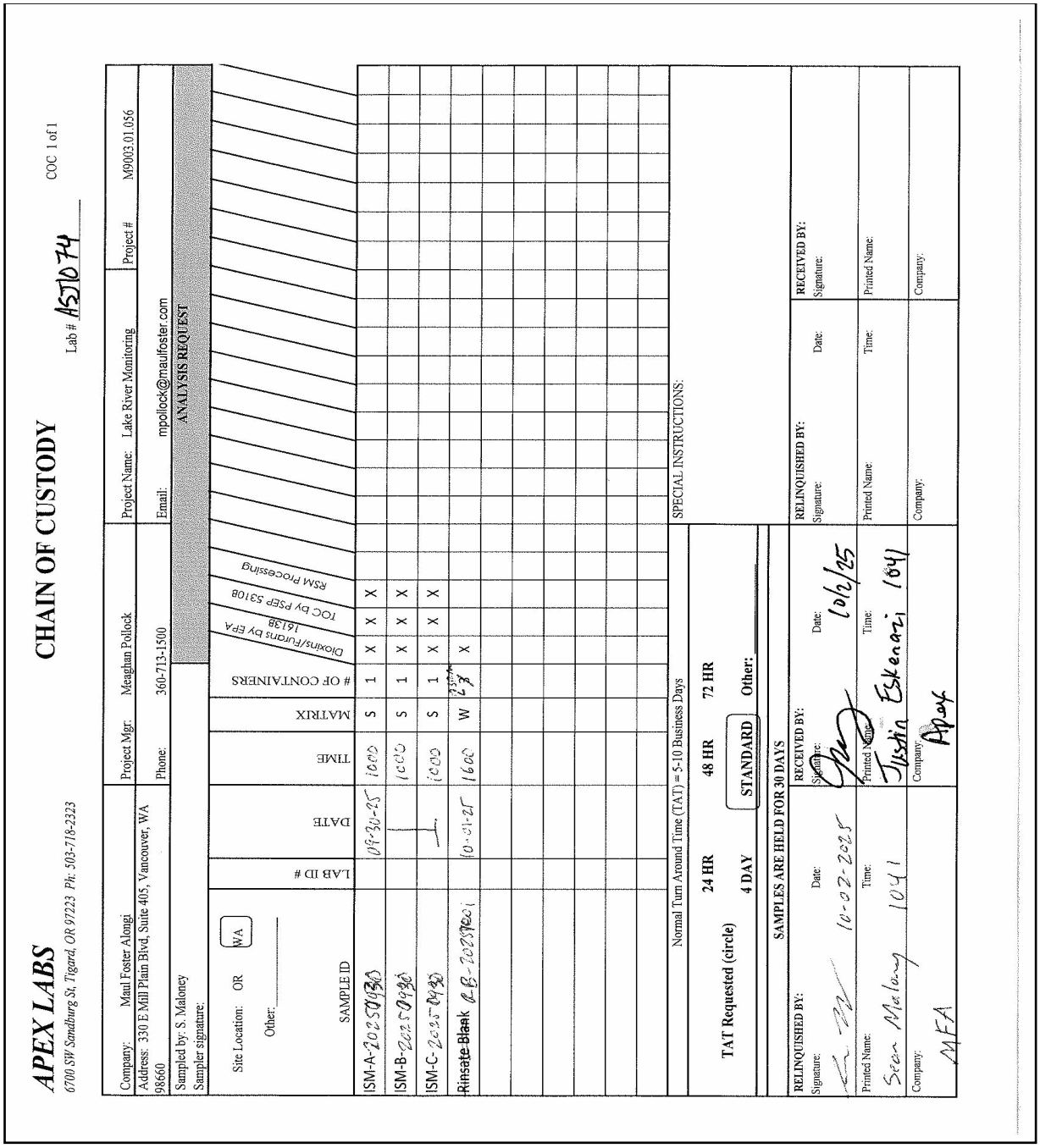
Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: **Lake River-Sediment**	
3140 NE Broadway Street	Project Number: **M9003.01.056**	**Report ID:**
Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**



APEX LABS
6700 SW Sandburg St, Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

COC 1 of 1

Lab # A5J1074

Company: Maul Foster Alongi
Address: 330 E Mill Plain Blvd, Suite 405, Vancouver, WA 98660
Phone: 360-713-1500
Project Mgr: Meaghan Pollock
Email: mpollock@maulfoster.com
Project Name: Lake River Monitoring
Project #: M9003.01.056
Sampled by: S. Maloney
Sampler signature:
Site Location: OR WA
Other:

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Dioxins/furans by EPA 1613B	TOC by PSEP 5310B	RSM Processing
ISM-A-20250930		09-30-25	1600	S	1	X	X	X
ISM-B-20250930			1600	S	1	X	X	X
ISM-C-20250930			1600	S	1	X	X	X
Rinsate Blank EB-20250930		10-01-25	1600	W	2 3	X		

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 5-10 Business Days

TAT Requested (circle): 24 HR 48 HR 72 HR 4 DAY STANDARD Other:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Date: 10-02-2025 Time: 1041 Printed Name: Sean Maloney Company: MFA

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

RELINQUISHED BY: Signature: Date: 10/2/25 Time: 1641 Printed Name: Justin Estenazi Company: Apex

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Portland, OR 97232	Project Manager: **Meaghan Pollock**	**A5J1074 - 10 29 25 1209**

APEX LABS COOLER RECEIPT FORM

Client: Maul Foster Alongi Element WO#: A5J1074

Project/Project #: Lake River Monitoring / M9003.01.056

Delivery Info:

Date/time received: 10/2/25 @ 1041 By: JPE

Delivered by: Apex✓ Client__ ESS___ FedEx__ UPS__ Radio___ Morgan ___ SDS___ Evergreen___ Other ___

From USDA Regulated Origin? Yes _____ No ✓

Cooler Inspection Date/time inspected: 10/2/25 @ 1401 By: JPE

Chain of Custody included? Yes ✓ No _____

Signed/dated by client? Yes ✓ No _____

Contains USDA Reg. Soils? Yes _____ No ✓ Unsure (email RegSoils) _____

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	3.5						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	REAL						
Condition (In/Out):	IN						

Cooler out of temp? (Y/N) Possible reason why: _____

Green dots applied to out of temperature samples? Yes/No

Out of temperature samples form initiated? Yes/No

Sample Inspection: Date/time inspected: 10/2/25 @ 15:35 By: KAM

All samples intact? Yes ✓ No ___ Comments: _____

Bottle labels/COCs agree? Yes ✓ No ___ Comments: _____

COC/container discrepancies form initiated? Yes ___ No ✓

Containers/volumes received appropriate for analysis? Yes ✓ No ___ Comments: 1 Gallon Jars have about 2 inches of Water on Top KAM 10/2/25

Do VOA vials have visible headspace? Yes ___ No ___ NA ✓

Comments _____

Water samples: pH checked: Yes___ No___ NA ✓ pH appropriate? Yes___ No___ NA ✓ pH ID: _____

Comments: _____

Labeled by: KAM Witness: KAM Cooler Inspected by: KAM

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

October 24, 2025

Mr. Philip Nerenberg
Apex Laboratories
6700 SW Sandburg Street
Tigard, Oregon 97223

Re: IDIQ DXN & PCB
Work Order: 24509
SDG: A5J1074

Dear Mr. Nerenberg:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 08, 2025. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Enclosures

SUBCONTRACT ORDER

Apex Laboratories

A5J1074

DUE 10/15/25

CFA WO # 24509

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:

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd Suite 120
Wilmington, NC 28405
Phone :(910) 795-0421
Fax: -

A5J1074-01

Sample Name: ISM-A-20250930 **Sediment** **Sampled: 09/30/25 10:00** (A5J1074-02)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	10/15/25 17:00	09/30/26 10:00	
Containers Supplied:			
(B)4 oz Glass Jar			

A5J1074-03

Sample Name: ISM-B-20250930 **Sediment** **Sampled: 09/30/25 10:00** (A5J1074-04)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	10/15/25 17:00	09/30/26 10:00	
Containers Supplied:			
(B)4 oz Glass Jar			

A5J1074-05

Sample Name: ISM-C-20250930 **Sediment** **Sampled: 09/30/25 10:00** (A5J1074-06)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	10/15/25 17:00	09/30/26 10:00	
Containers Supplied:			
(B)4 oz Glass Jar			

Sample Name: RB-20251001 **Water** **Sampled: 10/01/25 16:00** (A5J1074-07)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	10/15/25 17:00	10/01/26 16:00	
Containers Supplied:			
(A)1 L Amber Glass - Non Preserved			
(B)1 L Amber Glass - Non Preserved			

STANDARD TAT

Released By	Date	Received By	Date
	10/6/25	Fed Ex (Shipper)	
Fed Ex (Shipper)		Cynde Jarkins	08OCT25 @ 1005
Released By	Date	Received By	Date

temp. = 4.2°C @ CFA

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client:	AP EX	Work Order:	24509
Shipping Company:	FedEx	Date/Time Received:	08OCT25 1005

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

IR Gun used:
- ☒ 34290478WS
- ☐ 58892402MV

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

Air Sample Receipt Specifics	Yes	NA	No
Air sample in shipment?			✓

Air Witness: _____

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Custody seal/s present on cooler?			✓	Seal intact? Yes No
3	Chain of Custody documents included with shipment?	✓			
4	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: ice bags loose ice blue ice dry ice none other (describe) Temperature Blank present: (Yes) No 4.3° - 0.1 = 4.2° C
5	Aqueous samples found to have visible solids?			✓	Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: pH = 6 If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?	✓			Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: 3-4oz. clear glass soil jars, 1 per sample and 2-1L NMAG bottles
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: CJ Date: 08OCT25

CF-UD-F-7

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Apex Laboratories (APEX)
SDG A5J1074
Work Order 24509

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Liquids, Dioxins/Furans by EPA Method 1613B in Solids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3540C, SW846 3520C
Analytical Batch Number:	63303, 63401
Clean Up Batch Number:	63298, 63400
Extraction Batch Number:	63399, 63297

Sample Analysis

Samples were received within temperature requirements at 4.2 °C.
(24509001,24509002,24509003,24509004).
The following samples were analyzed using the analytical protocol as established in EPA Method 1613B:

Sample ID	Client ID
12040840	Method Blank (MB)
12040841	Laboratory Control Sample (LCS)
12040842	Laboratory Control Sample Duplicate (LCSD)
12040879	Method Blank (MB)
12040880	Laboratory Control Sample (LCS)
12040881	Laboratory Control Sample Duplicate (LCSD)
24509001	ISM-A-20250930
24509002	ISM-B-20250930
24509003	ISM-C-20250930
24509004	RB-20251001

Samples 24509 001, 002 and 003 in this SDG were analyzed on a "dry weight" basis. Sample 24509 004 in this SDG was analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 22 and CF-OA-E-020 REV# 8.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CVS) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2009 TNI Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
A sample of similar matrix, not associated with this SDG, was selected for analysis as the matrix spike and matrix spike duplicate.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Manual Integrations
Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

Sample Preparation
No difficulties were encountered during sample preparation.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP763_1	Primary Dioxin Analysis	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um

Sample Data Summary

Cape Fear Analytical, LLC
3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Qualifier Definition Report
for

APEX001 Apex Laboratories

Client SDG: A5J1074 CFA Work Order: 24509

The Qualifiers in this report are defined as follows:

U Analyte was analyzed for, but not detected above the specified detection limit.
J Value is estimated
B The target analyte was detected in the associated blank.
* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
K Estimated Maximum Possible Concentration

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature:  **Name: Erin Suhrie**

Date: 24 OCT 2025 **Title: Data Validator**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509001**	**Date Collected:**	**09/30/2025 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/08/2025 10:05**	**%Moisture:**	**1.2**
Client ID:	**ISM-A-20250930**			**Prep Basis:**	**Dry Weight**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 22:15**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-4**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10.1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.228	pg/g	0.228	1.00
40321-76-4	1,2,3,7,8-PeCDD	J	0.220	pg/g	0.204	5.01
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.309	pg/g	0.293	5.01
57653-85-7	1,2,3,6,7,8-HxCDD	JK	1.72	pg/g	0.283	5.01
19408-74-3	1,2,3,7,8,9-HxCDD	JK	0.495	pg/g	0.293	5.01
35822-46-9	1,2,3,4,6,7,8-HpCDD		46.8	pg/g	0.914	5.01
3268-87-9	1,2,3,4,6,7,8,9-OCDD		404	pg/g	1.25	10.0
51207-31-9	2,3,7,8-TCDF	U	0.321	pg/g	0.321	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	0.220	pg/g	0.220	5.01
57117-31-4	2,3,4,7,8-PeCDF	J	0.341	pg/g	0.202	5.01
70648-26-9	1,2,3,4,7,8-HxCDF	BJ	0.832	pg/g	0.202	5.01
57117-44-9	1,2,3,6,7,8-HxCDF	BJ	0.395	pg/g	0.180	5.01
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.505	pg/g	0.189	5.01
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.379	pg/g	0.250	5.01
67562-39-4	1,2,3,4,6,7,8-HpCDF		9.25	pg/g	0.279	5.01
55673-89-7	1,2,3,4,7,8,9-HpCDF	J	0.655	pg/g	0.371	5.01
39001-02-0	1,2,3,4,6,7,8,9-OCDF		17.6	pg/g	0.437	10.0
41903-57-5	Total TeCDD	U	0.228	pg/g	0.228	
36088-22-9	Total PeCDD	J	0.543	pg/g	0.204	
34465-46-8	Total HxCDD	JK	8.40	pg/g	0.283	
37871-00-4	Total HpCDD		86.6	pg/g	0.914	
30402-14-3	Total TeCDF	U	0.321	pg/g	0.321	
30402-15-4	Total PeCDF	BJK	2.73	pg/g	0.0513	
55684-94-1	Total HxCDF	JK	13.6	pg/g	0.180	
38998-75-3	Total HpCDF	J	30.4	pg/g	0.279	
TEQ_D/F_0_MA	TEQ WHO2005 ND=0 with EMPCs		1.48	pg/g		
TEQ_D/F.5_MA	TEQ WHO2005 ND=0.5 with EMPCs		1.61	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		160	200	pg/g	79.8	(25%-164%)
13C-1,2,3,7,8-PeCDD		152	200	pg/g	76.1	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		141	200	pg/g	70.3	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		141	200	pg/g	70.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		147	200	pg/g	73.5	(23%-140%)
13C-OCDD		238	401	pg/g	59.5	(17%-157%)
13C-2,3,7,8-TCDF		163	200	pg/g	81.5	(24%-169%)
13C-1,2,3,7,8-PeCDF		151	200	pg/g	75.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		159	200	pg/g	79.1	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		140	200	pg/g	69.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		150	200	pg/g	74.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		148	200	pg/g	74.1	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		150	200	pg/g	75.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509001**	**Date Collected:**	**09/30/2025 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/08/2025 10:05**	**%Moisture:**	**1.2**
Client ID:	**ISM-A-20250930**			**Prep Basis:**	**Dry Weight**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 22:15**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-4**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10.1 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		131	200	pg/g	65.5	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		142	200	pg/g	71.0	(26%-138%)
37Cl-2,3,7,8-TCDD		22.5	20.0	pg/g	112	(35%-197%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.
J Value is estimated
B The target analyte was detected in the associated blank.
K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509002**	**Date Collected:**	**09/30/2025 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/08/2025 10:05**	**%Moisture:**	**1.1**
Client ID:	**ISM-B-20250930**			**Prep Basis:**	**Dry Weight**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 23:04**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-5**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.224	pg/g	0.224	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.240	pg/g	0.240	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.396	pg/g	0.312	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	J	2.02	pg/g	0.304	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	JK	0.692	pg/g	0.314	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		54.1	pg/g	0.916	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		445	pg/g	1.62	10.0
51207-31-9	2,3,7,8-TCDF	JK	0.274	pg/g	0.266	1.00
57117-41-6	1,2,3,7,8-PeCDF	J	0.298	pg/g	0.194	5.00
57117-31-4	2,3,4,7,8-PeCDF	J	0.382	pg/g	0.175	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	BJ	0.938	pg/g	0.157	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	BJ	0.486	pg/g	0.147	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	JK	0.846	pg/g	0.159	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.352	pg/g	0.210	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		12.2	pg/g	0.352	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	JK	0.748	pg/g	0.398	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		20.9	pg/g	1.09	10.0
41903-57-5	Total TeCDD	U	0.224	pg/g	0.224	
36088-22-9	Total PeCDD	J	1.56	pg/g	0.240	
34465-46-8	Total HxCDD	JK	13.2	pg/g	0.304	
37871-00-4	Total HpCDD		99.3	pg/g	0.916	
30402-14-3	Total TeCDF	JK	1.00	pg/g	0.266	
30402-15-4	Total PeCDF	BJ	4.95	pg/g	0.0522	
55684-94-1	Total HxCDF	JK	18.2	pg/g	0.147	
38998-75-3	Total HpCDF	JK	35.4	pg/g	0.352	
TEQ_D/F_0_MA	TEQ WHO2005 ND=0 with EMPCs		1.53	pg/g		
TEQ_D/F.5_MA	TEQ WHO2005 ND=0.5 with EMPCs		1.77	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		161	200	pg/g	80.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		161	200	pg/g	80.3	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		143	200	pg/g	71.6	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		144	200	pg/g	71.8	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		156	200	pg/g	78.2	(23%-140%)
13C-OCDD		247	400	pg/g	61.7	(17%-157%)
13C-2,3,7,8-TCDF		170	200	pg/g	84.9	(24%-169%)
13C-1,2,3,7,8-PeCDF		160	200	pg/g	80.2	(24%-185%)
13C-2,3,4,7,8-PeCDF		170	200	pg/g	85.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		146	200	pg/g	72.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		161	200	pg/g	80.3	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		159	200	pg/g	79.7	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		158	200	pg/g	78.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509002**	**Date Collected:**	**09/30/2025 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/08/2025 10:05**	**%Moisture:**	**1.1**
Client ID:	**ISM-B-20250930**			**Prep Basis:**	**Dry Weight**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 23:04**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-5**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10.11 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		140	200	pg/g	70.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		153	200	pg/g	76.4	(26%-138%)
37Cl-2,3,7,8-TCDD		22.3	20.0	pg/g	111	(35%-197%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.
J Value is estimated
B The target analyte was detected in the associated blank.
K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509003**	**Date Collected:**	**09/30/2025 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/08/2025 10:05**	**%Moisture:**	**1.3**
Client ID:	**ISM-C-20250930**			**Prep Basis:**	**Dry Weight**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 23:53**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-6**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10.12 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.238	pg/g	0.238	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.195	pg/g	0.195	5.01
39227-28-6	1,2,3,4,7,8-HxCDD	JK	0.394	pg/g	0.280	5.01
57653-85-7	1,2,3,6,7,8-HxCDD	J	1.94	pg/g	0.250	5.01
19408-74-3	1,2,3,7,8,9-HxCDD	J	0.689	pg/g	0.270	5.01
35822-46-9	1,2,3,4,6,7,8-HpCDD		47.1	pg/g	0.965	5.01
3268-87-9	1,2,3,4,6,7,8,9-OCDD		417	pg/g	1.58	10.0
51207-31-9	2,3,7,8-TCDF	U	0.272	pg/g	0.272	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	0.206	pg/g	0.206	5.01
57117-31-4	2,3,4,7,8-PeCDF	JK	0.449	pg/g	0.188	5.01
70648-26-9	1,2,3,4,7,8-HxCDF	BJ	0.923	pg/g	0.148	5.01
57117-44-9	1,2,3,6,7,8-HxCDF	BJ	0.453	pg/g	0.154	5.01
60851-34-5	2,3,4,6,7,8-HxCDF	J	0.535	pg/g	0.152	5.01
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.362	pg/g	0.190	5.01
67562-39-4	1,2,3,4,6,7,8-HpCDF		8.12	pg/g	0.284	5.01
55673-89-7	1,2,3,4,7,8,9-HpCDF	JK	0.595	pg/g	0.388	5.01
39001-02-0	1,2,3,4,6,7,8,9-OCDF		14.5	pg/g	0.435	10.0
41903-57-5	Total TeCDD	U	0.238	pg/g	0.238	
36088-22-9	Total PeCDD	JK	0.635	pg/g	0.195	
34465-46-8	Total HxCDD	JK	10.1	pg/g	0.250	
37871-00-4	Total HpCDD		90.3	pg/g	0.965	
30402-14-3	Total TeCDF	J	0.567	pg/g	0.272	
30402-15-4	Total PeCDF	BJK	3.09	pg/g	0.0509	
55684-94-1	Total HxCDF	JK	13.6	pg/g	0.148	
38998-75-3	Total HpCDF	JK	26.1	pg/g	0.284	
TEQ_D/F_0_MA	TEQ WHO2005 ND=0 with EMPCs		1.35	pg/g		
TEQ_D/F.5_MA	TEQ WHO2005 ND=0.5 with EMPCs		1.58	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		159	200	pg/g	79.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		150	200	pg/g	74.9	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		139	200	pg/g	69.5	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		146	200	pg/g	73.0	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		151	200	pg/g	75.5	(23%-140%)
13C-OCDD		245	400	pg/g	61.2	(17%-157%)
13C-2,3,7,8-TCDF		164	200	pg/g	82.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		148	200	pg/g	74.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		158	200	pg/g	78.9	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		143	200	pg/g	71.2	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		152	200	pg/g	76.0	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		154	200	pg/g	76.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		150	200	pg/g	75.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509003**	**Date Collected:**	**09/30/2025 10:00**	**Matrix:**	**SOIL**
Client Sample:	**1613B Soil**	**Date Received:**	**10/08/2025 10:05**	**%Moisture:**	**1.3**
Client ID:	**ISM-C-20250930**			**Prep Basis:**	**Dry Weight**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 23:53**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-6**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10.12 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		136	200	pg/g	68.1	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		146	200	pg/g	72.8	(26%-138%)
37Cl-2,3,7,8-TCDD		22.0	20.0	pg/g	110	(35%-197%)

Comments:

U **Analyte was analyzed for, but not detected above the specified detection limit.**
J **Value is estimated**
B **The target analyte was detected in the associated blank.**
K **Estimated Maximum Possible Concentration**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509004**	**Date Collected:**	**10/01/2025 16:00**	**Matrix:**	**WATER**
Client Sample:	**1613B Water**	**Date Received:**	**10/08/2025 10:05**		
Client ID:	**RB-20251001**			**Prep Basis:**	**As Received**
Batch ID:	**63303**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2025 13:10**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_3-9**			**Dilution:**	**1**
Prep Batch:	**63297**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**09-OCT-25**	**Prep Aliquot:**	**920.6 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	2.09	pg/L	2.09	10.9
40321-76-4	1,2,3,7,8-PeCDD	U	1.11	pg/L	1.11	54.3
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.11	pg/L	1.11	54.3
57653-85-7	1,2,3,6,7,8-HxCDD	U	1.05	pg/L	1.05	54.3
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.10	pg/L	1.10	54.3
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	1.30	pg/L	1.30	54.3
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	2.11	pg/L	2.11	109
51207-31-9	2,3,7,8-TCDF	U	2.65	pg/L	2.65	10.9
57117-41-6	1,2,3,7,8-PeCDF	U	0.856	pg/L	0.856	54.3
57117-31-4	2,3,4,7,8-PeCDF	U	0.719	pg/L	0.719	54.3
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.717	pg/L	0.717	54.3
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.710	pg/L	0.710	54.3
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.776	pg/L	0.776	54.3
72918-21-9	1,2,3,7,8,9-HxCDF	U	1.02	pg/L	1.02	54.3
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	0.819	pg/L	0.819	54.3
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.03	pg/L	1.03	54.3
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	2.35	pg/L	2.35	109
41903-57-5	Total TeCDD	U	2.09	pg/L	2.09	
36088-22-9	Total PeCDD	U	1.11	pg/L	1.11	
34465-46-8	Total HxCDD	U	1.05	pg/L	1.05	
37871-00-4	Total HpCDD	U	1.30	pg/L	1.30	
30402-14-3	Total TeCDF	U	2.65	pg/L	2.65	
30402-15-4	Total PeCDF	U	0.719	pg/L	0.719	
55684-94-1	Total HxCDF	U	0.710	pg/L	0.710	
38998-75-3	Total HpCDF	U	0.819	pg/L	0.819	
TEQ_D/F_0_MA	TEQ WHO2005 ND=0 with EMPCs		0.000	pg/L		
TEQ_D/F.5_MA	TEQ WHO2005 ND=0.5 with EMPCs		2.20	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1490	2170	pg/L	68.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		1360	2170	pg/L	62.5	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1530	2170	pg/L	70.4	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1430	2170	pg/L	65.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1540	2170	pg/L	70.8	(23%-140%)
13C-OCDD		2620	4340	pg/L	60.4	(17%-157%)
13C-2,3,7,8-TCDF		1410	2170	pg/L	65.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		1290	2170	pg/L	59.5	(24%-185%)
13C-2,3,4,7,8-PeCDF		1420	2170	pg/L	65.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1490	2170	pg/L	68.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1520	2170	pg/L	69.9	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1480	2170	pg/L	68.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1410	2170	pg/L	64.8	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**24509004**	**Date Collected:**	**10/01/2025 16:00**	**Matrix:**	**WATER**
Client Sample:	**1613B Water**	**Date Received:**	**10/08/2025 10:05**		
Client ID:	**RB-20251001**			**Prep Basis:**	**As Received**
Batch ID:	**63303**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2025 13:10**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_3-9**			**Dilution:**	**1**
Prep Batch:	**63297**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**09-OCT-25**	**Prep Aliquot:**	**920.6 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1300	2170	pg/L	59.8	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1440	2170	pg/L	66.2	(26%-138%)
37Cl-2,3,7,8-TCDD		238	217	pg/L	110	(35%-197%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A5J1074

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12040841	LCS for batch 63297	13C-2,3,7,8-TCDD		69.2	(20%-175%)
		13C-1,2,3,7,8-PeCDD		61.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		66.1	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		68.0	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		67.7	(22%-166%)
		13C-OCDD		60.8	(13%-199%)
		13C-2,3,7,8-TCDF		63.6	(22%-152%)
		13C-1,2,3,7,8-PeCDF		56.4	(21%-192%)
		13C-2,3,4,7,8-PeCDF		60.8	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		64.6	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		66.6	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		64.6	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		63.5	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		56.3	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		61.2	(20%-186%)
		37Cl-2,3,7,8-TCDD		109	(31%-191%)
12040842	LCSD for batch 63297	13C-2,3,7,8-TCDD		64.5	(20%-175%)
		13C-1,2,3,7,8-PeCDD		58.1	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		65.4	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		62.3	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		63.9	(22%-166%)
		13C-OCDD		57.2	(13%-199%)
		13C-2,3,7,8-TCDF		59.1	(22%-152%)
		13C-1,2,3,7,8-PeCDF		52.6	(21%-192%)
		13C-2,3,4,7,8-PeCDF		56.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		60.8	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		63.8	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		63.1	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		60.6	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		53.3	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		57.6	(20%-186%)
		37Cl-2,3,7,8-TCDD		108	(31%-191%)
12040840	MB for batch 63297	13C-2,3,7,8-TCDD		63.7	(25%-164%)
		13C-1,2,3,7,8-PeCDD		57.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		64.1	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		62.2	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		62.8	(23%-140%)
		13C-OCDD		54.7	(17%-157%)
		13C-2,3,7,8-TCDF		58.3	(24%-169%)
		13C-1,2,3,7,8-PeCDF		52.6	(24%-185%)
		13C-2,3,4,7,8-PeCDF		56.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		59.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		62.2	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		60.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		60.6	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		52.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		55.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		109	(35%-197%)
24509004	RB-20251001	13C-2,3,7,8-TCDD		68.6	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A5J1074

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
24509004	RB-20251001	13C-1,2,3,7,8-PeCDD		62.5	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.4	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		65.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		70.8	(23%-140%)
		13C-OCDD		60.4	(17%-157%)
		13C-2,3,7,8-TCDF		65.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		59.5	(24%-185%)
		13C-2,3,4,7,8-PeCDF		65.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		68.6	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		69.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		68.2	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		64.8	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		59.8	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		66.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		110	(35%-197%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A5J1074

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12040880	LCS for batch 63399	13C-2,3,7,8-TCDD		82.6	(20%-175%)
		13C-1,2,3,7,8-PeCDD		74.8	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		71.2	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		74.7	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		76.3	(22%-166%)
		13C-OCDD		63.2	(13%-199%)
		13C-2,3,7,8-TCDF		86.3	(22%-152%)
		13C-1,2,3,7,8-PeCDF		76.8	(21%-192%)
		13C-2,3,4,7,8-PeCDF		78.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		71.7	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		80.3	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		77.2	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		77.9	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		70.5	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		75.4	(20%-186%)
		37Cl-2,3,7,8-TCDD		112	(31%-191%)
12040881	LCSD for batch 63399	13C-2,3,7,8-TCDD		81.3	(20%-175%)
		13C-1,2,3,7,8-PeCDD		76.7	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		72.7	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		73.4	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		76.2	(22%-166%)
		13C-OCDD		62.1	(13%-199%)
		13C-2,3,7,8-TCDF		82.0	(22%-152%)
		13C-1,2,3,7,8-PeCDF		77.3	(21%-192%)
		13C-2,3,4,7,8-PeCDF		80.0	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		72.4	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		80.2	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		78.5	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		78.3	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		69.1	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		74.2	(20%-186%)
		37Cl-2,3,7,8-TCDD		117	(31%-191%)
12040879	MB for batch 63399	13C-2,3,7,8-TCDD		81.3	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		67.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		75.6	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.7	(23%-140%)
		13C-OCDD		61.5	(17%-157%)
		13C-2,3,7,8-TCDF		83.4	(24%-169%)
		13C-1,2,3,7,8-PeCDF		74.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		78.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.0	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		76.7	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		78.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		76.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		68.9	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		73.6	(26%-138%)
		37Cl-2,3,7,8-TCDD		112	(35%-197%)
24509001	ISM-A-20250930	13C-2,3,7,8-TCDD		79.8	(25%-164%)

Surrogate Recovery Report

SDG Number: A5J1074

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
24509001	ISM-A-20250930	13C-1,2,3,7,8-PeCDD		76.1	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		70.3	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		73.5	(23%-140%)
		13C-OCDD		59.5	(17%-157%)
		13C-2,3,7,8-TCDF		81.5	(24%-169%)
		13C-1,2,3,7,8-PeCDF		75.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		79.1	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		69.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		74.9	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		74.1	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		65.5	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.0	(26%-138%)
		37Cl-2,3,7,8-TCDD		112	(35%-197%)
24509002	ISM-B-20250930	13C-2,3,7,8-TCDD		80.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		80.3	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		71.6	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		71.8	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		78.2	(23%-140%)
		13C-OCDD		61.7	(17%-157%)
		13C-2,3,7,8-TCDF		84.9	(24%-169%)
		13C-1,2,3,7,8-PeCDF		80.2	(24%-185%)
		13C-2,3,4,7,8-PeCDF		85.2	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		72.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		80.3	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		79.7	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		78.9	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		76.4	(26%-138%)
		37Cl-2,3,7,8-TCDD		111	(35%-197%)
24509003	ISM-C-20250930	13C-2,3,7,8-TCDD		79.6	(25%-164%)
		13C-1,2,3,7,8-PeCDD		74.9	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.5	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		73.0	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		75.5	(23%-140%)
		13C-OCDD		61.2	(17%-157%)
		13C-2,3,7,8-TCDF		82.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		74.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		78.9	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		71.2	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		76.0	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		76.9	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		68.1	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		72.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		110	(35%-197%)

* Recovery outside Acceptance Limits

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A5J1074

Matrix Type: SOLID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A5J1074 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 63297 **Matrix:** WATER

Lab Sample ID: 12040841

Instrument: HRP763 **Analysis Date:** 10/14/2025 06:39 **Dilution:** 1

Analyst: MW3 **Prep Batch ID:** 63297

Batch ID: 63303

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	200	182	90.9	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	1000	942	94.2	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	1000	972	97.2	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	1000	956	95.6	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	1000	983	98.3	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	1000	919	91.9	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	2000	2000	99.8	78-144
51207-31-9	LCS	2,3,7,8-TCDF	200	179	89.5	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	1000	859	85.9	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	1000	889	88.9	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	1000	960	96	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	1000	942	94.2	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	1000	965	96.5	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	1000	904	90.4	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	1000	991	99.1	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	1000	1090	109	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	2000	1930	96.4	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A5J1074 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 63297 **Matrix:** WATER

Lab Sample ID: 12040842

Instrument: HRP763 **Analysis Date:** 10/14/2025 07:27 **Dilution:** 1

Analyst: MW3 **Prep Batch ID:** 63297

Batch ID: 63303

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	200	188	93.8	67-158	3.23	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	1000	949	94.9	70-142	0.641	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	1000	1030	103	70-164	5.95	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	1000	964	96.4	76-134	0.871	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	1000	1070	107	64-162	8.04	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	1000	948	94.8	70-140	3.15	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	2000	1990	99.6	78-144	0.128	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	200	181	90.5	75-158	1.10	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	1000	861	86.1	80-134	0.188	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	1000	918	91.8	68-160	3.21	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	1000	944	94.4	72-134	1.64	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	1000	974	97.4	84-130	3.33	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	1000	980	98	70-156	1.57	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	1000	919	91.9	78-130	1.59	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	1000	999	99.9	82-122	0.788	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	1000	1080	108	78-138	0.637	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	2000	1890	94.4	63-170	2.04	0-20

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A5J1074 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 63399 **Matrix:** SOIL

Lab Sample ID: 12040880

Instrument: HRP763 **Analysis Date:** 10/15/2025 19:49 **Dilution:** 1

Analyst: MW3 **Prep Batch ID:** 63399

Batch ID: 63401

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	20.0	19.6	97.9	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	100	101	101	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	100	105	105	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	100	102	102	76-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	100	112	112	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	100	99.4	99.4	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	200	220	110	78-144
51207-31-9	LCS	2,3,7,8-TCDF	20.0	20.7	103	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	100	92.6	92.6	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	100	93.2	93.2	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	100	108	108	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	100	104	104	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	100	109	109	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	100	108	108	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	100	108	108	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	100	104	104	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	200	206	103	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A5J1074 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 63399 **Matrix:** SOIL

Lab Sample ID: 12040881

Instrument: HRP763 **Analysis Date:** 10/15/2025 20:37 **Dilution:** 1

Analyst: MW3 **Prep Batch ID:** 63399

Batch ID: 63401

CAS No.		Parmname	Amount Added pg/g	Spike Conc. pg/g	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	20.0	20.1	101	67-158	2.81	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	100	103	103	70-142	1.45	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	100	106	106	70-164	0.697	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	100	102	102	76-134	0.501	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	100	113	113	64-162	0.633	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	100	102	102	70-140	2.26	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	200	213	106	78-144	3.17	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	20.0	20.5	102	75-158	0.952	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	100	94.3	94.3	80-134	1.83	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	100	92.1	92.1	68-160	1.11	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	100	108	108	72-134	0.0594	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	100	103	103	84-130	0.452	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	100	104	104	70-156	4.06	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	100	107	107	78-130	1.15	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	100	112	112	82-122	3.29	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	100	105	105	78-138	1.05	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	200	211	106	63-170	2.50	0-20

Method Blank Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 63297**	**Instrument ID:**	**HRP763**	**Data File:**	**b13oct25a_3-3**
Lab Sample ID:	**12040840**	**Prep Date:**	**09-OCT-25**	**Analyzed:**	**10/14/25 08:16**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 63297	12040841	b13oct25a_3-1	10/14/25	0639
02	LCSD for batch 63297	12040842	b13oct25a_3-2	10/14/25	0727
03	RB-20251001	24509004	b13oct25a_3-9	10/14/25	1310

Method Blank Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 63399**	**Instrument ID:**	**HRP763**	**Data File:**	**b13oct25a_7-3**
Lab Sample ID:	**12040879**	**Prep Date:**	**14-OCT-25**	**Analyzed:**	**10/15/25 21:26**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 63399	12040880	b13oct25a_7-1	10/15/25	1949
02	LCSD for batch 63399	12040881	b13oct25a_7-2	10/15/25	2037
03	ISM-A-20250930	24509001	b13oct25a_7-4	10/15/25	2215
04	ISM-B-20250930	24509002	b13oct25a_7-5	10/15/25	2304
05	ISM-C-20250930	24509003	b13oct25a_7-6	10/15/25	2353

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**12040840**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 63297**				
Client ID:	**MB for batch 63297**			**Prep Basis:**	**As Received**
Batch ID:	**63303**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2025 08:16**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_3-3**			**Dilution:**	**1**
Prep Batch:	**63297**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**09-OCT-25**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	2.12	pg/L	2.12	10.0
40321-76-4	1,2,3,7,8-PeCDD	U	1.32	pg/L	1.32	50.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.57	pg/L	1.57	50.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	1.52	pg/L	1.52	50.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.58	pg/L	1.58	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	1.90	pg/L	1.90	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	2.66	pg/L	2.46	100
51207-31-9	2,3,7,8-TCDF	U	2.52	pg/L	2.52	10.0
57117-41-6	1,2,3,7,8-PeCDF	JK	1.18	pg/L	0.936	50.0
57117-31-4	2,3,4,7,8-PeCDF	U	0.832	pg/L	0.832	50.0
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.876	pg/L	0.876	50.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.858	pg/L	0.858	50.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.902	pg/L	0.902	50.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	1.08	pg/L	1.08	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	1.22	pg/L	1.22	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.58	pg/L	1.58	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	2.88	pg/L	2.88	100
41903-57-5	Total TeCDD	U	2.12	pg/L	2.12	
36088-22-9	Total PeCDD	U	1.32	pg/L	1.32	
34465-46-8	Total HxCDD	U	1.52	pg/L	1.52	
37871-00-4	Total HpCDD	U	1.90	pg/L	1.90	
30402-14-3	Total TeCDF	U	2.52	pg/L	2.52	
30402-15-4	Total PeCDF	JK	1.18	pg/L	0.832	
55684-94-1	Total HxCDF	U	0.858	pg/L	0.858	
38998-75-3	Total HpCDF	U	1.22	pg/L	1.22	
TEQ_D/F_0_MA	TEQ WHO2005 ND=0 with EMPCs		0.0362	pg/L		
TEQ_D/F.5_MA	TEQ WHO2005 ND=0.5 with EMPCs		2.45	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1270	2000	pg/L	63.7	(25%-164%)
13C-1,2,3,7,8-PeCDD		1160	2000	pg/L	57.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1280	2000	pg/L	64.1	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1240	2000	pg/L	62.2	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1260	2000	pg/L	62.8	(23%-140%)
13C-OCDD		2190	4000	pg/L	54.7	(17%-157%)
13C-2,3,7,8-TCDF		1170	2000	pg/L	58.3	(24%-169%)
13C-1,2,3,7,8-PeCDF		1050	2000	pg/L	52.6	(24%-185%)
13C-2,3,4,7,8-PeCDF		1120	2000	pg/L	56.2	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1190	2000	pg/L	59.6	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1240	2000	pg/L	62.2	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1200	2000	pg/L	60.2	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1210	2000	pg/L	60.6	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**12040840**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 63297**				
Client ID:	**MB for batch 63297**			**Prep Basis:**	**As Received**
Batch ID:	**63303**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2025 08:16**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_3-3**			**Dilution:**	**1**
Prep Batch:	**63297**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**09-OCT-25**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1050	2000	pg/L	52.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1120	2000	pg/L	55.8	(26%-138%)
37Cl-2,3,7,8-TCDD		219	200	pg/L	109	(35%-197%)

Comments:

U **Analyte was analyzed for, but not detected above the specified detection limit.**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: A5J1074 **Client:** APEX001 **Project:** APEX00122
Lab Sample ID: 12040841 **Matrix:** WATER
Client Sample: QC for batch 63297
Client ID: LCS for batch 63297 **Prep Basis:** As Received
Batch ID: 63303 **Method:** EPA Method 1613B
Run Date: 10/14/2025 06:39 **Analyst:** MW3 **Instrument:** HRP763
Data File: b13oct25a_3-1 **Dilution:** 1
Prep Batch: 63297 **Prep Method:** SW846 3520C
Prep Date: 09-OCT-25 **Prep Aliquot:** 1000 mL

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		182	pg/L	2.40	10.0
40321-76-4	1,2,3,7,8-PeCDD		942	pg/L	2.72	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		972	pg/L	5.04	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		956	pg/L	4.64	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		983	pg/L	4.94	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		919	pg/L	6.44	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2000	pg/L	9.94	100
51207-31-9	2,3,7,8-TCDF		179	pg/L	2.88	10.0
57117-41-6	1,2,3,7,8-PeCDF		859	pg/L	4.52	50.0
57117-31-4	2,3,4,7,8-PeCDF		889	pg/L	4.20	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		960	pg/L	6.90	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		942	pg/L	6.34	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		965	pg/L	6.90	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		904	pg/L	8.08	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		991	pg/L	7.62	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1090	pg/L	9.16	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1930	pg/L	10.3	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1380	2000	pg/L	69.2	(20%-175%)
13C-1,2,3,7,8-PeCDD		1220	2000	pg/L	61.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1320	2000	pg/L	66.1	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1360	2000	pg/L	68.0	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1350	2000	pg/L	67.7	(22%-166%)
13C-OCDD		2430	4000	pg/L	60.8	(13%-199%)
13C-2,3,7,8-TCDF		1270	2000	pg/L	63.6	(22%-152%)
13C-1,2,3,7,8-PeCDF		1130	2000	pg/L	56.4	(21%-192%)
13C-2,3,4,7,8-PeCDF		1220	2000	pg/L	60.8	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1290	2000	pg/L	64.6	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1330	2000	pg/L	66.6	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1290	2000	pg/L	64.6	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1270	2000	pg/L	63.5	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1130	2000	pg/L	56.3	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1220	2000	pg/L	61.2	(20%-186%)
37Cl-2,3,7,8-TCDD		218	200	pg/L	109	(31%-191%)

Comments:
U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**12040842**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 63297**				
Client ID:	**LCSD for batch 63297**			**Prep Basis:**	**As Received**
Batch ID:	**63303**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2025 07:27**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_3-2**			**Dilution:**	**1**
Prep Batch:	**63297**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**09-OCT-25**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		188	pg/L	3.36	10.0
40321-76-4	1,2,3,7,8-PeCDD		949	pg/L	3.44	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1030	pg/L	5.14	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		964	pg/L	4.72	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1070	pg/L	5.02	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		948	pg/L	8.12	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1990	pg/L	9.70	100
51207-31-9	2,3,7,8-TCDF		181	pg/L	3.28	10.0
57117-41-6	1,2,3,7,8-PeCDF		861	pg/L	4.60	50.0
57117-31-4	2,3,4,7,8-PeCDF		918	pg/L	4.28	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		944	pg/L	5.20	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		974	pg/L	4.76	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		980	pg/L	5.20	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		919	pg/L	6.08	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		999	pg/L	8.14	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1080	pg/L	9.78	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1890	pg/L	9.26	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1290	2000	pg/L	64.5	(20%-175%)
13C-1,2,3,7,8-PeCDD		1160	2000	pg/L	58.1	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1310	2000	pg/L	65.4	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1250	2000	pg/L	62.3	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1280	2000	pg/L	63.9	(22%-166%)
13C-OCDD		2290	4000	pg/L	57.2	(13%-199%)
13C-2,3,7,8-TCDF		1180	2000	pg/L	59.1	(22%-152%)
13C-1,2,3,7,8-PeCDF		1050	2000	pg/L	52.6	(21%-192%)
13C-2,3,4,7,8-PeCDF		1130	2000	pg/L	56.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1220	2000	pg/L	60.8	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1280	2000	pg/L	63.8	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1260	2000	pg/L	63.1	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1210	2000	pg/L	60.6	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1070	2000	pg/L	53.3	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1150	2000	pg/L	57.6	(20%-186%)
37Cl-2,3,7,8-TCDD		216	200	pg/L	108	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: A5J1074 **Client:** APEX001 **Project:** APEX00122
Lab Sample ID: 12040879 **Matrix:** SOIL
Client Sample: QC for batch 63399
Client ID: MB for batch 63399 **Prep Basis:** As Received
Batch ID: 63401 **Method:** EPA Method 1613B
Run Date: 10/15/2025 21:26 **Analyst:** MW3 **Instrument:** HRP763
Data File: b13oct25a_7-3 **Dilution:** 1
Prep Batch: 63399 **Prep Method:** SW846 3540C
Prep Date: 14-OCT-25 **Prep Aliquot:** 10 g

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.244	pg/g	0.244	1.00
40321-76-4	1,2,3,7,8-PeCDD	U	0.131	pg/g	0.131	5.00
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.121	pg/g	0.121	5.00
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.119	pg/g	0.119	5.00
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.123	pg/g	0.123	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD	JK	0.300	pg/g	0.244	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	2.69	pg/g	0.490	10.0
51207-31-9	2,3,7,8-TCDF	U	0.278	pg/g	0.278	1.00
57117-41-6	1,2,3,7,8-PeCDF	U	0.148	pg/g	0.148	5.00
57117-31-4	2,3,4,7,8-PeCDF	U	0.138	pg/g	0.138	5.00
70648-26-9	1,2,3,4,7,8-HxCDF	JK	0.254	pg/g	0.108	5.00
57117-44-9	1,2,3,6,7,8-HxCDF	JK	0.164	pg/g	0.105	5.00
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.108	pg/g	0.108	5.00
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.143	pg/g	0.143	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF	JK	0.512	pg/g	0.210	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.278	pg/g	0.278	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	0.322	pg/g	0.322	10.0
41903-57-5	Total TeCDD	U	0.244	pg/g	0.244	
36088-22-9	Total PeCDD	U	0.131	pg/g	0.131	
34465-46-8	Total HxCDD	U	0.119	pg/g	0.119	
37871-00-4	Total HpCDD	JK	0.546	pg/g	0.244	
30402-14-3	Total TeCDF	U	0.278	pg/g	0.278	
30402-15-4	Total PeCDF	JK	0.606	pg/g	0.0562	
55684-94-1	Total HxCDF	JK	0.692	pg/g	0.105	
38998-75-3	Total HpCDF	JK	0.512	pg/g	0.210	
TEQ_D/F_0_MA	TEQ WHO2005 ND=0 with EMPCs		0.0507	pg/g		
TEQ_D/F.5_MA	TEQ WHO2005 ND=0.5 with EMPCs		0.307	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		163	200	pg/g	81.3	(25%-164%)
13C-1,2,3,7,8-PeCDD		150	200	pg/g	74.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		136	200	pg/g	67.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		151	200	pg/g	75.6	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		153	200	pg/g	76.7	(23%-140%)
13C-OCDD		246	400	pg/g	61.5	(17%-157%)
13C-2,3,7,8-TCDF		167	200	pg/g	83.4	(24%-169%)
13C-1,2,3,7,8-PeCDF		148	200	pg/g	74.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		157	200	pg/g	78.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		144	200	pg/g	72.0	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		153	200	pg/g	76.7	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		158	200	pg/g	78.9	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		154	200	pg/g	76.9	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A5J1074**	**Client:**	**APEX001**	**Project:**	**APEX00122**
Lab Sample ID:	**12040879**			**Matrix:**	**SOIL**
Client Sample:	**QC for batch 63399**				
Client ID:	**MB for batch 63399**			**Prep Basis:**	**As Received**
Batch ID:	**63401**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2025 21:26**	**Analyst:**	**MW3**	**Instrument:**	**HRP763**
Data File:	**b13oct25a_7-3**			**Dilution:**	**1**
Prep Batch:	**63399**	**Prep Method:**	**SW846 3540C**		
Prep Date:	**14-OCT-25**	**Prep Aliquot:**	**10 g**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		138	200	pg/g	68.9	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		147	200	pg/g	73.6	(26%-138%)
37Cl-2,3,7,8-TCDD		22.4	20.0	pg/g	112	(35%-197%)

Comments:

U **Analyte was analyzed for, but not detected above the specified detection limit.**
J **Value is estimated**
K **Estimated Maximum Possible Concentration**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: A5J1074 **Client:** APEX001 **Project:** APEX00122
Lab Sample ID: 12040880 **Matrix:** SOIL
Client Sample: QC for batch 63399
Client ID: LCS for batch 63399 **Prep Basis:** As Received
Batch ID: 63401 **Method:** EPA Method 1613B
Run Date: 10/15/2025 19:49 **Analyst:** MW3 **Instrument:** HRP763
Data File: b13oct25a_7-1 **Dilution:** 1
Prep Batch: 63399 **Prep Method:** SW846 3540C
Prep Date: 14-OCT-25 **Prep Aliquot:** 10 g

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		19.6	pg/g	0.310	1.00
40321-76-4	1,2,3,7,8-PeCDD		101	pg/g	0.332	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		105	pg/g	0.586	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		102	pg/g	0.532	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		112	pg/g	0.570	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		99.4	pg/g	0.808	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		220	pg/g	1.52	10.0
51207-31-9	2,3,7,8-TCDF		20.7	pg/g	0.386	1.00
57117-41-6	1,2,3,7,8-PeCDF		92.6	pg/g	0.594	5.00
57117-31-4	2,3,4,7,8-PeCDF		93.2	pg/g	0.538	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		108	pg/g	0.644	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		104	pg/g	0.570	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		109	pg/g	0.612	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		108	pg/g	0.802	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		108	pg/g	0.752	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		104	pg/g	0.962	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		206	pg/g	1.19	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		165	200	pg/g	82.6	(20%-175%)
13C-1,2,3,7,8-PeCDD		150	200	pg/g	74.8	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		142	200	pg/g	71.2	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		149	200	pg/g	74.7	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		153	200	pg/g	76.3	(22%-166%)
13C-OCDD		253	400	pg/g	63.2	(13%-199%)
13C-2,3,7,8-TCDF		173	200	pg/g	86.3	(22%-152%)
13C-1,2,3,7,8-PeCDF		154	200	pg/g	76.8	(21%-192%)
13C-2,3,4,7,8-PeCDF		157	200	pg/g	78.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		143	200	pg/g	71.7	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		161	200	pg/g	80.3	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		154	200	pg/g	77.2	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		156	200	pg/g	77.9	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		141	200	pg/g	70.5	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		151	200	pg/g	75.4	(20%-186%)
37Cl-2,3,7,8-TCDD		22.5	20.0	pg/g	112	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number: A5J1074 **Client:** APEX001 **Project:** APEX00122
Lab Sample ID: 12040881 **Matrix:** SOIL
Client Sample: QC for batch 63399
Client ID: LCSD for batch 63399 **Prep Basis:** As Received
Batch ID: 63401 **Method:** EPA Method 1613B
Run Date: 10/15/2025 20:37 **Analyst:** MW3 **Instrument:** HRP763
Data File: b13oct25a_7-2 **Dilution:** 1
Prep Batch: 63399 **Prep Method:** SW846 3540C
Prep Date: 14-OCT-25 **Prep Aliquot:** 10 g

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		20.1	pg/g	0.280	1.00
40321-76-4	1,2,3,7,8-PeCDD		103	pg/g	0.366	5.00
39227-28-6	1,2,3,4,7,8-HxCDD		106	pg/g	0.548	5.00
57653-85-7	1,2,3,6,7,8-HxCDD		102	pg/g	0.512	5.00
19408-74-3	1,2,3,7,8,9-HxCDD		113	pg/g	0.542	5.00
35822-46-9	1,2,3,4,6,7,8-HpCDD		102	pg/g	0.752	5.00
3268-87-9	1,2,3,4,6,7,8,9-OCDD		213	pg/g	1.10	10.0
51207-31-9	2,3,7,8-TCDF		20.5	pg/g	0.390	1.00
57117-41-6	1,2,3,7,8-PeCDF		94.3	pg/g	0.538	5.00
57117-31-4	2,3,4,7,8-PeCDF		92.1	pg/g	0.480	5.00
70648-26-9	1,2,3,4,7,8-HxCDF		108	pg/g	0.686	5.00
57117-44-9	1,2,3,6,7,8-HxCDF		103	pg/g	0.642	5.00
60851-34-5	2,3,4,6,7,8-HxCDF		104	pg/g	0.676	5.00
72918-21-9	1,2,3,7,8,9-HxCDF		107	pg/g	0.910	5.00
67562-39-4	1,2,3,4,6,7,8-HpCDF		112	pg/g	0.818	5.00
55673-89-7	1,2,3,4,7,8,9-HpCDF		105	pg/g	0.984	5.00
39001-02-0	1,2,3,4,6,7,8,9-OCDF		211	pg/g	1.23	10.0

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		163	200	pg/g	81.3	(20%-175%)
13C-1,2,3,7,8-PeCDD		153	200	pg/g	76.7	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		145	200	pg/g	72.7	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		147	200	pg/g	73.4	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		152	200	pg/g	76.2	(22%-166%)
13C-OCDD		249	400	pg/g	62.1	(13%-199%)
13C-2,3,7,8-TCDF		164	200	pg/g	82.0	(22%-152%)
13C-1,2,3,7,8-PeCDF		155	200	pg/g	77.3	(21%-192%)
13C-2,3,4,7,8-PeCDF		160	200	pg/g	80.0	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		145	200	pg/g	72.4	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		160	200	pg/g	80.2	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		157	200	pg/g	78.5	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		157	200	pg/g	78.3	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		138	200	pg/g	69.1	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		148	200	pg/g	74.2	(20%-186%)
37Cl-2,3,7,8-TCDD		23.4	20.0	pg/g	117	(31%-191%)

Comments:

U Analyte was analyzed for, but not detected above the specified detection limit.

Appendix B

Data Validation Memorandum

MAUL
FOSTER
ALONGI

Data Validation Memorandum

Project No. M9003.01.056 | October 28, 2025 | Port of Ridgefield

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for incremental sampling methodology (ISM) soil and associated quality control samples collected on September 30 and October 1, 2025 at Lake River, located offshore of the former Pacific Wood Treating Co. site in Ridgefield, Washington.

Apex Laboratories, LLC (Apex) and Cape Fear Analytical, LLC (CFA) performed the analyses. The ISM samples were first processed by Apex as described in the Preservation and Sample Storage section below before subcontracting portions of each ISM sample, along with the equipment rinsate blank, to CFA for dioxin and furan analysis. MFA reviewed Apex report number A5J1074 and Cape Fear report 24509, which was appended to the Apex report. The analyses performed and the samples analyzed are listed in the following tables.

Analysis	Reference
Dioxins and furans	EPA 1613B
Percent solids	EPA 8000D
Total organic carbon	PSEP, SM 5310B

Notes
EPA = U.S. Environmental Protection Agency.
PSEP = Puget Sound Estuary Protocol.
SM = Standard Methods for the Examination of Water and Wastewater.

Samples Analyzed	
Report A5J1074, 24509	
ISM-A-20250930	ISM-C-20250930
ISM-B-20250930	RB-20251001

Data Validation Procedures

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2014, 2020a, 2020b, 2020c) and appropriate laboratory- and method-specific guidelines (Apex 2025, CFA 2024, EPA 1986).

EPA 8000D percent solids results reported by the laboratory for dry-weight correction were reviewed for completeness but were not included in Stage 2A data validation.

Based on the data quality assurance/quality control review described herein, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, and data qualifiers assigned by the reviewer during validation.

Final data qualifiers:

- J = result is estimated.
- U = result is non-detect at the sample estimated detection limit (EDL).
- UJ = result is non-detect with an estimated detection limit.

General Qualifications

Second Column Confirmation

Positive identification of 2,3,7,8-TCDF cannot be achieved using typical EPA Method 1613B columns; therefore, analysis using a second column is required to confirm and quantify any detections above the method reporting limit (MRL) In report 24509, all TCDF results were either detected below the MRL or were non-detect; thus, secondary analysis was not required.

Estimated Maximum Potential Concentration Results

In accordance with EPA Region 10 guidance for data validation of polychlorinated dibenzodioxins and polychlorinated dibenzofurans (PCDDs/PCDFs) (EPA 2014) and EPA national functional guidelines for high-resolution Superfund methods data review (EPA 2020a), the reviewer qualified EPA Method 1613B results in CFA report 24509 because of laboratory EMPC detections. The reviewer accepted some qualifications from the laboratory without additional qualifications.

EPA Method 1613B results reported by CFA as EMPCs that were also associated with method blank detections requiring qualification are discussed in the method blank section of this validation report and are not discussed in the EMPC qualification tables below.

Where CFA flagged congener results were below MRLs as EMPCs, the reviewer qualified the results at the reported concentration with UJ, as non-detect and an estimated value.

Where CFA flagged detected total homolog results were below MRLs as EMPCs, and all associated congeners were either EMPCs or non-detect, the reviewer qualified the total homolog result at the reported concentration with UJ, as non-detect and an estimated value.

Where CFA flagged total homolog results were above or below MRLs as EMPCs and one or more associated congeners were detected without an EMPC flag, the reviewer accepted laboratory qualifiers and did not apply additional qualification. Final qualification for these results is J.

Final data qualifiers for EPA Method 1613B EMPC results are as follows:

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
24509	ISM-A-20250930	1,2,3,6,7,8-HxCDD	1.72 JK	1.72 UJ
		1,2,3,7,8,9-HxCDD	0.495 JK	0.495 UJ
		2,3,4,6,7,8-HxCDF	0.505 JK	0.505 UJ
		Total HxCDD	8.40 JK	8.40 J
		Total HxCDF	13.6 JK	13.6 J
	ISM-B-20250930	1,2,3,7,8,9-HxCDD	0.692 JK	0.692 UJ
		2,3,7,8-TCDF	0.274 JK	0.274 UJ
		2,3,4,6,7,8-HxCDF	0.846 JK	0.846 UJ
		1,2,3,4,7,8,9-HpCDF	0.748 JK	0.748 UJ
		Total HxCDD	13.2 JK	13.2 J
		Total TeCDF	1.00 JK	1.00 UJ
		Total HxCDF	18.2 JK	18.2 J
		Total HpCDF	35.4 JK	35.4 J
	ISM-C-20250930	1,2,3,4,7,8-HxCDD	0.394 JK	0.394 UJ
		2,3,4,7,8-PeCDF	0.449 JK	0.449 UJ

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
		1,2,3,4,7,8,9-HpCDF	0.595 JK	0.595 UJ
		Total PeCDD	0.635 JK	0.635 UJ
		Total HxCDD	10.1 JK	10.1 J
		Total PeCDF	3.09 JK	3.09 UJ
		Total HxCDF	13.6 JK	13.6 J
		Total HpCDF	26.1 JK	26.1 J

Notes
J = result is estimated.
JK = result is estimated and an estimated maximum potential concentration.
pg/g = picograms per gram.
UJ = result is non-detect with an estimated detection limit.

Sample Conditions

Sample Custody

Sample custody was appropriately documented on the chain-of-custody (COC) form accompanying the report(s).

The reviewer confirmed that the gap in custody on the COC form accompanying report 24509 is due to shipment via a third-party service.

According to the subcontract COC provided with report A5J1074, sample relinquishment time was not recorded by Apex. The reviewer confirmed that the Apex sample control standard operating procedure does not include recording sample relinquishment time on subcontract COC forms.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

According to the cooler receipt form provided with report A5J1074, the one gallon jars provided for all soil samples each had a layer of approximately 2 inches of water on top of the sediment. The reviewer confirmed that the water layer was decanted prior to ISM processing. No qualification was required.

The reviewer confirmed that Apex processed all ISM samples as follows: the entire sample was air-dried, passed through a hammer mill with a 2 mm sieve to break up soil clumps, and shaken through a 2 mm sieve. The material greater than 2 mm in size that was retained on the sieve was discarded. All sieved material was mixed, and a portion of the sample was selected using a riffle splitter. The selected portion of the sample was ground, homogenized, and a portion was taken for analysis.

Reporting Limits

Apex evaluated results to MRLs. CFA evaluated results to EDLs. CFA labeled MRLs as practical quantitation limits. Samples that required dilutions because of high analyte concentrations, matrix interferences, and/or dilutions necessary for preparation and/or analysis were reported with raised EDLs and MRLs.

CFA qualified results between the EDL and the MRL with J, as estimated.

Blank Results

Method Blanks

Laboratory method blanks are used to evaluate whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies, in accordance with laboratory- and method-specific requirements.

According to report 24509, the EPA Method 1613B aqueous prepration batch 63297 laboratory method blank had detections of OCDD, 1,2,3,7,8-PeCDF, and total PeCDF between EDLs and MRLs. All associated sample results were non-detect; thus, qualification was not required.

According to report 24509, the EPA Method 1613B soil preparation batch 63399 laboratory method blank had several detections between EDLs and MRLs. Method blank detections are listed in the table below.

Report	Batch	Analyte	Method Blank Result (pg/g)
24509	63399	1,2,3,4,6,7,8-HpCDD	0.300 JK
		OCDD	2.69 J
		1,2,3,4,7,8-HxCDF	0.254 JK
		1,2,3,6,7,8-HxCDF	0.164 JK
		1,2,3,4,6,7,8-HpCDF	0.512 JK
		Total HpCDD	0.546 JK
		Total PeCDF	0.606 JK
		Total HxCDF	0.692 JK
		Total HpCDF	0.512 JK

Notes
J = result is estimated.
JK = result is estimated and an estimated maximum potential concentration.
pg/g = picograms per gram.

Associated samples results within five times the method blank concentration were qualified by the reviewer with U, as shown in the following table. All remaining associated sample results were non-detect or greater than five times the method blank concentrations; thus, qualification was not required. Some associated sample results are qualified by the laboratory due to EMPCs, and final data qualification based on method blank detections takes precedence.

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
24509	ISM-A-20250930	1,2,3,4,7,8-HxCDF	0.832 J	0.832 UJ
		1,2,3,6,7,8-HxCDF	0.395 J	0.395 UJ
		Total PeCDF	2.73 JK	2.73 UJ
	ISM-B-20250930	1,2,3,4,7,8-HxCDF	0.938 J	0.938 UJ
		1,2,3,6,7,8-HxCDF	0.486 J	0.486 UJ
	ISM-C-20250930	1,2,3,4,7,8-HxCDF	0.923 J	0.923 UJ
		1,2,3,6,7,8-HxCDF	0.453 J	0.453 UJ

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)

Notes
J = result is estimated.
JK = result is estimated and an estimated maximum potential concentration.
pg/g = picograms per gram.
UJ = result is non-detect with an estimated laboratory detection limit.

All remaining laboratory method blank results were non-detect to EDLs or MRLs.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate the adequacy of the field equipment decontamination process when decontaminated sampling equipment is used to collect samples. One equipment rinsate blank (RB-20251001) was submitted for EPA Method 1613B dioxins and furans analysis. The equipment rinsate blank sample was collected by MFA field staff the day after the date of ISM sample collection. The reviewer confirmed that the project sampling frequency requirement of one equipment rinsate blank per sampling event was met. The reviewer confirmed by separate communication with MFA field staff that the equipment rinsate blank was collected by passing laboratory-provided distilled water through or over sampling equipment. The equipment rinsate blank was non-detect for all EPA Method 1613B analytical results.

Laboratory Control Sample and Laboratory Control Sample Duplicate Results

Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) results are used to evaluate laboratory precision and accuracy. All LCSs and LCSDs were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

All LCS and LCSD results were within acceptance limits for percent recovery and relative percent difference (RPD).

Laboratory Duplicate Results

Laboratory duplicate results are used to evaluate laboratory precision and sample homogeneity. All laboratory duplicate samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

All laboratory duplicate results met the acceptance criteria.

Matrix Spike and Matrix Spike Duplicate Results

Matrix spike (MS) and matrix spike duplicate (MSD) results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and target analyte recovery. MS and MSD sample results were not reported by Apex or CFA. Analytical batch precision and accuracy were evaluated with LCS, LCSD, and laboratory duplicate sample results.

Labeled Analog Results

According to report 24509, EPA Method 1613B project and batch quality control samples were spiked with carbon-13 labeled standards to quantify the relative response of analytes in each sample, and with a chlorine-37 labeled cleanup standard to measure the efficiency of the cleanup process.

All labeled standard recoveries were within acceptance limits.

Field Duplicate Results

Field duplicate results are used to evaluate field precision and sample homogeneity. Field duplicate samples were not submitted for analysis.

Incremental Sampling Methodology Results

According to report A5J1074, incremental sampling methodology (ISM) samples were collected and named according to decision units. Apex processed ISM samples prior to analysis as described in the Preservation and Sample Storage section above. One ISM sample was collected in triplicate, and the replicate set included samples ISM-A-20250930, ISM-B-20250930, and ISM-C-20250930.

Samples ISM-A-20250930, ISM-B-20250930, and ISM-C-20250930 were submitted to Apex for representative sampling methodology (RSM) preparation. The reviewer confirmed that Apex processed the samples by RSM as described in the Preservation and Sample Storage section above.

The triplicate set was compared to a project-specific acceptance criterion of 30 percent relative standard deviation (RSD) for analytes with one or more detected results. When all analytical results in a replicate set were non-detect or detected below MRLs, RSD was not evaluated.

Where one result in a replicate set was non-detect, RSD was evaluated using the value of the EDL. Calculated ISM results are shown in the following table.

Report	Analyte	Units	ISM-A-20250930 Result	ISM-B-20250930 Result	ISM-C-20250930 Result	RSD (%)
A5J1074	Total organic carbon	mg/kg	7,000	5,900	6,300	8.7
24509	2,3,7,8-TCDD	pg/g	ND	ND	ND	NA
	1,2,3,7,8-PeCDD		0.220 J	0.240 U	0.195 U	10
	1,2,3,4,7,8-HxCDD		0.309 J	0.396 J	0.394 UJ[a]	14
	1,2,3,6,7,8-HxCDD		1.72 UJ[a]	2.02 J	1.94 J	8.2
	1,2,3,7,8,9-HxCDD		0.495 UJ[a]	0.692 UJ[a]	0.689 J	18
	1,2,3,4,6,7,8-HpCDD		46.8	54.1	47.1	8.4
	1,2,3,4,6,7,8,9-OCDD		404	445	417	5.0
	2,3,7,8-TCDF		ND	ND[a]	ND	NA
	1,2,3,7,8-PeCDF		0.220 U	0.298 J	0.206 U	21
	2,3,4,7,8-PeCDF		0.341 J	0.382 J	0.449 UJ[a]	14
	1,2,3,4,7,8-HxCDF		ND[b]	ND[b]	ND[b]	NA
	1,2,3,6,7,8-HxCDF		ND[b]	ND[b]	ND[b]	NA
	2,3,4,6,7,8-HxCDF		0.505 UJ[a]	0.846 UJ[a]	0.535 J	30
	1,2,3,7,8,9-HxCDF		0.379 J	0.352 J	0.362 J	3.7
	1,2,3,4,6,7,8-HpCDF		9.25	12.2	8.12	21
	1,2,3,4,7,8,9-HpCDF		0.655 J	0.748 UJ[a]	0.595 UJ[a]	12
	1,2,3,4,6,7,8,9-OCDF		17.6	20.9	14.5	18
	Total TeCDD		ND	ND	ND	NA
	Total PeCDD		0.543 J	1.56 J	0.635 UJ[a]	62
	Total HxCDD		8.40 J[a]	13.2 J[a]	10.1 J[a]	23
	Total HpCDD		86.6	99.3	90.3	7.1
	Total TeCDF		0.321 U	1.00 UJ[a]	0.567 J	55
	Total PeCDF		2.73 UJ[b]	4.95 J	3.09 UJ[a]	33

Report	Analyte	Units	ISM-A-20250930 Result	ISM-B-20250930 Result	ISM-C-20250930 Result	RSD (%)
	Total HxCDF		13.6 J[a]	18.2 J[a]	13.6 J[a]	18
	Total HpCDF		30.4 J	35.4 J[a]	26.1 J[a]	15

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.
NA = not applicable.
ND = result is non-detect.
pg/g = picograms per gram.
U = result is non-detect at the estimated detection limit.
UJ = result is non-detect with an estimated detection limit.
RSD = relative standard deviation.
[a]Result qualified in General Qualifications: Estimated Maximum Potential Concentration Results section above.
[b]Result qualified in Blank Results: Method Blanks section above.

Triplicate ISM results that exceeded the RSD criterion were qualified by the reviewer as shown in the table below. Results already qualified as estimated by the laboratory or validator did not require additional qualification.

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
24509	ISM-A-20250930	Total TeCDF	0.321 U	0.321 UJ

Notes
pg/g = picograms per gram.
U = result is non-detect at the estimated detection limit.
UJ = result is non-detect with an estimated detection limit.

Data Package

The data package was reviewed for transcription errors, omissions, and anomalies.

None were found.

References

Apex. 2025. *Quality Systems Manual*. Rev. 12. Apex Laboratories, LLC: Tigard, OR. June 20.

CFA. 2024. *Quality Assurance Plan*. Rev. 26. Cape Fear Analytical, LLC: Wilmington, NC. February 13.

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* EPA publication SW-846. 3rd ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), VI phase III (2019), VII phase I (2019), and VII phase II (2020).

EPA. 2014. *R10 Data Validation and Review Guidelines for Polychlorinated Dibenzo-p-dioxin and Polychlorinated Dibenzofuran Data (PCDD/PCDF) Using Method 1613B and SW846 Method 8290A.* EPA-910-R-14-003. U.S. Environmental Protection Agency, Office of Environmental Assessment. May.

EPA. 2020a. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* EPA 542-R-20-006. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

EPA. 2020b. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

EPA. 2020c. *National Functional Guidelines for High Resolution Superfund Methods Data Review*. EPA 542-R-20-007. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. November.