



April 23, 2021

Project No. 0229.04.14

Panjini Balaraju

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 Mr. Balaraju:

On behalf of the Port of Camas-Washougal, on April 8, 2021, Maul Foster & Alongi, Inc., 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<sup>1</sup>. The Site is located in the City of Washougal, Clark County, Washington, on Clark County parcel number 73134179.

Monitoring was completed using dedicated equipment and industry standard techniques per the groundwater monitoring plan included in the Construction Completion Report.<sup>2</sup> Depth to water was 30.07 feet below top of casing; therefore, purging and sampling was conducted using a disposable bailer. The groundwater parameters from sampling MW-7 on April 8, 2021, are shown on the field sampling data sheet (see Attachment A). The groundwater sample was analyzed for diesel-range organics and lube oil-range organics by method Northwest Total Petroleum Hydrocarbons-Dx. The analysis was 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.

Lube oil-range organics were detected at 1,080 micrograms per liter (ug/L) and diesel-range organics were detected at 1,440 ug/L (see table). Consistent with the Washington State Department of Ecology's (Ecology's) Implementation Memorandum No. 4,<sup>3</sup> the diesel- and lube oil-range hydrocarbon results were summed for a total detected concentration. The individual lube oil-range and the total detected concentrations are above the Ecology Model

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<sup>1</sup> Ecology. 2013. Cleanup action plan, Hambleton Bros. Log Yard, Washougal, WA. Washington State Department of Ecology, Lacey, Washington. May.

<sup>2</sup> MFA. 2015. Construction completion report, former Hambleton Bros. Log Yard – remedial action. Prepared for Port of Camas-Washougal. Prepared by Maul Foster & Alongi, Inc. March 16.

<sup>3</sup> 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.

Panjini Balaraju  
April 23, 2021  
Page 2

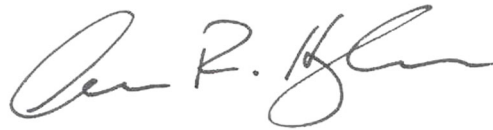
Project No. 0229.04.14

Toxics Control Act Method A groundwater cleanup level of 500 ug/L. These results are within the range for previous detections.

The next sampling event is scheduled for October 2022. Please let us know if you have any questions.

Sincerely,

Maul Foster & Alongi, Inc.



Emily N. Hess, LHG  
Project Hydrogeologist

04-23-2021

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, Port of Camas-Washougal

## LIMITATIONS

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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



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

| Date Collected                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Method A<br>CUL | 10/28/2011  | 04/17/2015  | 10/27/2016  | 04/09/2018 | 10/10/2019  | 04/08/2021  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|-------------|-------------|------------|-------------|-------------|
| <b>Field Parameters</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |             |             |             |            |             |             |
| Depth to water (ft MPE)                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NA              | 20.61       | 26.00       | 27.90       | 22.91      | 32.23       | 30.07       |
| pH (pH units)                                                                                                                                                                                                                                                                                                                                                                                                                                                             | NA              | 5.92        | 5.98        | 6.88        | 6.58       | 6.07        | 6.66        |
| Temperature (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NA              | 14.53       | 13.56       | 15.5        | 12.6       | 13.1        | 11.7        |
| Conductivity (uS/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NA              | 91          | 1567        | 1566        | 1037       | 921         | 880         |
| Dissolved oxygen (mg/L)                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NA              | 0.64        | 0.7         | 0.49        | 4.35       | 1.17        | 2.07        |
| Redox potential (mV)                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NA              | -173.7      | 58.2        | -62.5       | -4.9       | 137.7       | 134.3       |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                                                                                                                                           | NA              | 82.51       | 11.73       | 4.98        | 4.58       | 22          | 101         |
| <b>Petroleum Hydrocarbon Analytical Results (ug/L)</b>                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |             |             |             |            |             |             |
| Diesel-range                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 500             | <b>588</b>  | <b>646</b>  | <b>1680</b> | 332        | <b>821</b>  | <b>1440</b> |
| Lube Oil-range                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 500             | <b>591</b>  | <b>907</b>  | <b>4740</b> | <b>571</b> | <b>598</b>  | <b>1080</b> |
| Diesel + Lube Oil <sup>a</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                            | 500             | <b>1179</b> | <b>1553</b> | <b>6420</b> | <b>903</b> | <b>1419</b> | <b>2520</b> |
| NOTES:<br>Bolded value indicates exceedance of Model Toxics Control Act Method A CUL.<br>°C = degrees Celsius.<br>CUL = cleanup level.<br>ft MPE = feet below measuring point elevation.<br>mg/L = milligrams per liter.<br>mV = millivolts.<br>NA = not applicable.<br>NTU = nephelometric turbidity units.<br>ug/L = micrograms per liter.<br>uS/cm = microsiemens per centimeter.<br><sup>a</sup> Diesel + Lube Oil = sum of diesel-range and lube oil-range organics. |                 |             |             |             |            |             |             |

FIGURE

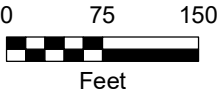




**Figure**  
**Monitoring Well Location**  
Former Hambleton Bros. Log Yard  
Washougal, Washington

- Legend**
- Monitoring Well
  - Soil Management
  - Site Boundary

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



Source: Aerial photograph obtained from Mapbox.

# 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

|                       |                         |                        |            |                 |  |            |  |
|-----------------------|-------------------------|------------------------|------------|-----------------|--|------------|--|
| <b>Client Name</b>    | Port of Camas Washougal | <b>Sample Location</b> | MW-7       |                 |  |            |  |
| <b>Project #</b>      | 0229.04.14              | <b>Sampler</b>         | Emily Hess |                 |  |            |  |
| <b>Project Name</b>   | Former Hambleton Lumber | <b>Sampling Date</b>   | 4/8/2021   |                 |  |            |  |
| <b>Sampling Event</b> | April 2021              | <b>Sample Name</b>     | MW-7       |                 |  |            |  |
| <b>Sub Area</b>       |                         | <b>Sample Depth</b>    | 33         |                 |  |            |  |
| <b>FSDS QA:</b>       | Emily Hess 4/8/2021     | <b>Easting</b>         |            | <b>Northing</b> |  | <b>TOC</b> |  |

### Hydrology/Level Measurements

| Date     | Time | DT-Bottom | DT-Product | DT-Water | (Product Thickness) | (Water Column) | (Gallons/ft x Water Column) |
|----------|------|-----------|------------|----------|---------------------|----------------|-----------------------------|
|          |      |           |            |          | DTP-DTW             | DTB-DTW        | Pore Volume                 |
| 4/8/2021 | 8:01 | 37.18     |            | 30.07    |                     | 7.11           | 1.16                        |

(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 |
|------------------------|------------|-----------------|----------------|------|----------|----------------|-----------|-------|-----------|
| (5) Disposable Bailer  | 8:13:00 AM | 1               |                | 6.75 | 12.6     | 1140           | 4.02      | 154.8 | 184.5     |
|                        | 8:19:00 AM | 2               |                | 6.74 | 11.8     | 1079           | 4.47      | 143   | 247.2     |
|                        | 8:25:00 AM | 3               |                | 6.76 | 12.1     | 1002           | 2.54      | 137.5 | 267.4     |
|                        |            |                 |                |      |          |                |           |       |           |
|                        |            |                 |                |      |          |                |           |       |           |
| Final Field Parameters | 8:29:00 AM | 4               |                | 6.66 | 11.7     | 880            | 2.07      | 134.3 | 150.5     |

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:

Turbidity (black/reddish brown silt-sized particles) elevated due to bailing. Slight petroleum hydrocarbon-like odor. At time of sample collection, turbidity was 101.0 NTUs and water level was 30.14 feet below top of casing.

### Sample Information

| Sampling Method       | Sample Type | Sampling Time | Container Code/Preservative | # | Filtered |
|-----------------------|-------------|---------------|-----------------------------|---|----------|
| (5) Disposable Bailer | Groundwater | 9:29:00 AM    | VOA-Glass                   |   |          |
|                       |             |               | Amber Glass                 | 1 | No       |
|                       |             |               | White Poly                  |   |          |
|                       |             |               | Yellow Poly                 |   |          |
|                       |             |               | Green Poly                  |   |          |
|                       |             |               | Red Total Poly              |   |          |
|                       |             |               | Red Dissolved Poly          |   |          |
|                       |             |               | Total Bottles               | 1 |          |

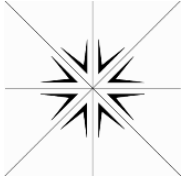
### General Sampling Comments

Began bailing at 8:10. Water level while purging varied from 30.30 to 31.11 feet below top of casing. After purging over three pore volumes, let well sit for one hour prior to sampling for water level to rebound and turbidity to decrease.

# ATTACHMENT B

## LABORATORY ANALYTICAL RESULTS





# Specialty Analytical

9011 SE Jannsen Rd  
Clackamas, OR 97015  
TEL: (503) 607-1331

Website: [www.specialtyanalytical.com](http://www.specialtyanalytical.com)

April 15, 2021

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

RE: Port of Camas-Washougal / 0229.04.14

Order No.: 2104054

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,

A handwritten signature in black ink, appearing to read "M. French", written in a cursive style.

Marty French  
Lab Director

# Specialty Analytical

WO#: 2104054

Date Reported: 4/15/2021

**CLIENT:** Maul Foster & Alongi  
**Project:** Port of Camas-Washougal / 0229.04.14  
**Lab ID:** 2104054-001  
**Client Sample ID** MW-7

**Collection Date:** 4/8/2021 9:29:00 AM

**Matrix:** GROUNDWATER

| Analyses              | Result | RL       | Qual | Units | DF | Date Analyzed         |
|-----------------------|--------|----------|------|-------|----|-----------------------|
| <b>NWTPH-DX - RBC</b> |        |          |      |       |    |                       |
| Diesel                | 1.44   | 0.0871   | A1   | mg/L  | 1  | 4/12/2021 11:38:00 AM |
| Lube Oil              | 1.08   | 0.218    | A2   | mg/L  | 1  | 4/12/2021 11:38:00 AM |
| Surr: o-Terphenyl     | 112    | 50 - 150 |      | %Rec  | 1  | 4/12/2021 11:38:00 AM |

**NWTPH-DX SW 3510C Analyst: TB**

# QC SUMMARY REPORT

Specialty Analytical

WO#: 2104054

4/15/2021

Client: Maul Foster & Alongi

Project: Port of Camas-Washougal / 0229.04.14

TestCode: NWTPHDXLL\_W

|                              |                        |                            |                    |                                |      |          |           |                      |      |          |      |
|------------------------------|------------------------|----------------------------|--------------------|--------------------------------|------|----------|-----------|----------------------|------|----------|------|
| Sample ID: <b>CCV-R39961</b> | SampType: <b>CCV</b>   | TestCode: <b>NWTPHDXLL</b> | Units: <b>mg/L</b> | Prep Date:                     |      |          |           | RunNo: <b>39961</b>  |      |          |      |
| Client ID: <b>CCV</b>        | Batch ID: <b>17691</b> | TestNo: <b>NWTPH-Dx</b>    | <b>SW 3510C</b>    | Analysis Date: <b>4/9/2021</b> |      |          |           | SeqNo: <b>514321</b> |      |          |      |
| Analyte                      | Result                 | PQL                        | SPK value          | SPK Ref Val                    | %REC | LowLimit | HighLimit | RPD Ref Val          | %RPD | RPDLimit | Qual |
| Diesel                       | 6.02                   | 0.0800                     | 6.000              | 0                              | 100  | 85       | 115       |                      |      |          |      |
| Lube Oil                     | 2.72                   | 0.200                      | 3.000              | 0                              | 90.7 | 85       | 115       |                      |      |          |      |

|                            |  |                        |        |                            |             |                    |          |                                |             |                      |          |      |
|----------------------------|--|------------------------|--------|----------------------------|-------------|--------------------|----------|--------------------------------|-------------|----------------------|----------|------|
| Sample ID: <b>MB-17691</b> |  | SampType: <b>MBLK</b>  |        | TestCode: <b>NWTPHDXLL</b> |             | Units: <b>mg/L</b> |          | Prep Date: <b>4/8/2021</b>     |             | RunNo: <b>39961</b>  |          |      |
| Client ID: <b>PBW</b>      |  | Batch ID: <b>17691</b> |        | TestNo: <b>NWTPH-Dx</b>    |             | <b>SW 3510C</b>    |          | Analysis Date: <b>4/9/2021</b> |             | SeqNo: <b>514322</b> |          |      |
| 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          |  | 0.170                  |        | 0.2000                     |             | 85.1               | 50       | 150                            |             |                      |          |      |

|                             |                        |                            |                    |                                |                      |          |           |             |      |          |      |
|-----------------------------|------------------------|----------------------------|--------------------|--------------------------------|----------------------|----------|-----------|-------------|------|----------|------|
| Sample ID: <b>LCS-17691</b> | SampType: <b>LCS</b>   | TestCode: <b>NWTPHDXLL</b> | Units: <b>mg/L</b> | Prep Date: <b>4/8/2021</b>     | RunNo: <b>39961</b>  |          |           |             |      |          |      |
| Client ID: <b>LCSW</b>      | Batch ID: <b>17691</b> | TestNo: <b>NWTPH-Dx</b>    | <b>SW 3510C</b>    | Analysis Date: <b>4/9/2021</b> | SeqNo: <b>514323</b> |          |           |             |      |          |      |
| Analyte                     | Result                 | PQL                        | SPK value          | SPK Ref Val                    | %REC                 | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel                      | 0.992                  | 0.0800                     | 1.000              | 0                              | 99.2                 | 60.7     | 121       |             |      |          |      |
| Lube Oil                    | 0.752                  | 0.200                      | 1.000              | 0                              | 75.2                 | 64       | 126       |             |      |          |      |

Qualifiers: H Holding times for preparation or analysis exceeded

# QC SUMMARY REPORT

Specialty Analytical

WO#: 2104054

4/15/2021

Client: Maul Foster & Alongi

Project: Port of Camas-Washougal / 0229.04.14

TestCode: NWTPHDXLL\_W

| Sample ID: <b>LCSD-17691</b> | SampType: <b>LCSD</b>  | TestCode: <b>NWTPHDXLL</b> | Units: <b>mg/L</b> | Prep Date: <b>4/8/2021</b>     | RunNo: <b>39961</b>  |          |           |             |      |          |      |
|------------------------------|------------------------|----------------------------|--------------------|--------------------------------|----------------------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>LCSS02</b>     | Batch ID: <b>17691</b> | TestNo: <b>NWTPH-Dx</b>    | <b>SW 3510C</b>    | Analysis Date: <b>4/9/2021</b> | SeqNo: <b>514324</b> |          |           |             |      |          |      |
| Analyte                      | Result                 | PQL                        | SPK value          | SPK Ref Val                    | %REC                 | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel                       | 1.01                   | 0.0800                     | 1.000              | 0                              | 101                  | 60.7     | 121       | 0.9920      | 1.40 | 20       |      |
| Lube Oil                     | 0.810                  | 0.200                      | 1.000              | 0                              | 81.0                 | 64       | 126       | 0.7520      | 7.43 | 20       |      |

|                         |                        |                            |                    |                                 |                      |          |           |             |      |          |      |
|-------------------------|------------------------|----------------------------|--------------------|---------------------------------|----------------------|----------|-----------|-------------|------|----------|------|
| Sample ID: <b>CCV-3</b> | SampType: <b>CCV</b>   | TestCode: <b>NWTPHDXLL</b> | Units: <b>mg/L</b> | Prep Date:                      | RunNo: <b>39961</b>  |          |           |             |      |          |      |
| Client ID: <b>CCV</b>   | Batch ID: <b>17691</b> | TestNo: <b>NWTPH-Dx</b>    | <b>SW 3510C</b>    | Analysis Date: <b>4/12/2021</b> | SeqNo: <b>514719</b> |          |           |             |      |          |      |
| Analyte                 | Result                 | PQL                        | SPK value          | SPK Ref Val                     | %REC                 | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel                  | 6.20                   | 0.0800                     | 6.000              | 0                               | 103                  | 85       | 115       |             |      |          |      |
| Lube Oil                | 3.00                   | 0.200                      | 3.000              | 0                               | 100                  | 85       | 115       |             |      |          |      |

|                      |  |                 |        |                     |             |             |          |                          |             |      |               |      |
|----------------------|--|-----------------|--------|---------------------|-------------|-------------|----------|--------------------------|-------------|------|---------------|------|
| Sample ID: CCB-17691 |  | SampType: CCB   |        | TestCode: NWTPHDXLL |             | Units: mg/L |          | Prep Date:               |             |      | RunNo: 39961  |      |
| Client ID: CCB       |  | Batch ID: 17691 |        | TestNo: NWTPH-Dx    |             | SW 3510C    |          | Analysis Date: 4/12/2021 |             |      | SeqNo: 514720 |      |
| 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    |  | 0.173           |        | 0.2000              |             | 86.7        | 50       | 150                      |             |      |               |      |

Qualifiers: H Holding times for preparation or analysis exceeded

## QC SUMMARY REPORT

Specialty Analytical

WO#: 2104054

4/15/2021

Client: Maul Foster & Alongi

Project: Port of Camas-Washougal / 0229.04.14

TestCode: NWTPHDXLL\_W

|                         |                        |                            |                    |                                 |                      |          |           |             |      |          |      |
|-------------------------|------------------------|----------------------------|--------------------|---------------------------------|----------------------|----------|-----------|-------------|------|----------|------|
| Sample ID: <b>CCV-4</b> | SampType: <b>CCV</b>   | TestCode: <b>NWTPHDXLL</b> | Units: <b>mg/L</b> | Prep Date:                      | RunNo: <b>39961</b>  |          |           |             |      |          |      |
| Client ID: <b>CCV</b>   | Batch ID: <b>17691</b> | TestNo: <b>NWTPH-Dx</b>    | <b>SW 3510C</b>    | Analysis Date: <b>4/12/2021</b> | SeqNo: <b>514729</b> |          |           |             |      |          |      |
| Analyte                 | Result                 | PQL                        | SPK value          | SPK Ref Val                     | %REC                 | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel                  | 7.74                   | 0.0800                     | 8.000              | 0                               | 96.8                 | 85       | 115       |             |      |          |      |
| Lube Oil                | 3.78                   | 0.200                      | 4.000              | 0                               | 94.5                 | 85       | 115       |             |      |          |      |

Qualifiers: H Holding times for preparation or analysis exceeded



Specialty Analytical  
9011 SE Jannsen Rd  
Clackamas, Oregon 97015  
TEL: 503-607-1331 FAX: 503-607-1336  
Website: www.specialtyanalytical.com

## Sample Receipt Checklist

Client Name MAUL\_FOSTER

Work Order Number 2104054

RcptNo: 1

Date and Time Received 4/8/2021 2:55:00 PM

Received by: Julie Clay

Completed by

Reviewed by:

Completed Date: 4/8/2021 3:46:56 PM

Reviewed Date: 4/9/2021 8:50:02 AM

Carrier name: SA

|                                                         |                                            |                                        |             |                                     |
|---------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------|-------------------------------------|
| Chain of custody present?                               | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Chain of custody agrees with sample labels?             | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            | Not Present | <input type="checkbox"/>            |
| Are matrices correctly identified on Chain of custody?  | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Is it clear what analyses were requested?               | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Custody seals intact on sample bottles?                 | Yes <input type="checkbox"/>               | No <input type="checkbox"/>            | Not Present | <input checked="" type="checkbox"/> |
| Samples in proper container/bottle?                     | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Were correct preservatives used and noted?              | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            | NA          | <input type="checkbox"/>            |
| Sample containers intact?                               | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Sufficient sample volume for indicated test?            | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Were container labels complete (ID, Pres, Date)?        | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| All samples received within holding time?               | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Was an attempt made to cool the samples?                | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            | NA          | <input type="checkbox"/>            |
| All samples received at a temp. of > 0° C to 6.0° C?    | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            | NA          | <input type="checkbox"/>            |
| Response when temperature is outside of range:          |                                            |                                        |             |                                     |
| Preservative added to bottles:                          |                                            |                                        |             |                                     |
| Sample Temp. taken and recorded upon receipt?           | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            | To 2.1 °C   |                                     |
| Water - Were bubbles absent in VOC vials?               | Yes <input type="checkbox"/>               | No <input type="checkbox"/>            | No Vials    | <input checked="" type="checkbox"/> |
| Water - Was there Chlorine Present?                     | Yes <input type="checkbox"/>               | No <input type="checkbox"/>            | NA          | <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt?                     | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            | NA          | <input type="checkbox"/>            |
| Are Samples considered acceptable?                      | Yes <input checked="" type="checkbox"/>    | No <input type="checkbox"/>            |             |                                     |
| Custody Seals present?                                  | Yes <input type="checkbox"/>               | No <input checked="" type="checkbox"/> |             |                                     |
| Traffic Report or Packing Lists present?                | Yes <input type="checkbox"/>               | No <input checked="" type="checkbox"/> |             |                                     |
| Airbill or Sticker?                                     | Air Bill <input type="checkbox"/>          | Sticker <input type="checkbox"/>       | Not Present | <input checked="" type="checkbox"/> |
| Airbill No:                                             |                                            |                                        |             |                                     |
| Sample Tags Present?                                    | Yes <input type="checkbox"/>               | No <input checked="" type="checkbox"/> |             |                                     |
| Sample Tags Listed on COC?                              | Yes <input type="checkbox"/>               | No <input checked="" type="checkbox"/> |             |                                     |
| Tag Numbers:                                            |                                            |                                        |             |                                     |
| Sample Condition?                                       | Intact <input checked="" type="checkbox"/> | Broken <input type="checkbox"/>        | Leaking     | <input type="checkbox"/>            |

Case Number:

SDG:

SAS:

Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

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



Specialty Analytical  
9011 SE Jannsen Rd  
Clackamas, Oregon 97015  
TEL: 503-607-1331 FAX: 503-607-1336  
Website: [www.specialtyanalytical.com](http://www.specialtyanalytical.com)

## Sample Receipt Checklist

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Client Contacted? ☐ Yes ☒ No ☐ NA Person Contacted: \_\_\_\_\_ Comments: \_\_\_\_\_  
Contact Mode: ☐ Phone: ☐ Fax: ☐ Email: ☐ In Person: \_\_\_\_\_  
Client Instructions: \_\_\_\_\_  
Date Contacted: \_\_\_\_\_ Contacted By: \_\_\_\_\_  
Regarding: \_\_\_\_\_  
CorrectiveAction: \_\_\_\_\_

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Specialty Analytical

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

Client: Maul Foster & Alongi  
Address: 109 E 13th Street  
City, State, Zip: Vancouver WA 98660  
Telephone: 360-980-2497  
AP Email: accounting@maulfoster.com

Chain of Custody Record

Date: 4/8/2021Page: 1 of 1

Project Name: Port of Camas-Washougal

Project No: 0229.04.14PO No:

Collected by: Emily Hess

State Collected: OR ☐ WA ☒ OTHER

Report To (PM): Emily Hess

PM Email: ehess@maulfoster.com

Laboratory Project No (internal): 2104054

Temperature on Receipt: 24 °C

Cooling: IceShipped Via: SA

Custody Seal: Y ☒ N ☐ Intact / BrokenCooler / Bottle

MDL ☐ TIER IV ☐ EDD ☐

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 60 days)

| Sample Name | Sample Date | Sample Time | Sample Matrix* | # of Containers | Requested Tests | Comments |
|-------------|-------------|-------------|----------------|-----------------|-----------------|----------|
| 1 MW-7      | 4/8/2021    | 09 29       | GW             | 1               | NWTPH-DX        |          |
| 2           |             |             |                |                 |                 |          |
| 3           |             |             |                |                 |                 |          |
| 4           |             |             |                |                 |                 |          |
| 5           |             |             |                |                 |                 |          |
| 6           |             |             |                |                 |                 |          |
| 7           |             |             |                |                 |                 |          |
| 8           |             |             |                |                 |                 |          |
| 9           |             |             |                |                 |                 |          |
| 10          |             |             |                |                 |                 |          |

Standard (5-7 Business): ☒ 3 Day: ☐ 2 Day: ☐ Next Day: ☐ Same Day: ☐

Expedited turn-around requests should be coordinated in advance

Relinquished  
Date/Time: 4/8/21 1143  
Signature: [Signature]

Relinquished  
Date/Time: 4-8-21 1455  
Signature: [Signature]

Relinquished  
Date/Time: [Blank]  
Signature: [Blank]

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

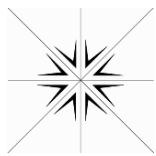
Turn-around Time: Standard (5-7 Business): ☒ 3 Day: ☐ 2 Day: ☐ Next Day: ☐ Same Day: ☐

Expedited turn-around requests should be coordinated in advance

Relinquished  
Date/Time: 4/8/21 1143  
Signature: [Signature]

Relinquished  
Date/Time: 4-8-21 1455  
Signature: [Signature]

Relinquished  
Date/Time: [Blank]  
Signature: [Blank]



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## Definition Only

WO#: 2104054  
Date: 4/15/2021

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### 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.

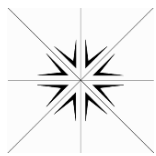
H: Sample was analyzed outside recommended holding time.

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

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## Definition Only

WO#: 2104054  
Date: 4/15/2021

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### 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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# ATTACHMENT C

## DATA VALIDATION MEMORANDUM



# DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0229.04.14 | APRIL 19, 2021 | PORT OF CAMAS-WASHOUGAL

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for a groundwater sample collected at the Port of Camas-Washougal's former Hambleton Bros. Log Yard property. The sample was collected on April 8, 2021.

Specialty Analytical, Inc. (SA) performed the analyses. SA report number 2104054 was reviewed. The analysis performed and sample analyzed are listed below.

| Analysis                                                  | Reference |
|-----------------------------------------------------------|-----------|
| Diesel- and Lube Oil-Range Hydrocarbons                   | NWTPH-Dx  |
| NOTES:<br>NWTPH = Northwest Total Petroleum Hydrocarbons. |           |

|                       |
|-----------------------|
| Sample Analyzed       |
| <b>Report 2104054</b> |
| MW-7                  |

## DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of U.S Environmental Protection Agency (EPA) procedures (EPA, 2017) and appropriate laboratory and method-specific guidelines (EPA, 1986; SA, 2020).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the EPA procedures (e.g., NWTPH-Dx).

According to report 2104054, SA noted the presence of NWTPH-Dx diesel-range and lube oil-range hydrocarbon results from sample MW-7 were not identified as specific hydrocarbon products. The results were reported as diesel-range and lube oil-range hydrocarbons; thus, qualification was not required.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

## HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

### Holding Times

Extraction and analysis were performed within the recommended holding time criteria.

## Preservation and Sample Storage

The sample was preserved and stored appropriately.

## BLANKS

### Method Blanks

Laboratory method blank analysis was performed at the required frequency. For purposes of data qualification, the method blank was associated with all samples prepared in the analytical batch.

The laboratory method blank was non-detect to method reporting limits for all target analytes.

### Trip Blanks

Trip blanks were not required for this sampling event.

### Equipment Rinse Blanks

Equipment rinse blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

## SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples.

All surrogate recoveries were within acceptance limits.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. MS/MSD results were not reported.

Precision and accuracy were evaluated through laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) results. No action was required by the reviewer.

## LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. Laboratory duplicate results were not reported.

Precision was evaluated through LCS/LCSD results. No action was required by the reviewer.

## LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

All LCS/LCSD results were within acceptance limits for percent recovery and relative percent difference.

## FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. Field duplicates were not submitted for analysis with report 2104054.

## CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch.

All CCVs were within acceptance limits for percent recovery.

## REPORTING LIMITS

SA used routine reporting limits for non-detect results.

## DATA PACKAGE

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

## REFERENCES

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EPA. 1986. Test methods for evaluating solid waste, physical/chemical methods. EPA publication SW-846. 3d ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), and VI phase III (2019).

EPA. 2017. EPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540-R-2017-002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

SA. 2020. Laboratory quality assurance plan. Rev. 2020. Specialty Analytical, Inc., Clackamas, Oregon. January.