Final 2025 Annual Performance Monitoring Report

Former Astoria Marine Construction Company
DEQ Task Order 067-23-13
ECSI No. 1898
92134 Front Road
Astoria, Oregon

Prepared for:

Oregon Department of Environmental Quality

June 9, 2025
Project No. M0785.29.001

Prepared by:

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MAUL FOSTER ALONGI

Final 2025 Annual Performance Monitoring Report

Former Astoria Marine Construction Company
DEQ Task Order 067-23-13
ECSI No. 1898
92134 Front Road
Astoria, Oregon

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

Maul Foster & Alongi, Inc.

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Project Geologist

EXPIRES: 1/1/2026
This digital seal certifies the signatory and document content.

Meaghan Pollock, RG
Project Geologist

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Abbreviations

AMCCO	Astoria Marine Construction Company
COC	contaminant of concern
DEQ	Oregon Department of Environmental Quality
EMNR	enhanced monitored natural recovery area
EPA	U.S. Environmental Protection Agency
ISM	incrementel sampling methodology
MDL	method detection limit
MFA	Maul Foster & Alongi, Inc.
MNR	monitored natural recovery
MRL	method reporting limit
PCB	polychlorinated biphenyls
PMR&C Plan	Performance Monitoring, Review & Contingency Plan
PRG	preliminary remediation goal
the Site	former Astoria Marine Construction Company sediment site
TBT	tributyltin

1 Introduction

Maul Foster & Alongi, Inc. (MFA) prepared this 2025 Annual Performance Monitoring Report for the former Astoria Marine Construction Company (AMCCO) sediment site in Astoria, Oregon (the Site; Figure 1-1). The Site is listed in the Oregon Department of Environmental Quality's Your DEQ Online database as Cleanup Project 1898. This report was prepared for DEQ under Task 5 of Task Order 067-23-13.

1.1 Purpose

The purpose of this Annual Performance Monitoring Report is to describe results of visual and chemical monitoring activities completed in March 2025. This work was conducted to further establish baseline conditions and monitor the natural recovery of sediment contamination for the Enhanced Monitored Natural Recovery (EMNR) sand layer and monitored natural recovery (MNR) areas.

1.2 Scope of Work

Performance monitoring of the EMNR and MNR areas in March 2025 consisted of visual observations and chemical monitoring. A bathymetric survey and visual monitoring were conducted in August 2024. Chemical monitoring was also scheduled for summer 2024, however, due to the density of vegetation encountered, chemical monitoring was shifted to spring of 2025 to allow for better access across the EMNR sand layer and MNR area. A technical memorandum describing the results of the August 2024 monitoring and bathymetric survey was previously provided to DEQ (MFA 2024a). No areas of significant sediment disturbance were identified during the August 2024 visual observations or survey.

In combination with the August 2024 bathymetric survey and visual monitoring, the Year 1 visual and chemical monitoring were completed to establish baseline conditions. For subsequent years, visual monitoring and a bathymetric survey will be completed annually, and chemical monitoring will be completed in Year 5 (early spring 2028) and Year 10 (early spring 2033; if required by DEQ).

2 Background

2.1 Site Location, History, and Description

The approximately seven-acre upland property is located at 92134 Front Road, Astoria, Oregon. The property is just outside the eastern boundary of Warrenton and three miles southwest of Astoria,

Oregon, at township 8 north, range 10 west, southeast quarter of section 25, Clatsop County (Figure 1-1). The sediment Site is located in the Lewis and Clark River and Jefferson Slough.

The Property was used by AMCCO to manufacture and repair wooden-hulled boats between 1924 and the 1940s. These historical activities resulted in contamination of sediments adjacent to the Site, with the primary COCs identified as metals, dioxin/furans, polychlorinated biphenyls (PCBs), and tributyltin (TBT).

2.2 Previous Environmental Activities

In March 2011, the United States Environmental Protection Agency (EPA) proposed to place the AMCCO property on the National Priorities List of sites warranting priority cleanup under the federal Comprehensive Environmental Response, Compensation, and Liability Act. The Clatsop County Board of Commissioners requested EPA delay the National Priorities List listing. The request was subsequently granted, and oversight of cleanup activities was transferred to the DEQ. As part of the Deferral Agreement with EPA, DEQ consulted with EPA, several Federally recognized Tribes, several state agencies, and other Federal Natural Resource Trustees (collectively the "Stakeholders") on the decision making for the project.

In 2015, AMCCO completed a Remedial Investigation and Feasibility Study and in 2017 DEQ issued a Record of Decision for cleanup, which identified PRGs for sediment based on the site uses and potential human and ecological receptors (DEQ 2017). These screening levels were used to inform selection of the remedial action, which required targeted dredging and placement of a sand layer for areas with the most contaminated sediments (approximately 65,700 square feet) and MNR for the remaining in-water portion of the Site (approximately 580,000 square feet).

Construction of the in-water (and associated upland) remediation work commenced in July 2020, which included nearshore dredging and installation of the EMNR sand layer. All in-water work was finalized by September 2020 (MFA 2024b). Under terms of the consent judgment, AMCCO is responsible for operation, maintenance and monitoring of the upland remedy. Per the EPA deferral agreement, DEQ is responsible for operation, maintenance and monitoring for the in-water remedy. DEQ is also responsible for establishing institutional controls within the MNR and EMNR areas, if deemed necessary.

During remedial activities, MFA provided oversight, which consisted of observation of hot spot dredging operations and placement of an EMNR sand layer (Figure 2-1). To verify the EMNR sand layer placement and near-term stability, MFA performed three separate core sampling events following remedy construction at one-year intervals (2020, 2021, and 2022), documenting the thickness of the clean sand layer and the presence of a clear and abrupt transition to the native sediment. The objective of the subsequent core sampling events was to verify stability of the EMNR sand layer, and to evaluate potential changes in layer thickness after two years of tidal exchange and wave action on the Lewis and Clark River. The analysis also evaluated whether there has been any discernable mixing at the EMNR sand layer and sediment interface. The annual coring demonstrated that the design goal of delivering a minimum of 6 inches has been achieved. While the EMNR sand layer is not required to maintain a specific thickness long-term since mixing and erosion/bed exchange is expected, it is noted that the minimum sand depth continued to exceed 6-inches in 2022.

In 2024, MFA prepared the Performance Monitoring, Review & Contingency Plan (PMR&C) to outline the specific maintenance, monitoring, and corrective action procedures for the EMNR sand layer and MNR areas. The PMR&C Plan established the framework for specific performance standards and the planned monitoring activities to demonstrate the effectiveness and reliability of the in-water sediment remedy implemented by the property owner in preventing or reducing human and ecological exposures to Site-related contaminants. The work described in this report was conducted in general accordance with the PMR&C Plan and to comply with the EPA deferral agreement.

3 Site Activities

3.1 Visual Observation

MFA conducted a visual monitoring inspection on March 18, 2025, to identify potential changes and evaluate the stability of the EMNR sand layer (see Figure 3-1; Appendices A and B). Visual monitoring was completed during low tide, so that the EMNR sand layer which is the most susceptible to wave action and other physical changes could be observed.

Visual monitoring field observations were recorded, and photographs taken at predetermined locations selected to capture most of the Site from the following perspectives:

- Top of the bank looking downslope towards the northern, southern, and western portions of the EMNR sand layer.
- From the northern, southern, and western edges of the EMNR sand layer, looking toward the central portion of the EMNR sand layer.
- From the western edges of the EMNR sand layer, looking upslope.

The following observations were noted:

- Visible sand appeared to be generally smooth. Rounded dimples associated with mollusk activity were observed in the intertidal zone.
- Vegetation on the EMNR sand layer was dormant but dense. The vegetation density was consistent with the August 2024 observations.
- No areas of significant sediment deposition were observed on the EMNR sand layer.
- Minor drainage channels were observed on the EMNR sand layer, consistent with those previously observed. No areas of significant sediment loss were noted.
- No significant debris were observed on the EMNR sand layer or sediment surface.
- Slight blocky sheen that appeared biological in origin was observed near visual monitoring locations 3 and 6 (see Photographs 8 and 14 in Appendix A). No other visible indicators of potential contamination were observed (e.g., sheen or staining) on the surface sediment.

3.2 Sediment Sampling

Between March 17 and 19, 2025, an incremental sampling methodology (ISM) approach (DEQ 2020) was used to collect representative sediment samples from the EMNR and MNR areas. The EMNR and MNR areas were split into separate decision units and sample locations (increments) were selected using a systematic random grid approach (see Figure 3-2). The increments were manually collected from 0 to 6 inches below mud line using a ponar grab sampler (submerged locations) or core sampler (locations above the water line). The increments from each sample were combined into one ISM sample, processed by the laboratory, and analyzed to obtain representative average COC concentrations. MFA collected 100 increments from the MNR area and 75 increments in triplicate from the EMNR area for quality assurance. The exact location of increments were adjusted, depending on field conditions (e.g., when an obstruction such as dense vegetation was encountered). Where locations needed to be adjusted based on field conditions, the increment was moved to the nearest location clear of obstruction within 15 feet of the same grid cell in which the original increment was located. In addition to the ISM samples, five discrete samples from each the EMNR area and MNR area were collected and archived pending the results of the ISM samples.

Sediment was screened for volatiles in accordance with standard operating procedure (SOP) 3 (Appendix C) using a photoionization detector. Sediment samples were collected in accordance with SOP 15. Sample equipment was decontaminated between decision units and between the parent, duplicate, and triplicate sample locations to prevent cross-contamination, consistent with SOP 1.

4 Chemical Analyses and Results

Sediment samples were submitted to Pace Analytical National Laboratory in Mount Juliet, Tennessee, under their Price Agreement with the State of Oregon. A data validation memorandum presents the quality assurance/quality control review of the data and is included in Appendix D. The results of the data quality review indicate that the data are of acceptable quality and are suitable for their intended purpose. Copies of the analytical laboratory reports are included in Appendix E.

4.1 Analyses Performed

In accordance with the PMR&C Plan, samples were analyzed as follows:

- Metals (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc) by EPA Method 6020D
- TBT by ALS SOP[1]
- PCBs as Aroclors by EPA Method 8082A
- Dioxins/furans by EPA Method 1613B

[1] ALS Group USA, Corp. dba ALS Environmental standard operating procedure for analysis of organotins gas chromatography/mass spectrometry dual-column method based on Krone, 1989.

4.2 Chemical Results

The analytical results are presented in Table 4-1. PCBs were not detected above the method reporting limits (MRLs) or method detection limits (MDLs) in the ISM samples analyzed, however, the MRLs and MDLs for the sum of all PCB Aroclors exceed the PRG for total PCBs. PCB congener analysis will be considered for the next chemical monitoring event to achieve detection limits below the PRGs. Metals (antimony, arsenic, cadmium, chromium, copper, lead, nickel, and zinc), TBT, and dioxins/furans were detected above the MRLs and/or MDLs in at least one of the ISM samples analyzed. Silver was not detected above the MDL. None of the detected concentrations exceeded their respective PRGs. Because no PRG exceedances were identified, none of the discrete samples were analyzed.

5 Conclusions and Recommendations

Year 1 monitoring included visual observations, a bathymetric survey, and chemical monitoring. Visual observations and the bathymetric survey concluded that the EMNR sand layer is in good condition with no areas of significant sediment loss or deposition. Chemical monitoring was conducted to monitor the natural recovery of low levels of contamination in sediment. The chemical monitoring results did not detect concentrations of COCs above the PRGs. These findings demonstrate that the in-water sediment remedy remains effective and reliable in preventing or reducing human and ecological exposures to Site-related contaminants.

Since the sum of all PCB Aroclors (MRLs and MDLs) exceeded the PRG for total PCBs, PCB congener analysis will be considered for the next chemical monitoring event to achieve detection limits below the PRGs.

Based on the results of Year 1 monitoring, MFA recommends visual observations and bathymetric surveys be completed annually consistent with the PMR&C Plan. Year 2 visual observations and the bathymetric survey should be completed in early spring of 2026. Chemical monitoring will be completed at least every 5 years, for 10 years, to demonstrate continued effectiveness. Based on the results presented in this report, MFA anticipates that COC concentrations will continue to be below PRGs after 10 years and additional sampling will not be required. Year 5 chemical monitoring should be completed in early spring of 2028 and Year 10 chemical monitoring in early spring of 2033 (if required by DEQ).

References

DEQ. 2017. *Record of Decision; Selected Remedial Action for Astoria Marine Construction Company, Astoria, Oregon*. Oregon Department of Environmental Quality. February 27.

DEQ. 2020. *Decision Unit Characterization.* Oregon Department of Environmental Quality. September 14.

MFA. 2024a. Meaghan Pollock, RG, Maul Foster & Alongi, Inc. *Former Astoria Marine Construction Company-Visual Monitoring and Bathymetric Survey.* Technical Memorandum to Mark Pugh, Oregon Department of Environmental Quality. October 9.

MFA. 2024b. *AMCCO Remedial Action Construction Completion Report; Astoria Marine Construction Company, ECSI No. 1898.* Prepared for Astoria Marine Construction Company. Maul Foster & Alongi, Inc.: Portland, OR. January 25.

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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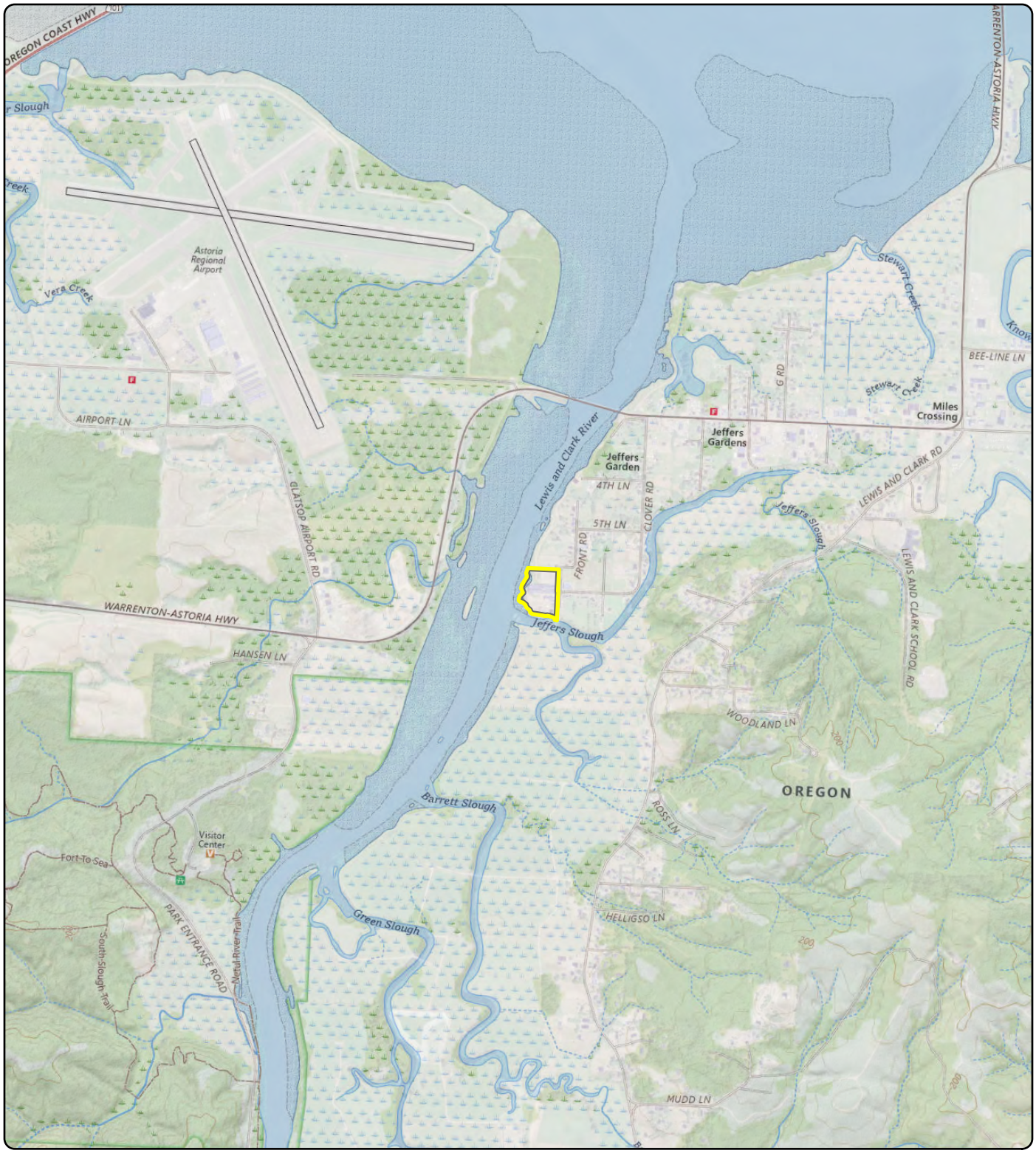

Notes
U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Astoria.
Township 8 north, range 10 west, section 36.

Data Source
Site boundary obtained from Clatsop County parcel dataset.

Legend

Site

Figure 1-1
Site Location

Former Astoria Marine Construction Company
92134 Front Road
Astoria, OR

0 2,000
Feet

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Path: X:\O_MFA_Projects\M0785\29\001\Pro\M0785_29_001_003.aprx\Fig 1-1 Site location
Print Date: 4/25/2025
Reviewed By: smalonev
Produced By: lroberts
Project: M0785.29.001

Figure 2-1
EMNR Sand Layer and Monitored Natural Recovery Area

Former Astoria Marine Construction Company
92134 Front Road
Astoria, OR

Legend

- Mean Lower Low Water
- Building
- MNR Area
- EMNR Sand Layer

Notes

Area of ENMR sand layer is approximately 63,602 square feet (1.5 acres).
Area of MNR is approximately 351,118 square feet (8.1 acres).
EMNR = enhanced monitored natural recovery.
MNR = monitored natural recovery.

0 100
Feet

Data Sources

Aerial photograph obtained from Google Earth.

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Figure 3-1
Photograph Locations for Visual Monitoring and 2024 Bathymetric Survey Results

Former Astoria Marine Construction Company
92134 Front Road
Astoria, OR

Legend

- Photograph Location
- Photograph Direction
- Outfall
- Monitored Natural Recovery Area
- EMNR Sand Layer

Bathymetric Elevation (Feet NAVD 88)

16.4

-10.6

Notes

Area of EMNR sand fill is approximately 63,602 square feet (1.5 acres).
Area of monitored natural recovery area is approximately 351,118 square feet (8.1 acres).
EMNR = Enhanced Monitored Natural Recovery Area.
NAVD 88 = North American Vertical Datum of 1988.

0 100
Feet

Data Sources

Aerial photograph (2024) obtained from Google Earth; bathymetric data (2024) obtained from eTrac.

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Path: X:\O_MFA_Projects\M0785\29.001\Pro\M0785_29_001_005.aprx\Fig 3-1 Photograph Locs and Bathy Survey
Print Date: 5/8/2025
Reviewed By: smalonev
Produced By: jroberts
Project: M0785.29.001

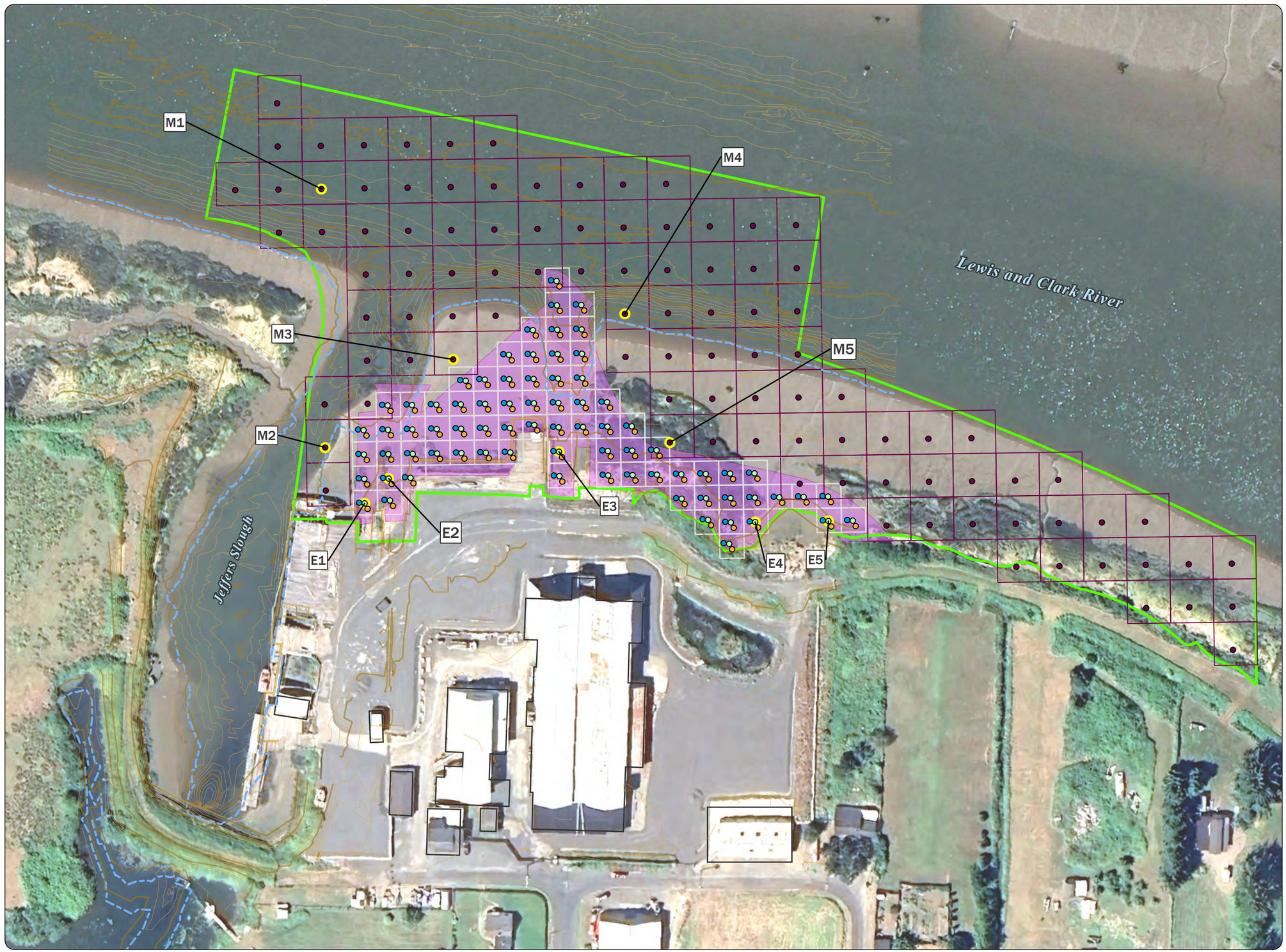

Figure 3-2
ISM Sampling Locations

Former Astoria Marine Construction Company
92134 Front Road
Astoria, OR

Legend

- MNR Sample Increment
- EMNR Primary Sample Increment
- EMNR Duplicate Sample Increment
- EMNR Triplicate Sample Increment
- Increment Sample for Archive
- Mean Lower Low Water
- Building
- MNR ISM Sampling Grid
- EMNR ISM Sampling Grid
- MNR Area
- ENMR Sand Layer

Notes
Area of ENMR sand layer is approximately 63,602 square feet (1.5 acres).
Area of MNR is approximately 351,118 square feet (8.1 acres).
EMNR = enhanced monitored natural recovery.
ISM = incremental sampling methodology.
MNR = monitored natural recovery.

0 100
Feet

Data Sources
Aerial photograph obtained from Google Earth.

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Path: X:\0_MFA_Projects\M0785\29\001\Pro\M0785_29_001_003.aprx\Fig 3-2 ISM Sampling Locations
Print Date: 5/8/2025
Reviewed By: smalonay
Produced By: jroberts
Project: M0785.29.001

Table

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Table 4-1
Summary of Sediment Analytical Results
Former Astoria Marine Construction Company
Astoria, Oregon

Location:	Sediment PRGs[1]	EMNR	EMNR	EMNR	MNR
Sample Name:		EMNR-2025-A	EMNR-2025-B	EMNR-2025-C[a]	MNR-2025
Collection Date:		03/18/2025	03/18/2025	03/18/2025	03/17/2025
Total Metals (mg/kg)					
Antimony	64	0.167 U	0.167 U	**0.209 J**	**0.27 J**
Arsenic	33	**3.19**	**2.9**	**3.43**	**10.2**
Cadmium	4.98	0.0861 U	0.0862 U	**0.0905 J**	**0.35 J**
Chromium	111	**31.1**	**18.4**	**25.6**	**26.1**
Copper	149	**25.5**	**14.6**	**23.1**	**26.2**
Lead	15.5	**4.27**	**3.47**	**4.49**	**12.3**
Nickel	48.6	**42.5 J**	**13.1 J**	**17.2 J**	**19.2**
Silver	5	0.0871 U	0.0872 U	0.0872 U	0.0959 U
Zinc	459	**50.1**	**40.3**	**49.2**	**110**
Total PCBs (mg/kg)					
Aroclor 1016	NV	0.0103 U	0.0103 U	0.0114 U	0.0226 U
Aroclor 1221	NV	0.0108 U	0.0108 U	0.0103 U	0.0237 U
Aroclor 1232	NV	0.0183 U	0.0184 U	0.0108 U	0.0404 U
Aroclor 1242	NV	0.0102 U	0.0102 U	0.0184 U	0.0224 U
Aroclor 1248	NV	0.0125 U	0.0125 UJ	0.0102 U	0.0275 U
Aroclor 1254	NV	0.0105 U	0.0105 U	0.0125 U	0.0231 U
Aroclor 1260	NV	0.0111 U	0.0111 U	0.0105 U	0.0244 U
Aroclor 1262	NV	0.0127 U	0.0127 U	0.0111 U	0.028 U
Aroclor 1268	NV	0.0114 UJ	0.0114 U	0.0127 U	0.0251 U
Total PCBs[b]	0.00531	0.0183 UJT	0.0184 UJT	0.0184 UT	0.0404 UT
Organotins (mg/kg)					
Tri-n-butyltin	0.047	**0.0041**	**0.0032 J**	**0.0028 J**	0.00053 U
Dioxins/Furans (pg/g)					
1,2,3,4,6,7,8-HpCDD	NV	**27.6**	**23.9**	**21.1**	**22.9**
1,2,3,4,6,7,8-HpCDF	NV	**2.46**	1.43 UJK	**2.23**	**3.92**
1,2,3,4,7,8,9-HpCDF	NV	0.174 UJK	0.491 U	0.163 U	0.369 U
1,2,3,4,7,8-HxCDD	NV	0.201 U	0.496 U	0.405 U	0.608 U
1,2,3,4,7,8-HxCDF	NV	0.165 UJK	0.203 U	0.184 U	0.654 U
1,2,3,6,7,8-HxCDD	NV	0.64 U	0.379 UJK	0.64 U	0.839 UJK
1,2,3,6,7,8-HxCDF	NV	0.621 U	0.197 U	0.192 U	0.616 U
1,2,3,7,8,9-HxCDD	NV	0.717 U	0.512 U	0.717 U	**0.835**
1,2,3,7,8,9-HxCDF	NV	0.258 U	0.286 U	0.247 U	0.398 U
1,2,3,7,8-PeCDD	0.62	0.113 U	0.197 U	0.091 UJK	0.237 UJK
1,2,3,7,8-PeCDF	NV	0.146 U	0.191 U	0.188 U	0.247 U
2,3,4,6,7,8-HxCDF	NV	0.661 U	0.207 U	0.235 U	0.178 UJK
2,3,4,7,8-PeCDF	0.245	0.129 U	0.166 U	0.105 UJK	0.374 UK
2,3,7,8-TCDD	0.295	0.117 U	0.129 U	0.127 U	0.16 U
2,3,7,8-TCDF	21.5	0.114 U	0.116 U	0.115 U	0.595 UJK
OCDD	NV	**195**	**173**	**157**	**227**
OCDF	NV	**8.39**	**6.72**	**7.52**	**10.8**
Total HpCDDs	NV	**48.3**	**41.2**	**40.4**	**57.2**

Table 4-1
Summary of Sediment Analytical Results
Former Astoria Marine Construction Company
Astoria, Oregon

Location:	Sediment PRGs[1]	EMNR	EMNR	EMNR	MNR
Sample Name:		EMNR-2025-A	EMNR-2025-B	EMNR-2025-C[a]	MNR-2025
Collection Date:		03/18/2025	03/18/2025	03/18/2025	03/17/2025
Total HpCDFs	NV	**6.84 K**	5.48 UK	**6.91**	**10.8**
Total HxCDDs	NV	**10.5**	4.11 UK	5.56 UK	**11.4 K**
Total HxCDFs	NV	2.5 UJK	**1.61**	1.41 UJK	5.59 UK
Total PeCDDs	NV	1.18 UJK	0.527 UJK	1.76 UJK	1.93 UJK
Total PeCDFs	NV	0.605 UJK	**0.401**	0.516 UJK	2.53 UJK
Total TCDDs	NV	0.117 U	0.0902 UJK	**1.12**	0.499 UJK
Total TCDFs	NV	**0.247**	0.17 UJK	0.115 U	4.03 UK
Dioxin/Furan TEQ[c][2]	21.5	**0.668 JT**	**0.613 JT**	**0.548 JT**	**0.934 JT**

Notes

Gray shading indicates values where the detection limit or reporting limit exceed the PRG.

Bold indicates concentrations reported above the method detection limit or method reporting limit.

DEQ = Oregon Department of Environmental Quality.

J = result is estimated.

K = result is an estimated maximum potential concentration.

mg/kg = milligrams per kilogram.

NV = no value.

PCB = polychlorinated biphenyl.

pg/g = picograms per gram.

PRG = preliminary remediation goal.

T = result is calculated.

TEQ = toxicity equivalency.

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

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

UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.

UK = result is non-detect and an estimated maximum potential concentration.

[a]PCB Aroclors were reanalyzed due to inconsistent results and reanalyis results are provided.

[b]Total PCBs is the sum of all PCB Aroclors. Non-detect results are not included in the sum.

[c]Dioxin/furan TEQ calculated as the sum of each congener concentration multiplied by the corresponding mammalian TEF value. Non-detect values are multiplied by one-half.

References

[1]DEQ. 2017. *Record of Decision, Selected Remedial Action for Astoria Marine Construction Company, Astoria Oregon.* Table 5-1, Preliminary Remediation Goals. Oregon Department of Environmental Quality, Northwest Region. February.

[2]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

Photograph Log

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Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 1.

Description

Photograph location 1, facing west.

Photo No. 2.

Description

Photograph location 1, facing north.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 3.

Description

Photograph location 2, facing southeast.

Photo No. 4.

Description

Photograph location 2, facing east-northeast.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 5.

Description

Photograph location 2, facing north-northeast.

Photo No. 6.

Description

Photograph location 3, facing west.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 7.

Description

Photograph location 3, facing north.

Photo No. 8.

Description

Blocky sheen observed approximately 50 feet northeast of photograph location 3.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 9.

Description

Photograph location 4, facing west.

Photo No. 10.

Description

Photograph location 5, facing south-southwest.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 11.

Description

Photograph location 5, facing east-northeast.

Photo No. 12.

Description

Photograph location 6, facing southwest.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 13.

Description

Photograph location 6, facing northwest.

Photo No. 14.

Description

Blocky sheen observed within vegetated area approximately 60 feet northeast of photograph location 6.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 15.

Description

Photograph location 7, facing southwest.

Photo No. 16.

Description

Photograph location 7, facing northeast.

Photograph Log

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97013

Photo No. 17.

Description

Photograph location 8, facing northwest.

Photo No. 18.

Description

Photograph location 9, facing southwest.

Appendix B

Visual Monitoring Form

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Former Astoria Marine Construction Company Site

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EMNR Sand Layer Visual Monitoring Form

Date: 3/17/2025

Weather: Overcast with scattered showers, mid-40s

Monitoring Event: March 2025

Personnel: Sean Maloney, Ysabel Perez

Note: Record the photograph location number (corresponding with Figure 3-1 of the PMR&C Plan) associated with each observation.

Monitoring Components		Observation Result
Shoreline Conditions	Is there any sign of sloughing, cracking, or significant erosion?	None observed.
Vegetative Cover	Are there areas of inconsistent vegetative cover or stressed or dead vegetation?	None observed. Vegetation is dormand but dense.
Sand Layer Material	Is there any apparent significant loss of sand layer material?	None observed.
Deposited Material or Debris	Are there any areas with significant debris on the sand or sediment surface as a potential source of recontamination? Any staining or sheen? Any evidence of significant sediment deposition?	Slight blocky sheen observed near visual monitoring locations 3 and 6 that appeared to be biological in origin. No debris, staining, or other sheen were observed. No evidence of significant sediment deposition observed.
Other	Are there any significant abnormalities or physical changes identified during visual monitoring?	None observed.

Comments:

Overall EMNR sand layer in good condition.

Appendix C

Standard Operating Procedures

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Standard Operating Procedure

Decontamination of Field Equipment

SOP Number: 1
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the decontamination procedure for field equipment that may come in contact with contaminated media and that Maul Foster & Alongi, Inc. (MFA) staff may reuse at multiple sample locations or sites. Decontamination is performed to reduce the potential for cross-contamination of samples that will be collected with multiuse equipment and that will undergo physical or chemical analyses. Other equipment that is multiuse—not used specifically for sample collection (e.g., water level meter, pump used for well development)—also requires decontamination. Finally, decontamination is necessary to minimize the potential for MFA staff's exposure to chemicals.

Typically, decontamination is not necessary for field equipment that is disposable and intended to be used only once (e.g., disposable bailer). Additionally, this SOP does not apply to equipment used by subcontractors, such as drilling equipment. However, MFA staff should confirm that subcontractors are implementing appropriate decontamination procedures to minimize the potential for cross-contamination of samples or MFA staff's exposure to chemicals.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Nonphosphate detergent solution (e.g., Alconox, Liquinox)
- Distilled and potable water
- Personal protective equipment (as specified in the site-specific health and safety plan)
- Buckets to contain rinsate, brushes, paper towels

Depending on the site conditions and the types of contaminants that may be present, the use of other decontamination materials, such as deionized water, methanol, hexane, or isopropyl alcohol, may be necessary. The need for other materials should be determined prior to fieldwork. The decontamination procedures using other materials should be described in a site-specific sampling and analysis plan (SAP).

Methodology

When the site-specific SAP specifies additional or different requirements for decontamination, it takes precedence over this SOP. In the absence of a SAP, the following procedures shall be used.

General Sampling Procedure:

1. Rinse the equipment with potable water to remove visible soil, petroleum sheen, or contamination.

2. Scrub the equipment with a brush and solution of distilled water and nonphosphate detergent.

3. Rinse the equipment with distilled water.

4. Allow equipment to air dry, or dry it with paper towels.

5. At all times, ensure that the decontaminated equipment is stored so as to prevent it from becoming contaminated while not in use. Depending on the size of the equipment, it can be wrapped with new aluminum foil or placed in a new plastic bag.

Rinsate Storage:

All fluids resulting from equipment decontamination shall initially be contained in a bucket and then transferred to a Department of Transportation-approved container (e.g., 55-gallon drum) stored on site at a location that does not interfere with on-site activities (e.g., vehicle traffic, pedestrian areas). Place a label on each container and include the following information:

- The date on which fluids were placed in the container
- Contents (e.g., “water from equipment decontamination”)
- Contact information, including MFA staff or client phone number

Note that labels on containers exposed to sunlight or precipitation are prone to fading. Use a waterproof, indelible ink pen (e.g., Sharpie®) whenever possible. In the field notebook, keep a detailed inventory of all containers, including the number of containers, the approximate quantity of liquids generated, and a description of the source of the fluids. Provide this information to the MFA project manager. For future reference, take photographs of (1) each drum label, (2) the drum(s), and (3) the drum storage vicinity on site.

Note that some clients and site owners have specific requirements for labeling and storage of containers. The requirements should be determined in advance of the fieldwork.

Standard Operating Procedure

Field Screening for VOCs in Soil

SOP Number: 3
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the use of a photoionization detector (PID) to field screen soil for evidence of organic vapors. The PID measures the organic vapor concentration in parts per million, is not compound-specific.

Never rely on a stand-alone PID reading to identify organic chemical contamination in soil. Always collect multiple PID readings (e.g., at multiple depths along the length of a soil core), since it is the relative difference in concentration between multiple readings (e.g., a sudden increase in concentration at a certain depth interval) that is the typical indictor of contamination. Additionally, PID readings should always be accompanied by observation of the soil samples for other indictors of contamination, such as soil staining or chemical odors, so that these multiple lines of evidence can be used together to identify potential organic chemical contamination in the field.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- PID with calibration gas
- Ziploc®-type bags
- Field forms or notebook for documenting PID readings

Methodology

When the project-specific sampling and analysis plan (SAP) specifies additional or different requirements for organic vapor field screening, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

The electron volt (eV) rating for the PID lamp (e.g., 9.8, 10.6, 11.7) must be greater than the ionization potential (in eV) of a compound in order for the PID to detect the compound. A lamp of at least 9.8 eV should be used for petroleum hydrocarbons. A lamp of at least 10.6 eV should be used for typical chlorinated alkenes. If the project health and safety plan does not specify the lamp size, verify the compatibility of the lamp size with the anticipated compounds expected to be present in soil prior to the field activities, and confirm with the project manager.

General Sampling Procedure (Heading 3 No Number Style):

Calibration:

- The PID should be calibrated daily (or more frequently, as needed).
- Calibrate the PID according to the manufacturer's instructions.

- Document the calibration activities and results in the field notebook.

Measuring organic vapor content:

- Place a representative volume (generally, a "handful") of freshly exposed soil into a Ziploc-type bag.
- Seal the bag and gently knead the bag to loosen the soil.
- Let the bag set for several minutes to allow organic vapors, if present, to volatilize from the soil into the headspace of the bag.
- Partially open the bag so that the tip of the PID intake tube can be inserted into the bag but is not in contact with the soil, then close the bag seal around the intake tube.
- Record the PID measurement and document results in the field notes or boring log.

Static Sheen Test Procedure and Observations:

Sheen Test Procedure:

- Following the PID screen discussed above, add enough water to cover the soil in the container.
- Observe the water for signs of discoloration/sheen and characterize per the table below.

When static sheen testing is required or when making observations of a water surface the following table presents descriptions to be used (consistent with Department of Ecology Guidance)[1].

No Sheen (NS)	No visible sheen on the water surface
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid. Natural organic oils or iron bacteria in the soil may produce a slight sheen.
Moderate Sheen (MS)	Pronounced sheen over limited area; probably has some color/iridescence; spread is irregular, may be rapid; sheen does not spread over entire water surface.
Heavy Sheen (HS)	Heavy sheen with pronounced color/iridescence; spread is rapid; the entire water surface is covered with sheen.
Biogenic Film (BF)	False positive results may be generated by the presence of decaying organic matter and iron bacteria, which can produce a rainbow-like sheen similar to an oil sheen. These sheens, unlike oil sheens, can typically be broken up creating platy or blocky fragments when agitated or disturbed. Biogenic films can also be foamy.

[1] Department of Ecology. 2016. Guidance for remediation of petroleum contaminated sites. June.

Standard Operating Procedure

Sediment Sampling

SOP Number: 15
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the methods for obtaining sediment samples for physical and/or chemical analysis. Sediment samples will be collected using a tool appropriate for the site and the sediment conditions (i.e., grain size and plasticity, depth of water).

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- Sampling equipment, as appropriate:
  - Hand-operated sediment sampler or similar (e.g., Russian peat borer)
  - Power grab sampler or similar (e.g., van Veen grab sampler)
  - Vibracore sampler
- Stainless steel spoons, scoops, and trowels
- Stainless steel bowls
- Tape measure with increments in feet and tenths of a foot
- Laboratory-supplied sample containers
- Laboratory chain-of-custody form and cooler with ice
- Equipment decontamination supplies if sampling equipment will be reused between sample locations (see SOP 1 for equipment decontamination procedures)
- Personal flotation vest
- Field forms or notebook for documenting the sampling procedures

Other Considerations

Sediment sampling may require local, state, and/or federal agency approvals. Confirm with the MFA project manager whether any agency approvals are necessary, and if so, ensure that you have paperwork with you documenting the approvals (e.g., access agreements, in-water work permits).

If MFA staff will be operating a boat, ensure that the staff have appropriate operator licenses. If subcontractors will provide boats or barges, ensure that the subcontractors are appropriately licensed.

Methodology

When the project-specific sampling and analysis plan (SAP) specifies additional or different requirements for sediment sampling, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

General Sample Collection Procedure:

Depending on water depth, the sampling locations will be accessed through a combination of water vessels and/or wading. If obstructions are encountered or locations are otherwise inaccessible, then locations will be field-adjusted and documented. Don gloves as specified in the health and safety plan; replace gloves with new gloves after each sample is collected.

Russian Peat Borer or similar

Typically, this tool is suitable only for collecting shallow samples in soft, organic sediments and in wadable water depths.

Manually advance to the target depth (up to 50 centimeters) and then rotate the tube 180 degrees to collect a relatively undisturbed semicylindrical sediment core. Withdraw the sampling device and then open the chamber containing the sediment core. If sample recovery is limited (i.e., less than approximately 75 percent), discard the sample and resample within a few feet of the original location. Additional deployments may be necessary to obtain the required sample volume for laboratory analysis. Describe and document the sediment lithology in accordance with SOP 2.

Power Grab Sampler or similar

This tool is suitable only for collecting samples of surface sediments that are relatively free of rock, large organic matter (e.g., wood, twigs), and other debris (e.g., anthropogenic material such as metal and glass).

Surface sediment will be collected for discrete or composite analysis from a boat-mounted pneumatic power grab sampling device or by wading. The speed of the grab sampler's descent will be controlled by a winch or crane to minimize disturbance of the sediment. The speed of ascent will also be controlled to minimize loss of sediment from washout. The sediment sample will be inspected upon retrieval to ensure that the grab sampler was completely closed and retained all sediment, including any surficial fines.

After the sampler is secured on the boat, the sediment sample will be inspected carefully before the acceptability of the sample is determined. Each grab sample will be inspected to ensure the following:

- The jaws of the sampler had closed completely during sampling.
- The grab sampling device did not overpenetrate, as indicted by sediment extruding over the top edge or doors of the sampler.
- Target sampling depth was achieved.
- A layer of water overlying the sediment sample is retained in the sampling device.
- The sediment surface is relatively flat, with no winnowing or rilling to indicate loss of fine sediment at the top of the sample.

If not all of these conditions are met, then the sample will be discarded and resampling will be conducted within a few feet of the original location, as follows:

- Discrete surface sediment samples will be collected and submitted individually for analysis.
- After the sediment has been photographed, it will be removed from the grab sampler, using a stainless-steel spoon, and placed in a decontaminated stainless-steel bowl.
- Sediments in direct contact with the grab sampler will not be collected for analysis.
- Discrete samples will be placed directly into sample collection jars. Additional sediment will be collected from each discrete sampling location where composited samples are needed. This additional sediment will be composited in a stainless steel bowl (or equivalent) and homogenized using clean tools (e.g., stainless steel spoon).
- Samples collected for the analysis of potentially volatile chemicals will be placed in appropriate sample containers immediately after retrieval to minimize volatilization.
- When a sample is determined to be acceptable, the overlying water will be removed and then a photograph of the grab surface will be taken.
- Describe and document the sediment lithology in accordance with SOP 2.

Vibracore Sampler

Subsurface sediment core collection will be performed as follows:

- The sampling vessel will navigate to the target position. The GPS position will be recorded from the vessel at the vibracore location where the vibracore first rests on the sediment surface.
- The vibracore will be advanced without power (under its own weight), then vibration will be applied until the core tube is advanced to the target depth or to refusal.
- After a brief pause, the core tube will be extracted from the sediment, using only the minimum vibratory power needed for extraction.

The core will be accepted, rejected, or stored on the vessel pending one additional drive attempt. Field protocols are outlined below:

- Percent recovery is calculated by dividing the height of the recovered sediment by the penetration depth. A minimum of 75 percent recovery is targeted.
- If the core was not able to penetrate to target depth, a second attempt will be made. If similar core refusal is met, a decision will be made as to whether the target depth is achievable. If it is determined to be unachievable, then a description of sediments encountered and potential causes of refusal will be recorded.
- Core sampling intervals or depths will not be corrected for underrecovery. Best professional judgment will be used to stop the core sampler from collecting material before significant sediment compaction occurs.

The core will be inspected for the following acceptance criteria:

- A layer of water overlying the sediment surface is retained in the core barrel.
- The core has 75 percent target recovery versus penetration (or, after two attempts, document why recovery is less).
- The core tube is in good condition (not excessively bent).

- The core appears representative of sediment in the surrounding area.
- The target penetration depth has been achieved or bedrock is encountered. If the target depth is not reached because of cobbles, debris, refusal, or other difficult coring conditions, an additional core will be attempted as described in the contingency plan.

After core acceptance, water will be carefully decanted from the top of the core tube to minimize sediment disturbance. Cores may be cut into segments for handling and storage. Core tubes will be capped and inscribed on the sidewalls with core and segment identification and an “up” arrow.

Actual core penetration will be determined using a tape measure attached to the vibracore head. The core will be driven a minimum of 1 foot deeper than the lower boundary of intended depth or until refusal. The tape measure will be used to measure total core length by comparing the start and end measurements of a tape. After the coring equipment is safely onboard the vessel, the core liner, with the intact core inside, will be extruded. Recovery will be determined by comparing the penetration with the height of the material in the extracted core.

The subsurface sediment cores for chemistry analysis may be processed on the vessel or on land, as described below:

- The core tube will be split open lengthwise to preserve the material stratigraphy inside, using a table saw, handheld circular saw, radial saw, shearing tool, X-ACTO® knife (if liner used), or similar device.
- Cores will be photographed before they are sampled. The sample ID, date, and orientation of the core will be included in each photograph.
- Describe and document the sediment lithology in accordance with SOP 2.
- Subsurface sample intervals will be 2 feet unless field conditions indicate otherwise (e.g., a change in lithology, odor, sheen). Intervals will be collected more frequently if changes observed in the core are observed more frequently than every 2 feet.

While on the vessel, personnel will record the following core collection data in the field notes and on a boring log or sediment log form:

- Date/time. Local date and time when the vibracoring began at each location.
- Total Drive Length. Core tube length and the depth of the core tube penetration into the subsurface.
- Recovered Length. Thickness of the sediment column retained in the core tube before sectioning and removal of the core catcher.

Sampling Procedure:

After the cores have been described and the sample intervals have been determined, sediment will be collected within the determined sample interval, homogenized until uniform in color and texture, and placed into appropriate sample containers for laboratory analysis. Samples collected for the analysis of potentially volatile chemicals will be placed in appropriate sample containers immediately after retrieval to minimize volatilization. Aquatic organisms, large rocks, and debris will be removed from the sample and noted in the field notes.

Decontamination of the sampling device and field equipment will take place between sample stations in accordance with SOP 1.

Appendix D

Data Validation Memorandum

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Data Validation Memorandum

Project No. M0785.29.001| April 1, 2025 | Oregon Department of Environmental Quality

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for soil and associated quality control samples collected on March 18, 2025 at the former Astoria Marine Construction Company sediment site in Astoria, Oregon.

Pace Analytical National (Pace-N), ALS Group USA, Corp. dba ALS Environmental (ALS), and Enthalpy Analytical, LLC (Enthalpy) performed the analyses. MFA reviewed Pace-N report numbers L1838292, L1838296, L1839385, L1842406, and L1843258. Pace-N subcontracted portions of samples EMNR-2025-A, EMNR-2025-B, EMNR-2025-C, and MNR-2025 to Enthalpy for dioxin and furan analysis and to ALS for tributyltin analysis; the results are provided in report L1839385. Pace-N also subcontracted portions of sample RINSATE-031925 to Enthalpy for dioxin and furan analysis and the results are provided in report L1838296. A portion of sample RINSATE-031925 was delivered by MFA to ALS for tributyltin analysis; these results are incorporated into Pace-N report L1842406. Sample results in this data validation memorandum are referenced by the Pace-N laboratory report number. The analyses performed and the samples analyzed are listed in the following tables. Samples submitted on hold are also indicated.

Analysis	Reference
Dioxins and furans	EPA 1613B
Tri-n-butyltin cation	ALS SOP[(a)]
Polychlorinated biphenyls as Aroclors	EPA 8082A
Total metals	EPA 6020B
Total solids	SM 2540G-2011, EPA 160.3

Notes
EPA = U.S. Environmental Protection Agency.
SM = Standard Methods for the Examination of Water and Wastewater.
(a)ALS Group USA, Corp. dba ALS Environmental standard operating procedure for analysis of organotins gas chromatography/mass spectrometry dual-column method based on Krone, 1989.

Samples Analyzed		
Report L1838292, L1838296, L1839385, L1842406, L1843258		
EMNR-2025-A	E-2-031825 (hold)	M-2-031825 (hold)
EMNR-2025-B	E-3-031825 (hold)	M-3-031825 (hold)
EMNR-2025-C[(a)]	E-4-031825 (hold)	M-4-031825 (hold)
MNR-2025	E-5-031825 (hold)	M-5-031825 (hold)
E-1-031825 (hold)	M-1-031825 (hold)	RINSATE-031925

Note
[(a)]Sample name corrected from WMNR-2025-C to EMNR-2025-C after samples submitted to the laboratory.

Data Validation Procedures

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020a, 2020b, 2020c) and appropriate laboratory- and method-specific guidelines (ALS 2024, Enthalpy 2023, EPA 1986, Pace-N 2024).

SM 2540G total solids results reported by Pace-N 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.
- K = result is an estimated maximum potential concentration.
- U = result is non-detect at the method detection limit (MDL).
- UJ = UJ = result is non-detect with an estimated MDL.
- UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.
- UK = result is non-detect and an estimated maximum potential concentration.

General Qualifications

According to the case narrative provided by ALS-K with report L1839385, the ALS SOP primary column continuing calibration verification (CCV) standard did not meet acceptance criteria for tri-n-butyltin cation and the associated surrogate tri-n-propyltin. ALS-K reported results from the secondary column, which had acceptable CCV results. Qualification was not required.

According to report L1839385, the ALS SOP tri-n-butyltin cation result for sample EMNR-2025-C did not meet confirmation column acceptance criteria. The result was already qualified by the laboratory as estimated due to detection below the MRL, the reviewer determined that additional qualification was not required.

According to the case narrative provided by ALS-K with report L1842406, the ALS SOP CCV exceeded upper control limits for many analytes. ALS-K noted that the associated project sample was non-detect; thus, qualification was not required. ALS-K also noted that ALS SOP initial calibration verification standard acceptance criteria was met on only one analytical column for di-n-butyltin and that data quality was not affected.

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 2020c), the reviewer qualified EPA Method 1613B results in report L1839385 because of laboratory EMPC detections as described below:

EPA Method 1613B results reported by Enthalpy 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 Enthalpy flagged congener results below MRLs as EMPCs, the reviewer qualified the results at the reported concentration with UJK, as non-detect, an estimated value, and an EMPC.

Where Enthalpy flagged congener results above MRLs as EMPCs, the reviewer qualified the results at the reported concentration with UK, as non-detect and an EMPC.

Where Enthalpy flagged detected total homolog results 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 UJK, as non-detect, an estimated value, and an EMPC.

Where Enthalpy flagged total homolog results 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 either JK, as an estimated value and an EMPC or K as an EMPC.

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

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
L1839385	EMNR-2025-A	1,2,3,4,7,8-HxCDF	0.165 U	0.165 UJK
		1,2,3,4,7,8,9-HpCDF	0.174 U	0.174 UJK
		Total PeCDD	1.18 U	1.18 UJK
		Total PeCDF	0.605 U	0.605 UJK
		Total HxCDF	2.50 J	2.50 UJK
		Total HpCDF	6.84	6.84 K
	EMNR-2025-B	1,2,3,6,7,8-HxCDD	0.379 U	0.379 UJK
		1,2,3,4,6,7,8-HpCDF	1.43 U	1.43 UJK
		Total TCDD	0.0902 U	0.0902 UJK
		Total PeCDD	0.527 U	0.527 UJK
		Total HxCDD	4.11 J	4.11 UK
		Total TCDF	0.170 U	0.170 UJK
		Total HpCDF	5.48	5.48 UK
	EMNR-2025-C	1,2,3,7,8-PeCDD	0.0910 U	0.0910 UJK
		2,3,4,7,8-PeCDF	0.105 U	0.105 UJK
		Total PeCDD	1.76 J	1.76 UJK
		Total HxCDD	5.56	5.56 UK
		Total PeCDF	0.516 J	0.516 UJK
		Total HxCDF	1.41 J	1.41 UJK
	MNR-2025	1,2,3,7,8-PeCDD	0.237 U	0.237 UJK
		1,2,3,6,7,8-HxCDD	0.839 U	0.839 UJK
		2,3,7,8-TCDF	0.595 U	0.595 UK
		2,3,4,7,8-PeCDF	0.374 U	0.374 UJK
		2,3,4,6,7,8-HxCDF	0.178 U	0.178 UJK
		Total TCDD	0.499 J	0.499 UJK
		Total PeCDD	1.93 J	1.93 UJK
		Total HxCDD	11.4	11.4 K
		Total TCDF	4.03	4.03 UK
		Total PeCDF	2.53 J	2.53 UJK
		Total HxCDF	5.59	5.59 UK

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

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

U = result is non-detect.
UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.
UK = result is non-detect and an estimated maximum potential concentration.

Sample Conditions

Sample Custody

Sample custody was appropriately documented on the chain-of-custody (COC) form accompanying the reports with the following exceptions:

According to the COC form received by ALS from Pace-N, which was provided in report L1839385, a sample relinquishment date and time was not recorded by Pace-N. The reviewer could not confirm that sample custody was maintained for the portions of samples EMNR-2025-A, EMNR-2025-B, EMNR-2025-C, and MNR-2025 analyzed for tri-n-butyltin cation by ALS.

According to the COC form provided with report L1842406, a sample relinquishment time was not recorded on the COC by the MFA sampler. The reviewer confirmed that the image of the COC form included in the report was from a photograph provided by MFA staff to Pace-N and not a scan of the original COC form provided to the subcontract laboratory ALS. The reviewer could not confirm custody documentation for this sample, but did confirm by separate email communication with the sampler that the sample was received by ALS at the approximate time that it was relinquished by the sampler.

The reviewer confirmed that the gap in custody on the COC forms accompanying all reports with the exception of the hand-delivered equipment rinsate blank were due to shipment via a third-party service.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

Reporting Limits

Pace-N evaluated results to MDLs. Enthalpy evaluated EPA Method 1613B results to EDLs and MDLs. Typically, EPA Method 1613B non-detect results are reported at EDLs. The reviewer clarified with the laboratory that when 1613B congeners are detected below the MDL, the results are reported as non-detect at the MDL. ALS evaluated ALS SOP organotin results for soil samples to MDLs and for the rinsate blank to MRLs. Samples that required dilutions because of high analyte concentrations, matrix interferences, and/or dilutions necessary for preparation and/or analysis were reported with raised MDLs and MRLs.

Results reported between the MDL and the MRL were qualified by the laboratories 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 L1838292, the EPA Method 6020B batch WG2473932 laboratory method blank had a detection of total zinc between the MDL and MRL, at 4.04 micrograms per liter. The associated sample result was non-detect at the MDL; thus, qualification was not required.

All remaining laboratory method blank results were non-detect to MDLs.

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.

An equipment rinsate blank (RINSATE-031925) was provided with sample delivery groups L1838292, L1838296, and L1842406 for EPA Methods 8082A, 6020B, 1613B, and ALS SOP organotins analysis. The equipment rinsate blank was non-detect to MDLs for EPA Methods 8082A and 6020B, non-detect to EDLs for EPA Method 1613B dioxins and furans, and non-detect to MRLs for organotins.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during shipping and field handling procedures. Trip blank samples were not required for this sampling event because samples were not analyzed for volatile organic compounds.

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 LCS and LCSD samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements. Enthalpy referenced EPA Method 1613B LCS samples as ongoing precision and recovery samples. Where LCSD results were not reported, laboratory precision was evaluated using laboratory duplicate and/or matrix spike (MS) and matrix spike duplicate (MSD) results, with the following exceptions:

According to report L1838292, an EPA Method 8082A LCSD, laboratory duplicate, or MS and MSD pair were not reported for batch WG2478991. The reviewer determined that there was no impact to associated non-detect sample results; however, batch precision could not be evaluated for the EPA Method 8082A Aroclor 1248 result for sample EMNR-2025-C. The associated detected result was not qualified by the reviewer.

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.

Laboratory duplicate results greater than five times the MRL were evaluated using laboratory RPD control limits. A secondary criterion was used when laboratory duplicate results were non-detect or less than five times the MRL. Results meet the secondary criterion if the absolute difference of the laboratory duplicate sample result and the parent sample result, or the MRL for non-detects, is equal to or less than the MRL value of the parent sample.

All laboratory duplicate results met the acceptance criteria.

Matrix Spike and Matrix Spike Duplicate Results

MS and MSD results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and target analyte recovery. All MS and MSD samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

When MS and MSD were prepared with samples from unrelated projects, the MS and/or MSD percent recovery and/or RPD control limit exceedances did not require qualification because these sample matrices were not representative of project sample matrices.

All MS and MSD results were within acceptance limits for percent recovery and RPD.

Surrogate Results

Surrogate results are used to evaluate laboratory performance of target organic compounds for individual samples.

All surrogate results were within percent recovery acceptance limits.

Field Duplicate Results

Field duplicate results are used to evaluate field precision and sample homogeneity. No field duplicate samples were submitted for analysis.

Incremental Sampling Methodology Results

According to the COC provided with report L1838292, incremental sampling methodology (ISM) processing was requested for samples EMNR-2025-A, EMNR-2025-B, EMNR-2025-C and MNR-2025. The reviewer confirmed that the samples were named according to decision units (DUs). Samples EMNR-2025-A, EMNR-2025-B, EMNR-2025-C were 75-increment samples collected in triplicate from DU EMNR and MNR-2025 was a 100-increment sample collected from DU MNR.

Laboratory report L1838292 did not include any references to ISM processing. The reviewer confirmed by separate email communication that samples EMNR-2025-A, EMNR-2025-B, EMNR-2025-B and MNR-2025 were processed by Pace-N following a Pace standard operating procedure for multi-increment sampling. Samples were dried at room temperature, ground, and 30 aliquots were selected for extraction and analysis.

Triplicate sets were compared to acceptance criteria of 35 percent relative standard deviation (RSD) for analytes with one or more detected results (DEQ 2020). When all analytical results in a replicate set were non-detect or detected below MRLs, RSD was not evaluated. Where results in a replicate set was non-detect, RSD was evaluated using the value of the MDL. EPA Method 1613B dioxin and furan homolog results are not reported with detection limits, so RSDs were not calculated for homolog results. EPA Method 8082A RSD was calculated using the results of record discussed in the Data Package section below. Calculated ISM results are shown in the following table.

Report	Analyte	Units	EMNR-2025-A Result	EMNR-2025-B Result	EMNR-2025-C Result	RSD (%)
L1838292	Antimony	mg/kg	0.167 U	0.167 U	0.209 J	13
	Arsenic		3.19	2.9	3.43	8.4
	Cadmium		0.0861 U	0.0862 U	0.0905 J	2.9
	Chromium		31.1	18.4	25.6	25
	Copper		25.5	14.6	23.1	27
	Lead		4.27	3.47	4.49	13
	Nickel		42.5	13.1	17.2	66
	Zinc		50.1	40.3	49.2	12
L1839385	1,2,3,4,6,7,8-HpCDD	pg/g	27.6	23.9	21.1	13
	1,2,3,4,6,7,8-HpCDF		2.46 J	1.43 UJK	2.23 J	27
	OCDD		195	173	157	11
	OCDF		8.39	6.72	7.52	11

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.
pg/g =picograms per gram.
U = result is non-detect at the method detection limit.
UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.
RSD = relative standard deviation.

Triplicate ISM results that exceeded the RSD criterion were qualified by the reviewer as shown in the table below. Results that were all already qualified as estimated due to detection below the MRL did not require additional qualification.

Report	Sample	Analyte	Units	Original Result	Qualified Result
L1838292	EMNR-2025-A	Nickel	mg/kg	42.5	42.5 J
	EMNR-2025-B			13.1	13.1 J
	EMNR-2025-C			17.2	17.2 J
L1839385	EMNR-2025-A	1,2,3,4,6,7,8-HpCDF	pg/g	2.46 J	2.46 J
	EMNR-2025-B			1.43 U	1.43 UJK[a]
	EMNR-2025-C			2.23 J	2.23 J

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.
pg/g = picograms per gram.
U = result is non-detect at the method detection limit.
UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.
[a]Result also qualified based on estimated maximum potential concentration. Final qualification is shown.

Data Package

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

According to reports L1838292 and L1839385, the sample name WMNR-2025-C was corrected to EMNR-2025-C after samples were received by Pace-N. The correction request is noted on the COC form provided with both reports. Enthalpy noted on the COC/Label Reconciliation Report provided

with report L1839385 that the sample label indicated WMNR-2025-C while the COC form indicated EMNR-2025-C. The reviewer confirmed that the correct sample name was reported.

Report L1839385 was reissued by Pace-N on April 11, 2025 with corrected references to analytical method EPA Method 1613B and with EDL and EMPC reporting for the EPA Method 1613B analytical results. Additionally, the ALS-K portion of the report was revised and corrected to report only tributyltin analyzed by the ALS SOP method, as requested on the COC form.

According to report L1839385, the sample collection year was missing from the subcontracted sample container labels received by Enthalpy. The reviewer confirmed that the correct sample collection year, 2025, was reported.

According to the COC/Label Reconciliation Report provided by Enthalpy with report L1839385, the sample name logged by Enthalpy was MNR-2025-A while the sample name provided on the sample label was MNR-2025-A. The reviewer confirmed that the laboratory had mis-transcribed the sample name, that it was subsequently corrected, and the correct sample name was reported.

According to the COCs provided with reports and L1842406, tributyltin analysis was requested; however, all four organotin results were reported by ALS.

According to report L1842406, sample RINSATE-031925 was reported by ALS as Rinsate-031925. The original sample name format is referenced for this report.

At MFA's request, Pace-N reprepared and reanalyzed two aliquots of sample EMNR-2025-C by EPA Method 8082A due to poor agreement between the triplicate ISM sample and associated primary and duplicate ISM sample results (EMNR-2025-A and EMNR-2025-B). Reanalyzed results are provided in report L1843258. The reviewer confirmed that EPA Method 8082A repreparation and reanalysis used the same ISM-processed sample that was used for the original analysis. The two reanalysis results for sample EMNR-2025-C were all non-detect, which was consistent with EMNR-2025-A and EMNR-2025-B sample results. Pace-N stated in a separate email to the MFA project manager that all results appeared to be reported correctly and that the poor agreement may be due to the sample matrix. The reviewer noted that MDLs were higher for the original and second reanalysis results because of a sulfur cleanup performed by Pace-N on these extracts. Sulfur cleanup was not performed on EMNR-2025-A and EMNR-2025-B EPA Method 8082A extracts. The reviewer selected the first set of EMNR-2025-C reanalysis results as the results of record.

Sample	Analyte	Original Result (mg/kg)	Reanalysis Result #1 (mg/kg)	Reanalysis Result #2 (mg/kg)	Result of Record (mg/kg)
	Report:	L1838292	L1843258		L1843258
EMNR-2025-C	Aroclor 1016	0.0206 U	0.0114 U	0.0228 U	0.0114 U
	Aroclor 1221	0.0216 U	0.0103 U	0.0206 U	0.0103 U
	Aroclor 1232	0.0367 U	0.0108 U	0.0216 U	0.0108 U
	Aroclor 1242	0.0204 U	0.0184 U	0.0367 U	0.0184 U
	Aroclor 1248	0.036 J	0.0102 U	0.0204 U	0.0102 U
	Aroclor 1254	0.021 U	0.0125 U	0.025 U	0.0125 U
	Aroclor 1260	0.0222 U	0.0105 U	0.021 U	0.0105 U
	Aroclor 1262	0.0254 U	0.0111 U	0.0222 U	0.0111 U
	Aroclor 1268	0.0228 U	0.0127 U	0.0254 U	0.0127 U

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.

Sample	Analyte	Original Result (mg/kg)	Reanalysis Result #1 (mg/kg)	Reanalysis Result #2 (mg/kg)	Result of Record (mg/kg)

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

No additional issues were found.

References

ALS-K. 2024. Quality Assurance Manual. Rev. 31.0. ALS Group USA, Corp. dba ALS Environmental: Kelso, WA. August 2.

Enthalpy. 2023. Quality Manual. Rev. 33. Enthalpy Analytical LLC: El Dorado Hills, CA. February 20.

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.

Pace-N. 2024. *Quality Manual*. Version 04. Pace Analytical Services, LLC: Mt. Juliet, TN. March 7.

Appendix E

Analytical Laboratory Reports

MAUL FOSTER ALONGI

ANALYTICAL REPORT

March 31, 2025

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1838292
Samples Received:	03/20/2025
Project Number:	
Description:	AMCCO
Report To:	Mark Pugh

Entire Report Reviewed By:

Brian Ford
Project Manager

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

TABLE OF CONTENTS

SAMPLE SUMMARY

EMNR-2025-A L1838292-01 Solid

Collected by: YP/SM | Collected date/time: 03/18/25 08:00 | Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2475856	1	03/25/25 10:47	03/25/25 10:54	MT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2476520	5	03/26/25 13:58	03/27/25 22:05	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2476520	5	03/26/25 13:58	03/27/25 23:27	LD	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2477639	1	03/27/25 15:59	03/28/25 14:44	NWH	Mt. Juliet, TN

EMNR-2025-B L1838292-02 Solid

Collected by: YP/SM | Collected date/time: 03/18/25 08:00 | Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2475856	1	03/25/25 10:47	03/25/25 10:54	MT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2476520	5	03/26/25 13:58	03/27/25 22:09	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2476520	5	03/26/25 13:58	03/27/25 23:31	LD	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2477639	1	03/27/25 15:59	03/28/25 14:54	NWH	Mt. Juliet, TN

WMNR-2025-C L1838292-03 Solid

Collected by: YP/SM | Collected date/time: 03/18/25 08:00 | Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2475856	1	03/25/25 10:47	03/25/25 10:54	MT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2476525	5	03/27/25 00:21	03/27/25 16:33	UNP	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2478991	2	03/27/25 15:59	03/29/25 23:07	HCS	Mt. Juliet, TN

MNR-2025 L1838292-04 Solid

Collected by: YP/SM | Collected date/time: 03/18/25 08:00 | Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2476010	1	03/25/25 14:31	03/25/25 14:48	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2476525	5	03/27/25 00:21	03/27/25 16:37	UNP	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2478991	2	03/27/25 15:59	03/29/25 23:16	HCS	Mt. Juliet, TN

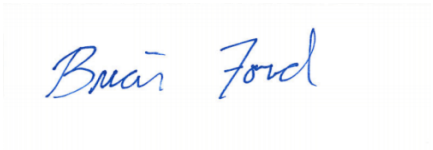
RINSATE-031925 L1838292-15 GW

Collected by: YP/SM | Collected date/time: 03/18/25 08:00 | Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2473932	1	03/25/25 10:04	03/25/25 17:44	UNP	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2477128	1.08	03/27/25 05:16	03/27/25 13:46	HLA	Mt. Juliet, TN

CASE NARRATIVE

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



Brian Ford
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.3		1	03/25/2025 10:54	WG2475856

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	U		0.167	3.02	5	03/27/2025 22:05	WG2476520
Arsenic	3.19		0.101	1.01	5	03/27/2025 22:05	WG2476520
Cadmium	U		0.0861	1.01	5	03/27/2025 22:05	WG2476520
Chromium	31.1		0.298	5.04	5	03/27/2025 22:05	WG2476520
Copper	25.5		0.133	5.04	5	03/27/2025 22:05	WG2476520
Lead	4.27		0.0997	2.01	5	03/27/2025 22:05	WG2476520
Nickel	42.5		0.198	2.52	5	03/27/2025 22:05	WG2476520
Silver	U		0.0871	0.504	5	03/27/2025 22:05	WG2476520
Zinc	50.1		0.745	25.2	5	03/27/2025 23:27	WG2476520

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1268	U		0.0114	0.0171	1	03/28/2025 14:44	WG2477639
PCB 1016	U		0.0103	0.0343	1	03/28/2025 14:44	WG2477639
PCB 1221	U		0.0108	0.0343	1	03/28/2025 14:44	WG2477639
PCB 1232	U		0.0183	0.0343	1	03/28/2025 14:44	WG2477639
PCB 1242	U		0.0102	0.0343	1	03/28/2025 14:44	WG2477639
PCB 1248	U		0.0125	0.0171	1	03/28/2025 14:44	WG2477639
PCB 1254	U		0.0105	0.0171	1	03/28/2025 14:44	WG2477639
PCB 1260	U		0.0111	0.0171	1	03/28/2025 14:44	WG2477639
PCB 1262	U		0.0127	0.0171	1	03/28/2025 14:44	WG2477639
(S) Decachlorobiphenyl	*52.8*			*10.0-135*		*03/28/2025 14:44*	WG2477639
(S) Tetrachloro-m-xylene	*62.4*			*10.0-139*		*03/28/2025 14:44*	WG2477639

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/25/2025 10:54	WG2475856

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	U		0.167	3.02	5	03/27/2025 22:09	WG2476520
Arsenic	2.90		0.101	1.01	5	03/27/2025 22:09	WG2476520
Cadmium	U		0.0862	1.01	5	03/27/2025 22:09	WG2476520
Chromium	18.4		0.298	5.04	5	03/27/2025 22:09	WG2476520
Copper	14.6		0.133	5.04	5	03/27/2025 22:09	WG2476520
Lead	3.47		0.0998	2.02	5	03/27/2025 22:09	WG2476520
Nickel	13.1		0.199	2.52	5	03/27/2025 22:09	WG2476520
Silver	U		0.0872	0.504	5	03/27/2025 22:09	WG2476520
Zinc	40.3		0.746	25.2	5	03/27/2025 23:31	WG2476520

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1268	U		0.0114	0.0171	1	03/28/2025 14:54	WG2477639
PCB 1016	U		0.0103	0.0343	1	03/28/2025 14:54	WG2477639
PCB 1221	U		0.0108	0.0343	1	03/28/2025 14:54	WG2477639
PCB 1232	U		0.0184	0.0343	1	03/28/2025 14:54	WG2477639
PCB 1242	U		0.0102	0.0343	1	03/28/2025 14:54	WG2477639
PCB 1248	U		0.0125	0.0171	1	03/28/2025 14:54	WG2477639
PCB 1254	U		0.0105	0.0171	1	03/28/2025 14:54	WG2477639
PCB 1260	U		0.0111	0.0171	1	03/28/2025 14:54	WG2477639
PCB 1262	U		0.0127	0.0171	1	03/28/2025 14:54	WG2477639
(S) Decachlorobiphenyl	*72.8*			*10.0-135*		*03/28/2025 14:54*	WG2477639
(S) Tetrachloro-m-xylene	*82.4*			*10.0-139*		*03/28/2025 14:54*	WG2477639

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/25/2025 10:54	WG2475856

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	0.209	J	0.167	3.03	5	03/27/2025 16:33	WG2476525
Arsenic	3.43		0.101	1.01	5	03/27/2025 16:33	WG2476525
Cadmium	0.0905	J	0.0862	1.01	5	03/27/2025 16:33	WG2476525
Chromium	25.6		0.298	5.04	5	03/27/2025 16:33	WG2476525
Copper	23.1		0.133	5.04	5	03/27/2025 16:33	WG2476525
Lead	4.49		0.0998	2.02	5	03/27/2025 16:33	WG2476525
Nickel	17.2		0.199	2.52	5	03/27/2025 16:33	WG2476525
Silver	U		0.0872	0.504	5	03/27/2025 16:33	WG2476525
Zinc	49.2		0.746	25.2	5	03/27/2025 16:33	WG2476525

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1268	U		0.0228	0.0343	2	03/29/2025 23:07	WG2478991
PCB 1016	U		0.0206	0.0686	2	03/29/2025 23:07	WG2478991
PCB 1221	U		0.0216	0.0686	2	03/29/2025 23:07	WG2478991
PCB 1232	U		0.0367	0.0686	2	03/29/2025 23:07	WG2478991
PCB 1242	U		0.0204	0.0686	2	03/29/2025 23:07	WG2478991
PCB 1248	0.0360		0.0250	0.0343	2	03/29/2025 23:07	WG2478991
PCB 1254	U		0.0210	0.0343	2	03/29/2025 23:07	WG2478991
PCB 1260	U		0.0222	0.0343	2	03/29/2025 23:07	WG2478991
PCB 1262	U		0.0254	0.0343	2	03/29/2025 23:07	WG2478991
(S) Decachlorobiphenyl	*47.5*			*10.0-135*		*03/29/2025 23:07*	WG2478991
(S) Tetrachloro-m-xylene	*41.5*			*10.0-139*		*03/29/2025 23:07*	WG2478991

Sample Narrative:

L1838292-03 WG2478991: Dilution due to sulfur cleanup.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.2		1	03/25/2025 14:48	WG2476010

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	0.270	J	0.184	3.33	5	03/27/2025 16:37	WG2476525
Arsenic	10.2		0.111	1.11	5	03/27/2025 16:37	WG2476525
Cadmium	0.350	J	0.0948	1.11	5	03/27/2025 16:37	WG2476525
Chromium	26.1		0.328	5.55	5	03/27/2025 16:37	WG2476525
Copper	26.2		0.146	5.55	5	03/27/2025 16:37	WG2476525
Lead	12.3		0.110	2.22	5	03/27/2025 16:37	WG2476525
Nickel	19.2		0.219	2.77	5	03/27/2025 16:37	WG2476525
Silver	U		0.0959	0.555	5	03/27/2025 16:37	WG2476525
Zinc	110		0.821	27.7	5	03/27/2025 16:37	WG2476525

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1268	U		0.0251	0.0377	2	03/29/2025 23:16	WG2478991
PCB 1016	U		0.0226	0.0754	2	03/29/2025 23:16	WG2478991
PCB 1221	U		0.0237	0.0754	2	03/29/2025 23:16	WG2478991
PCB 1232	U		0.0404	0.0754	2	03/29/2025 23:16	WG2478991
PCB 1242	U		0.0224	0.0754	2	03/29/2025 23:16	WG2478991
PCB 1248	U		0.0275	0.0377	2	03/29/2025 23:16	WG2478991
PCB 1254	U		0.0231	0.0377	2	03/29/2025 23:16	WG2478991
PCB 1260	U		0.0244	0.0377	2	03/29/2025 23:16	WG2478991
PCB 1262	U		0.0280	0.0377	2	03/29/2025 23:16	WG2478991
(S) Decachlorobiphenyl	*59.4*			*10.0-135*		*03/29/2025 23:16*	WG2478991
(S) Tetrachloro-m-xylene	*53.1*			*10.0-139*		*03/29/2025 23:16*	WG2478991

Sample Narrative:

L1838292-04 WG2478991: Dilution due to sulfur cleanup.

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		0.310	4.00	1	03/25/2025 17:44	WG2473932
Arsenic	U		0.120	2.00	1	03/25/2025 17:44	WG2473932
Cadmium	U		0.120	1.00	1	03/25/2025 17:44	WG2473932
Chromium	U		0.900	2.00	1	03/25/2025 17:44	WG2473932
Copper	U		0.700	5.00	1	03/25/2025 17:44	WG2473932
Lead	U		0.500	2.00	1	03/25/2025 17:44	WG2473932
Nickel	U		0.500	2.00	1	03/25/2025 17:44	WG2473932
Silver	U		0.110	2.00	1	03/25/2025 17:44	WG2473932
Zinc	U		4.00	25.0	1	03/25/2025 17:44	WG2473932

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
PCB 1016	U		0.291	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1221	U		0.507	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1232	U		0.324	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1242	U		0.324	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1248	U		0.207	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1254	U		0.271	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1260	U		0.246	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1262	U		0.329	0.540	1.08	03/27/2025 13:46	WG2477128
PCB 1268	U		0.273	0.540	1.08	03/27/2025 13:46	WG2477128
(S) Decachlorobiphenyl	*59.1*			*10.0-128*		*03/27/2025 13:46*	WG2477128
(S) Tetrachloro-m-xylene	*78.1*			*10.0-127*		*03/27/2025 13:46*	WG2477128

Method Blank (MB)

(MB) R4190849-1 03/25/25 10:54

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1839383-49 Original Sample (OS) • Duplicate (DUP)

(OS) L1839383-49 03/25/25 10:54 • (DUP) R4190849-3 03/25/25 10:54

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	76.9	74.4	1	3.31		10

Laboratory Control Sample (LCS)

(LCS) R4190849-2 03/25/25 10:54

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	90.0-110	

Method Blank (MB)

(MB) R4191020-1 03/25/25 14:48

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1839259-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1839259-07 03/25/25 14:48 • (DUP) R4191020-3 03/25/25 14:48

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	77.7	79.0	1	1.58		10

Laboratory Control Sample (LCS)

(LCS) R4191020-2 03/25/25 14:48

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	90.0-110	

Method Blank (MB)

(MB) R4190865-1 03/25/25 17:25

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.310	4.00
Arsenic	U		0.120	2.00
Cadmium	U		0.120	1.00
Chromium	U		0.900	2.00
Copper	U		0.700	5.00
Lead	U		0.500	2.00
Nickel	U		0.500	2.00
Silver	U		0.110	2.00
Zinc	4.04	J	4.00	25.0

Laboratory Control Sample (LCS)

(LCS) R4190865-2 03/25/25 17:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	50.0	54.0	108	80.0-120	
Arsenic	50.0	50.0	100	80.0-120	
Cadmium	50.0	51.7	103	80.0-120	
Chromium	50.0	50.8	102	80.0-120	
Copper	50.0	51.3	103	80.0-120	
Lead	50.0	50.8	102	80.0-120	
Nickel	50.0	50.6	101	80.0-120	
Silver	50.0	54.3	109	80.0-120	
Zinc	50.0	53.4	107	80.0-120	

L1838333-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1838333-04 03/25/25 17:31 • (MS) R4190865-4 03/25/25 17:38 • (MSD) R4190865-5 03/25/25 17:41

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	U	54.6	53.9	109	108	1	75.0-125			1.44	20
Arsenic	50.0	U	50.5	49.7	101	99.5	1	75.0-125			1.44	20
Cadmium	50.0	U	52.7	51.7	105	103	1	75.0-125			2.02	20
Chromium	50.0	U	51.2	51.6	102	103	1	75.0-125			0.861	20
Copper	50.0	U	52.4	51.2	105	102	1	75.0-125			2.42	20
Lead	50.0	U	49.5	51.1	99.0	102	1	75.0-125			3.12	20
Nickel	50.0	U	52.0	52.1	104	104	1	75.0-125			0.0723	20
Silver	50.0	U	53.1	53.1	106	106	1	75.0-125			0.00273	20
Zinc	50.0	U	53.1	53.1	106	106	1	75.0-125			0.0395	20

Method Blank (MB)

(MB) R4192074-1 03/27/25 21:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		0.166	3.00
Arsenic	U		0.100	1.00
Cadmium	U		0.0855	1.00
Chromium	U		0.297	5.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Silver	U		0.0865	0.500

Method Blank (MB)

(MB) R4192090-1 03/27/25 23:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R4192074-2 03/27/25 21:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	100	99.2	99.2	80.0-120	
Arsenic	100	86.3	86.3	80.0-120	
Cadmium	100	89.0	89.0	80.0-120	
Chromium	100	87.0	87.0	80.0-120	
Copper	100	85.9	85.9	80.0-120	
Lead	100	85.8	85.8	80.0-120	
Nickel	100	88.4	88.4	80.0-120	
Silver	20.0	18.8	93.9	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4192090-2 03/27/25 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Zinc	100	85.4	85.4	80.0-120	

L1839383-81 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1839383-81 03/27/25 21:49 • (MS) R4192074-5 03/27/25 21:59 • (MSD) R4192074-6 03/27/25 22:02

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	117	0.249	120	116	102	98.9	5	75.0-125			3.24	20
Arsenic	117	4.42	111	110	90.9	90.5	5	75.0-125			0.431	20
Cadmium	117	0.122	110	108	93.6	92.1	5	75.0-125			1.55	20
Chromium	117	16.2	122	121	90.1	89.9	5	75.0-125			0.209	20
Copper	117	8.64	110	112	86.6	88.1	5	75.0-125			1.58	20
Lead	117	4.05	110	107	90.9	88.5	5	75.0-125			2.65	20
Nickel	117	17.1	122	122	90.1	89.9	5	75.0-125			0.175	20
Silver	23.4	U	23.7	23.0	101	98.5	5	75.0-125			2.95	20

L1839383-81 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1839383-81 03/27/25 23:11 • (MS) R4192090-5 03/27/25 23:21 • (MSD) R4192090-6 03/27/25 23:24

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Zinc	117	29.9	133	134	88.5	89.3	5	75.0-125			0.648	20

Method Blank (MB)

(MB) R4192041-1 03/27/25 16:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		0.166	3.00
Arsenic	U		0.100	1.00
Cadmium	U		0.0855	1.00
Chromium	U		0.297	5.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R4192041-2 03/27/25 16:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	100	109	109	80.0-120	
Arsenic	100	98.1	98.1	80.0-120	
Cadmium	100	94.6	94.6	80.0-120	
Chromium	100	97.9	97.9	80.0-120	
Copper	100	96.4	96.4	80.0-120	
Lead	100	94.8	94.8	80.0-120	
Nickel	100	99.2	99.2	80.0-120	
Silver	20.0	19.8	98.8	80.0-120	
Zinc	100	97.3	97.3	80.0-120	

L1839561-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1839561-04 03/27/25 16:17 • (MS) R4192041-5 03/27/25 16:27 • (MSD) R4192041-6 03/27/25 16:30

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	108	0.196	113	115	105	106	5	75.0-125			1.28	20
Arsenic	108	3.01	111	115	100	104	5	75.0-125			3.45	20
Cadmium	108	0.108	102	105	94.7	97.3	5	75.0-125			2.70	20
Chromium	108	11.4	123	124	103	105	5	75.0-125			1.36	20
Copper	108	5.70	114	117	101	103	5	75.0-125			2.37	20
Lead	108	6.30	114	117	99.8	103	5	75.0-125			2.82	20
Nickel	108	8.01	117	120	101	104	5	75.0-125			2.29	20
Silver	21.5	U	21.8	21.7	101	101	5	75.0-125			0.152	20

L1839561-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1839561-04 03/27/25 16:17 • (MS) R4192041-5 03/27/25 16:27 • (MSD) R4192041-6 03/27/25 16:30

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg				%	%		%			%	%
Zinc	108	29.2	139	145	102	108	5	75.0-125			3.99	20

Method Blank (MB)

(MB) R4192092-1 03/27/25 13:17

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
PCB 1016	U		0.269	0.500
PCB 1221	U		0.469	0.500
PCB 1232	U		0.300	0.500
PCB 1242	U		0.300	0.500
PCB 1248	U		0.192	0.500
PCB 1254	U		0.251	0.500
PCB 1260	U		0.228	0.500
PCB 1262	U		0.305	0.500
PCB 1268	U		0.253	0.500
(S) Decachlorobiphenyl	*59.6*			*10.0-128*
(S) Tetrachloro-m-xylene	*69.6*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4192092-2 03/27/25 13:27 • (LCSD) R4192092-3 03/27/25 13:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1016	2.50	2.39	2.35	95.6	94.0	36.0-135			1.69	29
PCB 1260	2.50	1.91	1.99	76.4	79.6	42.0-131			4.10	25
(S) Decachlorobiphenyl				*48.7*	*64.8*	*10.0-128*				
(S) Tetrachloro-m-xylene				*78.5*	*73.9*	*10.0-127*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4192423-1 03/28/25 13:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0102	0.0340
PCB 1221	U		0.0107	0.0340
PCB 1232	U		0.0182	0.0340
PCB 1242	U		0.0101	0.0340
PCB 1248	U		0.0124	0.0170
PCB 1254	U		0.0104	0.0170
PCB 1260	U		0.0110	0.0170
PCB 1262	U		0.0126	0.0170
PCB 1268	U		0.0113	0.0170
(S) Decachlorobiphenyl	*86.3*			*10.0-135*
(S) Tetrachloro-m-xylene	*86.9*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R4192423-2 03/28/25 14:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.0980	58.7	36.0-141	
PCB 1260	0.167	0.0944	56.5	37.0-145	
(S) Decachlorobiphenyl			*63.1*	*10.0-135*	
(S) Tetrachloro-m-xylene			*69.2*	*10.0-139*	

L1839785-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1839785-02 03/28/25 17:09 • (MS) R4192423-3 03/28/25 17:19 • (MSD) R4192423-4 03/28/25 17:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1016	0.161	U	0.124	0.121	77.0	76.6	1	10.0-160			2.45	37
PCB 1260	0.161	U	0.0886	0.0780	55.0	49.4	1	10.0-160			12.7	38
(S) Decachlorobiphenyl					*73.4*	*67.9*		*10.0-135*				
(S) Tetrachloro-m-xylene					*88.8*	*82.0*		*10.0-139*				

Method Blank (MB)

(MB) R4192754-1 03/29/25 21:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0204	0.0680
PCB 1221	U		0.0214	0.0680
PCB 1232	U		0.0364	0.0680
PCB 1242	U		0.0202	0.0680
PCB 1248	U		0.0248	0.0340
PCB 1254	U		0.0208	0.0340
PCB 1260	U		0.0220	0.0340
PCB 1262	U		0.0252	0.0340
PCB 1268	U		0.0226	0.0340
(S) Decachlorobiphenyl	*98.0*			*10.0-135*
(S) Tetrachloro-m-xylene	*79.6*			*10.0-139*

Sample Narrative:

BLANK: Dilution due to sulfur cleanup.

Laboratory Control Sample (LCS)

(LCS) R4192754-2 03/29/25 21:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.0728	43.6	36.0-141	
PCB 1260	0.167	0.0715	42.8	37.0-145	
(S) Decachlorobiphenyl			*55.3*	*10.0-135*	
(S) Tetrachloro-m-xylene			*48.0*	*10.0-139*	

Sample Narrative:

LCS: Dilution due to sulfur cleanup.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Oregon DEQ

Send Lab Report To: Mark Pugh
Address: 700 NE Multnomah St,
Suite 600
Portland, OR 97232
Tel. #: 503-229-5587
E-mail: Mark.Pugh@deq.oregon.gov
mbenzinger@maulfoster.com; mpollock@maulfoster.com

Contract Laboratory Name:
ESC

Lab Batch #:

Invoice To: ODEQ/Business Office
Address: 700 NE Multnomah St,
Suite 600
Portland, OR 97232
Tel. #: 503-229-5696

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

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

Project Name:
AMCCO

Sampler Name: Y. Perez S. Maloney

Sample Preservative

Total Metals EPA 6020	Tributyltin	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD					
None	None	None	None	None						

A227

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Total Metals EPA 6020	Tributyltin	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD	Comments
EMNR-2025-A	3/18/25; 0800	SS	1					X		-01
EMNR-2025-B	3/18/25; 0810	SS	1					X		-02
WMNR-2025-C	3/18/25; 0820	SS	1					X		-03
MNR-2025	3/17/25; 1155	SS	3					X		Sample is 3 x 1 L containers to be ISM processed as one sample. -04

LR38292

update WMNR-2025-C to EMNR-2025-C per request of Mary Benzinger-bjf 03/26/25

Notes: Please analyze samples for the following after ISM is complete:
- Total metals by EPA 6020 (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc)
- Tributyltin
- Total PCBs by EPA8082
- Dioxins/furans by EPA 1613B

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Deryan Galeano	Agency/Agent:
Signature: Yperez	Time & Date: 3/19/25 1600	Signature: Deryan G	Time & Date: 3.20.25 0930
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

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Sample ID#	Collection Date/Time	Matrix	Number of Containers	Total Metals EPA 6020	Tributyltin*	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD						Comments
Sample Preservative				None	None	None	None	None							4838292
E-1-031825	3/18/25; 1100	SS	2						X					-05	Samples to be held, follow up analysis pending receipt of ISM sample results.
E-2-031825	3/18/25; 1045	SS	2						X					-06	
E-3-031825	3/18/25; 1015	SS	2						X					-07	*Containers for TBT analysis sent directly to ALS Kelso for frozen archive.
E-4-031825	3/18/25; 0945	SS	2						X					-08	
E-5-031825	3/18/25; 0930	SS	2						X					-09	
M-1-031725	3/17/25; 1100	SS	2						X					-10	
M-2-031825	3/18/25; 1200	SS	2						X					-11	
M-3-031825	3/18/25; 1000	SS	2						X					-12	
M-4-031725	3/18/25; 1400	SS	2						X					-13	
M-5-031925	3/19/25; 1010	SS	2						X					-14	

Notes: Total Metals by EPA 6020 = antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Dewey Galeano	Agency/Agent:
Signature:	Time & Date: 3/19/25 1600	Signature:	Time & Date: 3.20.25 0930
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

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- ☐ 48 hours
- ☐ 24 hours
- ☐ Other _____

Project Name:
AMCCO

Sampler Name: Y. Perez S. Maloney

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Sample Preservative: None	None	None	None	None							Comments
				Total Metals EPA 6020	Tributylfin*	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD						LR38292
RINSATE-031925	3/19/25; 1100	W	5	X	*	X	X							-15	TBT containers sent directly to ALS Kelso

Sample Receipt Checklist (31)
COC Seal Present/Intact: ✓Y N NP — If Applicable
COC Signed/Accurate: ✓Y N — VOA Zero Headspace: Y N
Bottles arrive intact: ✓Y N — Pres. Correct/Check: ✓Y N
Correct bottles used: ✓Y N
Sufficient volume sent: ✓Y N — Condition: NCF ✓OK
RA Screen <0.5 mR/hr: ✓Y N

Notes: Total Metals by EPA 6020 = antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc

Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:
Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Dengan Galeano	Agency/Agent:
Signature:	Time & Date: 3/19/25 1600	Signature:	Time & Date: 3.20.25 0930

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Multiple Parcel Form

L# LF638292

Parcel Tracking Number	Infrared Thermometer ID	Temperature Reading (°C)	Correction Factor (°C)	Corrected Temperature (°C)	Custody Seal Intact
4439 2438 6640	TLAG	3.5	0.4	3.9	(Yes) / No / Not Present
4439 2438 6617	TLAG	1.8	0.4	2.2	(Yes) / No / Not Present
4439 2438 6628	TLAG	0.7	0.4	DG 1.1	(Yes) / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present

Deyanah
Name

3.20.25
Date

ANALYTICAL REPORT

April 11, 2025

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1838296
Samples Received:	03/20/2025
Project Number:	
Description:	AMCCO
Report To:	Mark Pugh

Entire Report Reviewed By:

Brian Ford
Project Manager

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

TABLE OF CONTENTS

SAMPLE SUMMARY

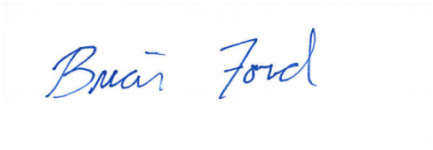
RINSATE-031925 L1838296-01 GW

Collected by: YP/SM
Collected date/time: 03/19/25 11:00
Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2475320	1	04/10/25 00:00	04/10/25 00:00	-	Subcontract

CASE NARRATIVE

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



Brian Ford
Project Manager

Project Narrative

L1838296 -01 contains subout data that is included after the chain of custody.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier Description

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
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Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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- ☐ 24 hours
- ☐ Other _____

Project Name:
AMCCO

Sampler Name: Y. Perez S. Maloney

A227

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Total Metals EPA 6020	Tributyltin	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD						Comments
				Sample Preservative: None	None	None	None	None							LR8358296
EMNR-2025-A	3/18/25; 0800	SS	1					X							
EMNR-2025-B	3/18/25; 0810	SS	1					X							
WMNR-2025-C	3/18/25; 0820	SS	1					X							
MNR-2025	3/17/25; 1155	SS	3					X							Sample is 3 x 1 L containers to be ISM processed as one sample.

Notes: Please analyze samples for the following after ISM is complete:
- Total metals by EPA 6020 (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc)
- Tributyltin
- Total PCBs by EPA8082
- Dioxins/furans by EPA 1613B

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Dergan Galeano	Agency/Agent:
Signature: Yperez	Time & Date: 3/19/25 1600	Signature: Dergan	Time & Date: 3.20.25 0930
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

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E-1-031825	3/18/25; 1100	SS	2						X						Samples to be held, follow up analysis pending receipt of ISM sample results.
E-2-031825	3/18/25; 1045	SS	2						X						
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M-1-031725	3/17/25; 1100	SS	2						X						
M-2-031825	3/18/25; 1200	SS	2						X						
M-3-031825	3/18/25; 1000	SS	2						X						
M-4-031725	3/18/25; 1400	SS	2						X						
M-5-031925	3/19/25; 1010	SS	2						X						

Notes: Total Metals by EPA 6020 = antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Deyany Galeano	Agency/Agent:
Signature:	Time & Date: 3/19/25 1600	Signature: Deyany	Time & Date: 3.20.25 09:30
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Sample Receipt Checklist (31)

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

Notes: Total Metals by EPA 6020 = antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Dengan Galeano	Agency/Agent:
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Multiple Parcel Form

L# L1838296

Parcel Tracking Number	Infrared Thermometer ID	Temperature Reading (°C)	Correction Factor (°C)	Corrected Temperature (°C)	Custody Seal Intact
4439 2438 6640	TI AG	3.5	0.4	3.9	(Yes) / No / Not Present
4439 2438 6617	TI AG	1.8	0.4	2.2	(Yes) / No / Not Present
4439 2438 6628	TI, AG	0.7	0.4	DG 1.1	(Yes) / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present
					Yes / No / Not Present

Dwight
Name

3.20.25
Date

April 10, 2025

Enthalpy Analytical - El Dorado Hills
Work Order No. 2503239

Mr. Jimmy Huckaba
Pace Analytical National Center
12065 Lebanon Road
Mt. Juliet, TN 37122

Dear Mr. Huckaba,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on March 26, 2025 under your Project Name 'WG2475320'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at silkeannmariz.mariano@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Silke Ann Mariz Mariano
Project Manager

Enthalpy Analytical -EDH certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Enthalpy Analytical -EDH .

Enthalpy Analytical - EDH Work Order No. 2503239
Case Narrative

Sample Condition on Receipt:

One groundwater sample was received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The sample was received in good condition and within the method temperature requirements.

Analytical Notes:

EPA Method 1613B

The sample was extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2503239-01	RINSATE-031925	19-Mar-25 11:00	26-Mar-25 09:30	Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank

EPA Method 1613B

Client Data
Name: Pace Analytical National Center
Project: WG2475320
Matrix: Aqueous

Laboratory Data
Lab Sample: B25D026-BLK1
QC Batch: B25D026
Sample Size: 1.00 L
Date Extracted: 03-Apr-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.853	3.92		5.00		07-Apr-25 18:20	1
1,2,3,7,8-PeCDD	ND	0.626	8.32		25.0		07-Apr-25 18:20	1
1,2,3,4,7,8-HxCDD	ND	2.35	6.58		25.0		07-Apr-25 18:20	1
1,2,3,6,7,8-HxCDD	ND	2.49	5.81		25.0		07-Apr-25 18:20	1
1,2,3,7,8,9-HxCDD	ND	2.63	5.99		25.0		07-Apr-25 18:20	1
1,2,3,4,6,7,8-HpCDD	ND	2.49	5.53		25.0		07-Apr-25 18:20	1
OCDD	ND	7.69	16.3		50.0		07-Apr-25 18:20	1
2,3,7,8-TCDF	ND	0.761	1.74		5.00		07-Apr-25 18:20	1
1,2,3,7,8-PeCDF	ND	1.03	6.71		25.0		07-Apr-25 18:20	1
2,3,4,7,8-PeCDF	ND	0.924	7.55		25.0		07-Apr-25 18:20	1
1,2,3,4,7,8-HxCDF	ND	0.620	6.81		25.0		07-Apr-25 18:20	1
1,2,3,6,7,8-HxCDF	ND	0.619	6.11		25.0		07-Apr-25 18:20	1
2,3,4,6,7,8-HxCDF	ND	0.684	5.93		25.0		07-Apr-25 18:20	1
1,2,3,7,8,9-HxCDF	ND	0.924	6.34		25.0		07-Apr-25 18:20	1
1,2,3,4,6,7,8-HpCDF	ND	0.636	6.28		25.0		07-Apr-25 18:20	1
1,2,3,4,7,8,9-HpCDF	ND	0.805	7.33		25.0		07-Apr-25 18:20	1
OCDF	ND	2.03	13.6		50.0		07-Apr-25 18:20	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.00							
Totals								
Total TCDD	ND	0.853			5.00			
Total PeCDD	ND	0.626			25.0			
Total HxCDD	ND	2.63			25.0			
Total HpCDD	ND	2.49			25.0			
Total TCDF	ND	0.761			5.00			
Total PeCDF	ND	1.03			25.0			
Total HxCDF	ND	0.924			25.0			
Total HpCDF	ND	0.805			25.0			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	76.4	25 - 164		07-Apr-25 18:20	1
13C-1,2,3,7,8-PeCDD	IS	74.3	25 - 181		07-Apr-25 18:20	1
13C-1,2,3,4,7,8-HxCDD	IS	73.3	32 - 141		07-Apr-25 18:20	1
13C-1,2,3,6,7,8-HxCDD	IS	74.2	28 - 130		07-Apr-25 18:20	1
13C-1,2,3,7,8,9-HxCDD	IS	71.3	32 - 141		07-Apr-25 18:20	1
13C-1,2,3,4,6,7,8-HpCDD	IS	65.8	23 - 140		07-Apr-25 18:20	1
13C-OCDD	IS	53.2	17 - 157		07-Apr-25 18:20	1
13C-2,3,7,8-TCDF	IS	72.1	24 - 169		07-Apr-25 18:20	1
13C-1,2,3,7,8-PeCDF	IS	75.0	24 - 185		07-Apr-25 18:20	1
13C-2,3,4,7,8-PeCDF	IS	74.9	21 - 178		07-Apr-25 18:20	1
13C-1,2,3,4,7,8-HxCDF	IS	71.8	26 - 152		07-Apr-25 18:20	1
13C-1,2,3,6,7,8-HxCDF	IS	73.1	26 - 123		07-Apr-25 18:20	1
13C-2,3,4,6,7,8-HxCDF	IS	72.2	28 - 136		07-Apr-25 18:20	1
13C-1,2,3,7,8,9-HxCDF	IS	66.0	29 - 147		07-Apr-25 18:20	1
13C-1,2,3,4,6,7,8-HpCDF	IS	65.6	28 - 143		07-Apr-25 18:20	1
13C-1,2,3,4,7,8,9-HpCDF	IS	68.0	26 - 138		07-Apr-25 18:20	1
13C-OCDF	IS	59.5	17 - 157		07-Apr-25 18:20	1
37Cl-2,3,7,8-TCDD	CRS	90.1	35 - 197		07-Apr-25 18:20	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

Results reported to MDL.

Sample ID: OPR **EPA Method 1613B**

Client Data
Name: Pace Analytical National Center
Project: WG2475320
Matrix: Aqueous

Laboratory Data
Lab Sample: B25D026-BS1
QC Batch: B25D026 Date Extracted: 03-Apr-25 08:19
Sample Size: 1.00 L Column: ZB-DIOXIN

Analyte	Amt Found (pg/L)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	198	200	99.0	67-158		07-Apr-25 16:04	1
1,2,3,7,8-PeCDD	1060	1000	106	70-142		07-Apr-25 16:04	1
1,2,3,4,7,8-HxCDD	1050	1000	105	70-164		07-Apr-25 16:04	1
1,2,3,6,7,8-HxCDD	1000	1000	100	76-134		07-Apr-25 16:04	1
1,2,3,7,8,9-HxCDD	1020	1000	102	64-162		07-Apr-25 16:04	1
1,2,3,4,6,7,8-HpCDD	1020	1000	102	70-140		07-Apr-25 16:04	1
OCDD	2070	2000	104	78-144		07-Apr-25 16:04	1
2,3,7,8-TCDF	202	200	101	75-158		07-Apr-25 16:04	1
1,2,3,7,8-PeCDF	996	1000	99.6	80-134		07-Apr-25 16:04	1
2,3,4,7,8-PeCDF	1040	1000	104	68-160		07-Apr-25 16:04	1
1,2,3,4,7,8-HxCDF	1020	1000	102	72-134		07-Apr-25 16:04	1
1,2,3,6,7,8-HxCDF	975	1000	97.5	84-130		07-Apr-25 16:04	1
2,3,4,6,7,8-HxCDF	1020	1000	102	70-156		07-Apr-25 16:04	1
1,2,3,7,8,9-HxCDF	1010	1000	101	78-130		07-Apr-25 16:04	1
1,2,3,4,6,7,8-HpCDF	995	1000	99.5	82-122		07-Apr-25 16:04	1
1,2,3,4,7,8,9-HpCDF	1010	1000	101	78-138		07-Apr-25 16:04	1
OCDF	2090	2000	105	63-170		07-Apr-25 16:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	77.3	20-175		07-Apr-25 16:04	1
13C-1,2,3,7,8-PeCDD	IS	77.3	21-227		07-Apr-25 16:04	1
13C-1,2,3,4,7,8-HxCDD	IS	73.7	21-193		07-Apr-25 16:04	1
13C-1,2,3,6,7,8-HxCDD	IS	78.5	25-163		07-Apr-25 16:04	1
13C-1,2,3,7,8,9-HxCDD	IS	75.4	21-193		07-Apr-25 16:04	1
13C-1,2,3,4,6,7,8-HpCDD	IS	73.5	26-166		07-Apr-25 16:04	1
13C-OCDD	IS	72.4	13-199		07-Apr-25 16:04	1
13C-2,3,7,8-TCDF	IS	71.6	22-152		07-Apr-25 16:04	1
13C-1,2,3,7,8-PeCDF	IS	73.8	21-192		07-Apr-25 16:04	1
13C-2,3,4,7,8-PeCDF	IS	75.5	13-328		07-Apr-25 16:04	1
13C-1,2,3,4,7,8-HxCDF	IS	74.4	19-202		07-Apr-25 16:04	1
13C-1,2,3,6,7,8-HxCDF	IS	78.1	21-159		07-Apr-25 16:04	1
13C-2,3,4,6,7,8-HxCDF	IS	75.6	22-176		07-Apr-25 16:04	1
13C-1,2,3,7,8,9-HxCDF	IS	73.7	17-205		07-Apr-25 16:04	1
13C-1,2,3,4,6,7,8-HpCDF	IS	76.3	21-158		07-Apr-25 16:04	1
13C-1,2,3,4,7,8,9-HpCDF	IS	74.9	20-186		07-Apr-25 16:04	1
13C-OCDF	IS	76.9	13-199		07-Apr-25 16:04	1
37Cl-2,3,7,8-TCDD	CRS	97.0	31-191		07-Apr-25 16:04	1

Sample ID: RINSATE-031925 **EPA Method 1613B**

Client Data
Name: Pace Analytical National Center
Project: WG2475320
Matrix: Groundwater
Date Collected: 19-Mar-25 11:00

Laboratory Data
Lab Sample: 2503239-01
QC Batch: B25D026
Sample Size: 0.945 L
Date Received: 26-Mar-25 09:30
Date Extracted: 03-Apr-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.57	4.15		5.29		08-Apr-25 05:02	1
1,2,3,7,8-PeCDD	ND	2.90	8.81		26.5		08-Apr-25 05:02	1
1,2,3,4,7,8-HxCDD	ND	3.67	6.96		26.5		08-Apr-25 05:02	1
1,2,3,6,7,8-HxCDD	ND	3.88	6.15		26.5		08-Apr-25 05:02	1
1,2,3,7,8,9-HxCDD	ND	3.86	6.34		26.5		08-Apr-25 05:02	1
1,2,3,4,6,7,8-HpCDD	ND	2.97	5.85		26.5		08-Apr-25 05:02	1
OCDD	ND	9.88	17.3		52.9		08-Apr-25 05:02	1
2,3,7,8-TCDF	ND	0.924	1.84		5.29		08-Apr-25 05:02	1
1,2,3,7,8-PeCDF	ND	1.86	7.10		26.5		08-Apr-25 05:02	1
2,3,4,7,8-PeCDF	ND	1.40	7.99		26.5		08-Apr-25 05:02	1
1,2,3,4,7,8-HxCDF	ND	0.450	7.21		26.5		08-Apr-25 05:02	1
1,2,3,6,7,8-HxCDF	ND	0.455	6.47		26.5		08-Apr-25 05:02	1
2,3,4,6,7,8-HxCDF	ND	0.495	6.28		26.5		08-Apr-25 05:02	1
1,2,3,7,8,9-HxCDF	ND	0.690	6.71		26.5		08-Apr-25 05:02	1
1,2,3,4,6,7,8-HpCDF	ND	1.18	6.65		26.5		08-Apr-25 05:02	1
1,2,3,4,7,8,9-HpCDF	ND	1.51	7.76		26.5		08-Apr-25 05:02	1
OCDF	ND	1.91	14.4		52.9		08-Apr-25 05:02	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.00							
Totals								
Total TCDD	ND	1.57			5.29			
Total PeCDD	ND	2.90			26.5			
Total HxCDD	ND	3.88			26.5			
Total HpCDD	ND	2.97			26.5			
Total TCDF	ND	0.924			5.29			
Total PeCDF	ND	1.86			26.5			
Total HxCDF	ND	0.690			26.5			
Total HpCDF	ND	1.51			26.5			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	78.0	25 - 164		08-Apr-25 05:02	1
13C-1,2,3,7,8-PeCDD	IS	74.8	25 - 181		08-Apr-25 05:02	1
13C-1,2,3,4,7,8-HxCDD	IS	71.2	32 - 141		08-Apr-25 05:02	1
13C-1,2,3,6,7,8-HxCDD	IS	74.5	28 - 130		08-Apr-25 05:02	1
13C-1,2,3,7,8,9-HxCDD	IS	72.0	32 - 141		08-Apr-25 05:02	1
13C-1,2,3,4,6,7,8-HpCDD	IS	65.7	23 - 140		08-Apr-25 05:02	1
13C-OCDD	IS	51.4	17 - 157		08-Apr-25 05:02	1
13C-2,3,7,8-TCDF	IS	75.1	24 - 169		08-Apr-25 05:02	1
13C-1,2,3,7,8-PeCDF	IS	71.3	24 - 185		08-Apr-25 05:02	1
13C-2,3,4,7,8-PeCDF	IS	73.8	21 - 178		08-Apr-25 05:02	1
13C-1,2,3,4,7,8-HxCDF	IS	69.6	26 - 152		08-Apr-25 05:02	1
13C-1,2,3,6,7,8-HxCDF	IS	71.6	26 - 123		08-Apr-25 05:02	1
13C-2,3,4,6,7,8-HxCDF	IS	71.8	28 - 136		08-Apr-25 05:02	1
13C-1,2,3,7,8,9-HxCDF	IS	71.2	29 - 147		08-Apr-25 05:02	1
13C-1,2,3,4,6,7,8-HpCDF	IS	68.3	28 - 143		08-Apr-25 05:02	1
13C-1,2,3,4,7,8,9-HpCDF	IS	67.6	26 - 138		08-Apr-25 05:02	1
13C-OCDF	IS	59.5	17 - 157		08-Apr-25 05:02	1
37Cl-2,3,7,8-TCDD	CRS	87.3	35 - 197		08-Apr-25 05:02	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

Results reported to MDL.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

Sub-Contract Chain of Custody

Batch Date/Time: 03/24/25 13:23
Sub-Contract Lab: ENTHALECA
Address: 1104 Windfield Way
City/State: El Dorado Hills, CA 95762
Contact: silkeannmariz.mariano@enthalpy.com
Owner Lab: PACEMTJL
Address: 12065 Lebanon Rd.
City/State: Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

2503239

0.8°C

WO: WG2475320
Email: MTJLSuboutTeam@pacelabs.com
Results Due Date: 04/04/25
ESC Purchase Order #: L1838296
Send Reports to: James C Huckaba

Pace Analytical®

12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone:(615) 773-9756
Fax:(615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Method	Sample Number Lab Use Only	Sample Comments Lab Use Only
RINSATE-031925 1L-Amb-NoPres - 51194060 1L-Amb-NoPres - 51194061	GW	OR	03/19/25 11:00	Dioxins and Furans 1613	1613	1. L1838296-01	Equis EDD

*= Container used for multiple Samples and/or Analyses

Relinquished by: _____ **Date** 3-24-25

Received by: _____ **Date** 03/20/25 09:30

Relinquished by: _____ **Date** _____

Received by: _____ **Date** _____

CoC/Label Reconciliation Report WO# 2503239

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2503239-01	A RINSATE-031925	☑	L1838296-01	19-Mar-25 11:00	☑	Amber Glass NM Bottle, 1L	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

CONDITION	Yes	No	NA
Sample Container Intact?	✓		
Sample Container(s) Custody Seals Intact?			✓
Custody Seals On Cooler Intact?	✓		
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)?	✓		

Comments: A) No back up volume

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Verifed by/Date: VB 03/26/25
WJS 08/26/25

ANALYTICAL REPORT

April 11, 2025

Revised Report

1 Cp
2 Tc
3 Ss
4 Cn
5 Gl
6 Al
7 Sc

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1839385
Samples Received:	03/20/2025
Project Number:	
Description:	AMCCO
Report To:	Mark Pugh

Entire Report Reviewed By:

Brian Ford

Project Manager

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

EMNR-2025-A L1839385-01 Solid

Collected by: YP/SM
Collected date/time: 03/18/25 08:00
Received date/time: 03/20/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2475371	1	04/04/25 00:00	04/04/25 00:00	-	Subcontract
Subcontracted Analyses	WG2475401	1	04/03/25 00:00	04/03/25 00:00	-	Subcontract

EMNR-2025-B L1839385-02 Solid

Collected by: YP/SM
Collected date/time: 03/18/25 08:10
Received date/time: 03/20/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2475371	1	04/04/25 00:00	04/04/25 00:00	-	Subcontract
Subcontracted Analyses	WG2475401	1	04/03/25 00:00	04/03/25 00:00	-	Subcontract

EMNR-2025-C L1839385-03 Solid

Collected by: YP/SM
Collected date/time: 03/18/25 08:20
Received date/time: 03/20/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2475371	1	04/04/25 00:00	04/04/25 00:00	-	Subcontract
Subcontracted Analyses	WG2475401	1	04/03/25 00:00	04/03/25 00:00	-	Subcontract

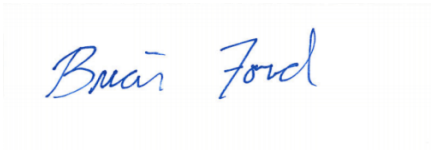
MNR-2025 L1839385-04 Solid

Collected by: YP/SM
Collected date/time: 03/17/25 11:55
Received date/time: 03/20/25 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2475371	1	04/04/25 00:00	04/04/25 00:00	-	Subcontract
Subcontracted Analyses	WG2475401	1	04/03/25 00:00	04/03/25 00:00	-	Subcontract

CASE NARRATIVE

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



Brian Ford
Project Manager

Report Revision History

Level II Report - Version 1: 04/04/25 16:14

Project Narrative

revised: updated butlytin report to only report tributyltin. updated 1613 to report in EMPC/MDL/EDL/RL format.
L1839385 -01, -02, -03, -04 contains subout data that is included after the chain of custody.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description

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

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

CO

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Oregon DEQ

Send Lab Report To: Mark Pugh
Address: 700 NE Multnomah St,
Suite 600
Portland, OR 97232
Tel. #: 503-229-5587
E-mail: Mark.Pugh@deq.oregon.gov
mbenzinger@maulfoster.com; mpollock@maulfoster.com

Contract Laboratory Name:
ESC

Lab Batch #:

Invoice To: ODEQ/Business Office
Address: 700 NE Multnomah St,
Suite 600
Portland, OR 97232
Tel. #: 503-229-5696

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

Turn Arc
- ☒ 10 day
- ☐ 5 days
- ☐ 72 hou
- ☐ 48 hou
- ☐ 24 hou
- ☐ Other

Project Name:
AMCCO

Sampler Name: Y. Perez S. Maloney

Sample Preservative

None	None	None	None	None						

A227

update WMNR-2025-C to EMNR-2025-C per request of Mary Benzinger-bjf 03/26/25

L1839385

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Total Metals EPA 6020	Tributyltin	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD						Commer
EMNR-2025-A	3/18/25; 0800	SS	1					X						01	-01
EMNR-2025-B	3/18/25; 0810	SS	1					X						02	-02
WMNR-2025-C	3/18/25; 0820	SS	1					X						03	-03
MNR-2025	3/17/25; 1155	SS	3					X						04	Sample is 3 x 1 L c be ISM processed sample.

MS 3/24/25
L1839385

Notes: Please analyze samples for the following after ISM is complete:
- Total metals by EPA 6020 (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc)
- Tributyltin
- Total PCBs by EPA8082
- Dioxins/furans by EPA 1613B

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Devyn Galeano	Agency/Agent:
Signature: Yperez	Time & Date: 3/19/25 1600	Signature: Devyn	Time & Date: 3.20.2
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

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

April 10, 2025

Enthalpy Analytical - El Dorado Hills
Work Order No. 2503246

Mr. Jimmy Huckaba
Pace Analytical National Center
12065 Lebanon Road
Mt. Juliet, TN 37122

Dear Mr. Huckaba,

Enclosed are the amended results for the sample set received at Enthalpy Analytical - EDH on March 27, 2025 under your Project Name 'WG2475401'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at silkeannmariz.mariano@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Silke Ann Mariz Mariano
Project Manager

Enthalpy Analytical - EDH certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Enthalpy Analytical - EDH..

Enthalpy Analytical - EDH Work Order No. 2503246
Case Narrative

Sample Condition on Receipt:

Four soil samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements. A revised Chain-of-Custody (CoC) was received by email on March 26, 2025.

An "M" qualifier indicates that the result does not meet the method criteria for a positive detection; it is equivalent to an EMPC, or Estimated Maximum Possible Concentration.

This report was amended to correct the analytical method in the Case Narrative, add qualifiers and revise the reporting format.

Analytical Notes:

EPA Method 1613B

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limit in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2503246-01	EMNR-2025-A	18-Mar-25 08:00	27-Mar-25 09:05	Amber Glass, 120 mL
2503246-02	EMNR-2025-B	18-Mar-25 08:10	27-Mar-25 09:05	Amber Glass, 120 mL
2503246-03	EMNR-2025-C	18-Mar-25 08:20	27-Mar-25 09:05	Amber Glass, 120 mL
2503246-04	MNR-2025-A	17-Mar-25 11:55	27-Mar-25 09:05	Amber Glass, 120 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

EPA Method 1613B

Client Data
Name: Pace Analytical National Center
Project: WG2475401
Matrix: Solid

Laboratory Data
Lab Sample: B25C350-BLK1
QC Batch: B25C350
Sample Size: 10.0 g
Date Extracted: 28-Mar-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.0691	0.190		0.500		31-Mar-25 20:38	1
1,2,3,7,8-PeCDD	ND	0.115	0.784		2.50		31-Mar-25 20:38	1
1,2,3,4,7,8-HxCDD	ND	0.133	0.633		2.50		31-Mar-25 20:38	1
1,2,3,6,7,8-HxCDD	ND	0.130	0.640		2.50		31-Mar-25 20:38	1
1,2,3,7,8,9-HxCDD	ND	0.138	0.717		2.50		31-Mar-25 20:38	1
1,2,3,4,6,7,8-HpCDD	ND	0.124	0.706		2.50		31-Mar-25 20:38	1
OCDD	ND	0.595	1.62		5.00		31-Mar-25 20:38	1
2,3,7,8-TCDF	ND	0.0581	0.183		0.500		31-Mar-25 20:38	1
1,2,3,7,8-PeCDF	ND	0.0779	0.576		2.50		31-Mar-25 20:38	1
2,3,4,7,8-PeCDF	ND	0.0636	0.686		2.50		31-Mar-25 20:38	1
1,2,3,4,7,8-HxCDF	ND	0.0823	0.659		2.50		31-Mar-25 20:38	1
1,2,3,6,7,8-HxCDF	ND	0.0875	0.621		2.50		31-Mar-25 20:38	1
2,3,4,6,7,8-HxCDF	ND	0.100	0.661		2.50		31-Mar-25 20:38	1
1,2,3,7,8,9-HxCDF	ND	0.116	0.716		2.50		31-Mar-25 20:38	1
1,2,3,4,6,7,8-HpCDF	ND	0.0606	0.649		2.50		31-Mar-25 20:38	1
1,2,3,4,7,8,9-HpCDF	ND	0.0848	0.818		2.50		31-Mar-25 20:38	1
OCDF	ND	0.142	3.84		5.00		31-Mar-25 20:38	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.00							
Totals								
Total TCDD	ND	0.0691			0.500			
Total PeCDD	ND	0.115			2.50			
Total HxCDD	ND	0.138			2.50			
Total HpCDD	ND	0.124			2.50			
Total TCDF	ND	0.0581			0.500			
Total PeCDF	ND	0.0779			2.50			
Total HxCDF	ND	0.116			2.50			
Total HpCDF	ND	0.0848			2.50			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	75.1	25 - 164		31-Mar-25 20:38	1
13C-1,2,3,7,8-PeCDD	IS	74.3	25 - 181		31-Mar-25 20:38	1
13C-1,2,3,4,7,8-HxCDD	IS	70.2	32 - 141		31-Mar-25 20:38	1
13C-1,2,3,6,7,8-HxCDD	IS	71.1	28 - 130		31-Mar-25 20:38	1
13C-1,2,3,7,8,9-HxCDD	IS	70.2	32 - 141		31-Mar-25 20:38	1
13C-1,2,3,4,6,7,8-HpCDD	IS	63.8	23 - 140		31-Mar-25 20:38	1
13C-OCDD	IS	56.0	17 - 157		31-Mar-25 20:38	1
13C-2,3,7,8-TCDF	IS	72.3	24 - 169		31-Mar-25 20:38	1
13C-1,2,3,7,8-PeCDF	IS	71.6	24 - 185		31-Mar-25 20:38	1
13C-2,3,4,7,8-PeCDF	IS	73.7	21 - 178		31-Mar-25 20:38	1
13C-1,2,3,4,7,8-HxCDF	IS	65.6	26 - 152		31-Mar-25 20:38	1
13C-1,2,3,6,7,8-HxCDF	IS	67.3	26 - 123		31-Mar-25 20:38	1
13C-2,3,4,6,7,8-HxCDF	IS	65.2	28 - 136		31-Mar-25 20:38	1
13C-1,2,3,7,8,9-HxCDF	IS	65.4	29 - 147		31-Mar-25 20:38	1
13C-1,2,3,4,6,7,8-HpCDF	IS	65.7	28 - 143		31-Mar-25 20:38	1
13C-1,2,3,4,7,8,9-HpCDF	IS	64.8	26 - 138		31-Mar-25 20:38	1
13C-OCDF	IS	57.5	17 - 157		31-Mar-25 20:38	1
37Cl-2,3,7,8-TCDD	CRS	87.8	35 - 197		31-Mar-25 20:38	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to MDL.

Sample ID: OPR **EPA Method 1613B**

Client Data
Name: Pace Analytical National Center
Project: WG2475401
Matrix: Solid

Laboratory Data
Lab Sample: B25C350-BS1
QC Batch: B25C350 Date Extracted: 28-Mar-25 13:22
Sample Size: 10.0 g Column: ZB-DIOXIN

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	20.1	20.0	100	67-158		31-Mar-25 17:37	1
1,2,3,7,8-PeCDD	100	100	100	70-142		31-Mar-25 17:37	1
1,2,3,4,7,8-HxCDD	92.9	100	92.9	70-164		31-Mar-25 17:37	1
1,2,3,6,7,8-HxCDD	95.0	100	95.0	76-134		31-Mar-25 17:37	1
1,2,3,7,8,9-HxCDD	95.0	100	95.0	64-162		31-Mar-25 17:37	1
1,2,3,4,6,7,8-HpCDD	94.2	100	94.2	70-140		31-Mar-25 17:37	1
OCDD	193	200	96.4	78-144		31-Mar-25 17:37	1
2,3,7,8-TCDF	20.2	20.0	101	75-158		31-Mar-25 17:37	1
1,2,3,7,8-PeCDF	98.6	100	98.6	80-134		31-Mar-25 17:37	1
2,3,4,7,8-PeCDF	102	100	102	68-160		31-Mar-25 17:37	1
1,2,3,4,7,8-HxCDF	104	100	104	72-134		31-Mar-25 17:37	1
1,2,3,6,7,8-HxCDF	103	100	103	84-130		31-Mar-25 17:37	1
2,3,4,6,7,8-HxCDF	102	100	102	70-156		31-Mar-25 17:37	1
1,2,3,7,8,9-HxCDF	105	100	105	78-130		31-Mar-25 17:37	1
1,2,3,4,6,7,8-HpCDF	101	100	101	82-122		31-Mar-25 17:37	1
1,2,3,4,7,8,9-HpCDF	97.6	100	97.6	78-138		31-Mar-25 17:37	1
OCDF	207	200	104	63-170		31-Mar-25 17:37	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.0	20-175		31-Mar-25 17:37	1
13C-1,2,3,7,8-PeCDD	IS	81.4	21-227		31-Mar-25 17:37	1
13C-1,2,3,4,7,8-HxCDD	IS	86.2	21-193		31-Mar-25 17:37	1
13C-1,2,3,6,7,8-HxCDD	IS	86.3	25-163		31-Mar-25 17:37	1
13C-1,2,3,7,8,9-HxCDD	IS	78.4	21-193		31-Mar-25 17:37	1
13C-1,2,3,4,6,7,8-HpCDD	IS	72.3	26-166		31-Mar-25 17:37	1
13C-OCDD	IS	58.3	13-199		31-Mar-25 17:37	1
13C-2,3,7,8-TCDF	IS	86.6	22-152		31-Mar-25 17:37	1
13C-1,2,3,7,8-PeCDF	IS	82.4	21-192		31-Mar-25 17:37	1
13C-2,3,4,7,8-PeCDF	IS	84.5	13-328		31-Mar-25 17:37	1
13C-1,2,3,4,7,8-HxCDF	IS	81.6	19-202		31-Mar-25 17:37	1
13C-1,2,3,6,7,8-HxCDF	IS	82.4	21-159		31-Mar-25 17:37	1
13C-2,3,4,6,7,8-HxCDF	IS	78.4	22-176		31-Mar-25 17:37	1
13C-1,2,3,7,8,9-HxCDF	IS	74.4	17-205		31-Mar-25 17:37	1
13C-1,2,3,4,6,7,8-HpCDF	IS	73.4	21-158		31-Mar-25 17:37	1
13C-1,2,3,4,7,8,9-HpCDF	IS	74.1	20-186		31-Mar-25 17:37	1
13C-OCDF	IS	57.8	13-199		31-Mar-25 17:37	1
37Cl-2,3,7,8-TCDD	CRS	79.2	31-191		31-Mar-25 17:37	1

Sample ID: EMNR-2025-A

EPA Method 1613B

Client Data

Name: Pace Analytical National Center
Project: WG2475401
Matrix: Soil
Date Collected: 18-Mar-25 08:00

Laboratory Data

Lab Sample: 2503246-01
QC Batch: B25C350
Sample Size: 10.1 g
% Solids: 99.4
Date Received: 27-Mar-25 09:05
Date Extracted: 28-Mar-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.117	0.190		0.500		01-Apr-25 05:50	1
1,2,3,7,8-PeCDD	ND	0.113	0.784		2.50		01-Apr-25 05:50	1
1,2,3,4,7,8-HxCDD	ND	0.201	0.633		2.50		01-Apr-25 05:50	1
1,2,3,6,7,8-HxCDD	ND		0.640		2.50		01-Apr-25 05:50	1
1,2,3,7,8,9-HxCDD	ND		0.717		2.50		01-Apr-25 05:50	1
1,2,3,4,6,7,8-HpCDD	27.6		0.706		2.50		01-Apr-25 05:50	1
OCDD	195		1.62		5.00		01-Apr-25 05:50	1
2,3,7,8-TCDF	ND	0.114	0.183		0.500		01-Apr-25 05:50	1
1,2,3,7,8-PeCDF	ND	0.146	0.576		2.50		01-Apr-25 05:50	1
2,3,4,7,8-PeCDF	ND	0.129	0.686		2.50		01-Apr-25 05:50	1
1,2,3,4,7,8-HxCDF	ND		0.659	0.165	2.50	M	01-Apr-25 05:50	1
1,2,3,6,7,8-HxCDF	ND		0.621		2.50		01-Apr-25 05:50	1
2,3,4,6,7,8-HxCDF	ND		0.661		2.50		01-Apr-25 05:50	1
1,2,3,7,8,9-HxCDF	ND	0.258	0.716		2.50		01-Apr-25 05:50	1
1,2,3,4,6,7,8-HpCDF	2.46		0.649		2.50	J	01-Apr-25 05:50	1
1,2,3,4,7,8,9-HpCDF	ND		0.818	0.174	2.50	M	01-Apr-25 05:50	1
OCDF	8.39		3.84		5.00		01-Apr-25 05:50	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.362							
Totals								
Total TCDD	ND	0.117			0.500			
Total PeCDD	ND			1.18	2.50	M		
Total HxCDD	10.5				2.50			
Total HpCDD	48.3				2.50			
Total TCDF	0.247				0.500	J		
Total PeCDF	ND			0.605	2.50	M		
Total HxCDF	1.24			2.50	2.50	J		
Total HpCDF	6.67			6.84	2.50			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	78.2	25 - 164		01-Apr-25 05:50	1
13C-1,2,3,7,8-PeCDD	IS	70.8	25 - 181		01-Apr-25 05:50	1
13C-1,2,3,4,7,8-HxCDD	IS	74.7	32 - 141		01-Apr-25 05:50	1
13C-1,2,3,6,7,8-HxCDD	IS	77.0	28 - 130		01-Apr-25 05:50	1
13C-1,2,3,7,8,9-HxCDD	IS	71.3	32 - 141		01-Apr-25 05:50	1
13C-1,2,3,4,6,7,8-HpCDD	IS	65.3	23 - 140		01-Apr-25 05:50	1
13C-OCDD	IS	58.5	17 - 157		01-Apr-25 05:50	1
13C-2,3,7,8-TCDF	IS	75.9	24 - 169		01-Apr-25 05:50	1
13C-1,2,3,7,8-PeCDF	IS	70.5	24 - 185		01-Apr-25 05:50	1
13C-2,3,4,7,8-PeCDF	IS	72.4	21 - 178		01-Apr-25 05:50	1
13C-1,2,3,4,7,8-HxCDF	IS	70.6	26 - 152		01-Apr-25 05:50	1
13C-1,2,3,6,7,8-HxCDF	IS	71.2	26 - 123		01-Apr-25 05:50	1
13C-2,3,4,6,7,8-HxCDF	IS	69.8	28 - 136		01-Apr-25 05:50	1
13C-1,2,3,7,8,9-HxCDF	IS	69.1	29 - 147		01-Apr-25 05:50	1
13C-1,2,3,4,6,7,8-HpCDF	IS	67.7	28 - 143		01-Apr-25 05:50	1
13C-1,2,3,4,7,8,9-HpCDF	IS	68.0	26 - 138		01-Apr-25 05:50	1
13C-OCDF	IS	59.5	17 - 157		01-Apr-25 05:50	1
37Cl-2,3,7,8-TCDD	CRS	93.5	35 - 197		01-Apr-25 05:50	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to MDL.

Sample ID: EMNR-2025-B

EPA Method 1613B

Client Data

Name: Pace Analytical National Center
Project: WG2475401
Matrix: Soil
Date Collected: 18-Mar-25 08:10

Laboratory Data

Lab Sample: 2503246-02
QC Batch: B25C350
Sample Size: 10.1 g
% Solids: 99.4
Date Received: 27-Mar-25 09:05
Date Extracted: 28-Mar-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.129	0.190		0.499		01-Apr-25 06:35	1
1,2,3,7,8-PeCDD	ND	0.197	0.783		2.50		01-Apr-25 06:35	1
1,2,3,4,7,8-HxCDD	ND	0.496	0.632		2.50		01-Apr-25 06:35	1
1,2,3,6,7,8-HxCDD	ND		0.639	0.379	2.50	M	01-Apr-25 06:35	1
1,2,3,7,8,9-HxCDD	ND	0.512	0.716		2.50		01-Apr-25 06:35	1
1,2,3,4,6,7,8-HpCDD	23.9		0.705		2.50		01-Apr-25 06:35	1
OCDD	173		1.62		4.99		01-Apr-25 06:35	1
2,3,7,8-TCDF	ND	0.116	0.183		0.499		01-Apr-25 06:35	1
1,2,3,7,8-PeCDF	ND	0.191	0.575		2.50		01-Apr-25 06:35	1
2,3,4,7,8-PeCDF	ND	0.166	0.685		2.50		01-Apr-25 06:35	1
1,2,3,4,7,8-HxCDF	ND	0.203	0.658		2.50		01-Apr-25 06:35	1
1,2,3,6,7,8-HxCDF	ND	0.197	0.620		2.50		01-Apr-25 06:35	1
2,3,4,6,7,8-HxCDF	ND	0.207	0.660		2.50		01-Apr-25 06:35	1
1,2,3,7,8,9-HxCDF	ND	0.286	0.715		2.50		01-Apr-25 06:35	1
1,2,3,4,6,7,8-HpCDF	ND		0.648	1.43	2.50	M	01-Apr-25 06:35	1
1,2,3,4,7,8,9-HpCDF	ND	0.491	0.817		2.50		01-Apr-25 06:35	1
OCDF	6.72		3.83		4.99		01-Apr-25 06:35	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.293							
Totals								
Total TCDD	ND			0.0902	0.499	M		
Total PeCDD	ND			0.527	2.50	M		
Total HxCDD	2.05			4.11	2.50	J		
Total HpCDD	41.2				2.50			
Total TCDF	ND			0.170	0.499	M		
Total PeCDF	0.401				2.50	J		
Total HxCDF	1.61				2.50	J		
Total HpCDF	4.05			5.48	2.50			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	82.5	25 - 164		01-Apr-25 06:35	1
13C-1,2,3,7,8-PeCDD	IS	77.1	25 - 181		01-Apr-25 06:35	1
13C-1,2,3,4,7,8-HxCDD	IS	77.1	32 - 141		01-Apr-25 06:35	1
13C-1,2,3,6,7,8-HxCDD	IS	79.8	28 - 130		01-Apr-25 06:35	1
13C-1,2,3,7,8,9-HxCDD	IS	74.3	32 - 141		01-Apr-25 06:35	1
13C-1,2,3,4,6,7,8-HpCDD	IS	65.3	23 - 140		01-Apr-25 06:35	1
13C-OCDD	IS	62.8	17 - 157		01-Apr-25 06:35	1
13C-2,3,7,8-TCDF	IS	77.9	24 - 169		01-Apr-25 06:35	1
13C-1,2,3,7,8-PeCDF	IS	75.8	24 - 185		01-Apr-25 06:35	1
13C-2,3,4,7,8-PeCDF	IS	77.2	21 - 178		01-Apr-25 06:35	1
13C-1,2,3,4,7,8-HxCDF	IS	77.2	26 - 152		01-Apr-25 06:35	1
13C-1,2,3,6,7,8-HxCDF	IS	75.6	26 - 123		01-Apr-25 06:35	1
13C-2,3,4,6,7,8-HxCDF	IS	74.6	28 - 136		01-Apr-25 06:35	1
13C-1,2,3,7,8,9-HxCDF	IS	76.5	29 - 147		01-Apr-25 06:35	1
13C-1,2,3,4,6,7,8-HpCDF	IS	70.6	28 - 143		01-Apr-25 06:35	1
13C-1,2,3,4,7,8,9-HpCDF	IS	71.0	26 - 138		01-Apr-25 06:35	1
13C-OCDF	IS	64.4	17 - 157		01-Apr-25 06:35	1
37Cl-2,3,7,8-TCDD	CRS	93.6	35 - 197		01-Apr-25 06:35	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to MDL.

Sample ID: EMNR-2025-C **EPA Method 1613B**

Client Data
Name: Pace Analytical National Center
Project: WG2475401
Matrix: Soil
Date Collected: 18-Mar-25 08:20

Laboratory Data
Lab Sample: 2503246-03
QC Batch: B25C350
Sample Size: 10.1 g
% Solids: 99.5
Date Received: 27-Mar-25 09:05
Date Extracted: 28-Mar-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.127	0.190		0.500		01-Apr-25 07:20	1
1,2,3,7,8-PeCDD	ND		0.784	0.0910	2.50	M	01-Apr-25 07:20	1
1,2,3,4,7,8-HxCDD	ND	0.405	0.633		2.50		01-Apr-25 07:20	1
1,2,3,6,7,8-HxCDD	ND		0.640		2.50		01-Apr-25 07:20	1
1,2,3,7,8,9-HxCDD	ND		0.717		2.50		01-Apr-25 07:20	1
1,2,3,4,6,7,8-HpCDD	21.1		0.706		2.50		01-Apr-25 07:20	1
OCDD	157		1.62		5.00		01-Apr-25 07:20	1
2,3,7,8-TCDF	ND	0.115	0.183		0.500		01-Apr-25 07:20	1
1,2,3,7,8-PeCDF	ND	0.188	0.576		2.50		01-Apr-25 07:20	1
2,3,4,7,8-PeCDF	ND		0.686	0.105	2.50	M	01-Apr-25 07:20	1
1,2,3,4,7,8-HxCDF	ND	0.184	0.659		2.50		01-Apr-25 07:20	1
1,2,3,6,7,8-HxCDF	ND	0.192	0.621		2.50		01-Apr-25 07:20	1
2,3,4,6,7,8-HxCDF	ND	0.235	0.661		2.50		01-Apr-25 07:20	1
1,2,3,7,8,9-HxCDF	ND	0.247	0.716		2.50		01-Apr-25 07:20	1
1,2,3,4,6,7,8-HpCDF	2.23		0.649		2.50	J	01-Apr-25 07:20	1
1,2,3,4,7,8,9-HpCDF	ND	0.163	0.818		2.50		01-Apr-25 07:20	1
OCDF	7.52		3.84		5.00		01-Apr-25 07:20	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.283							
Totals								
Total TCDD	1.12				0.500			
Total PeCDD	0.981			1.76	2.50	J		
Total HxCDD	4.64			5.56	2.50			
Total HpCDD	40.4				2.50			
Total TCDF	ND	0.115			0.500			
Total PeCDF	0.151			0.516	2.50	J		
Total HxCDF	0.828			1.41	2.50	J		
Total HpCDF	6.91				2.50			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	68.6	25 - 164		01-Apr-25 07:20	1
13C-1,2,3,7,8-PeCDD	IS	66.0	25 - 181		01-Apr-25 07:20	1
13C-1,2,3,4,7,8-HxCDD	IS	64.8	32 - 141		01-Apr-25 07:20	1
13C-1,2,3,6,7,8-HxCDD	IS	66.7	28 - 130		01-Apr-25 07:20	1
13C-1,2,3,7,8,9-HxCDD	IS	64.5	32 - 141		01-Apr-25 07:20	1
13C-1,2,3,4,6,7,8-HpCDD	IS	61.5	23 - 140		01-Apr-25 07:20	1
13C-OCDD	IS	53.6	17 - 157		01-Apr-25 07:20	1
13C-2,3,7,8-TCDF	IS	69.4	24 - 169		01-Apr-25 07:20	1
13C-1,2,3,7,8-PeCDF	IS	68.6	24 - 185		01-Apr-25 07:20	1
13C-2,3,4,7,8-PeCDF	IS	70.2	21 - 178		01-Apr-25 07:20	1
13C-1,2,3,4,7,8-HxCDF	IS	62.9	26 - 152		01-Apr-25 07:20	1
13C-1,2,3,6,7,8-HxCDF	IS	62.0	26 - 123		01-Apr-25 07:20	1
13C-2,3,4,6,7,8-HxCDF	IS	60.9	28 - 136		01-Apr-25 07:20	1
13C-1,2,3,7,8,9-HxCDF	IS	63.3	29 - 147		01-Apr-25 07:20	1
13C-1,2,3,4,6,7,8-HpCDF	IS	58.3	28 - 143		01-Apr-25 07:20	1
13C-1,2,3,4,7,8,9-HpCDF	IS	65.1	26 - 138		01-Apr-25 07:20	1
13C-OCDF	IS	55.2	17 - 157		01-Apr-25 07:20	1
37Cl-2,3,7,8-TCDD	CRS	91.5	35 - 197		01-Apr-25 07:20	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to MDL.

Sample ID: MNR-2025 **EPA Method 1613B**

Client Data
Name: Pace Analytical National Center
Project: WG2475401
Matrix: Soil
Date Collected: 17-Mar-25 11:55

Laboratory Data
Lab Sample: 2503246-04
QC Batch: B25C350
Sample Size: 10.2 g
% Solids: 98.8
Date Received: 27-Mar-25 09:05
Date Extracted: 28-Mar-25
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	RL	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.160	0.189		0.496		01-Apr-25 08:05	1
1,2,3,7,8-PeCDD	ND		0.778	0.237	2.48	M	01-Apr-25 08:05	1
1,2,3,4,7,8-HxCDD	ND	0.608	0.628		2.48		01-Apr-25 08:05	1
1,2,3,6,7,8-HxCDD	ND		0.635	0.839	2.48	M	01-Apr-25 08:05	1
1,2,3,7,8,9-HxCDD	0.835		0.712		2.48	J	01-Apr-25 08:05	1
1,2,3,4,6,7,8-HpCDD	22.9		0.701		2.48		01-Apr-25 08:05	1
OCDD	227		1.61		4.96		01-Apr-25 08:05	1
2,3,7,8-TCDF	ND		0.182	0.595	0.496	M	01-Apr-25 08:05	1
1,2,3,7,8-PeCDF	ND	0.247	0.572		2.48		01-Apr-25 08:05	1
2,3,4,7,8-PeCDF	ND		0.681	0.374	2.48	M	01-Apr-25 08:05	1
1,2,3,4,7,8-HxCDF	ND		0.654		2.48		01-Apr-25 08:05	1
1,2,3,6,7,8-HxCDF	ND		0.616		2.48		01-Apr-25 08:05	1
2,3,4,6,7,8-HxCDF	ND		0.656	0.178	2.48	M	01-Apr-25 08:05	1
1,2,3,7,8,9-HxCDF	ND	0.398	0.711		2.48		01-Apr-25 08:05	1
1,2,3,4,6,7,8-HpCDF	3.92		0.644		2.48		01-Apr-25 08:05	1
1,2,3,4,7,8,9-HpCDF	ND	0.369	0.812		2.48		01-Apr-25 08:05	1
OCDF	10.8		3.81		4.96		01-Apr-25 08:05	1
Toxic Equivalent								
TEQMinWHO2005Dioxin	0.423							
Totals								
Total TCDD	0.190			0.499	0.496	J		
Total PeCDD	0.323			1.93	2.48	J		
Total HxCDD	5.57			11.4	2.48			
Total HpCDD	57.2				2.48			
Total TCDF	2.41			4.03	0.496			
Total PeCDF	1.50			2.53	2.48	J		
Total HxCDF	3.46			5.59	2.48			
Total HpCDF	10.8				2.48			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	82.8	25 - 164		01-Apr-25 08:05	1
13C-1,2,3,7,8-PeCDD	IS	77.7	25 - 181		01-Apr-25 08:05	1
13C-1,2,3,4,7,8-HxCDD	IS	72.0	32 - 141		01-Apr-25 08:05	1
13C-1,2,3,6,7,8-HxCDD	IS	74.1	28 - 130		01-Apr-25 08:05	1
13C-1,2,3,7,8,9-HxCDD	IS	71.5	32 - 141		01-Apr-25 08:05	1
13C-1,2,3,4,6,7,8-HpCDD	IS	56.6	23 - 140		01-Apr-25 08:05	1
13C-OCDD	IS	48.6	17 - 157		01-Apr-25 08:05	1
13C-2,3,7,8-TCDF	IS	79.7	24 - 169		01-Apr-25 08:05	1
13C-1,2,3,7,8-PeCDF	IS	75.6	24 - 185		01-Apr-25 08:05	1
13C-2,3,4,7,8-PeCDF	IS	77.7	21 - 178		01-Apr-25 08:05	1
13C-1,2,3,4,7,8-HxCDF	IS	71.1	26 - 152		01-Apr-25 08:05	1
13C-1,2,3,6,7,8-HxCDF	IS	70.4	26 - 123		01-Apr-25 08:05	1
13C-2,3,4,6,7,8-HxCDF	IS	67.8	28 - 136		01-Apr-25 08:05	1
13C-1,2,3,7,8,9-HxCDF	IS	71.4	29 - 147		01-Apr-25 08:05	1
13C-1,2,3,4,6,7,8-HpCDF	IS	59.6	28 - 143		01-Apr-25 08:05	1
13C-1,2,3,4,7,8,9-HpCDF	IS	64.5	26 - 138		01-Apr-25 08:05	1
13C-OCDF	IS	53.5	17 - 157		01-Apr-25 08:05	1
37Cl-2,3,7,8-TCDD	CRS	93.1	35 - 197		01-Apr-25 08:05	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit
RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to MDL.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

– revised COC – rec'd via email on 03/26/25 0756 MMS 03/26/25

Sub-Contract Chain of Custody

Batch Date/Time: 03/24/25 15:13
Sub-Contract Lab: ENTHALECA
Address: 1104 Windfield Way
City/State: El Dorado Hills, CA 95762
Contact: silkeannmariz.mariano@enthalpy.com
Owner Lab: PACEMTJL
Address: 12065 Lebanon Rd.
City/State: Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

2503246 1.1°C

Pace Analytical®

12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone:(615) 773-9756
Fax:(615) 758-5859

WO: WG2475401
Email: MTJLSuboutTeam@pacelabs.com
Results Due Date: 04/08/25
ESC Purchase Order #: L1839385
Send Reports to: James C Huckaba

Sample ID Container ID	Matrix	Location	State	Collect Date	Description	Method	Sample Number Lab Use Only	Sample Comments Lab Use Only
EMNR-2025-A 4ozAmb-NoPres - 51237880	SS	Astoria,	OR	03/18/25 08:00	Dioxins and Furans 1613	1613	1. L1839385-01	Equis EDD
EMNR-2025-B 4ozAmb-NoPres - 51237874	SS	Astoria,	OR	03/18/25 08:10	Dioxins and Furans 1613	1613	2. L1839385-02	Equis EDD
EMNR-2025-C 4ozAmb-NoPres - 51237872	SS	Astoria,	OR	03/18/25 08:20	Dioxins and Furans 1613	1613	3. L1839385-03	Equis EDD
MNR-2025 4ozAmb-NoPres - 51237865	SS	Astoria,	OR	03/17/25 11:55	Dioxins and Furans 1613	1613	4. L1839385-04	Equis EDD

*= Container used for multiple Samples and/or Analyses

Relinquished by: _____ **Date** _____

Received by: See original COC **Date** _____

Relinquished by: _____ **Date** _____

Received by: _____ **Date** _____

-See revised COC- JT 03/27/25 2503246

Sub-Contract Chain of Custody

Batch Date/Time: 03/24/25 15:13
Sub-Contract Lab: ENTHALECA
Address: 1104 Windfield Way
City/State: El Dorado Hills, CA
95762
Contact:
silkeannmariz.mariano@enthalpy.com
Owner Lab: PACEMTJL
Address: 12065 Lebanon Rd
City/State: Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

WO: WG2475401
Email: MTJLSubcontTeam@pacelabs.com
Results Due Date: 04/08/25
ESC Purchase Order #: L1839385
Send Reports to: James C Huckaba

Pace Analytical

12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone:(615) 773-9756
Fax:(615) 758-5859

Sample ID Container ID	Matrix	Location	State	Collect Date	Description	Method	Sample Number Lab Use Only	Sample Comments Lab Use Only
EMNR-2025-A 4ozAmb-NoPres - 51237880	SS	Astoria,	OR	03/18/25 08:00	Dioxins and Furans 1613	1613	1. L1839385-01	Equis EDD
EMNR-2025-B 4ozAmb-NoPres - 51237874	SS	Astoria,	OR	03/18/25 08:10	Dioxins and Furans 1613	1613	2. L1839385-02	Equis EDD
WMNR-2025-C 4ozAmb-NoPres - 51237872	SS	Astoria,	OR	03/18/25 08:20	Dioxins and Furans 1613	1613	3. L1839385-03	Equis EDD
MNR-2025 4ozAmb-NoPres - 51237865	SS	Astoria,	OR	03/17/25 11:55	Dioxins and Furans 1613	1613	4. L1839385-04	Equis EDD

*= Container used for multiple Samples and/or Analyses

Relinquished by: _____ **Date** 3-25-25

Received by: _____ **Date** 03/27/25 0905

Relinquished by: _____ **Date** _____

Received by: _____ **Date** _____

CoC/Label Reconciliation Report WO# 2503246

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2503246-01	A EMNR-2025-A	☑	1. L1839385-01	18-Mar-25 08:00	☐ (B)	Amber Glass, 120 mL	Solid	
2503246-02	A EMNR-2025-B	☑	2. L1839385-02	18-Mar-25 08:10	☐	Amber Glass, 120 mL	Solid	
2503246-03	A EMNR-2025-C	☐ (A)	3. L1839385-03	18-Mar-25 08:20	☐	Amber Glass, 120 mL	Solid	
2503246-04	A MNR-2025-A	☑ (C) JT 03/27/25	4. L1839385-04	17-Mar-25 11:55	☐	Amber Glass, 120 mL	Solid	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

CONDITION	Yes	No	NA
Sample Container Intact?	✓		
Sample Container(s) Custody Seals Intact?			✓
Custody Seals On Cooler Intact?	✓		
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)?	✓		

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 (None) Other

Comments:

(A) Sample label ID: WMNR-2025-C

(B) Year missing from sample label date.

(C) Underlined part missing from sample label ID.

Verified by/Date: JT 03/27/25
MMS 03/27/25

April 10, 2025 Revised Service Request No:K2503067.01

James Huckaba
Pace Analytical- Mt. Juliet, TN
12065 Lebanon Road
Mt. Juliet, TN 37122

Laboratory Results for: Tribultyltin

Dear James,

Enclosed is the revised report for the sample(s) submitted to our laboratory March 26, 2025.
For your reference, these analyses have been assigned our service request number **K2503067.**

The report was revised to report Tri-N-Butylin only.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3377. You may also contact me via email at Sydney.Wolf@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Sydney A. Wolf
Project Manager

REVISED
3:09 pm, Apr 10, 2025

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: Pace Analytical Services
Project: Tribultyltin
Sample Matrix: Sediment

Service Request: K2503067
Date Received: 03/26/2025

CASE NARRATIVE

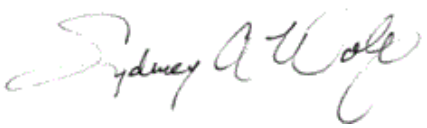
All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Four sediment samples were received for analysis at ALS Environmental on 03/26/2025. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method ALS SOP, 04/03/2025: The analysis of Butyltins by ALS SOP requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tri-n-butyltin Cation and/or Tri-n-propyltin. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Approved by  Date 04/10/2025

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: EMNR-2025-A			Lab ID: K2503067-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Solids, Total	99.4				Percent	160.3 Modified
Tri-n-butyltin Cation	4.1		0.48	4.0	ug/Kg	ALS SOP

CLIENT ID: EMNR-2025-B			Lab ID: K2503067-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Solids, Total	99.4				Percent	160.3 Modified
Tri-n-butyltin Cation	3.2	J	0.48	4.0	ug/Kg	ALS SOP

CLIENT ID: EMNR-2025-C			Lab ID: K2503067-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Solids, Total	99.4				Percent	160.3 Modified
Tri-n-butyltin Cation	2.8	JP	0.48	4.0	ug/Kg	ALS SOP

CLIENT ID: MNR-2025			Lab ID: K2503067-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Solids, Total	90.1				Percent	160.3 Modified

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Pace Analytical Services **Service Request:**K2503067
Project: Tribultyltin/WG2475371

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2503067-001	EMNR-2025-A	3/18/2025	0800
K2503067-002	EMNR-2025-B	3/18/2025	0810
K2503067-003	EMNR-2025-C	3/18/2025	0820
K2503067-004	MNR-2025	3/18/2025	1155

Sub-Contract Chain of Custody

Batch Date/Time: 03/24/25 14:43
Sub-Contract Lab: COLKWA
Address: 1317 South 13th Ave
City/State: Kelso, WA 98626
Contact:
Sydney.Wolf@alsglobal.com
Owner Lab: PACEMTJL
Address: 12065 Lebanon Rd.
City/State: Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

WO: WG2475371
Email: MTJLSuboutTeam@pacelabs.com
Results Due Date: 04/08/25
ESC Purchase Order #: L1839385
Send Reports to: James C Huckaba

Pace Analytical®

12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone:(615) 773-9756
Fax:(615) 758-5859

Sample ID Container ID	Matrix	Location	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
EMNR-2025-A 4ozAmb-NoPres - 51237879	SS	Astoria	OR	03/18/25 08:00	Miscellaneous Analysis	1. L1839385-01	Tributyltin, Equis EDD
EMNR-2025-B 4ozAmb-NoPres - 51237873	SS	Astoria	OR	03/18/25 08:10	Miscellaneous Analysis	2. L1839385-02	Tributyltin, Equis EDD
EMNR-2025-C 4ozAmb-NoPres - 51237871	SS	Astoria	OR	03/18/25 08:20	Miscellaneous Analysis	3. L1839385-03	Tributyltin, Equis EDD
MNR-2025 4ozAmb-NoPres - 51237866	SS	Astoria	OR	03/17/25 11:55	Miscellaneous Analysis	4. L1839385-04	Tributyltin, Equis EDD

*= Container used for multiple Samples and/or Analyses

Relinquished by: _____ **Date** _____

Received by: _____ **Date** 3/26/25 0955

Relinquished by: _____ **Date** _____

Received by: _____ **Date** _____

Cooler Receipt and Preservation Form

PM SW

Client Pace Service Request K25 030607

Received: 03 26 25 Opened: 03 26 25 By: AO Unloaded: 03 26 25 By: AO

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID (NA)	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.7		IR06				4439 2446 8070	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within method specified time limit? If not, notate the error below and notify the PM. (NA) Y N
16. Were 100mL sterile microbiology bottles filled exactly to the 100mL mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Q:\ENVIRONMENTAL\1 SOP & Policy Statements\SMO\CRF Update 2025-02-28.docx Updated: BJD 2/28/25

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value over the calibration range.
J	The result is an estimated value between the MDL and the MRL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Pace Analytical Services **Service Request:** K2503067
Project: Tributyltin/WG2475371

Sample Name: EMNR-2025-A **Date Collected:** 03/18/25
Lab Code: K2503067-001 **Date Received:** 03/26/25
Sample Matrix: Sediment

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		ZBIBI
ALS SOP	LSWATOSH	BBRIGHT

Sample Name: EMNR-2025-B **Date Collected:** 03/18/25
Lab Code: K2503067-002 **Date Received:** 03/26/25
Sample Matrix: Sediment

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		ZBIBI
ALS SOP	LSWATOSH	BBRIGHT

Sample Name: EMNR-2025-C **Date Collected:** 03/18/25
Lab Code: K2503067-003 **Date Received:** 03/26/25
Sample Matrix: Sediment

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		ZBIBI
ALS SOP	LSWATOSH	BBRIGHT

Sample Name: MNR-2025 **Date Collected:** 03/18/25
Lab Code: K2503067-004 **Date Received:** 03/26/25
Sample Matrix: Sediment

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		ZBIBI
ALS SOP	LSWATOSH	BBRIGHT

Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	03/18/25 08:00
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	EMNR-2025-A	**Units:**	ug/Kg
Lab Code:	K2503067-001	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**4.1**	4.0	0.48	1	03/31/25 17:08	3/26/25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	29	10 - 152	03/31/25 17:08	

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	03/18/25 08:10
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	EMNR-2025-B	**Units:**	ug/Kg
Lab Code:	K2503067-002	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**3.2 J**	4.0	0.48	1	03/31/25 17:25	3/26/25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	32	10 - 152	03/31/25 17:25	

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	03/18/25 08:20
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	EMNR-2025-C	**Units:**	ug/Kg
Lab Code:	K2503067-003	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**2.8 JP**	4.0	0.48	1	04/03/25 14:49	3/26/25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	83	10 - 152	04/03/25 14:49	

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	03/18/25 11:55
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	MNR-2025	**Units:**	ug/Kg
Lab Code:	K2503067-004	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	4.4	0.53	1	03/31/25 17:58	3/26/25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	36	10 - 152	03/31/25 17:58	

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tributyltin/WG2475371	**Date Collected:**	03/18/25 08:00
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	EMNR-2025-A	**Basis:**	As Received
Lab Code:	K2503067-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	**99.4**	Percent	-	-	1	03/26/25 16:25	

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tributyltin/WG2475371	**Date Collected:**	03/18/25 08:10
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	EMNR-2025-B	**Basis:**	As Received
Lab Code:	K2503067-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	**99.4**	Percent	-	-	1	03/26/25 16:25	

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tributyltin/WG2475371	**Date Collected:**	03/18/25 08:20
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	EMNR-2025-C	**Basis:**	As Received
Lab Code:	K2503067-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	**99.4**	Percent	-	-	1	03/26/25 16:25	

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tributyltin/WG2475371	**Date Collected:**	03/18/25 11:55
Sample Matrix:	Sediment	**Date Received:**	03/26/25 09:55
Sample Name:	MNR-2025	**Basis:**	As Received
Lab Code:	K2503067-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	**90.1**	Percent	-	-	1	03/26/25 16:25	

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Batch QC	**Basis:**	As Received
Lab Code:	K2503090-016		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	**35.0**	Percent	-	-	1	03/26/25 16:25	

QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Pace Analytical Services **Service Request:** K2503067
Project: Tribultyltin/WG2475371
Sample Matrix: Sediment

SURROGATE RECOVERY SUMMARY
Butyltins

Analysis Method: ALS SOP
Extraction Method: Method

Sample Name	Lab Code	Tri-n-propyltin 10 - 152
Batch QC	K2502999-001	24
EMNR-2025-A	K2503067-001	29
EMNR-2025-B	K2503067-002	32
EMNR-2025-C	K2503067-003	83
MNR-2025	K2503067-004	36
Batch QC MS	KQ2504835-01	19
Batch QC DMS	KQ2504835-02	39
Method Blank	KQ2504835-03	43
Lab Control Sample	KQ2504835-04	18

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	N/A
Sample Matrix:	Sediment	**Date Received:**	N/A
		Date Analyzed:	03/31/25
		Date Extracted:	03/26/25

Duplicate Matrix Spike Summary
Butyltins

Sample Name:	Batch QC	**Units:**	ug/Kg
Lab Code:	K2502999-001	**Basis:**	Dry
Analysis Method:	ALS SOP		
Prep Method:	Method		

		Matrix Spike KQ2504835-01			Duplicate Matrix Spike KQ2504835-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Tri-n-butyltin Cation	ND U	9.79	38.3	26	20.0	38.8	52	10-186	69*	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2504835-03	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	3.9	0.48	1	03/31/25 14:52	3/26/25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	43	10 - 152	03/31/25 14:52	

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project:	Tribultyltin/WG2475371	**Date Analyzed:**	03/31/25
Sample Matrix:	Sediment	**Date Extracted:**	03/26/25

Lab Control Sample Summary
Butyltins

Analysis Method:	ALS SOP	**Units:**	ug/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	874596

Lab Control Sample
KQ2504835-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Tri-n-butyltin Cation	6.74	22.3	30	10-186

Confirmation Results

Client: Pace Analytical Services
Project: Tribultyltin/WG2475371
Matrix: Sediment

Service Request: K2503067
Date Collected: 03/18/25 08:00
Date Received: 3/26/25

Sample Name: EMNR-2025-A
Lab Code: K2503067-001

Units: ug/Kg
Basis: Dry
Percent Solids: 99.4

Butyltins

Analytical Method: ALS SOP
Prep Method: Method

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.48	4.1	5.5	29		1	03/31/25 17:08

ALS Group USA, Corp.
dba ALS Environmental

Confirmation Results

Client: Pace Analytical Services
Project: Tributyltin/WG2475371
Matrix: Sediment

Service Request: K2503067
Date Collected: 03/18/25 08:10
Date Received: 3/26/25

Sample Name: EMNR-2025-B
Lab Code: K2503067-002

Units: ug/Kg
Basis: Dry
Percent Solids: 99.4

Butyltins

Analytical Method: ALS SOP
Prep Method: Method

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.48	3.2	4.3	29	J	1	03/31/25 17:25

Confirmation Results

Client: Pace Analytical Services
Project: Tributyltin/WG2475371
Matrix: Sediment

Service Request: K2503067
Date Collected: 03/18/25 08:20
Date Received: 3/26/25

Sample Name: EMNR-2025-C
Lab Code: K2503067-003

Units: ug/Kg
Basis: Dry
Percent Solids: 99.4

Butyltins

Analytical Method: ALS SOP
Prep Method: Method

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.48	2.8	4.3	42	JP	1	04/03/25 14:49

ALS Group USA, Corp.
dba ALS Environmental

Confirmation Results

Client: Pace Analytical Services
Project: Tributyltin/WG2475371
Matrix: Sediment

Service Request: K2503067
Date Collected: NA
Date Received:

Sample Name: Batch QC
Lab Code: KQ2504835-01

Units: ug/Kg
Basis: Dry
Percent Solids: 56.8

Butyltins

Analytical Method: ALS SOP
Prep Method: Method

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.83	9.79	12.4	24		1	03/31/25 15:43

Confirmation Results

Client: Pace Analytical Services
Project: Tribultyltin/WG2475371
Matrix: Sediment

Service Request: K2503067
Date Collected: NA
Date Received:

Sample Name: Batch QC
Lab Code: KQ2504835-02

Units: ug/Kg
Basis: Dry
Percent Solids: 56.8

Butyltins

Analytical Method: ALS SOP
Prep Method: Method

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.84	20.0	22.6	12		1	03/31/25 16:00

Confirmation Results

Client: Pace Analytical Services
Project: Tribultyltin/WG2475371
Matrix: Sediment

Service Request: K2503067
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2504835-04

Units: ug/Kg
Basis: Dry

Butyltins

Analytical Method: ALS SOP
Prep Method: Method

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.48	6.74	9.47	34		1	03/31/25 15:09

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K2503067
Project	Tribultyltin/WG2475371	**Date Collected:**	03/18/25
Sample Matrix:	Sediment	**Date Received:**	03/26/25
		Date Analyzed:	03/26/25

Replicate Sample Summary
Inorganic Parameters

Sample Name:	EMNR-2025-A	**Units:**	Percent
Lab Code:	K2503067-001	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K2503067-001DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	-	99.4	99.4	99.4	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ANALYTICAL REPORT

April 07, 2025

Revised Report

1 Cp
2 Tc
3 Ss
4 Cn
5 Gl
6 Al
7 Sc

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1842406
Samples Received:	04/02/2025
Project Number:	
Description:	
Report To:	Mark Pugh

Entire Report Reviewed By:

Brian Ford

Project Manager

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

SAMPLE SUMMARY

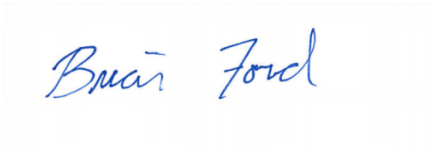
RINSATE-031925 L1842406-01 GW

			Collected by	Collected date/time	Received date/time
				03/19/25 11:00	04/02/25 09:10

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2481531	1	04/04/25 00:00	04/04/25 00:00	-	Subcontract

CASE NARRATIVE

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



Brian Ford
Project Manager

Report Revision History

Level II Report - Version 1: 04/04/25 16:15

Project Narrative

revised: ALS revised report.
L1842406 -01 contains subout data that is included after the chain of custody.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier Description

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

L1842406

Company Name/Address:
Oregon Dept. of Env. Quality - ODEQ

Billing Information:
Accounts Payable
700 NE Multnomah St, Ste 600
Portland, OR 97232

*Pres Chk

Report to: M. POLLOCK Mark Pugh
PM - GLENN

Email To: M.POLLOCK@MAIL.STATE.OR.US
MARK.PUGH@DEQ.OREGON.GOV
T.GLENN@MINITORK.COM

Project Description: FORMER AMCO

City/State Collected: ALBANY, OREGON

Please Circle: PT MT CT ET

Regulatory Program(DOD,RCRA,DW,etc):

Client Project # M0775.29.001

Lab Project # OREGONDEQ-AMCCO

Collected by (print): MARK PUGH

Site/Facility ID #

P.O. # Contract # 8903

Collected by (signature):

Quote #

Immediately Packed on Ice N___ Y✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day ___ STD TAT

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

MISC-SUB 1L-Amb-No Pres

X SOC-BUTYL Rev 20 (HBT)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
RINSATE-031927	—	GW_W	—	1160 3/19/25		2

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG #

Table #

Acctnum: OREGONDEQ
Template: T268752
Prelogin: P1132799
PM: 110 - Brian Ford
PB: LF 2/26/25

Shipped Via: FedEX Ground

Remarks | Sample # (lab only)

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

March 31, 2025 Service Request No:K2502972

James Huckaba
12065 Lebanon Road
700 NE Multonomah Street
Mt. Juliet, TN 37122

Laboratory Results for: Former Astoria Marine Construction/WG2481531

Dear James,

Enclosed are the results of the sample(s) submitted to our laboratory March 19, 2025
For your reference, these analyses have been assigned our service request number **K2502972.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3260. You may also contact me via email at Luke.Rahn@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Luke Rahn
Project Chemist

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: Pace Analytical Services
Project: Former Astoria Marine Construction
Sample Matrix: Water

Service Request: K2502972
Date Received: 03/19/2025

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 03/19/2025. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method ALS SOP, 03/31/2025:The upper control criterion was exceeded for many target analytes in Continuing Calibration Verification (CCV) KQ2505198-01, -03. The field samples analyzed in this sequence did not contain the analytes in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

The analysis of Butyltins by ALS SOP requires the use of dual column confirmation. For the Initial Calibration Verification (ICV) at least one of the analytical systems in a dual column or dual detector system must meet the criteria. This criteria was met on one column for Di-n-butyltin. The data quality was not affected. No further corrective action was necessary

Approved by _____ Date 03/31/2025

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Pace Analytical Services **Service Request:**K2502972

Project: Former Astoria Marine Construction

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2502972-001	Rinsate-031925	3/19/2025	1100

K2502972

Sub-Contract Chain of Custody

Batch Date/Time: 04/02/25 09:12
Sub-Contract Lab: COLKWA
Address: 1317 South 13th Ave
City/State: Kelso, WA 98626
Contact:
Sydney.Wolf@alsglobal.com
Owner Lab: PACEMTJL
Address: 12065 Lebanon Rd.
City/State: Mt. Juliet, TN 37122
Phone: (615) 773-9756
Fax: (615) 758-5859

WO: WG2481531
Email: MTJLSuboutTeam@pacelabs.com
Results Due Date: 04/16/25
ESC Purchase Order #: L1842406
Send Reports to: James C Huckaba

Pace Analytical®

12065 Lebanon Rd.
Mt. Juliet, TN 37122
Phone:(615) 773-9756
Fax:(615) 758-5859

Sample ID Container ID	Matrix	State	Collect Date	Description	Sample Number Lab Use Only	Sample Comments Lab Use Only
RINSATE-031925	GW	OR	03/19/25 11:00	Butyltins, Arcadis Equis EDD	2, L1842406-01	Butyltins, Arcadis Equis EDD

Relinquished by: _____ **Date** _____

Received by: M Mulligan **Date** 3/19/25 1430

Relinquished by: _____ **Date** _____

Received by: _____ **Date** _____

Company Name/Address:
Oregon Dept. of Env. Quality - ODEQ

Billing Information:
Accounts Payable
700 NE Multnomah St, Ste 600
Portland, OR 97232

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:

K2502972 **5**
Oregon Department of Environmental Quality
Former Astoria Marine Construction

Report to: M. Pollock Mark Pugh
PM J. GLENN

Email To: M.pollock@maulfoster.com
MARK.PUGH@DEQ.OREGON.GOV
J.GLENN@maulfoster.com

Project Description: FORMER AMCCO

City/State Collected: ASTORIA, OREGON

Please Circle: PT MT CT ET

Regulatory Program(DOD,RCRA,DW,etc):

Client Project # M0785.29.001

Lab Project # **OREGONDEQ-AMCCO**

Collected by (print): YSABEL PEREZ

Site/Facility ID #

P.O. # **Contract # 8903**

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day X STD TAT

Quote #

Date Results Needed

Acctnum: **OREGONDEQ**
Template: **T268752**
Prelogin: **P1132799**
PM: **110 - Brian Ford**
PB: BF 2/26/25
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MISC-SUB 1L-Amb-No Pres	SOC-BUTYL Rev 17.0 (TBT)	Remarks	Sample # (lab only)
RINSATE-031925	—	GW	—	1160	3/19/25	2		X		

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Ysabel Perez	3/19/2025				
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/19/25 Time: 1430	Hold: / Condition: NCF / OK

Cooler Receipt and Preservation Form

Client Oregon DEQ Service Request K25 02972 02994 PM SW

Received: 3/19/25 Opened: 3/19/25 By: PDP Unloaded: 3/19/25 By: PDP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
	4.3	IR01				449732458700 KM	

4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N
15. Were samples received within method specified time limit? If not, notate the error below and notify the PM. NA Y N
16. Were 100mL sterile microbiology bottles filled exactly to the 100mL mark? NA Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value over the calibration range.
J	The result is an estimated value between the MDL and the MRL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Pace Analytical Services	**Service Request:**	K2502972
Project:	Former Astoria Marine Construction/		

Sample Name:	Rinsate-031925	**Date Collected:**	03/19/25
Lab Code:	K2502972-001	**Date Received:**	03/19/25
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	GTRIGG	BBRIGHT

Sample Results

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Semivolatile Organic Compounds by GC

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1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2502972
Project:	Former Astoria Marine Construction	**Date Collected:**	03/19/25 11:00
Sample Matrix:	Water	**Date Received:**	03/19/25 14:30
Sample Name:	Rinsate-031925	**Units:**	ug/L
Lab Code:	K2502972-001	**Basis:**	NA

Butyltins

Analysis Method: ALS SOP
Prep Method: EPA 3520C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
n-Butyltin Cation	ND U	0.050	1	03/31/25 01:19	3/24/25	
Di-n-butyltin Cation	ND U	0.050	1	03/31/25 01:19	3/24/25	*
Tri-n-butyltin Cation	ND U	0.050	1	03/31/25 01:19	3/24/25	
Tetra-n-butyltin	ND U	0.050	1	03/31/25 01:19	3/24/25	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	76	10 - 195	03/31/25 01:19	

QC Summary Forms

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Semivolatile Organic Compounds by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Pace Analytical Services **Service Request:** K2502972
Project: Former Astoria Marine Construction
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Butyltins

Analysis Method: ALS SOP
Extraction Method: EPA 3520C

Sample Name	Lab Code	Tri-n-propyltin 10 - 195
Rinsate-031925	K2502972-001	76
Method Blank	KQ2504705-01	60
Lab Control Sample	KQ2504705-02	65

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K2502972
Project:	Former Astoria Marine Construction	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2504705-01	**Basis:**	NA

Butyltins

Analysis Method: ALS SOP
Prep Method: EPA 3520C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
n-Butyltin Cation	ND U	0.050	1	03/30/25 22:46	3/24/25	
Di-n-butyltin Cation	ND U	0.050	1	03/30/25 22:46	3/24/25	
Tri-n-butyltin Cation	ND U	0.050	1	03/30/25 22:46	3/24/25	
Tetra-n-butyltin	ND U	0.050	1	03/30/25 22:46	3/24/25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	60	10 - 195	03/30/25 22:46	

Client:	Pace Analytical Services	**Service Request:**	K2502972
Project:	Former Astoria Marine Construction	**Date Analyzed:**	03/30/25
Sample Matrix:	Water	**Date Extracted:**	03/24/25

Lab Control Sample Summary
Butyltins

Analysis Method:	ALS SOP	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	874457

Lab Control Sample
KQ2504705-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Di-n-butyltin Cation	0.225 P	0.383	59	10-200
n-Butyltin Cation	0.255	0.312	82	10-200
Tetra-n-butyltin	0.206	0.500	41	10-200
Tri-n-butyltin Cation	0.358	0.446	80	10-200

ALS Group USA, Corp.
dba ALS Environmental

Confirmation Results

Client:	Pace Analytical Services	**Service Request:**	K2502972
Project:	Former Astoria Marine Construction	**Date Collected:**	NA
Matrix:	Water	**Date Received:**	
Sample Name:	Lab Control Sample		
Lab Code:	KQ2504705-02	**Units:**	ug/L
		Basis:	NA

Butyltins

Analytical Method: ALS SOP
Prep Method: EPA 3520C

Analyte Name	MRL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Di-n-butyltin Cation	0.050	0.225	0.359	46	P	1	03/30/25 23:03
Tetra-n-butyltin	0.050	0.206	0.262	24		1	03/30/25 23:03
Tri-n-butyltin Cation	0.050	0.358	0.453	23		1	03/30/25 23:03
n-Butyltin Cation	0.050	0.255	0.313	20		1	03/30/25 23:03

ANALYTICAL REPORT

April 17, 2025

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1843258
Samples Received:	03/20/2025
Project Number:	
Description:	AMCCO
Report To:	Mark Pugh

Entire Report Reviewed By:

Brian Ford
Project Manager

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

TABLE OF CONTENTS

SAMPLE SUMMARY

EMNR-2025-C L1843258-01 Solid

Collected by: YP/SM
Collected date/time: 03/18/25 08:20
Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2475856	1	03/25/25 10:47	03/25/25 10:54	JAV	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2483017	1	04/05/25 07:43	04/06/25 17:26	LTB	Mt. Juliet, TN

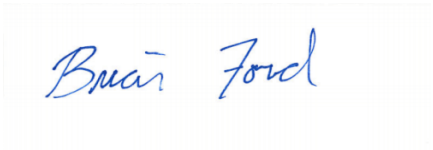
EMNR-2025-C L1843258-02 Solid

Collected by: YP/SM
Collected date/time: 03/18/25 08:20
Received date/time: 03/20/25 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2475856	1	03/25/25 10:47	03/25/25 10:54	JAV	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2487794	2	04/10/25 07:05	04/10/25 22:17	NWH	Mt. Juliet, TN

CASE NARRATIVE

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



Brian Ford
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/25/2025 10:54	WG2475856

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1268	U		0.0114	0.0171	1	04/06/2025 17:26	WG2483017
PCB 1016	U		0.0103	0.0343	1	04/06/2025 17:26	WG2483017
PCB 1221	U		0.0108	0.0343	1	04/06/2025 17:26	WG2483017
PCB 1232	U		0.0184	0.0343	1	04/06/2025 17:26	WG2483017
PCB 1242	U		0.0102	0.0343	1	04/06/2025 17:26	WG2483017
PCB 1248	U		0.0125	0.0171	1	04/06/2025 17:26	WG2483017
PCB 1254	U		0.0105	0.0171	1	04/06/2025 17:26	WG2483017
PCB 1260	U		0.0111	0.0171	1	04/06/2025 17:26	WG2483017
PCB 1262	U		0.0127	0.0171	1	04/06/2025 17:26	WG2483017
(S) Decachlorobiphenyl	*64.6*			*10.0-135*		*04/06/2025 17:26*	WG2483017
(S) Tetrachloro-m-xylene	*77.3*			*10.0-139*		*04/06/2025 17:26*	WG2483017

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	99.2		1	03/25/2025 10:54	WG2475856

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1268	U		0.0228	0.0343	2	04/10/2025 22:17	WG2487794
PCB 1016	U		0.0206	0.0686	2	04/10/2025 22:17	WG2487794
PCB 1221	U		0.0216	0.0686	2	04/10/2025 22:17	WG2487794
PCB 1232	U		0.0367	0.0686	2	04/10/2025 22:17	WG2487794
PCB 1242	U		0.0204	0.0686	2	04/10/2025 22:17	WG2487794
PCB 1248	U		0.0250	0.0343	2	04/10/2025 22:17	WG2487794
PCB 1254	U		0.0210	0.0343	2	04/10/2025 22:17	WG2487794
PCB 1260	U		0.0222	0.0343	2	04/10/2025 22:17	WG2487794
PCB 1262	U		0.0254	0.0343	2	04/10/2025 22:17	WG2487794
(S) Decachlorobiphenyl	*89.6*			*10.0-135*		*04/10/2025 22:17*	WG2487794
(S) Tetrachloro-m-xylene	*104*			*10.0-139*		*04/10/2025 22:17*	WG2487794

Sample Narrative:

L1843258-02 WG2487794: Dilution due to sulfur cleanup.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4190849-1 03/25/25 10:54

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1839383-49 Original Sample (OS) • Duplicate (DUP)

(OS) L1839383-49 03/25/25 10:54 • (DUP) R4190849-3 03/25/25 10:54

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	76.9	74.4	1	3.31		10

Laboratory Control Sample (LCS)

(LCS) R4190849-2 03/25/25 10:54

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	90.0-110	

Method Blank (MB)

(MB) R4195953-1 04/06/25 14:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0102	0.0340
PCB 1221	U		0.0107	0.0340
PCB 1232	U		0.0182	0.0340
PCB 1242	U		0.0101	0.0340
PCB 1248	U		0.0124	0.0170
PCB 1254	U		0.0104	0.0170
PCB 1260	U		0.0110	0.0170
PCB 1262	U		0.0126	0.0170
PCB 1268	U		0.0113	0.0170
(S) Decachlorobiphenyl	*83.8*			*10.0-135*
(S) Tetrachloro-m-xylene	*88.7*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R4195953-5 04/06/25 15:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.123	73.7	36.0-141	
PCB 1260	0.167	0.119	71.3	37.0-145	
(S) Decachlorobiphenyl			*76.1*	*10.0-135*	
(S) Tetrachloro-m-xylene			*83.0*	*10.0-139*	

L1843262-26 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1843262-26 04/06/25 15:12 • (MS) R4195953-6 04/06/25 15:21 • (MSD) R4195953-7 04/06/25 15:31

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1016	0.164	U	0.115	0.106	70.1	63.9	1	10.0-160			8.14	37
PCB 1260	0.164	U	0.101	0.104	61.6	62.7	1	10.0-160			2.93	38
(S) Decachlorobiphenyl					*70.6*	*62.1*		*10.0-135*				
(S) Tetrachloro-m-xylene					*80.2*	*73.2*		*10.0-139*				

Method Blank (MB)

(MB) R4198035-1 04/10/25 19:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0204	0.0680
PCB 1221	U		0.0214	0.0680
PCB 1232	U		0.0364	0.0680
PCB 1242	U		0.0202	0.0680
PCB 1248	U		0.0248	0.0340
PCB 1254	U		0.0208	0.0340
PCB 1260	U		0.0220	0.0340
PCB 1262	U		0.0252	0.0340
PCB 1268	U		0.0226	0.0340
(S) Decachlorobiphenyl	*101*			*10.0-135*
(S) Tetrachloro-m-xylene	*110*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R4198035-2 04/10/25 19:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.185	111	36.0-141	
PCB 1260	0.167	0.179	107	37.0-145	
(S) Decachlorobiphenyl			*102*	*10.0-135*	
(S) Tetrachloro-m-xylene			*108*	*10.0-139*	

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier | Description

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

State of Oregon Chain of Custody

Agency, Authorized Purchaser or Agent:
Oregon DEQ

Send Lab Report To: Mark Pugh
Address: 700 NE Multnomah St,
Suite 600
Portland, OR 97232
Tel. #: 503-229-5587
E-mail: Mark.Pugh@deq.oregon.gov
mbenzinger@maulfoster.com; mpollock@maulfoster.com

Contract Laboratory Name:
ESC

Lab Batch #:

Invoice To: ODEQ/Business Office
Address: 700 NE Multnomah St,
Suite 600
Portland, OR 97232
Tel. #: 503-229-5696

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

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

Project Name:
AMCCO

Sampler Name: Y. Perez S. Maloney

A227

Sample ID#	Collection Date/Time	Matrix	Number of Containers	Total Metals EPA 6020	Tributyltin	Total PCBs EPA 8082	Dioxins/Furans EPA 1613B	ISM Processing	HOLD	Comments
			Sample Preservative	None	None	None	None	None		
EMNR-2025-A	3/18/25; 0800	SS	1					X		~~L1843258~~ ~~LB358292~~ NV 4/3/25
EMNR-2025-B	3/18/25; 0810	SS	1					X		~~-01~~ ~~-02~~ ~~-03~~ -01/02
WMNR-2025-C	3/18/25; 0820	SS	1					X		
MNR-2025	3/17/25; 1155	SS	3					X		Sample is 3 x 1 L containers to be ISM processed as one sample. -04

update WMNR-2025-C to EMNR-2025-C per request of Mary Benzinger-bjf 03/26/25

Notes: Please analyze samples for the following after ISM is complete:
- Total metals by EPA 6020 (antimony, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc)
- Tributyltin
- Total PCBs by EPA8082
- Dioxins/furans by EPA 1613B

Relinquished By: YSABEL PEREZ	Agency/Agent: MFA	Received By: Deryn Galeano	Agency/Agent:
Signature: Yyp	Time & Date: 3/19/25 1600	Signature: Deryn	Time & Date: 3.20.25 0930
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature:	Time & Date:

L1838292 OREGONDEQ re-log

R5

Please re-log EMNR-2025-C (L1838292-03) for SV8082,TS as 04/10R5. Log this sample 2x per client special request, -01 and -02 on the new SDG.

note: sample ID used to be WMNR-2025-C and updated to EMNR-2025-C per client request.

Time estimate: oh **Time spent:** oh

Members

BF Brian Ford