MAUL FOSTER ALONGI
2815 2nd Avenue, Suite 540 | Seattle, WA 98121 | 206 858 7620 | www.maulfoster.com

June 6, 2022
Project No. M0615.24.001

Sarah Weeks
Environmental Project Manager
Port of Tacoma
One Sitcum Plaza, Tacoma, WA 98421

Re: Groundwater Monitoring Report
Former Louisiana Pacific/Pony Lumber Site
Enforcement Order No. DE 92TC-S312
Facility Site ID: 1209
Monitoring Date: February 17, 2022

Dear Sarah Weeks:

On February 17, 2022, Maul Foster & Alongi, Inc. (MFA), conducted a groundwater monitoring event on behalf of the Port of Tacoma (the Port) at the former Louisiana Pacific/Pony Lumber site, located at 3701 Taylor Way in Tacoma, Washington (the Site) (Figure 1). Groundwater monitoring activities were conducted consistent with the requirements set forth in the Enforcement Order (DE 92TC-S312) between the Louisiana Pacific Corporation and the Washington State Department of Ecology (Ecology) and the revised operation, maintenance manual, and monitoring plan (Ecology, 1992; Louisiana Pacific Corporation, 2001). Groundwater monitoring is conducted every 30 months at the Site consistent with a memorandum of understanding (MOU) between Ecology and the Port (Ecology, 2011). Field activities and results of the groundwater monitoring event are summarized below.

## SITE BACKGROUND

The Site is located at the former Louisiana Pacific/Pony Lumber facility and encompasses approximately 18 acres. Between 1968 and 1969, approximately 1,800 tons of Asarco smelter slag was used as fill at the property to build stable ground for machinery. In 2004, Louisiana Pacific sold the property to Pony Lumber Company, which sold it to the Port in 2006. The property is leased to a Port tenant and operates as a parking and storage facility for newly imported backhoes and vehicles (Ecology, 2016).

Between November 1983 and June 1984, Ecology collected stormwater runoff samples at the Site (Norton and Johnson, 1985). Analytical results from stormwater samples indicated that metal concentrations above the U.S. Environmental Protection Agency (EPA) quality standards were discharged from the Site in stormwater. It was concluded that Asarco slag was leaching contaminants and that the former Louisiana Pacific/Pony Lumber property's

stormwater was contributing contamination in Hylebos Creek and the Hylebos Waterway, which run adjacent to the Site (Ecology, 2016).

In 1987, Ecology issued an order requiring a site investigation, groundwater investigation, and feasibility study; the results of these studies were presented in a site investigation report (CH2M Hill, 1987). In 1990, Ecology issued Remedial Action Order No. DE 90-S170, requiring Louisiana Pacific to evaluate the effectiveness of capping as a cleanup method and to prepare a cap design for the Site (Ecology, 1990). In 1993, following the issuance of the Engineering Design Report (CH2M Hill, 1993) and under Enforcement Order DE92TC-S312, Louisiana Pacific constructed a low-permeability asphalt cap and stormwater drainage system on the Site. A restrictive covenant was recorded for the Site in 1993, limiting activities that may interfere with or reduce the effectiveness of the cleanup action and requiring that the Site be used only for industrial uses (Louisiana-Pacific Corporation, 1993).

In November 2016, Ecology conducted a periodic review of post-cleanup site conditions and site data to ensure that human health and the environment were protected on the Site. The review determined that the remedial actions conducted at the Site continue to be protective of human health and the environment (Ecology, 2016).

Groundwater monitoring has been conducted at monitoring wells LP-1, LP-2, LP-4, and LP-5 since 1995 to monitor the effectiveness of the remedial action on the Site (Figure 2). The last groundwater monitoring event was conducted in August 2019 (Anchor, 2019) and the most recent cap inspection (described in a separate report [MFA, 2022]), was completed in February 2022.

## GROUNDWATER MONITORING AND FIELD PROCEDURES

On February 17, 2022, five groundwater samples, one sample for each well and including one field duplicate, were collected from LP-1, LP-2, LP-4, and LP-5 using low-flow sampling procedures. The groundwater level in each well was measured prior to sampling (Table 1). New, disposable tubing was used for purging and sampling at each monitoring well location. During purging, flow rates, water levels, and water quality parameters (pH, temperature, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity) were recorded on field sampling data sheets (Attachment A). Samples were collected directly into laboratory-provided bottles and were immediately placed in a cooler on ice. Under standard chain-of-custody procedures, groundwater samples were submitted to Analytical Resources, LLC, in Tukwila, Washington, for laboratory analysis. The groundwater samples were filtered at the lab within 24 hours of collection with a 0.45-micron filter and preserved with nitric acid at the analytical laboratory.

Groundwater samples were analyzed for dissolved arsenic and dissolved copper by EPA Method 200.8.

## GROUNDWATER MONITORING RESULTS

The laboratory analytical report is provided as Attachment B, and analytical data are presented in Table 2. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met project-specific data quality objectives. A data validation memorandum summarizing data evaluation procedures, data usability, and deviations from specific field and/or laboratory methods is included as Attachment C. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned. Results from the groundwater monitoring are as follows:

- Dissolved arsenic was detected at a concentration of 0.382 micrograms per liter (ug/L) in LP-1, 1.82 ug/L in LP-2, 0.193 ug/L in LP-4, and 0.386 ug/L in LP-5. None of the detected results exceeded the cleanup level of 36 ug/L.
- Dissolved copper was detected at a concentration of 0.339 ug/L in LP-1, 0.526 ug/L in LP-2, and at 0.894 ug/L in LP-4. Dissolved copper was not detected above the reporting limit (of 0.173 ug/L) in LP-5. None of the detected results exceeded the cleanup level of 2.9 ug/L.

Plots depicting dissolved arsenic and copper concentrations versus time (since monitoring began in 1995) for LP-1, LP-2, LP-4, and LP-5 are presented in Figures 3 and 4, respectively. Groundwater monitoring results will be submitted to Ecology within 45 days after completion of data validation.

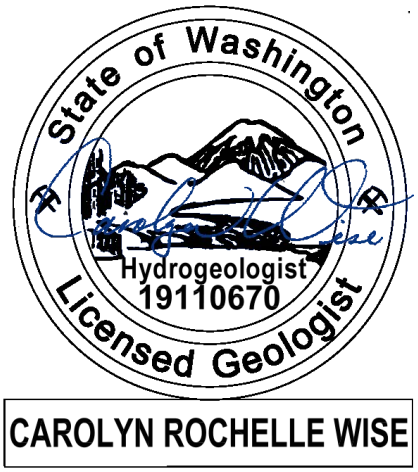
## RECOMMENDATIONS

Consistent with the MOU, dissolved arsenic and copper concentrations in groundwater will continue to be monitored on a 30-month schedule (Ecology, 2011). Therefore, the next scheduled monitoring event will take place in August 2024.

Please contact Audrey Hackett at (206) 556-2015 if you have any questions related to the groundwater monitoring activities or results presented above.

Sincerely,

Maul Foster & Alongi, Inc.




Audrey Hackett
Senior Environmental Scientist

Carolyn R. Wise, LHG
Project Hydrogeologist

Attachments: Limitations
References
Tables
Figures
A—Water Field Sampling Data Sheets
B—Analytical Laboratory Report
C—Data Validation Memorandum

# 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.

# REFERENCES

Anchor. 2019. Memorandum (re: groundwater monitoring report, former Louisiana Pacific/Pony Lumber facility, Enforcement Order No. DE 92TC-S312, Washington State Department of Ecology facility site ID #1201, monitoring date: August 21, 2019) to P. Balaraju and A. Smith, Washington State Department of Ecology, from N. Bacher, Anchor QEA, LLC, Tacoma, Washington. November 14.

CH2M Hill. 1987. Site investigation report.

CH2M Hill. 1993. Engineering report—Tacoma log sort yard RCC cap.

Ecology. 2011. Memorandum of understanding, former log yard groundwater monitoring and cap inspection. Washington Department of Ecology. September 12.

Ecology. 2016. Second periodic review report final. Louisiana Pacific Corporation (aka Pony Lumber Company). Washington State Department of Ecology. November.

Louisiana Pacific Corporation. 2001. Revised operation, maintenance manual, and monitoring plan for concrete log yard groundwater monitoring report.

MFA. 2022. Environmental cap and drainage system inspection report, former Louisiana Pacific/Pony Lumber site.

Norton, D., and A. Johnson. 1985. Completion report on WQIS Project 1 for the Commencement Bay nearshore/tideflats remedial investigation: assessment of log sort yards as metal sources to Commencement Bay waterways, November 1983 to June 1984. Washington State Department of Ecology memorandum. February 27.

# TABLES

# Table 1
# Water Levels
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington

| Location ID | Date[1] | Water Level (feet)[a] |
|---|---|---|
| LP-1 | 07/07/2007 | 14.15 |
| | 05/08/2008 | 12.20 |
| | 09/16/2010 | 13.75 |
| | 03/05/2012 | 11.71 |
| | 09/06/2014 | 14.07 |
| | 02/16/2017 | 10.2 |
| | 08/21/2019 | 13.64 |
| | 02/17/2022 | 12.41 |
| LP-2 | 07/07/2007 | 15.90 |
| | 05/08/2008 | 13.10 |
| | 09/16/2010 | 12.71 |
| | 02/16/2012 | 10.4 |
| | 09/16/2014 | 6.46 |
| | 02/16/2017[b] | -- |
| | 08/21/2019 | 12.22 |
| | 02/17/2022 | 12.07 |
| LP-4 | 07/07/2007 | 8.42 |
| | 05/08/2008 | 9.26 |
| | 09/16/2010 | 7.89 |
| | 03/05/2012 | 7.47 |
| | 09/06/2014 | 8.85 |
| | 02/16/2017 | 6.10 |
| | 08/21/2019 | 8.55 |
| | 02/17/2022 | 7.97 |
| LP-5 | 07/07/2007 | 8.8 |
| | 05/08/2008 | 8.56 |
| | 09/16/2010 | 8.8 |
| | 03/05/2012 | 8.39 |
| | 09/06/2014 | 9.10 |
| | 02/16/2017 | 6.49 |
| | 08/21/2019 | 8.88 |
| | 02/17/2022 | 9.54 |

# Table 1
# Water Levels
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington

NOTES:

-- = not measured.

[a]Surveyed reference elevations are not available. Water levels are presented as feet below top of casing.

[b]Due to a broken well casing, a measurement was not collected from LP-2 in 2017.

[1]Depth-to-water measurements collected before 2022 measured by others and obtained from: Anchor. 2019. Memorandum (re: groundwater monitoring report, former Louisiana Pacific/Pony Lumber facility, Enforcement Order No. DE 92TC-S312, Washington State Department of Ecology facility site ID #1201, monitoring date: August 21, 2019) to P. Balaraju and A. Smith, Washington State Department of Ecology, from N. Bacher, Anchor QEA, LLC, Tacoma, Washington. November 14.

# Table 2
# Groundwater Analytical Results
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington

| Location ID: | Collection Date[1]: | Sample Type: | Dissolved Arsenic | Dissolved Copper | Dissolved Lead | Dissolved Zinc |
|---|---|---|---|---|---|---|
| | | Units: | ug/L | ug/L | ug/L | ug/L |
| | | Cleanup Levels[2]: | 36 | 2.9 | 8.5 | 86 |
| LP-1 | 03/22/1995 | N | 10 U | 3 | 3 U | 20 U |
| | 06/21/1995 | N | 4.6 | 1.9 | 1 U | 3 |
| | 09/25/1995 | N | 5 U | 1.4 | 3 U | 20 U |
| | 12/28/1995 | N | 5 U | 10 U | 3 U | 50 |
| | 04/19/1996 | N | 5 U | 3 | 3 U | 10 U |
| | 06/27/1996 | N | 10 U | 2 U | 8 U | 10 U |
| | 11/25/1996 | N | 5 U | 2 U | 2 U | 5 U |
| | 12/17/1996 | N | 200 U | 20 U | 50 U | 20 U |
| | 03/28/1997 | N | 10 U | 2 U | 8 U | 80 U |
| | 07/09/1997 | N | 1 U | 1 U | 0.5 U | 9.4 |
| | 09/26/1997 | N | 2.7 | 1 U | 0.5 U | 4.3 |
| | 12/18/1997 | N | 3.3 | 1.8 | 0.5 U | 5.6 |
| | 06/30/1998 | N | 4.2 | 1 U | 0.5 U | 2 U |
| | 10/22/1999 | N | 1.7 | 1.3 | 1 U | 170 |
| | 08/01/2000 | N | 1.8 | 1.6 | ND | 4 |
| | 02/02/2002 | N | ND | 4.01 | ND | 14.9 |
| | 07/07/2007 | N | 1 U | 2 U | 1 U | 10 U |
| | 07/07/2007 | FD | 1 U | 2 U | 1 U | 10 U |
| | 05/08/2008 | N | ND | ND | ND | ND |
| | 05/08/2008 | FD | ND | ND | ND | ND |
| | 09/16/2010 | N | 0.5 U | 0.5 U | 0.5 U | 2.7 |
| | 03/05/2012 | N | 0.5 U | 13 | -- | -- |
| | 09/06/2014 | N | 1 U | 1 U | -- | -- |
| | 09/06/2014 | FD | 1 U | 1 U | -- | -- |
| | 02/16/2017 | N | 0.4 | 0.5 U | -- | -- |
| | 08/21/2019 | N | 0.337 | 0.5 U | -- | -- |
| | 02/17/2022 | N | 0.382 | 0.339 J | -- | -- |
| | 02/17/2022 | FD | 0.370 | 0.262 J | -- | -- |
| LP-2 | 03/22/1995 | N | 10 U | 2 U | 3 U | 20 U |
| | 06/21/1995 | N | 4.6 | 1.3 | 1 U | 5.8 |
| | 09/25/1995 | N | 5 U | 43 | 5.8 U | 20 U |
| | 12/28/1995 | N | 5 U | 10 U | 3 U | 20 U |
| | 03/28/1996 | N | 10 U | 2 U | 8 U | 20 U |
| | 06/27/1996 | N | 10 U | 2 U | 8 U | 10 U |
| | 11/25/1996 | N | 5 U | 2 U | 2 U | 5 U |
| | 12/17/1996 | N | 200 U | 20 U | 50 U | 20 U |

# Table 2
# Groundwater Analytical Results
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington

| Location ID: | Collection Date[1]: | Sample Type: | Dissolved Arsenic | Dissolved Copper | Dissolved Lead | Dissolved Zinc |
|---|---|---|---|---|---|---|
| | | Units: | ug/L | ug/L | ug/L | ug/L |
| | | Cleanup Levels[2]: | 36 | 2.9 | 8.5 | 86 |
| LP-2 (continued) | 07/09/1997 | N | 1 U | 1 U | 0.74 | 18 |
| | 09/26/1997 | N | 3.7 | 1 U | 0.5 U | 3 |
| | 12/18/1997 | N | 1.5 | 2 | 0.5 U | 2.8 |
| | 06/30/1998 | N | 4.2 | 1.3 | 0.5 U | 2 U |
| | 10/22/1999 | N | 2.5 | 1 U | 1 U | 86 |
| | 08/01/2000 | N | 1 | 1 | 0.5 | 4 |
| | 02/02/2002 | N | 2.58 | 35.5 | 3.87 | 78.5 |
| | 07/07/2007 | N | 1 U | 2 U | 1 U | 10 U |
| | 05/08/2008 | N | ND | ND | ND | ND |
| | 09/16/2010 | N | 0.5 U | 0.5 U | 0.5 U | 4.0 |
| | 02/16/2012 | N | 0.5 U | 1.8 | -- | -- |
| | 09/06/2014 | N | 1 U | 1 U | -- | -- |
| | 08/21/2019 | N | 1.2 | 0.69 | -- | -- |
| | 08/21/2019 | FD | 1.09 | 0.582 | -- | -- |
| | 02/17/2022 | N | 1.82 | 0.526 | -- | -- |
| LP-4 | 03/22/1995 | N | 10 U | 5 | 3 U | 20 U |
| | 06/21/1995 | N | 6.9 | 5.9 | 1 U | 18 |
| | 09/25/1995 | N | 7.1 | 22 | 4.6 | 20 U |
| | 12/28/1995 | N | 2 U | 5 | 1 U | 20 U |
| | 03/28/1996 | N | 10 U | 2 U | 8 U | 20 U |
| | 06/27/1996 | N | 10 U | 4 | 8 U | 10 U |
| | 11/25/1996 | N | 5 U | 4 | 4 | 7 |
| | 12/17/1996 | N | 200 U | 20 U | 50 U | 20 U |
| | 03/28/1997 | N | 10 U | 4 | 8 U | 80 U |
| | 07/09/1997 | N | 2.9 | 1.7 | 0.55 | 27 |
| | 09/26/1997 | N | 7.6 | 2 | 0.5 U | 6.6 U |
| | 12/18/1997 | N | 7.3 | 6.2 | 0.5 U | 10 |
| | 06/30/1998 | N | 3.3 | 2.5 | 0.5 U | 2 U |
| | 10/22/1999 | N | 1.8 | 1 U | 1 U | 75 |
| | 08/01/2000 | N | 1 | 1 | 0.5 | 4 |
| | 02/02/2002 | N | 5.54 | 6.05 | 1.04 | 10.4 |
| | 07/07/2007 | N | 4 | 2 | 1 U | 10 U |
| | 05/08/2008 | N | ND | ND | ND | ND |
| | 09/16/2010 | N | 0.5 U | 0.8 | 0.5 U | 5.5 |
| | 03/05/2012 | N | 0.5 | 0.5 U | -- | -- |

# Table 2
# Groundwater Analytical Results
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington

| Location ID: | Collection Date[1]: | Sample Type: | Dissolved Arsenic | Dissolved Copper | Dissolved Lead | Dissolved Zinc |
|---|---|---|---|---|---|---|
| | | Units: | ug/L | ug/L | ug/L | ug/L |
| | | Cleanup Levels[2]: | 36 | 2.9 | 8.5 | 86 |
| LP-4 (continued) | 09/06/2014 | N | 1.7 | 2 | -- | -- |
| | 02/16/2017 | N | 0.421 | 0.984 | -- | -- |
| | 08/21/2019 | N | 2.800 | 0.349 J | -- | -- |
| | 02/17/2022 | N | 0.193 J | 0.894 | -- | -- |
| LP-5 | 03/22/1995 | N | 100 U | 2 | 3 U | 20 U |
| | 06/21/1995 | N | 3.1 | 3.4 | 1 U | 3.3 |
| | 09/25/1995 | N | 5.6 | 20 | 4.4 | 20 U |
| | 12/28/1995 | N | 5 U | 2 U | 1 U | 20 U |
| | 03/28/1996 | N | 10 U | 2 U | 8 U | 20 U |
| | 06/27/1996 | N | 10 U | 2 U | 8 U | 10 U |
| | 11/25/1996 | N | 5 U | 2 U | 2 U | 16 |
| | 12/17/1996 | N | 200 U | 20 U | 50 U | 20 U |
| | 03/28/1997 | N | 10 U | 2 U | 8 U | 80 U |
| | 07/09/1997 | N | 1 U | 1 U | 1 | 37 |
| | 09/26/1997 | N | 7.7 | 1 U | 0.5 U | 10 |
| | 12/18/1997 | N | 4 | 1.7 | 0.5 U | 6.1 |
| | 06/30/1998 | N | 11 | 1 U | 0.5 U | 3.1 |
| | 10/22/1999 | N | 7.9 | 1.2 | 1 U | 140 |
| | 08/2000[a] | N | 1 | 1 | 0.5 | 4 |
| | 02/2002[a] | N | 9.05 | 6.15 | 1.02 | 69.6 |
| | 07/2007[a] | N | 3 | 2 U | 1 U | 10 U |
| | 05/2008[a] | N | ND | ND | ND | ND |
| | 09/16/2010 | N | 0.6 | 0.5 U | 0.5 U | 1.0 |
| | 09/16/2010 | FD | 0.7 | 0.5 U | 0.5 U | 1.0 |
| | 03/05/2012 | N | 0.5 U | 0.5 U | -- | -- |
| | 03/05/2012 | FD | 0.5 U | 0.5 U | -- | -- |
| | 09/06/2014 | N | 1 U | 1 U | -- | -- |
| | 02/16/2017 | N | 0.900 | 1.14 | -- | -- |
| | 02/16/2017 | FD | 0.908 | 0.900 | -- | -- |
| | 08/21/2019 | N | 3.36 | 1 U | -- | -- |
| | 02/17/2022 | N | 0.386 | 0.173 U | -- | -- |

# Table 2
# Groundwater Analytical Results
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington

NOTES:

Lead and zinc analyses were discontinued in 2011 with Ecology approval.

Shading indicates values that exceed cleanup levels; non-detects ("U" or "ND") were not evaluated against cleanup levels.

-- = not analyzed.

Ecology = Washington State Department of Ecology.

EPA = U.S. Environmental Protection Agency.

FD = field duplicate sample.

J = result is estimated.

N = normal environmental sample.

ND = result is non-detect; reporting limit value is unknown.

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

ug/L = micrograms per liter.

WAC = Washington Administrative Code.

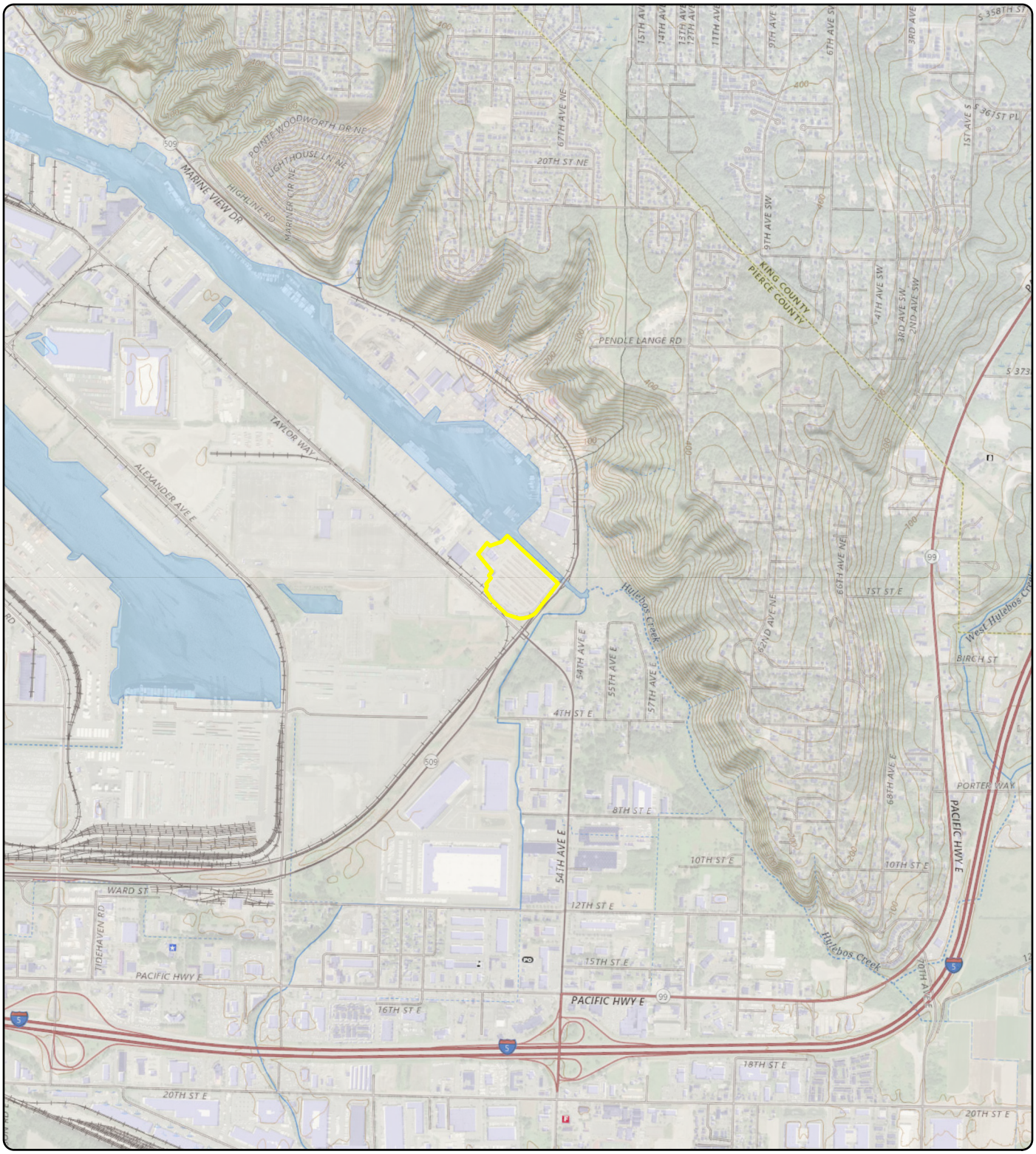
[a]Sample collection date accurate to month and year only.

REFERENCES:

[1]Analytical data collected before 2022 reported by others and obtained from: Anchor. 2019. Memorandum (re: groundwater monitoring report, former Louisiana Pacific/Pony Lumber facility, Enforcement Order No. DE 92TC-S312, Washington State Department of Ecology facility site ID #1201, monitoring date: August 21, 2019) to P. Balaraju and A. Smith, Washington State Department of Ecology, from N. Bacher, Anchor QEA, LLC, Tacoma, Washington. November 14.

[2]Cleanup levels established by Ecology Enforcement Order (DE 92TC-S312) and EPA aquatic life criteria, marine water, chronic (WAC 173-201A).

# FIGURES




Source:
U.S. Geological Survey (2021) 7.5-minute topographic quadrangle: Poverty Bay; township 21 north, range 3 east, section 36; property boundary obtained from Pierce County GIS.

**Legend**

Site Boundary

# Figure 1
## Site Location

Former Louisiana Pacific/Pony Lumber
Tacoma, Washington

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0 1,000 2,000
Feet

Path: X:\0615.24\001\Pro\0615_24_001_003.aprx
Print Date: 3/10/2022
Reviewed By: cwise
Produced By: jelstrott
Project: M0615.24.001-003

# Figure 2
# Property Features

Former Louisiana Pacific/Pony Lumber
Tacoma, Washington


**Legend**

- Monitoring Well
- Site Boundary
- Tax Lot

0 100
Feet

Source:
Aerial photograph obtained from Mapbox; tax lot data obtained from Pierce County GIS; monitoring well locations obtained from Anchor QEA site plan figure.

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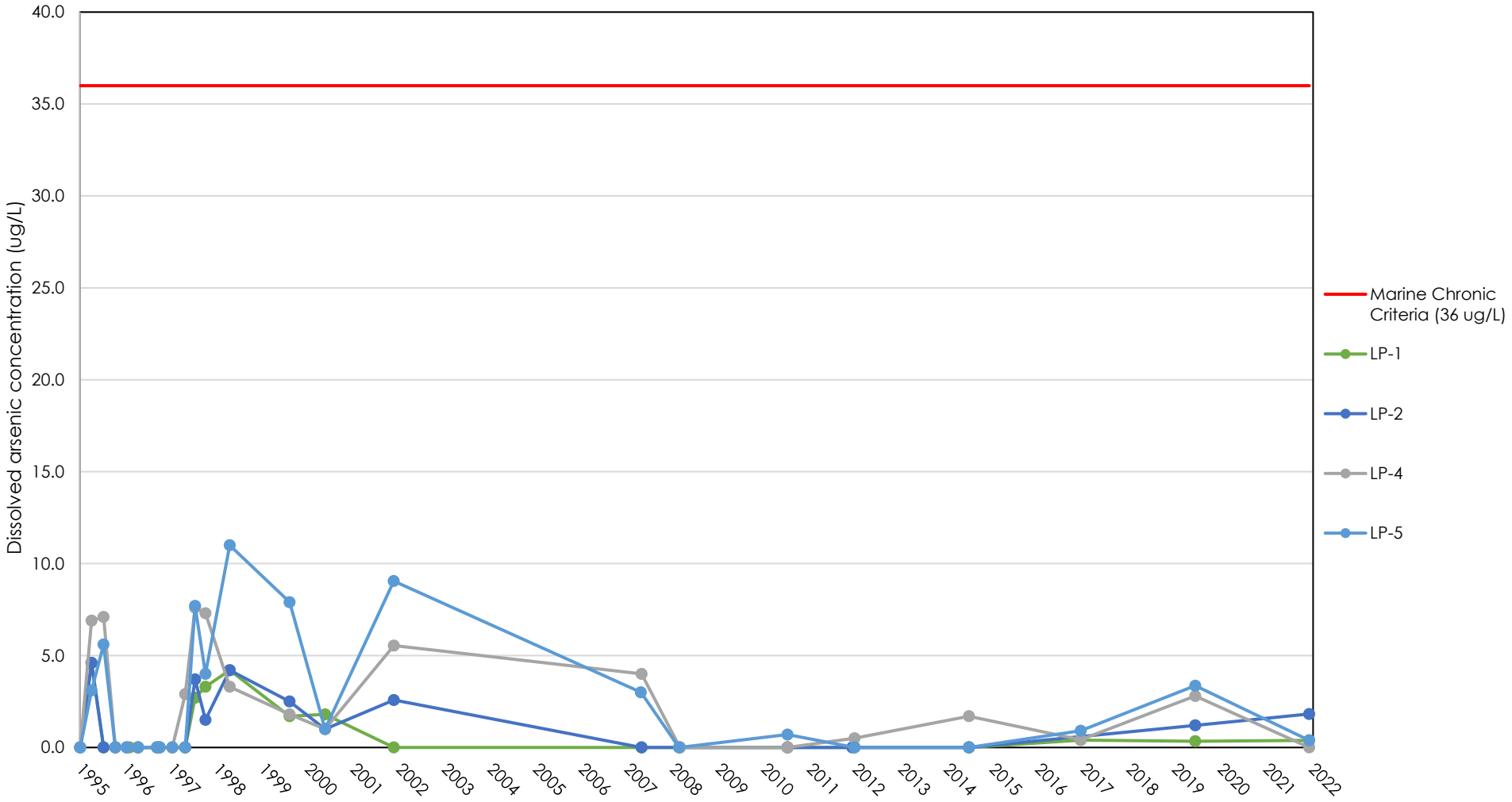
p. 971 544 2139 | www.maulfoster.com



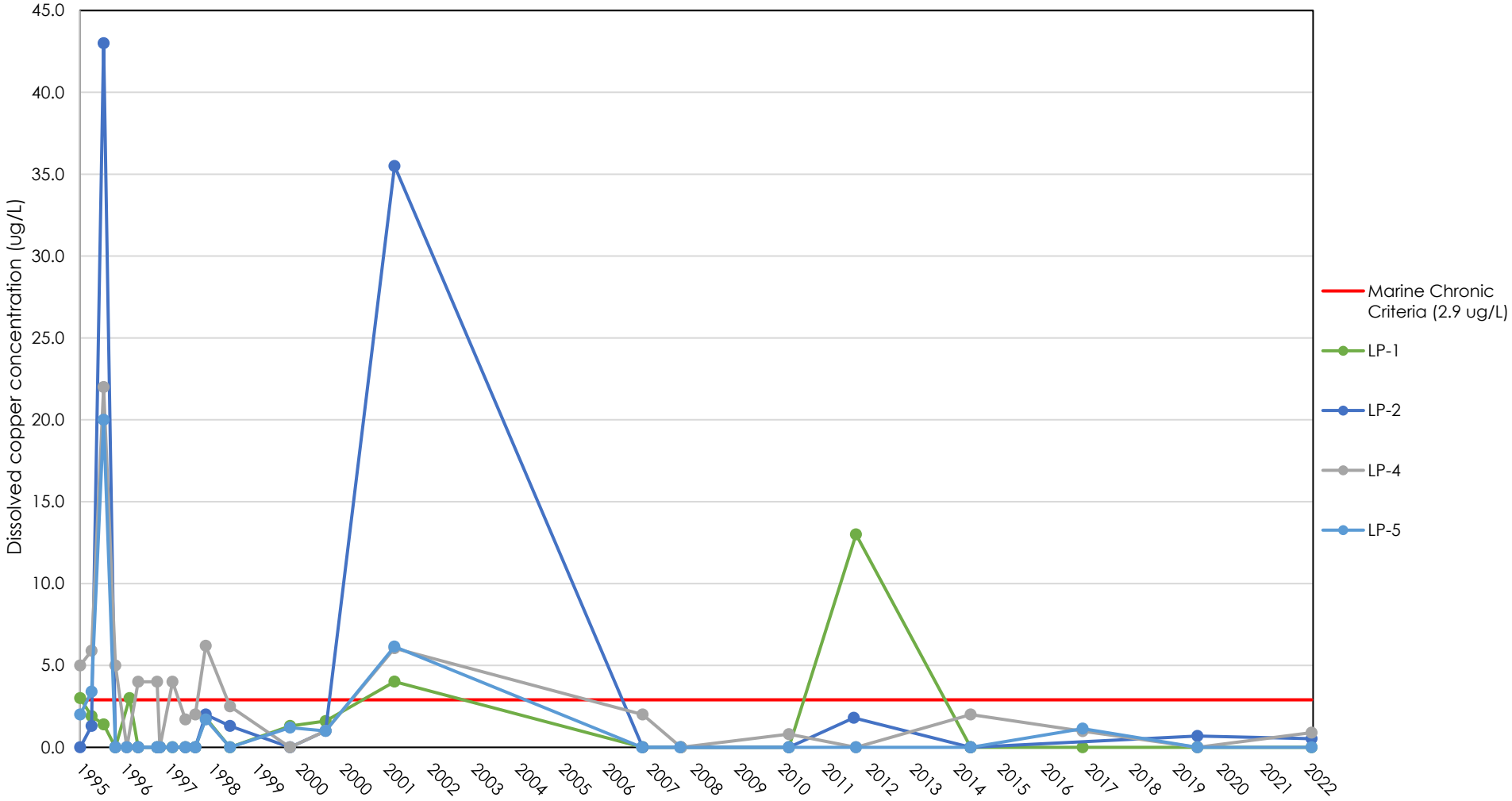
Path: X:\0615.24\001\Pro\0615_24_001_003.aprx
Print Date: 3/10/2022
Reviewed By: cwise
Produced By: jstratt
Project: M0615.24.001-003

# Figure 3
# Dissolved Arsenic Trend Plot
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington




Notes:
All values were below applicable marine chronic criteria in 2022.
See Table 2 for analytical data.
Several of the concentrations are undetected results plotted at the reporting limit or are estimated values.
ug/L = micrograms per liter.

# Figure 4
# Dissolved Copper Trend Plot
# Former Louisiana Pacific/Pony Lumber Site
# Tacoma, Washington




Notes:
All values were below applicable marine chronic criteria in 2022.
See Table 2 for analytical data.
Several of the concentrations are undetected results plotted at the reporting limit or are estimated values.
ug/L = micrograms per liter.

# ATTACHMENT A

## WATER FIELD SAMPLING DATA SHEETS

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Client Name** | Port of Tacoma | **Sample Location** | LP-1 | | | | |
| **Project #** | M0615.24.001 | **Sampler** | S. Maloney | | | | |
| **Project Name** | Pony / Louisiana Pacific Site | **Sampling Date** | 2/17/2022 | | | | |
| **Sampling Event** | February 2022 | **Sample Name** | LP-1-021722 | | | | |
| **Sub Area** | | **Sample Depth** | 20 | | | | |
| **FSDS QA:** | R. Paul 2/25/2022 | **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** |
| 2/17/2022 | 8:50 | 27.69 | | 12.41 | | 15.28 | 2.5 |

(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** |
|---|---|---|---|---|---|---|---|---|---|
| (2) Peristaltic Pump | 9:37:00 AM | 2.5 | 0.2 | 6.58 | 14.4 | 1227 | 1.16 | 67.1 | 6.36 |
| | 9:40:00 AM | 2.7 | 0.2 | 6.59 | 14.3 | 1193 | 0.89 | 44.3 | 3.12 |
| | 9:43:00 AM | 2.9 | 0.2 | 6.61 | 14.2 | 1141 | 0.72 | 17.2 | 2.63 |
| | 9:46:00 AM | 3.1 | 0.2 | 6.61 | 14.1 | 1106 | 0.63 | 0.3 | 1.94 |
| | 9:49:00 AM | 3.3 | 0.2 | 6.61 | 14.1 | 1094 | 0.59 | -8.9 | 1.95 |
| | 9:52:00 AM | 3.5 | 0.2 | 6.61 | 14.1 | 1087 | 0.56 | -15.7 | 2.06 |
| Final Field Parameters | 9:55:00 AM | 3.7 | 0.2 | 6.61 | 14.1 | 1084 | 0.54 | -18 | 1.85 |

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:

Clear; slight brownish-orange tint; no odor; no sheen.

### Sample Information

| **Sampling Method** | **Sample Type** | **Sampling Time** | **Container Code/Preservative** | **#** | **Filtered** |
|---|---|---|---|---|---|
| (2) Peristaltic Pump | Groundwater | 10:00:00 AM | VOA-Glass | | |
| | | | Amber Glass | | |
| | | | White Poly | 1 | No |
| | | | Yellow Poly | | |
| | | | Green Poly | | |
| | | | Red Total Poly | | |
| | | | Red Dissolved Poly | | |
| | | | Total Bottles | 1 | |

### General Sampling Comments

Began purging at 09:15.

LP-DUP-021722 collected here.

Signature _____

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Client Name** | Port of Tacoma | **Sample Location** | LP-2 | | | | |
| **Project #** | M0615.24.001 | **Sampler** | S. Maloney | | | | |
| **Project Name** | Pony / Louisiana Pacific Site | **Sampling Date** | 2/17/2022 | | | | |
| **Sampling Event** | February 2022 | **Sample Name** | LP-2-021722 | | | | |
| **Sub Area** | | **Sample Depth** | 22 | | | | |
| **FSDS QA:** | R. Paul 2/25/2022 | **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** |
| 2/17/2022 | 10:15 | 31.21 | | 12.07 | | 19.14 | 3.1 |

(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** |
|---|---|---|---|---|---|---|---|---|---|
| (2) Peristaltic Pump | 10:55:00 AM | 1.5 | 0.3 | 6.72 | 13.8 | 2112 | 1.55 | 23.4 | 7.5 |
| | 11:05:00 AM | 2 | 0.3 | 6.73 | 14 | 2018 | 0.64 | -17.1 | 6.95 |
| | 11:10:00 AM | 2.3 | 0.3 | 6.75 | 13.9 | 1999 | 0.5 | -30.1 | 5.62 |
| | 11:15:00 AM | 2.75 | 0.3 | 6.75 | 13.9 | 1915 | 0.45 | -40.6 | 5.36 |
| | 11:18:00 AM | 2.9 | 0.3 | 6.76 | 13.9 | 1867 | 0.44 | -43.6 | 6.16 |
| | 11:21:00 AM | 3.05 | 0.3 | 6.75 | 14 | 1821 | 0.43 | -46.6 | 5.98 |
| Final Field Parameters | 11:24:00 AM | 3.2 | 0.3 | 6.76 | 13.9 | 1777 | 0.41 | -49.4 | 6.02 |

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:

Clear; slight greenish-gray tint; containing dark flakey particulates; no odor; no sheen.

### Sample Information

| **Sampling Method** | **Sample Type** | **Sampling Time** | **Container Code/Preservative** | **#** | **Filtered** |
|---|---|---|---|---|---|
| (2) Peristaltic Pump | Groundwater | 11:25:00 AM | VOA-Glass | | |
| | | | Amber Glass | | |
| | | | White Poly | 1 | No |
| | | | Yellow Poly | | |
| | | | Green Poly | | |
| | | | Red Total Poly | | |
| | | | Red Dissolved Poly | | |
| | | | Total Bottles | 1 | |

### General Sampling Comments

Began purging at 10:30.

Final depth to water: 14.55 feet.

Signature _____

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

| | | | |
|---|---|---|---|
| **Client Name** | Port of Tacoma | **Sample Location** | LP-4 |
| **Project #** | M0615.24.001 | **Sampler** | S. Maloney |
| **Project Name** | Pony / Louisiana Pacific Site | **Sampling Date** | 2/17/2022 |
| **Sampling Event** | February 2022 | **Sample Name** | LP-4-021722 |
| **Sub Area** | | **Sample Depth** | 9.5 |
| **FSDS QA:** | R. Paul 2/25/2022 | **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** |
| 2/17/2022 | 11:48 | 11.01 | | 7.97 | | 3.04 | 0.49 |

(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** |
|---|---|---|---|---|---|---|---|---|---|
| (2) Peristaltic Pump | 12:05:00 PM | 1.5 | 0.3 | 6.44 | 9.7 | 446.2 | 3.32 | -12.1 | 2.14 |
| | 12:08:00 PM | 1.6 | 0.2 | 6.36 | 9.7 | 435.9 | 1.79 | -9.5 | 1.98 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Final Field Parameters | 12:11:00 PM | 1.7 | 0.2 | 6.36 | 9.7 | 430.1 | 1.63 | -1.1 | 1.84 |

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:

Clear; orange-brown tint; no odor; no sheen.

### Sample Information

| **Sampling Method** | **Sample Type** | **Sampling Time** | **Container Code/Preservative** | **#** | **Filtered** |
|---|---|---|---|---|---|
| (2) Peristaltic Pump | Groundwater | 12:20:00 PM | VOA-Glass | | |
| | | | Amber Glass | | |
| | | | White Poly | 1 | No |
| | | | Yellow Poly | | |
| | | | Green Poly | | |
| | | | Red Total Poly | | |
| | | | Red Dissolved Poly | | |
| | | | Total Bottles | 1 | |

### General Sampling Comments

Began purging at 11:50.

YSI connected at 12:02; proceeded to sample after 3 well volumes purged.

Signature _____

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Client Name** | Port of Tacoma | **Sample Location** | LP-5 | | | | |
| **Project #** | M0615.24.001 | **Sampler** | S. Maloney | | | | |
| **Project Name** | Pony / Louisiana Pacific Site | **Sampling Date** | 2/17/2022 | | | | |
| **Sampling Event** | February 2022 | **Sample Name** | LP-5-021722 | | | | |
| **Sub Area** | | **Sample Depth** | 11.25 | | | | |
| **FSDS QA:** | R. Paul 2/25/2022 | **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** |
| 2/17/2022 | 12:30 | 12 | | 9.54 | | 2.46 | 0.4 |

(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** |
|---|---|---|---|---|---|---|---|---|---|
| (2) Peristaltic Pump | 12:55:00 PM | 0.5 | 0.3 | 6.6 | 10.3 | 2332 | 1.35 | 73.7 | 2.29 |
| | 12:57:00 PM | 0.75 | 0.3 | 6.6 | 10.3 | 2410 | 0.83 | 67.2 | 5.34 |
| | 1:01:00 PM | 1 | 0.3 | 6.61 | 10.3 | 2371 | 0.7 | 62 | 2.29 |
| | 1:04:00 PM | 1.25 | 0.3 | 6.61 | 10.4 | 2404 | 0.6 | 58.8 | 2.21 |
| | | | | | | | | | |
| | | | | | | | | | |
| Final Field Parameters | 1:07:00 PM | 1.5 | 0.3 | 6.6 | 10.3 | 2382 | 0.59 | 57.1 | 2.17 |

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:** Clear; colorless; no odor; no sheen.

### Sample Information

| **Sampling Method** | **Sample Type** | **Sampling Time** | **Container Code/Preservative** | **#** | **Filtered** |
|---|---|---|---|---|---|
| (2) Peristaltic Pump | Groundwater | 1:09:00 PM | VOA-Glass | | |
| | | | Amber Glass | | |
| | | | White Poly | 1 | No |
| | | | Yellow Poly | | |
| | | | Green Poly | | |
| | | | Red Total Poly | | |
| | | | Red Dissolved Poly | | |
| | | | Total Bottles | 1 | |

**General Sampling Comments** Began purging at 12:40.

Signature _____

# ATTACHMENT B

## ANALYTICAL LABORATORY REPORT

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

23 February 2022

Audrey Hackett
Maul, Foster & Alongi, Inc.
2001 NW 19th Avenue, Suite 200
Portland, WA 97209

RE: Port of Tacoma LPI Pony Lumber Site (Port of Tacoma LPI Pony

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

| Associated Work Order(s) | Associated SDG ID(s) |
|---|---|
| 22B0267 | N/A |

---

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

## Chain of Custody Record & Laboratory Analysis Request

| | |
|---|---|
| ARI Assigned Number: 22B0267 | Turn-around Requested: Standard |
| ARI Client Company: Maul Foster & Alongi | Phone: 206-556-2015 |
| Client Contact: Audrey Hackett | ahackett@maulfoster.com |
| Client Project Name: Port of Tacoma - LP1 Pony Lumber Site | |
| Client Project #: 0615.24.001 | Samplers: Sean Maloney |

| | |
|---|---|
| Page: 1 of 1 | |
| Date: 2/17/22 | Ice Present? |
| No. of Coolers: | Cooler Temps: 2.4 |


Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)


| Sample ID | Date | Time | Matrix | No. Containers | Analysis Requested: Dissolved Arsenic by EPA Method 200.8 * | Analysis Requested: Dissolved Copper by EPA Method 200.8 | Notes/Comments |
|---|---|---|---|---|---|---|---|
| LP-1-021722 | 2/17/22 | 1000 | GW | 1 | X | X | * Analyze all samples w/ reductive precipitation |
| LP-DUP-021722 | | 1000 | | 1 | X | X | |
| LP-2-021722 | | 1125 | | 1 | X | X | NO samples were field filtered. |
| LP-4-021722 | | 1220 | | 1 | X | X | |
| LP-5-021722 | | 1309 | | 1 | X | X | |

| Comments/Special Instructions | Relinquished by: (Signature) | Printed Name: | Company: | Date & Time: | Received by: (Signature) | Printed Name: | Company: | Date & Time: | Relinquished by: (Signature) | Printed Name: | Company: | Date & Time: | Received by: (Signature) | Printed Name: | Company: | Date & Time: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sean Maloney | Maul Foster & Alongi | 2/17/22 1545 | APaist | Arden Paist | ARI | 2/17/22 1545 | | | | | | | | |

***Limits of Liability:*** *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| LP-1-021722 | 22B0267-01 | Water | 17-Feb-2022 10:00 | 17-Feb-2022 15:45 |
| LP-DUP-021722 | 22B0267-02 | Water | 17-Feb-2022 10:00 | 17-Feb-2022 15:45 |
| LP-2-021722 | 22B0267-03 | Water | 17-Feb-2022 11:25 | 17-Feb-2022 15:45 |
| LP-4-021722 | 22B0267-04 | Water | 17-Feb-2022 12:20 | 17-Feb-2022 15:45 |
| LP-5-021722 | 22B0267-05 | Water | 17-Feb-2022 13:09 | 17-Feb-2022 15:45 |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

# Work Order Case Narrative

**Dissolved Metals - EPA Method 200.8**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

**Printed: 2/18/2022 2:08:03PM**

**WORK ORDER**

22B0267

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

**Client: Maul, Foster & Alongi, Inc.** **Project Manager: Kelly Bottem**

**Project: Port of Tacoma LPI Pony Lumber Site** **Project Number: Port of Tacoma LPI Pony Lumber Site**

## Preservation Confirmation

| Container ID | Container Type | pH |
|---|---|---|
| 22B0267-01 A | HDPE NM, 500 mL | lab to preserve |
| 22B0267-02 A | HDPE NM, 500 mL | lab to preserve |
| 22B0267-03 A | HDPE NM, 500 mL | lab to preserve |
| 22B0267-04 A | HDPE NM, 500 mL | lab to preserve |
| 22B0267-05 A | HDPE NM, 500 mL | lab to preserve |

RC
Preservation Confirmed By

2/18/22
Date

Reviewed By

Date

**Analytical Resources, Incorporated**
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Maul Foster + Alongi
Project Name: Port of Tacoma-Wasser + winters S. Le
COC No(s): ~~NA~~
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: 22B0
Tracking No: ~~NA~~

**Preliminary Examination Phase:**

| | | |
|---|---|---|
| Were intact, properly signed and dated custody seals attached to the outside of the cooler? | YES | ~~NO~~ |
| Were custody papers included with the cooler? | ~~YES~~ | NO |
| Were custody papers properly filled out (ink, signed, etc.) | ~~YES~~ | NO |

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1545 — 2.4

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: ~~-DOO~~ 00970 8

Cooler Accepted by: AP Date: 2/14/22 Time: 1545

***Complete custody forms and attach all shipping documents***

## Log-In Phase:

| | | | |
|---|---|---|---|
| Was a temperature blank included in the cooler? | | YES | ~~NO~~ |
| What kind of packing material was used? … | Bubble Wrap ~~Wet Ice~~ Gel Packs Baggies Foam Block Paper Other: | | |
| Was sufficient ice used (if appropriate)? | NA | ~~YES~~ | NO |
| How were bottles sealed in plastic bags? | Individually | Grouped | ~~Not~~ |
| Did all bottles arrive in good condition (unbroken)? | | ~~YES~~ | NO |
| Were all bottle labels complete and legible? | | ~~YES~~ | NO |
| Did the number of containers listed on COC match with the number of containers received? | | ~~YES~~ | NO |
| Did all bottle labels and tags agree with custody papers? | | ~~YES~~ | NO |
| Were all bottles used correct for the requested analyses? | | ~~YES~~ | NO |
| Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) … | NA | YES | ~~NO~~ |
| Were all VOC vials free of air bubbles? | ~~NA~~ | YES | NO |
| Was sufficient amount of sample sent in each bottle? | | ~~YES~~ | NO |
| Date VOC Trip Blank was made at ARI | ~~NA~~ | | |

Were the sample(s) split by ARI? ~~NA~~ YES Date/Time: Equipment: Split by:

Samples Logged by: KL Date: 2/18/22 Time: 1400 Labels checked by:

***** Notify Project Manager of discrepancies or concerns *****

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

***Additional Notes, Discrepancies, & Resolutions:***

By: Date:

**WORK ORDER**

22B0267

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

**Client:** Maul, Foster & Alongi, Inc. **Project Manager:** Kelly Bottem

**Project:** Port of Tacoma LPI Pony Lumber Site **Project Number:** Port of Tacoma LPI Pony Lumber Site

## Preservation Confirmation

| Container ID | Container Type | pH |
|---|---|---|
| 22B0267-01 A | HDPE NM, 500 mL | lab to preserve (1) |
| 22B0267-02 A | HDPE NM, 500 mL | lab to preserve (1) |
| 22B0267-03 A | HDPE NM, 500 mL | lab to preserve (1) |
| 22B0267-04 A | HDPE NM, 500 mL | lab to preserve (1) |
| 22B0267-05 A | HDPE NM, 500 mL | lab to preserve (1) |

RC
Preservation Confirmed By

2/18/22
Date

(1) F. ITPed at 0.45M & preserved to pH <2 w/ 0.75mL conc. $HNO_3$ (5/2635) MM 2/18/22

Reviewed By

Date

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

**LP-1-021722**

**22B0267-01 (Water)**

## Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/17/2022 10:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/21/2022 23:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0267-01 A 02

Preparation Batch: BKB0466 — Sample Size: 25 mL — Filtration Batch: BKB0457

Prepared: 02/21/2022 — Final Volume: 25 mL — Filtration Date: 02/18/2022 16:36

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.0373 | 0.200 | 0.382 | ug/L | |
| Copper, Dissolved | 7440-50-8 | 1 | 0.173 | 0.500 | 0.339 | ug/L | J |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

**LP-DUP-021722**

**22B0267-02 (Water)**

## Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/17/2022 10:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/22/2022 03:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0267-02 A 02

Preparation Batch: BKB0466 — Sample Size: 25 mL — Filtration Batch: BKB0457

Prepared: 02/21/2022 — Final Volume: 25 mL — Filtration Date: 02/18/2022 16:36

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.0373 | 0.200 | 0.370 | ug/L | |
| Copper, Dissolved | 7440-50-8 | 1 | 0.173 | 0.500 | 0.262 | ug/L | J |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

**LP-2-021722**

**22B0267-03 (Water)**

## Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/17/2022 11:25

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/22/2022 04:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0267-03 A 02

Preparation Batch: BKB0466 — Sample Size: 25 mL — Filtration Batch: BKB0457

Prepared: 02/21/2022 — Final Volume: 25 mL — Filtration Date: 02/18/2022 16:36

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.0373 | 0.200 | 1.82 | ug/L | |
| Copper, Dissolved | 7440-50-8 | 1 | 0.173 | 0.500 | 0.526 | ug/L | |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

**LP-4-021722**

**22B0267-04 (Water)**

## Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/17/2022 12:20

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/22/2022 04:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0267-04 A 02

Preparation Batch: BKB0466 — Sample Size: 25 mL — Filtration Batch: BKB0457

Prepared: 02/21/2022 — Final Volume: 25 mL — Filtration Date: 02/18/2022 16:36

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.0373 | 0.200 | 0.193 | ug/L | J |
| Copper, Dissolved | 7440-50-8 | 1 | 0.173 | 0.500 | 0.894 | ug/L | |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

**LP-5-021722**

**22B0267-05 (Water)**

## Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/17/2022 13:09

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/22/2022 04:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0267-05 A 02

Preparation Batch: BKB0466 — Sample Size: 25 mL — Filtration Batch: BKB0457

Prepared: 02/21/2022 — Final Volume: 25 mL — Filtration Date: 02/18/2022 16:36

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.0373 | 0.200 | 0.386 | ug/L | |
| Copper, Dissolved | 7440-50-8 | 1 | 0.173 | 0.500 | ND | ug/L | U |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

**Analysis by: Analytical Resources, LLC**

## Metals and Metallic Compounds (dissolved) - Quality Control

### Batch BKB0466 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

| QC Sample/Analyte | Isotope | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKB0466-BLK1)** | | | | | Prepared: 21-Feb-2022 Analyzed: 21-Feb-2022 22:49 | | | | | | | |
| Arsenic, Dissolved | 75a | ND | 0.0373 | 0.200 | ug/L | | | | | | | U |
| Copper, Dissolved | 63 | ND | 0.173 | 0.500 | ug/L | | | | | | | U |
| Copper, Dissolved | 65 | ND | 0.350 | 0.500 | ug/L | | | | | | | U |
| **LCS (BKB0466-BS1)** | | | | | Prepared: 21-Feb-2022 Analyzed: 21-Feb-2022 22:54 | | | | | | | |
| Arsenic, Dissolved | 75a | 24.5 | 0.0373 | 0.200 | ug/L | 25.0 | | 98.0 | 80-120 | | | |
| Copper, Dissolved | 63 | 26.8 | 0.173 | 0.500 | ug/L | 25.0 | | 107 | 80-120 | | | |
| Copper, Dissolved | 65 | 27.3 | 0.350 | 0.500 | ug/L | 25.0 | | 109 | 80-120 | | | |
| **Duplicate (BKB0466-DUP1)** | | | **Source: 22B0267-01** | | Prepared: 21-Feb-2022 Analyzed: 21-Feb-2022 23:19 | | | | | | | |
| Arsenic, Dissolved | 75a | 0.356 | 0.0373 | 0.200 | ug/L | | 0.382 | | | 7.05 | 20 | |
| Copper, Dissolved | 63 | 0.311 | 0.173 | 0.500 | ug/L | | 0.339 | | | 8.62 | 20 | J |
| **Matrix Spike (BKB0466-MS1)** | | | **Source: 22B0267-01** | | Prepared: 21-Feb-2022 Analyzed: 21-Feb-2022 23:24 | | | | | | | |
| Arsenic, Dissolved | 75a | 25.8 | 0.0373 | 0.200 | ug/L | 25.0 | 0.382 | 102 | 75-125 | | | |
| Copper, Dissolved | 63 | 25.8 | 0.173 | 0.500 | ug/L | 25.0 | 0.339 | 102 | 75-125 | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike Dup (BKB0466-MSD1)** | | | **Source: 22B0267-01** | | Prepared: 21-Feb-2022 Analyzed: 21-Feb-2022 23:30 | | | | | | | |
| Arsenic, Dissolved | 75a | 24.9 | 0.0373 | 0.200 | ug/L | 25.0 | 0.382 | 97.9 | 75-125 | 3.79 | 20 | |
| Copper, Dissolved | 63 | 25.2 | 0.173 | 0.500 | ug/L | 25.0 | 0.339 | 99.4 | 75-125 | 2.39 | 20 | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 200.8 UCT-KED in Water*** | |
| Arsenic-75a | NELAP,WADOE,WA-DW,DoD-ELAP |
| Copper-63 | NELAP,WADOE,WA-DW,DoD-ELAP |
| Copper-65 | NELAP,WADOE,WA-DW,DoD-ELAP |

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| DoD-ELAP | DoD-Environmental Laboratory Accreditation Program | 66169 | 02/28/2022 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2022 |
| WADOE | WA Dept of Ecology | C558 | 06/30/2022 |
| WA-DW | Ecology - Drinking Water | C558 | 06/30/2022 |

| | | |
|---|---|---|
| Maul, Foster & Alongi, Inc. | Project: Port of Tacoma LPI Pony Lumber Site | |
| 2001 NW 19th Avenue, Suite 200 | Project Number: Port of Tacoma LPI Pony Lumber Site | **Reported:** |
| Portland WA, 97209 | Project Manager: Audrey Hackett | 23-Feb-2022 11:33 |

## Notes and Definitions

| | |
|---|---|
| D | The reported value is from a dilution |
| J | Estimated concentration value detected below the reporting limit. |
| U | This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

# ATTACHMENT C

## DATA VALIDATION MEMORANDUM

# DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. M0615.24.001 | FEBRUARY 25, 2022 | PORT OF TACOMA

Maul Foster & Alongi, Inc. (MFA), conducted an independent stage 2A review of the quality of analytical results for groundwater samples and associated quality control samples collected at the former Louisiana Pacific/Pony Lumber site in Tacoma, Washington, on February 17, 2022.

Analytical Resources, LLC (ARL), performed the analyses. ARL report number 22B0267 was reviewed. The analyses performed and samples analyzed are listed below.

| Analysis | Reference |
|---|---|
| Dissolved arsenic and copper | EPA 200.8 |
| NOTES:<br>EPA = U.S. Environmental Protection Agency. | |

| Samples Analyzed |
|---|
| **Report 22B0267** |
| LP-1-021722 |
| LP-DUP-021722 |
| LP-2-021722 |
| LP-4-021722 |
| LP-5-021722 |

## DATA QUALIFICATION

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA, 2020) and appropriate laboratory- and method-specific guidelines (ARL, 2021; EPA, 1986).

Based on the results of the data quality review procedures described below, the data are considered acceptable for their intended use, with the appropriate final data qualifiers assigned. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer.

- Final data qualifiers:
  - J = result is estimated.
  - U = result is non-detect at the method detection limit (MDL).

# HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

## Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

## Preservation and Sample Storage

According to the preservation confirmation section of the cooler receipt form accompanying report 22B0267, samples were filtered with a 0.45-micron filter and preserved with nitric acid after receipt at the laboratory. Filtration and preservation were performed within one day of sample collection. No qualification was required.

The samples were preserved and stored appropriately.

# BLANKS

## Method Blanks

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

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

## 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 shipment between the sampling location and the laboratory. Trip blank samples were not submitted.

# LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample (LCS) and an LCS duplicate are spiked with target analytes to provide information about laboratory precision and accuracy.

No LCS duplicate results were reported. Laboratory precision was evaluated through the laboratory duplicate and matrix spike/matrix spike duplicate (MS/MSD) results.

The LCS sample was extracted and analyzed at the required frequency and the results were within acceptance limits for percent recovery.

## LABORATORY DUPLICATE RESULTS

Laboratory duplicate results are used to evaluate laboratory precision. The laboratory duplicate sample was extracted and analyzed at the required frequency. Laboratory duplicate results within five times the method reporting limit (MRL) were not evaluated for precision.

All laboratory duplicate results met relative percent difference (RPD) acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

MS/MSD results are used to evaluate laboratory precision and accuracy as well as the effect of the sample matrix on sample preparation and analysis. All MS/MSD samples were prepared and analyzed at the required frequency.

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

## FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. According to report 22B0267, the following field duplicate and parent sample pairs were submitted for analysis (LP-1-021722/LP-DUP-021722). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL.

All field duplicate results met the RPD acceptance criteria.

## REPORTING LIMITS

ARL reported results using routine method detection limits. Results between the MDL and MRL were qualified by ARL with "J," as estimated.

## DATA PACKAGE

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

The chain-of-custody form accompanying report 22B0267 lists instructions to analyze samples using reductive precipitation. The reviewer confirmed that ARL is not able to perform this procedure, and that samples were analyzed by EPA Method 200.8 without the reductive precipitation preparation at the approval of the MFA project manager. No further action was required.

For dissolved copper results by EPA Method 200.8 in report 22B0267, ARL reports secondary isotope copper-65 results, in addition to the primary isotope, for quality control samples BKB0466-BLK1 and BKB0466-BS1. The associated project samples are reported from primary isotope copper-63. The reviewer confirmed with ARL that, due to laboratory system

limitations, the secondary isotope is not removable from the report and that it does not affect the reported results. No further action was required.

No other issues were found.

# REFERENCES

ARL. 2021. Quality assurance plan. Revision 19.0. Analytical Resources, LLC. Tukwila, Washington. December 29.

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), VI phase III (2019).

EPA. 2020. EPA contract laboratory program, national functional guidelines for inorganic Superfund methods data review. EPA 542-R-20-006. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. November.