MAUL FOSTER ALONGI
109 East 13th Street | Vancouver, WA 98660 | 360 694 2691 | www.maulfoster.com

November 9, 2022
Project No. M0229.04.014

Tom Middleton
Washington State Department of Ecology
PO Box 47775
Olympia, Washington 98504-7775

Re: Former Hambleton Bros. Log Yard Compliance Groundwater Monitoring
Cleanup Site ID No.: 2482

Dear Tom Middleton:

On behalf of the Port of Camas-Washougal, on October 26, 2022, Maul Foster & Alongi, Inc. (MFA), collected a groundwater sample from monitoring well MW-7 from the former Hambleton Bros. Log Yard Site (Site; see the attached figure), consistent with the cleanup action plan[1]. The Site is located in the City of Washougal, Clark County, Washington, on Clark County parcel number 73134179.

Monitoring was completed on using an appropriately decontaminated submersible pump, dedicated tubing, and industry standard techniques per the groundwater monitoring plan included in the Construction Completion Report.[2] A letter from the Washington State Department of Ecology[3] stipulated that sampling events should include analysis for diesel-range organics and lube oil-range organics with silica gel treatment, as well as total and dissolved organic carbon due to high, naturally occurring organic carbon that may be contributing to total petroleum hydrocarbon concentration in groundwater at the Site.

Depth to water was 32.78 feet below top of casing; therefore, purging and sampling was conducted using a decontaminated submersible pump. The groundwater parameters from sampling MW-7 on October 26, 2022, are shown on the field sampling data sheet (see Attachment A) and confirm that low levels of turbidity were achieved (i.e., 4.36 nephelometric turbidity units) at the time the sample was collected. The groundwater sample was analyzed for

[1] Ecology. 2013. *Cleanup Action Plan, Hambleton Bros. Log Yard, Washougal, WA.* Washington State Department of Ecology: Lacey, WA. May.

[2] MFA. 2015. *Construction Completion Report, Former Hambleton Bros. Log Yard – Remedial Action.* Prepared for Port of Camas-Washougal. Maul Foster & Alongi, Inc.: Vancouver, WA. March 16.

[3] Ecology. 2021. Panjini Balaraju, Washington State Department of Ecology. *Property Development/Building Construction on the Log Pond Area, Approval Letter, Hambleton Bros Log Yard.* Letter to David Ripp, Port of Camas-Washougal. September 14.

diesel-range organics and lube oil-range organics by method Northwest Total Petroleum Hydrocarbons-Dx (TPH-Dx) and method TPH-Dx with silica gel treatment, as well as total and dissolved organic carbon by Standard Methods for the Examination of Water and Wastewater M5310B. The analyses were completed by Specialty Analytical, Inc., in Clackamas, Oregon. Laboratory analytical results are included as Attachment B and are summarized in the attached table. A data quality assurance and quality control report is included as Attachment C. The data are considered acceptable for their intended use.

Diesel-range organics were detected at 101 ug/L and lube oil-range organics were not detected (see table). Consistent with Ecology's Implementation Memorandum No. 4,[4] the diesel- and lube oil-range hydrocarbon results were summed for a total detected concentration. When results are non-detect, half the reporting limit is used. When both results are non-detect, the highest reporting limit is shown. The total detected concentration was 208 ug/L, which is below the Ecology Model Toxics Control Act Method A groundwater cleanup level of 500 ug/L. The October 2022 results are the lowest concentrations at the monitoring well since monitoring began and the first time that results have been below the cleanup level.

Biogenic interference (naturally occurring organics) can occur when analyzing for petroleum hydrocarbons and may increase the reported concentration of petroleum hydrocarbons if organic carbon present. Due to the proximity of the Site to the Columbia River, the Site history of being a lumber mill, and the monitoring well located downgradient of the former log pond, the groundwater sample collected in October 2022 was analyzed for total and dissolved organic carbon. Total organic carbon was detected at a concentration of 9.62 milligrams per liter (mg/L) and dissolved organic carbon was detected at a concentration of 9.52 mg/L, which are elevated relative to regional organic carbon concentrations.[5] Therefore, the groundwater was analyzed for TPH-Dx using silica gel treatment. Neither lube oil-range organic nor diesel-range organics were detected in the groundwater sample following the silica gel treatment indicating that biogenic interference is occurring.

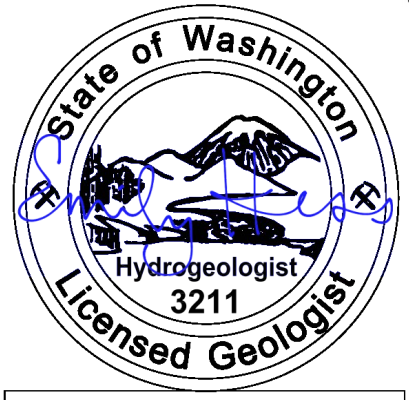
The next sampling event is scheduled for April 2024. Please let us know if you have any questions.

[4] Ecology. 2004. *Memorandum (Re: Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil) to File. Implementation Memorandum No. 4*. Prepared by T. Nord, Washington State Department of Ecology. June.

[5] Total and dissolved organic carbon data obtained from Ecology's Environmental Information Management System database for groundwater in Clark County.

Sincerely,

Maul Foster & Alongi, Inc.




EMILY NANCY HESS
11-09-2022

Emily N. Hess, LHG
Project Hydrogeologist

Alan R. Hughes, LG
Principal Geologist

Attachments: Limitations
Table
Figure
A—Water Field Sampling Data Sheet
B—Laboratory Analytical Results
C—Data Validation Memorandum

cc: David Ripp and Jennifer Taylor, Port of Camas-Washougal

# 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.

# TABLE

MAUL FOSTER ALONGI

# Table
## MW-7 Groundwater Parameters and Analytical Sample Results
## Former Hambleton Bros. Log Yard

| Date Collected | Method A CUL | 10/28/2011 | 04/17/2015 | 10/27/2016 | 04/09/2018 | 10/10/2019 | 04/08/2021 | 08/17/2021 | 10/26/2022 |
|---|---|---|---|---|---|---|---|---|---|
| **Field Parameters** | | | | | | | | | |
| Depth to water (ft MPE) | NA | 20.61 | 26.00 | 27.90 | 22.91 | 32.23 | 30.07 | 33.02 | 32.78 |
| pH (pH units) | NA | 5.92 | 5.98 | 6.88 | 6.58 | 6.07 | 6.66 | 6.69 | 6.62 |
| Temperature (°C) | NA | 14.53 | 13.56 | 15.5 | 12.6 | 13.1 | 11.7 | 15.0 | 14.4 |
| Conductivity (uS/cm) | NA | 91 | 1,567 | 1,566 | 1,037 | 921 | 880 | 576.9 | 878 |
| Dissolved oxygen (mg/L) | NA | 0.64 | 0.7 | 0.49 | 4.35 | 1.17 | 2.07 | 0.16 | 0.40 |
| Redox potential (mV) | NA | -173.7 | 58.2 | -62.5 | -4.9 | 137.7 | 134.3 | 79.8 | 11.5 |
| Turbidity (NTU) | NA | 82.51 | 11.73 | 4.98 | 4.58 | 22 | 101 | 0.28 | 4.36 |
| Sampling Method | NA | Inertia Pump | P-Pump | P-Pump | P-Pump | Disp Bailer | Disp Bailer | Sub Pump | Sub Pump |
| **Petroleum Hydrocarbon Analytical Results (ug/L)** | | | | | | | | | |
| Diesel-Range Hydrocarbons | 500 | **588** | **646** | **1680** | 332 | **821** | **1,440** | 228 | 101 |
| Lube Oil-Range Hydrocarbons | 500 | **591** | **907** | **4740** | **571** | **598** | **1,080** | 425 | 209 U |
| Diesel + Lube Oil[(a)] | 500 | **1,179** | **1,553** | **6,420** | **903** | **1,419** | **2,520** | **653** | 206 |
| **Petroleum Hydrocarbon with Acid/Silica-Gel Treatment Analytical Results (ug/L)** | | | | | | | | | |
| Diesel-Range Hydrocarbons | 500 | -- | -- | -- | -- | -- | -- | 105 U | 83.3 U |
| Lube Oil-Range Hydrocarbons | 500 | -- | -- | -- | -- | -- | -- | 209 U | 208 U |
| Diesel + Lube Oil[(a)] | 500 | -- | -- | -- | -- | -- | -- | 209 U | 208 U |
| **Conventional Parameters (mg/L)** | | | | | | | | | |
| Total Organic Carbon | NA | -- | -- | -- | -- | -- | -- | 9.36 | 9.62 |
| Dissolved Organic Carbon | NA | -- | -- | -- | -- | -- | -- | 9.29 | 9.52 |

# Table
# MW-7 Groundwater Parameters and Analytical Sample Results
# Former Hambleton Bros. Log Yard

**Notes**

Bolded value indicates exceedance of Model Toxics Control Act Method A CUL.

-- = not analyzed.

°C = degrees Celsius.

CUL = cleanup level.

Disp Bailer = disposable bailer.

ft MPE = feet below measuring point elevation.

mg/L = milligrams per liter.

MTCA = model toxics control act.

mV = millivolts.

NA = not applicable.

NTU = nephelometric turbidity units.

P-Pump = peristaltic pump.

Sub Pump = submersible pump.

U = result is non-detect to method reporting limit.

ug/L = micrograms per liter.

uS/cm = microsiemens per centimeter.

[a]Diesel+Oil is the sum of diesel-range and lube-oil range hydrocarbons. When results are non-detect, half the reporting limit is used. When both results are non-detect, the highest reporting limit is shown.

FIGURE

# Figure
# Monitoring Well Location

Former Hambleton Bros. Log Yard
Washougal, Washington


## Legend

- Monitoring Well
- Soil Management
- Site Boundary

Note: Property boundary is approximate and based on legal description provided by KC Development (Sept. 10, 2012).

0 75 150
Feet

Source: Aerial photograph obtained from Mapbox.

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Path: X:\0229.04\08_Remedial_Action\Completion Report\Projects\Fig_Monitoring Well Location_050115.mxd
Print Date: 4/10/2018
Approved By: ahughes
Produced By: rroberts
Project: 0229.04.08-04

# ATTACHMENT A

## WATER FIELD SAMPLING DATA SHEET

# Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

## Water Field Sampling Data Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Client Name** | Port of Camas Washougal | **Sample Location** | MW-7 | | | | |
| **Project #** | M0229.04.014 | **Sampler** | Emily Hess, Ysabel Perez | | | | |
| **Project Name** | Former Hambleton Lumber | **Sampling Date** | 10/26/2022 | | | | |
| **Sampling Event** | October 2022 | **Sample Name** | MW-7 | | | | |
| **Sub Area** | | **Sample Depth** | 35.5 | | | | |
| **FSDS QA:** | ENH 10/26/2022 | **Easting** | | **Northing** | | **TOC** | |

### Hydrology/Level Measurements

| | | | | | (Product Thickness) | (Water Column) | (Gallons/ft x Water Column) |
|---|---|---|---|---|---|---|---|
| **Date** | **Time** | **DT-Bottom** | **DT-Product** | **DT-Water** | **DTP-DTW** | **DTB-DTW** | **Pore Volume** |
| 10/26/2022 | 8:49 | 37.18 | | 32.78 | | 4.40 | 0.72 |

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

| **Purge Method** | **Time** | **Purge Vol (gal)** | **Flowrate l/min** | **pH** | **Temp (C)** | **E Cond (uS/cm)** | **DO (mg/L)** | **ORP** | **Turbidity** |
|---|---|---|---|---|---|---|---|---|---|
| (1) Submersible Pump | 9:37:00 AM | 1.5 | 0.6 | 6.63 | 14.1 | 1063 | 1.22 | 51.6 | 18.5 |
| | 9:40:00 AM | 1.9 | 0.6 | 6.64 | 14.3 | 1035 | 0.93 | 44.3 | 11.3 |
| | 9:43:00 AM | 2.3 | 0.6 | 6.63 | 14.3 | 983 | 0.91 | 38.1 | 10.9 |
| | 9:46:00 AM | 2.7 | 0.6 | 6.63 | 14.3 | 935 | 0.92 | 30.0 | 13.0 |
| | 9:49:00 AM | 3.1 | 0.6 | 6.63 | 14.3 | 909 | 0.56 | 24.6 | 5.48 |
| | 9:52:00 AM | 3.5 | 0.6 | 6.63 | 14.4 | 893 | 0.45 | 17.8 | 5.62 |
| Final Field Parameters | 9:55:00 AM | 3.9 | 0.6 | 6.62 | 14.4 | 878 | 0.40 | 11.5 | 4.36 |

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

Initially slightly cloudy when began purging. Turbidity decreased to clear and colorless.

### Sample Information

| **Sampling Method** | **Sample Type** | **Sampling Time** | **Container Code/Preservative** | **#** | **Filtered** |
|---|---|---|---|---|---|
| (1) Submersible Pump | Groundwater | 9:55:00 AM | VOA-Glass | | |
| | | | Amber Glass | 2 | No |
| | | | White Poly | | |
| | | | Yellow Glass | 2 | Yes (1) |
| | | | Green Poly | | |
| | | | Red Total Poly | | |
| | | | Red Dissolved Poly | | |
| | | | Total Bottles | 4 | |

### General Sampling Comments

Began purging at 9:27 with pump controller set to 28. Used in-line flow controller; pump would not operate at low enough flow rate without the groundwater level being maintained in the well. Field filtered 1 of 2 $H_2SO_4$ (yellow) glass bottles for dissolved organic carbon analysis.

# ATTACHMENT B

## LABORATORY ANALYTICAL RESULTS

# Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com


November 04, 2022

Emily Hess
Maul Foster & Alongi
109 East 13th Street
Vancouver, WA 98660
TEL: (360) 694-2691
FAX: (360) 906-1958

RE: POCW- Hampton Lumber Mill/ M0229.04. Order No.: 2210261

Dear Emily Hess:

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

# Specialty Analytical

WO#: **2210261**
Date Reported: **11/4/2022**

**CLIENT:** Maul Foster & Alongi
**Collection Date:** 10/26/2022 9:55:00 AM
**Project:** POCW- Hampton Lumber Mill/ M0229.04.014
**Lab ID:** 2210261-001
**Matrix:** WATER
**Client Sample ID** MW-7

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NWTPH-DX WITH SILICA CLEAN-UP** | | | | **NWTPH-DX/SIL** | **SW3510C** | Analyst: **KH** |
| Diesel | ND | 0.0833 | | mg/L | 1 | 11/3/2022 12:55:00 PM |
| Lube Oil | ND | 0.208 | | mg/L | 1 | 11/3/2022 12:55:00 PM |
| Surr: o-Terphenyl | 88.2 | 50 - 150 | | %Rec | 1 | 11/3/2022 12:55:00 PM |
| **NWTPH-DX - RBC** | | | | **NWTPH-DX** | **SW 3510C** | Analyst: **KH** |
| Diesel | 0.101 | 0.0836 | | mg/L | 1 | 11/2/2022 9:19:00 PM |
| Lube Oil | ND | 0.209 | | mg/L | 1 | 11/2/2022 9:19:00 PM |
| Surr: o-Terphenyl | 102 | 50 - 150 | | %Rec | 1 | 11/2/2022 9:19:00 PM |
| **ORGANIC CARBON, DISSOLVED** | | | | **M5310 B** | | Analyst: **NK** |
| Organic Carbon, Dissolved | 9.52 | 0.500 | | mg/L | 1 | 10/27/2022 5:13:46 PM |
| **ORGANIC CARBON, TOTAL** | | | | **M5310 B** | | Analyst: **NK** |
| Organic Carbon, Total | 9.62 | 0.500 | | mg/L | 1 | 10/27/2022 5:33:13 PM |

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **DOC_W**

| Sample ID: **CCV1-R47079** | SampType: **CCV** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604028** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | 9.71 | 0.500 | 10.00 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID: **CCB1-R47079** | SampType: **CCB** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604029** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | ND | 0.500 | | | | | | | | | |

| Sample ID: **MB-R47079** | SampType: **MBLK** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604030** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | ND | 0.500 | | | | | | | | | |

| Sample ID: **LCS-R47079** | SampType: **LCS** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604031** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | 9.62 | 0.500 | 10.00 | 0 | 96.2 | 84.1 | 109 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **DOC_W**

| Sample ID: **LCS-R47079** | SampType: **LCS** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604031** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|

| Sample ID: **2210181-001CMS** | SampType: **MS** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **BatchQC** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604034** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | 5.48 | 0.500 | 5.000 | 0.7870 | 93.8 | 74.7 | 121 | | | | |

| Sample ID: **2210181-001CMSD** | SampType: **MSD** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **BatchQC** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604035** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | 5.43 | 0.500 | 5.000 | 0.7870 | 92.9 | 74.7 | 121 | 5.477 | 0.788 | 20 | |

| Sample ID: **CCV2-R47079** | SampType: **CCV** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604037** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | 9.41 | 0.500 | 10.00 | 0 | 94.1 | 90 | 110 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **DOC_W**

| Sample ID: **CCB2-R47079** | SampType: **CCB** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604038** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | ND | 0.500 | | | | | | | | | |

| Sample ID: **CCV3-R47079** | SampType: **CCV** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604040** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | 9.66 | 0.500 | 10.00 | 0 | 96.6 | 90 | 110 | | | | |

| Sample ID: **CCB3-R47079** | SampType: **CCB** | TestCode: **DOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47079** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R47079** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604041** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Dissolved | ND | 0.500 | | | | | | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **DXLLSIL_W**

| Sample ID: **CCV1** | SampType: **CCV** | TestCode: **DXLLSIL_W** | Units: **mg/L** | Prep Date: | RunNo: **47180** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **20447** | TestNo: **NWTPH-Dx/Si** | **SW3510C** | Analysis Date: **11/3/2022** | SeqNo: **605533** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 6.32 | 0.0800 | 6.000 | 0 | 105 | 85 | 115 | | | | |
| Lube Oil | 3.05 | 0.200 | 3.000 | 0 | 102 | 85 | 115 | | | | |

| Sample ID: **MB-20447** | SampType: **MBLK** | TestCode: **DXLLSIL_W** | Units: **mg/L** | Prep Date: **10/31/2022** | RunNo: **47180** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **20447** | TestNo: **NWTPH-Dx/Si** | **SW3510C** | Analysis Date: **11/3/2022** | SeqNo: **605534** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | ND | 0.0800 | | | | | | | | | |
| Lube Oil | ND | 0.200 | | | | | | | | | |
| Surr: o-Terphenyl | 0.194 | | 0.2000 | | 97.1 | 50 | 150 | | | | |

| Sample ID: **LCS-20447** | SampType: **LCS** | TestCode: **DXLLSIL_W** | Units: **mg/L** | Prep Date: **10/31/2022** | RunNo: **47180** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **20447** | TestNo: **NWTPH-Dx/Si** | **SW3510C** | Analysis Date: **11/3/2022** | SeqNo: **605535** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 0.958 | 0.0800 | 1.000 | 0 | 95.8 | 60.7 | 121 | | | | |
| Lube Oil | 1.09 | 0.200 | 1.000 | 0 | 109 | 64 | 126 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **DXLLSIL_W**

| Sample ID: **LCSD-20447** | SampType: **LCSD** | TestCode: **DXLLSIL_W** | Units: **mg/L** | Prep Date: **10/31/2022** | RunNo: **47180** |
|---|---|---|---|---|---|
| Client ID: **LCSS02** | Batch ID: **20447** | TestNo: **NWTPH-Dx/Si** | **SW3510C** | Analysis Date: **11/3/2022** | SeqNo: **605536** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 0.885 | 0.0800 | 1.000 | 0 | 88.5 | 60.7 | 121 | 0.9577 | 7.83 | 20 | |
| Lube Oil | 1.05 | 0.200 | 1.000 | 0 | 105 | 64 | 126 | 1.091 | 3.98 | 20 | |

| Sample ID: **CCV2** | SampType: **CCV** | TestCode: **DXLLSIL_W** | Units: **mg/L** | Prep Date: | RunNo: **47180** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **20447** | TestNo: **NWTPH-Dx/Si** | **SW3510C** | Analysis Date: **11/3/2022** | SeqNo: **605538** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 8.38 | 0.0800 | 8.000 | 0 | 105 | 85 | 115 | | | | |
| Lube Oil | 4.04 | 0.200 | 4.000 | 0 | 101 | 85 | 115 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **NWTPHDXLL_W**

| Sample ID: **CCV1** | SampType: **CCV** | TestCode: **NWTPHDXLL** | Units: **mg/L** | Prep Date: | RunNo: **47161** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **20446** | TestNo: **NWTPH-Dx** | **SW 3510C** | Analysis Date: **11/2/2022** | SeqNo: **605270** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 6.17 | 0.0800 | 6.000 | 0 | 103 | 85 | 115 | | | | |
| Lube Oil | 3.11 | 0.200 | 3.000 | 0 | 104 | 85 | 115 | | | | |

| Sample ID: **MB-20446** | SampType: **MBLK** | TestCode: **NWTPHDXLL** | Units: **mg/L** | Prep Date: **10/31/2022** | RunNo: **47161** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **20446** | TestNo: **NWTPH-Dx** | **SW 3510C** | Analysis Date: **11/2/2022** | SeqNo: **605271** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | ND | 0.0800 | | | | | | | | | |
| Lube Oil | ND | 0.200 | | | | | | | | | |
| Surr: o-Terphenyl | 0.191 | | 0.2000 | | 95.5 | 50 | 150 | | | | |

| Sample ID: **LCS-20446** | SampType: **LCS** | TestCode: **NWTPHDXLL** | Units: **mg/L** | Prep Date: **10/31/2022** | RunNo: **47161** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **20446** | TestNo: **NWTPH-Dx** | **SW 3510C** | Analysis Date: **11/2/2022** | SeqNo: **605272** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 0.960 | 0.0800 | 1.000 | 0 | 96.0 | 60.7 | 121 | | | | |
| Lube Oil | 1.07 | 0.200 | 1.000 | 0 | 107 | 64 | 126 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **NWTPHDXLL_W**

Sample ID: **LCSD-20446** SampType: **LCSD** TestCode: **NWTPHDXLL** Units: **mg/L** Prep Date: **10/31/2022** RunNo: **47161**

Client ID: **LCSS02** Batch ID: **20446** TestNo: **NWTPH-Dx** **SW 3510C** Analysis Date: **11/2/2022** SeqNo: **605273**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 0.898 | 0.0800 | 1.000 | 0 | 89.8 | 60.7 | 121 | 0.9595 | 6.63 | 20 | |
| Lube Oil | 1.01 | 0.200 | 1.000 | 0 | 101 | 64 | 126 | 1.070 | 5.35 | 20 | |

Sample ID: **CCV2** SampType: **CCV** TestCode: **NWTPHDXLL** Units: **mg/L** Prep Date: RunNo: **47161**

Client ID: **CCV** Batch ID: **20446** TestNo: **NWTPH-Dx** **SW 3510C** Analysis Date: **11/2/2022** SeqNo: **605286**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 8.52 | 0.0800 | 8.000 | 0 | 107 | 85 | 115 | | | | |
| Lube Oil | 4.00 | 0.200 | 4.000 | 0 | 100 | 85 | 115 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **TOC_W**

| Sample ID: **CCV1-R47080** | SampType: **CCV** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604042** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.71 | 0.500 | 10.00 | 0 | 97.1 | 90 | 110 | | | | |

| Sample ID: **CCB1-R47080** | SampType: **CCB** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604043** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | ND | 0.500 | | | | | | | | | |

| Sample ID: **MB-R47080** | SampType: **MBLK** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604045** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | ND | 0.500 | | | | | | | | | |

| Sample ID: **LCS-R47080** | SampType: **LCS** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604046** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.62 | 0.500 | 10.00 | 0 | 96.2 | 84.1 | 109 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **TOC_W**

| Sample ID: **LCS-R47080** | SampType: **LCS** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604046** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|

| Sample ID: **CCV2-R47080** | SampType: **CCV** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604048** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.41 | 0.500 | 10.00 | 0 | 94.1 | 90 | 110 | | | | |

| Sample ID: **CCB2-R47080** | SampType: **CCB** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604049** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | ND | 0.500 | | | | | | | | | |

| Sample ID: **2210249-001AMS** | SampType: **MS** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **BatchQC** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604051** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 5.06 | 0.500 | 5.000 | 0.5320 | 90.6 | 74.7 | 121 | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

## Specialty Analytical

WO#: **2210261**

***11/4/2022***

**Client:** Maul Foster & Alongi

**Project:** POCW- Hampton Lumber Mill/ M0229.04.014 **TestCode:** **TOC_W**

| Sample ID: **2210249-001AMSD** | SampType: **MSD** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **BatchQC** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604052** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 5.14 | 0.500 | 5.000 | 0.5320 | 92.1 | 74.7 | 121 | 5.063 | 1.43 | 20 | |

| Sample ID: **CCV3-R47080** | SampType: **CCV** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **CCV** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604055** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.66 | 0.500 | 10.00 | 0 | 96.6 | 90 | 110 | | | | |

| Sample ID: **CCB3-R47080** | SampType: **CCB** | TestCode: **TOC_W** | Units: **mg/L** | Prep Date: | RunNo: **47080** |
|---|---|---|---|---|---|
| Client ID: **CCB** | Batch ID: **R47080** | TestNo: **M5310 B** | | Analysis Date: **10/27/2022** | SeqNo: **604056** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | ND | 0.500 | | | | | | | | | |

**Qualifiers:** H Holding times for preparation or analysis exceeded

*Specialty Analytical*
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*Clackamas, Oregon 97015*
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*Website: www.specialtyanalytical.com*

# Sample Receipt Checklist

Client Name MAUL_FOSTER Work Order Number 2210261

RcptNo: 1 Date and Time Receive 10/27/2022 2:30:00 PM Received by: Mandy Wehe

Completed by Reviewed by:

Completed Date: 10/27/2022 Reviewed Date: 10/28/2022 7:54:50 AM

Carrier name: SA

| | | | |
|---|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | Not Present ☐ |
| Are matrices correctly identified on Chain of custody? | Yes ☑ | No ☐ | |
| Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Were correct preservatives used and noted? | Yes ☑ | No ☐ | NA ☐ |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| Were container lables complete (ID, Pres, Date)? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| All samples received at a temp. of > 0° C to 6.0° C? | Yes ☑ | No ☐ | NA ☐ |
| Response when temperature is outside of range: | | | |
| Preservative added to bottles: | | | |
| Sample Temp. taken and recorded upon receipt? | Yes ☑ | No ☐ | To 1.9 ºC |
| Water - Were bubbles absent in VOC vials? | Yes ☐ | No ☐ | No Vials ☑ |
| Water - Was there Chlorine Present? | Yes ☐ | No ☐ | NA ☑ |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | NA ☐ |
| Are Samples considered acceptable? | Yes ☑ | No ☐ | |
| Custody Seals present? | Yes ☐ | No ☑ | |
| Traffic Report or Packing Lists present? | Yes ☐ | No ☑ | |
| Airbill or Sticker? | Air Bill ☐ | Sticker ☐ | Not Present ☑ |
| Airbill No: | | | |
| Sample Tags Present? | Yes ☐ | No ☑ | |
| Sample Tags Listed on COC? | Yes ☐ | No ☑ | |
| Tag Numbers: | | | |
| Sample Condition? | Intact ☑ | Broken ☐ | Leaking ☐ |

Case Number: SDG: SAS:

Adjusted? _____ Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section be

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# Sample Receipt Checklist

Client Contacted? ☐ Yes ☑ No ☐ NA Person Contacted: Comments:

Contact Mode: ☐ Phone: ☐ Fax: ☐ Email: ☐ In Person:

Client Instructions:

Date Contacted: Contacted By:

Regarding:

CorrectiveAction:

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

# Chain of Custody Record

Date: 10/26/2022 Page: 1 of: 1
Project Name: PacW - Hamilton Lumber Mill
Project No: M0229.04.014 PO No: M0229.04.014
Collected by: Emily Hess
State Collected: OR ~~WA~~ OTHER
Report To (PM): Emily Hess
PM Email: ehess@maulfoster.com

Laboratory Project No (internal): 2210261
Temperature on Receipt: 1.9 °C
Cooling: ice Shipped Via: SA
Custody Seal: Y / (N) Intact / Broken Cooler / Bottle
MDL TIER IV EDD
Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 60 days)

Client: MFA
Address: 109 E 13th St.
City, State, Zip: Vancouver, WA 98660
Telephone: 360-980-2497
AP Email: accounting@maulfoster.com

| | Sample Name | Sample Date | Sample Time | Sample Matrix* | # of Containers | Requested Tests: NW-TPHDX | NW-TPHDX w/Silica gel cleanup | Total Organic Carbon | Dissolved Organic Carbon (DOC) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-7 | 10 26 22 | 955 | W | 4 | X | X | X | X | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |

*Matrix: A = Air, AQ = Aqueous, L=Liquid, O = Oil, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water, M = Miscellaneous

**Turn-around Time:** Standard : X 3 Day: _____ 2 Day: _____ Next Day: _____ Same Day: _____
Expedited turn-around requests should be coordinated in advance

| Relinquished | Date/Time | Received | Date/Time |
|---|---|---|---|
| Emily Hess | 10/27/22 11:45 AM | | |
| x | 10-27-22 1430 | x | 10/27/22 1430 |
| x | | x | |

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# Definition Only

WO#: **2210261**
Date: **11/4/2022**

## Definitions:

KEY TO FLAGS

A: This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was qualified against gasoline calibration standards.

A1: This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was qualified against diesel calibration standards.

A2: This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was qualified against lube oil calibration standards.

A3: The results was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4: The product appears to be aged or degraded.

B: The blank exhibited a positive result greater than the reporting limit for this compound.

CN: See Case Narrative.

E: Result exceeds the calibration range for this compound. The result should be considered an estimate.

F: The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

FS: Follow-up testing is suggested.

G: Result may be biased high due to biogenic interferences. Clean up is recommended.

H: Sample was analyzed outside recommended holding time.

HT: At client's request, samples was analyzed outside of recommended holding time.

HP: Sample was analyzed outside recommended holding time due to VOA having pH >2.

J: The results for this analyte is between the MDL and the PQL and should be considered an

## Definitions:

estimated concentration.

K: Diesel result is biased high due to amount of Oil contained in the sample.

L: Diesel result is biased high due to amount of Gasoline contained in the sample.

M: Oil result is biased high due to amount of Diesel contained in the sample.

N: Gasoline result is biased high due to amount of Diesel contained in the sample.

MC: Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI: Result is outside control limits due to matrix interference.

NH: Sample matrix is non-homogeneous

MSA: Value determined by Method of Standard Addition.

O: Laboratory Control Standard (LCS) exceeded laboratory control limits but meets CCV criteria. Data meets EPA requirements.

Q: Detection levels elevated due to sample matrix.

R: RPD control limits were exceeded

RF: Duplicate failed due to result being at or near the method-reporting limit.

RP: Matrix spike values exceed established QC limits; post digestion spike is in control.

S: Recovery is outside control limits.

SC: CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

SL: LCS exceeded recovery control limits, but associated MS/MSD passing. Data meets EPA requirements.

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# Definition Only

WO#: **2210261**

Date: **11/4/2022**

## Definitions:

SV: CCV exceded low recovery control limits. ND as reported evaluated using EPA method 8260D section 11.4.3.2

TA: Sample treated with ascorbic acid for the removal of thiocyanates.

# ATTACHMENT C

## DATA VALIDATION MEMORANDUM

# DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. M0229.04.014| NOVEMBER 7, 2022 | PORT OF CAMAS-WASHOUGAL

Maul Foster & Alongi, Inc., conducted an independent Stage 2A review of the quality of analytical results for a groundwater sample collected on October 27, 2022, at the Port of Camas-Washougal's former Hambleton Bros. Log Yard property.

Specialty Analytical Inc. (SA) performed the analyses. SA report number 2210261 was reviewed. The analyses performed and samples analyzed are listed below.

| Analysis | Reference |
|---|---|
| Diesel- and lube-oil-range hydrocarbons | NWTPH-Dx |
| Diesel- and lube-oil-range hydrocarbons with silica gel treatment | NWTPH-Dx/SG |
| Total and dissolved organic carbon | SM 5310B |
| **Notes**<br>NWTPH = Northwest Total Petroleum Hydrocarbons.<br>SG = silica gel treatment.<br>SM = Standard Methods for the Examination of Water and Wastewater. | |

| Samples Analyzed |
|---|
| **Report 2210261** |
| MW-7 |

## DATA QUALIFICATION

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020a, 2020b) and appropriate laboratory- and method-specific guidelines (EPA 1986, SA 2022).

Data validation procedures were modified, as appropriate, to accommodate quality control requirements for methods that EPA data review procedures do not specifically address (e.g., Northwest Total Petroleum Hydrocarbons [NWTPH]-Dx).

Based on the results of the data quality review procedures described below, 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 qualifier:

- U = result is non-detect at the method reporting limit (MRL).

### Total And Dissolved Compounds

Total and dissolved organic carbon results were compared. Where dissolved metals results were greater than their associated total results, qualification was not required when the relative percent difference (RPD) was less than 20 percent.

All detected total organic carbon results were greater than their associated dissolved organic carbon results or met the RPD acceptance criteria.

## SAMPLE CONDITIONS

### Sample Custody

Sample custody was appropriately documented on the chain-of-custody form accompanying the report.

### 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

The laboratory evaluated results to MRLs.

## BLANKS

### Method Blanks

Laboratory method blanks are used to assess whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the laboratory method blanks were associated with all samples prepared in the analytical batch.

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

### Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate field equipment decontamination. These blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

### Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during sample storage and during shipment between the sampling location and the laboratory.

Trip blanks were not required for this sampling event.

## LABORATORY CONTROL SAMPLE AND LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample (LCS) and a laboratory control sample duplicate (LCSD) are spiked with target analytes to provide information about laboratory precision and accuracy. The NWTPH-Dx LCSs and the LCSDs and the SM 5310B LCSs were prepared and analyzed at the required frequency.

LCSD results were not reported for method SM 5310B. Laboratory precision was evaluated through MS and MSD results. No action by the reviewer was required.

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.

Laboratory duplicate results were not reported. Laboratory precision was evaluated through LCS and LCSD or matrix spike (MS) and matrix spike duplicate (MSD) results. No action by the reviewer was required.

## 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 analysis. MS and MSDs were not reported for NWTPH-Dx or NWTPH-Dx-SG and precision and accuracy were evaluated based on the LCS and LCSD. All remaining MS and MSD samples were prepared and analyzed at the required frequency.

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

### Surrogate Recovery Results

The samples were spiked with surrogate compounds to evaluate laboratory performance for individual samples for organic analyses.

All surrogate results were within percent recovery acceptance limits.

## CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. CCV results were not required for validation but were reviewed when provided.

All CCV results met percent recovery acceptance limits criteria.

## CONTINUING CALIBRATION BLANK RESULTS

Continuing calibration blanks (CCBs) are used to assess analytical background contamination introduced during sample analysis. CCB results were reported for method SM 5310B.

All CCBs were non-detect to reporting limits for all target analytes.

## FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. No field duplicates were submitted for analysis.

## DATA PACKAGE

The data package was reviewed for transcription errors, omissions, and anomalies. None were found.

# REFERENCES

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).

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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.

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