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**STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY**

**Southwest Region Office**

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June 20, 2023

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**Re: Technical Assistance on Further Investigation:**

- **Site Name:** Woodworth & Co Inc. Lakeview Plant
- **Site Address:** 2800 104th St Ct S, Tacoma, Pierce County, WA 98499
- **Facility/Site ID:** 1372
- **Cleanup Site ID:** 165
- **VCP Project ID:** SW1012

Dear Branislav Jurista:

The Washington State Department of Ecology (Ecology) is providing this technical assistance letter (TAL) that is responding to comments/concerns raised in your April 18, 2023, Response to Ecology's October 21, 2022, Further Action Opinion at the Woodworth & Co, Inc. Lakeview Plant in Lakewood, WA (Response). We are providing this letter under the authority of the [Model Toxics Control Act \(MTCA\)](#),<sup>1</sup> [chapter 70A.305 Revised Code of Washington \(RCW\)](#).<sup>2</sup>

### **Issue Presented and Opinion**

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Farallon Consulting, L.L.C. (Farallon) submitted a response (Response) to the October 21, 2022, Washington State Department of Ecology (Ecology) Further Action Letter (Opinion) issued for the Woodworth & Co property at 2800 104th Street Court South in Lakewood, Washington. The term "Site" used in the following sections, as defined under the Washington State Model Toxics Control Act Cleanup Regulation (MTCA), refers to the portions of the Lakeview Facility where hazardous substances have come to be located at concentrations exceeding the applicable MTCA cleanup levels. In the Opinion, Ecology stated that it supports issuance of a No Further Action determination, but needs additional data to demonstrate the following:

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<sup>1</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/9406.html>

<sup>2</sup> <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305>

- Recently discovered releases of hazardous substances are appropriately delineated and remediated at the Site and providing assurances that future releases of hazardous substances will be prevented;
- Contamination within the shallow, deep, and regional aquifers will not enter the Lakewood Water District drinking water system;
- There are sufficient data for Ecology to adequately evaluate groundwater contaminant trends and restoration timeframes; and
- The lateral and vertical extents of contamination in select areas of the Site that Ecology is concerned about are adequately defined.

As a result, Ecology is submitting this TAL to address comments raised in the Farallon Response. The TAL is based on an analysis of whether the activities conducted at the Site to date meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Washington Administrative Code (WAC) Chapter 173-340 (collectively “substantive requirements of MTCA”).

## Description of the Site

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This TAL applies only to the Site described below. The Site is defined by the nature and extent of contamination in soil associated with the following releases:

- Diesel and Heavy oil petroleum hydrocarbons, polycyclic aromatic hydrocarbons, halogenated volatile organic compounds (VOC), and heavy metals into the Soil and Groundwater.

The parcel(s) of real property associated with this Site are located within the projected boundaries of the Tacoma Smelter Plume facility (FSID #89267963). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

## Basis for the Opinion

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This TAL is based on comments contained in the Response listed as follows:

1. *Response to October 21, 2022 Letter Regarding Further Action At Woodworth & Co, Inc. Lakeview Plant, 2800 104<sup>th</sup> Street Court South, Lakewood, Washington, Farallon Consulting, LLC, April 18, 2023.*

You can request this and any other documents in the project file by filing a [records request](#).<sup>3</sup> For help making a request, contact the Public Records Officer at [publicrecordsofficer@ecy.wa.gov](mailto:publicrecordsofficer@ecy.wa.gov) or call 360-407-6040. Before making a request, check whether the documents are available on [Ecology's Cleanup Site Search web page](#).<sup>4</sup>

This technical assistance is void if any of the information contained in this document is materially false or misleading.

## Technical Assistance

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Ecology's TAL is presented below for each of the comments in the Farallon April 18, 2023, Response. The comments are listed below in the order they occurred in the Response. References to Ecology Opinion are respective to Ecology's most recent 2022 Opinion.<sup>5</sup>

### Site Characterization, Soil

#### GENERAL COMMENTS

(Bottom of Page 3 and top of Page 4 of the Ecology Opinion):

**Ecology Opinion Comment:** MTCA Method B could not be used at a site if MTCA Method A is proposed elsewhere at the site. In addition, Calculations should be redone because new contamination was discovered and MTCA Method B should be then used for both soil and groundwater within the same area.

**Farallon Response:** The recent guidance published by Ecology in December 2022<sup>6</sup>, discusses that mixing various methods for total petroleum hydrocarbon (TPH) sites is allowed. Farallon requests that Ecology allows applying MTCA Method A cleanup levels for certain areas of concern and MTCA Method B for other areas, assuming that whichever method selected applies to both soil and groundwater within the specific area of concern. If Ecology concurs with mixing MTCA Method A and Method B cleanup levels at the Lakeview Facility, Farallon would like Ecology to clarify how many soil and/or groundwater samples would be required to be used in the MTCA Method B calculation workbook for a specific area of concern and whether the average value or most stringent result be applied to that specific area of concern. Upon receiving input from Ecology, Farallon will recalculate the MTCA Method B Site-specific cleanup levels or collect new data to perform calculations, as necessary.

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<sup>3</sup> <https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests>

<sup>4</sup> <https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14894>

<sup>5</sup> Ecology; Further Action Opinion for Wood worth & Co Inc. Lakeview Plant; October 21, 2022.

<sup>6</sup> Ecology; Guidance on the Use of Method A, B, and C Cleanup Levels and Mixing Methods, Supporting material for Cleanup Levels and Risk Calculation (CLARC) dated December 2022, Toxics Cleanup Program.

**Ecology TAL Response:** Excluding application of cleanup action alternatives that involve specific remediation levels<sup>7</sup>, Ecology does not concur with using different MTCA Method A/B cleanup levels (CUL) for different areas of the Site. Further, a CUL typically applies to a specific media for the entire site and cannot be divided up as a function of different site areas with different CULs for the same media and exposure pathway (see definition of points of compliance). Method B CULs needs to be used for both soil and groundwater because as explained in the 2002 Concise Explanatory Statement<sup>8</sup>, if a Method B CUL is used for soil, then a Method B CUL must be used for groundwater as well. Please be aware that in general, Method B CULs for soil are typically less stringent than Method A while Method B CULs for groundwater are typically more stringent than Method A CULs.

In terms of sample numbers for calculation of a Method B CUL, Ecology suggests consulting the petroleum guidance<sup>9</sup> for the methodology for calculating Method B CULs.

#### **SPECIFIC COMMENTS**

##### ***Former Recycled Stockpile Area***

(Middle of Page 4 of the Ecology Opinion)

**Ecology Opinion Comment:** In the western area near MW-24, Ecology recommends that additional soil samples be analyzed for cPAH in the borings where soil samples that were positive for DRO and/or ORO. Further given the groundwater results in this area, additional investigation of TPH source material should be conducted to facilitate excavation and removal.

**Farallon Response:** Farallon concurs and will plan on collecting additional soil samples for carcinogenic polycyclic aromatic hydrocarbon (cPAH) analysis to further define/refine the extent of impacts in soil in this area. The soil sampling will be limited to proposed borings and monitoring well borings shown on Figure 3.

However, any additional excavation would be subject to groundwater analysis and trends and to a feasibility study (FS) that includes a disproportionate cost analysis (DCA). The soil removal may not be practicable due to several tens of feet of overlying reclamation fill that was placed on top of the former ground surface in this area.

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<sup>7</sup> WAC 173-340-355.

<sup>8</sup> Ecology; Concise Explanatory Statement for the Amendments of the Model Toxics Control Act (MTCA) Cleanup Regulations; Publication Number 01-09-043; February 2001.

<sup>9</sup> Ecology; Guidance for Remediation of Petroleum-Contaminated Sites; June 2016.

### **Ecology TAL Responses:**

- i. Ecology cannot concur with the distribution of proposed monitoring wells as depicted on Figure 3 until the well depth(s) and anticipated analytes are specified. Currently, only shallow water-bearing zone wells exist in the area. Further, as called out in Farallon's response above regarding soil sampling being limited to "proposed borings and monitoring well borings", Figure 3 does not contain a legend designation for proposed borings nor are they located on Figure 3. Please explain/advise.
- ii. Ecology concurs that additional excavation would be subject to groundwater analysis/trends and an FS that includes a DCA.

### ***Hot Mix Storage Area***

(Middle of Page 4 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology recommends, that as a contaminant of concern, cPAHs should be analyzed at terminal depths in soil samples from all soil borings even though DRO and ORO are non-detect.

**Farallon Response:** Farallon will resample soil for cPAH analysis in areas proximate to borings B-19, B-30, and B-31 in the Hot Mix Storage Area, as recommended by Ecology. The soil sampling will be limited to proposed borings shown on Figure 4.

**Ecology TAL Response:** Ecology concurs with evaluation at borings B-19, B-30, and B-31 but also suggests boring B-34 be included given the detections at 3 feet below ground surface. PAH analysis should reflect petroleum-impacted soil at each boring location at the depths of prior impacts.

### ***Equipment Storage Carport Area***

(Bottom of Page 4 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology states that areal and vertical extent of the B-12 soil contamination needs to be further defined.

**Farallon Response:** The vertical extent of total petroleum hydrocarbons as oil-range organics (ORO) and cPAH contamination in soil at boring B-12 has been defined by the analytical results for deeper soil samples collected from boring B-27, which was advanced adjacent to boring B-12 (Figure 5). Soil sample results for borings B-28 and B-35 define the lateral extent to the north, boring B-26 to the east, boring B-25 to the southeast, and boring B-29 to the west. Both the vertical and lateral extent of contamination has been defined by the analytical results for the soil samples collected from these borings. Farallon is requesting further clarification from

Ecology regarding the rationale for further evaluation of the extents of contamination based on the clarification herein.

**Ecology TAL Response:** Boring B-12 represents a hotspot of elevated ORO and cPAH contamination that needs further localized delineation. Given that soil is a heterogenous medium with contaminant concentrations typically being anisotropically distributed over short lateral and vertical distances, the remaining borings in the area are not reflective of localized conditions relative to B-12, especially so given they are located well over 20 feet distant (excluding B-27). Ecology suggests expanding the assessment of the B-12 location for the identified contaminants of concern.

***Former Asphalt Testing/Laboratory/Roofer Shredder Area***

(Top of Page 5 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology states that further delineation of ORO impacts in the easterly and southerly directions of boring B-16 are necessary, and the vertical extent should be defined in more detail between 3 and 10 feet bgs.

**Farallon Response:** Boring B-22 was advanced adjacent to boring B-16 to define the vertical extent of cPAH contamination previously detected at 3 feet below ground surface (bgs) (Figure 6). The vertical extent of ORO impacts was previously defined with data for deeper soil samples from boring B-16. The lateral extent of ORO and cPAH contamination has been defined by soil sample data for boring B-24 to the north; for borings B-17 and B-23 to the east; for borings B-14, B-15, and B-21 to the south; and for boring B-13 to the west. Farallon is seeking clarification from Ecology why further delineation was requested, and regarding the necessity for sampling between 3 and 10 feet bgs.

**Ecology TAL Response:** Boring B-16 represents a hotspot of elevated ORO and cPAH contamination that needs further delineation. Given soil is a heterogenous medium with contaminant concentrations typically being anisotropically distributed over short lateral and vertical distances, the remaining area borings are not reflective of localized conditions relative to B-16, especially so given they are located well over 20 feet distant (excluding B-22). Ecology suggests expanding the assessment of the B-16 location at 3 feet bgs and deeper for the identified contaminants of concern.

## Site Characterization, Groundwater

### GENERAL COMMENTS

(Middle of Page 5 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology states that it has requested that water samples be collected from both the Laurel Lane and Majestic Oaks domestic supply wells for analysis of VOCs.

**Farallon Response:** As discussed with Ecology in the meeting on June 28, 2017, Farallon and Woodworth provided evidence that the trichloroethene (TCE) plume in groundwater is fully delineated, in a stable to shrinking state, and contained in a centrally located area within the Lakeview Facility property boundary. Additional supporting information was provided in the August 31, 2021, Response Letter. Both Laurel Lane and Majestic Oaks domestic supply wells are significantly distant from the Lakeview Facility and the areas of existing TCE contamination in groundwater, with the Laurel Lane well located over 2,000 feet northeast and Majestic Oaks well located over 2,500 feet northwest of the down-gradient limit of the TCE plume (Figure 7). Existing groundwater data for the property fully define the extent of TCE plume in groundwater. If the water testing results for these wells are available from the Lakeview Water District or Tacoma-Pierce County Health Department, Farallon will provide such results in the next report for evaluation.

**Ecology TAL Response:** Please provide the analytical data as/if available from either the Lakeview Water District or Pierce County Health Department. Based on the deep monitoring wells at the site having last been sampled in the 2017 and 2020 timeframes, Ecology suggests collecting additional deep monitoring well samples and analyzing it for the contaminants of concern to update the groundwater database. Based on that data, Ecology will reassess its request for VOC analyses from the Laurel Lane and Majestic Oaks water supply wells.

Ecology also recommends working with the Lakewood Water District to evaluate the release of TCE detected at the Site. Public water supply wells 88th and Pine J-1 and J-2 are located less than 1-mile north of the Site and groundwater flow in the deeper water-bearing zone is reported in a north-northeasterly direction from the Site.<sup>10</sup> Lakewood well pumping rates and capture zones should be evaluated and included to determine if TCE released from this Site is either impacting or could impact the water supply wells.

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<sup>10</sup> Addendum to Focused Feasibility Study and Disproportionate Cost Analysis Report, August 3, 2018; page 2-2.

## **SPECIFIC COMMENTS**

### ***Northern Parcel Arsenic/Lead Plume Area and Regional Aquifer/On-Site Industrial Supply Well TCE Impact***

(Middle and Bottom of Page 6 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology requests further groundwater monitoring at these two areas.

**Farallon Response:** Two groundwater monitoring events will be conducted 6 months apart in 2023 to evaluate contaminant concentrations in groundwater and flow direction with respect to seasonal fluctuations. Figure 8 depicts the arsenic and lead plume, and Figures 9 and 10 depict the TCE plume areas in shallow and deep water-bearing zones, respectively, and the figures depict the locations of the monitoring wells to be sampled.

**Ecology TAL Response:** Ecology suggests groundwater sampling be conducted on a quarterly basis in these areas.

### ***Former Recycled Stockpile Area (Western MW-24 Area)***

(Page 7 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology requests further groundwater characterization to fully define the nature and extent of TPH contamination in this area.

**Farallon Response:** Farallon agrees to perform further characterization to fully define the extent of total petroleum hydrocarbons as diesel-range organics (DRO) and ORO impacts in this area of concern. Up to seven additional monitoring wells (including the two wells at the former temporary well MW-24T and boring B-36 locations) will be advanced to address Ecology's comment as illustrated in Figure 3 of the Farallon response.

**Ecology TAL Response:** Ecology concurs with the proposed monitoring well installation in this area.

### ***Eastern MW-9R/MW16R Area***

**Ecology Opinion Comment:** Ecology requests recalculation of the site-specific MTCA Method B cleanup level for this area and additional data points for each water-bearing zone.

**Farallon Response:** Farallon agrees to recalculate the site-specific MTCA Method B cleanup level for this area. Farallon seeks further input from Ecology to clarify how many groundwater samples would be required to be used in the MTCA Method B calculation workbook for each water-bearing zone and each area of concern.



**Ecology TAL Response:** Ecology does not concur with calculation of CULs for individual water-bearing zones nor specific areas of the site. A single groundwater CUL should be determined for the entire site<sup>11</sup>.

***Equipment Storage Carport Area***

(Middle of Page 8 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology requests evaluation of shallow groundwater proximate to boring B-12 to assess the potential for groundwater impact.

**Farallon Response:** A shallow up-gradient monitoring well (MW-11) exists near the southern end of the equipment storage carport, and additional wells exist down-gradient of this area (monitoring wells MW-13 and MW-19) (Figure 5). Farallon is requesting further explanation from Ecology why additional evaluation is needed in this area.

**Ecology TAL Response:** Boring B-12 represents a hotspot of elevated ORO and cPAH contamination that needs further localized soil and groundwater delineation. Upgradient well MW-11 is approximately 80 feet distant while wells MW-13 and MW-19 are at a distance of 200 feet and greater. These wells may not be reflective of localized groundwater and stratigraphic impacts from the B-12 location.

***Former Asphalt Testing/Laboratory/Roofer Shredder Area***

(Middle of Page 8 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology requests further characterization and evaluation of groundwater in the vicinity of boring B-16.

**Farallon Response:** DRO, ORO, and cPAHs have not been detected at concentrations exceeding MTCA Method A cleanup levels in any of the soil samples collected from depths ranging from 5 to 20 feet bgs in this area of concern, including the DRO and ORO results for soil samples collected from 10 and 17.5 feet in boring B-16 and cPAH results for a soil sample from 10 feet in boring B-22, adjacent to boring B-16 (Figure 6). MTCA Method A cleanup levels for soil are protective of the groundwater. The depth to groundwater in the Former Asphalt Testing/Laboratory/Roofer Shredder Area is 12 to 15 feet bgs. Therefore, sufficient soil information exists to demonstrate that the soil-to-groundwater pathway is incomplete, and that the additional groundwater characterization is not necessary.

**Ecology TAL Response:** Ecology does not concur that sufficient soil information exists and that the soil-to-groundwater pathway is incomplete. Boring B-16 represents a hotspot of elevated ORO and cPAH contamination that needs further localized soil and groundwater delineation. Given soil impacts in the B-16 area are undelineated, the potential exists that

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<sup>11</sup> WAC 173-340-700

other higher ORO/cPAH concentrations may exist at depth which are as yet undetected and which may have subsequently impacted shallow groundwater. Ecology suggests evaluating shallow groundwater in the B-16 area for potential impacts from impacted soil.

## **OTHER COMMENTS**

### ***Deep Groundwater Delineation***

(Bottom of Page 8 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology suggests that more wells be installed in the deep groundwater zone to complete evaluation of nature and extent across the site.

**Farallon Response:** A substantial number of wells screened within the deep water-bearing zone currently exists at the Lakeview Facility, including wells that are located hydraulically down-gradient of the contaminant plumes in groundwater. The down-gradient wells screened in the deep water-bearing zone do not exhibit exceedances of MTCA cleanup levels for groundwater; therefore, installation of additional wells is not warranted. Farallon seeks additional clarification from Ecology regarding their comment requesting installation of additional wells in the deep water-bearing zone.

**Ecology TAL Response:** Ecology does not concur that groundwater in the deep water-bearing zone has been adequately delineated across the site. Beyond MW-12B, no deep wells exist at westerly, northwesterly, north, and northeasterly locations of well MW-16R. As a result, Ecology recommends groundwater beneath this area of the site be assessed.

### ***Groundwater Monitoring***

(Top of Page 9 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology recommends sampling Site monitoring wells at regular intervals.

**Farallon Response:** Farallon plans to sample Site monitoring wells twice, 6 months apart in 2023.

**Ecology TAL Response:** Groundwater should be sampled on a quarterly basis to assess conditions across a full seasonal cycle.

### ***Monitored Natural Attenuation***

(Middle of Page 9 of the Ecology Opinion):

**Ecology Opinion Comment:** Ecology requests reassessment of the natural attenuation at the Site.

**Farallon Response:** Farallon plans to sample Site monitoring wells twice, 6 months apart in 2023. Farallon will reassess natural attenuation of contaminants of concern at the Site,

including DRO, ORO, and TCE, after additional groundwater monitoring is completed in 2023.

**Ecology TAL Response:** Groundwater should be sampled on a quarterly basis to assess conditions across a full seasonal cycle.

### ***Cleanup Alternative 1***

**Ecology Opinion Comment:** Ecology states that Cleanup Alternative 1 (institutional and engineering controls) does not protect human health and the environment or provide for a reasonable restoration time frame.

**Farallon Response:** Active cleanup was previously performed at the Site. After detailed evaluation of technically feasible cleanup alternatives and costs to clean up residual contamination, the disproportionate cost analysis process indicated that institutional and engineering controls with compliance groundwater monitoring are the most practicable cleanup action alternative that fully protects human health and the environment. Prior Ecology Opinion Letters from 2019<sup>12</sup> and older specifically stated that Ecology supports pursuing a No Further Action determination with institutional and engineering controls for this Site. Farallon seeks further explanation from Ecology why institutional and engineering controls do not comply with MTCA.

**Ecology TAL Response:** Ecology often supports NFA determinations with I/EC's although according to Table 11 in Farallon's Response, it indicates that Cleanup Alternative 1 (CA1; institutional and engineering controls) would have an "indefinite" and "long-term" restoration time frame. As a result, CA1 does not meet the minimum requirements for cleanup actions in WAC 173-340-360(2) and cannot technically be considered protective of human health and the environment via not providing for a reasonable restoration time frame. Also, as stated in WAC 173-340-360(2)(e)(iii), cleanup actions shall not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or a portion of the site. As stated in Ecology's October 21, 2022, Opinion, while CA1 was the most cost-effective by several orders of magnitude, Ecology suggested the 3 selected CA's be repackaged such that worthwhile alternatives would not be disproportionately skewed and thereby worth considering. Prior estimates of CA3 (Source Removal) by Farallon has an estimated cost between \$3.3-4M and has the potential to greatly improve TPH groundwater concentrations. However, CA3 became disproportionate when it was combined with the other CA3 Subareas for a total cost of \$30.59M. Further, given Ecology's suggested additional delineation of both on-site soil and groundwater, the components of the FS CA's may both change and need to be

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<sup>12</sup> Letter Regarding Further Action at the following Site: Woodworth & Co Inc. Lakeview Plant, 2800 104<sup>th</sup> Street Ct S, Tacoma, Pierce County from Nicolas Acklam/Ecology to Branislav Jurista/Farallon, August 30, 2019.

reevaluated.

***Vapor Intrusion/TCE***

(Top of Page 10 of the Opinion Letter):

**Ecology Opinion Comment:** Ecology states that the Site must formalize an industrial use status in perpetuity via an environmental covenant (EC) or require an additional vapor intrusion assessment once reclamation is complete and before any land use designation changes via an EC.

**Farallon Response:** Farallon understands these concepts and will include a vapor intrusion assessment provision in the environmental covenant.

**Ecology TAL Comment:** Thank you for agreeing to incorporate our comment.

***Groundwater Geochemistry***

(Middle of Page 10 of the Opinion Letter):

**Ecology Opinion Comment:** Ecology concurs with using dissolved arsenic and lead concentrations as representative of Site groundwater.

**Farallon Response:** Farallon agrees with Ecology and will continue sampling groundwater for these dissolved metals in wells that have historically had detections of these contaminants of concern (Figure 8).

**Ecology TAL Comment:** Thank you for agreeing to incorporate our comment.

***Monitoring Wells***

(Top of Page 11 of the Opinion Letter):

**Ecology Opinion Comment:** Ecology recommends further evaluation of the lateral and vertical extent of TPH contamination in the deep aquifer near MW-16R.

**Farallon Response:** Farallon will reevaluate the Method B calculations for groundwater in this area. However, a sufficient number of monitoring wells in both shallow and deep water-bearing zones exist up-, cross-, and down-gradient of monitoring wells MW-9R and MW-16R (Figures 11 and 12). Therefore, additional well installation and sampling is unnecessary.

### **Ecology TAL Responses:**

- Thank you for agreeing to reevaluate the groundwater Method B groundwater calculations. As indicated above, please note that a CUL typically applies to a specific media for the entire site and cannot be divided up as a function of different site areas with different CULs for the same media and exposure pathway.
- Ecology does not concur that sufficient deep zone monitoring wells exist in the vicinity of MW-16R, hence our suggestion that additional delineation should occur. MW-16R exceeded the MTCA Method A cleanup level for both diesel/oil-range hydrocarbons and no deep water-bearing zone wells exist either west or north of this well or between it and well MW-12B at the northeast corner of the property. Ecology recommends that additional delineation of groundwater be completed in these areas.

**Ecology Opinion Comment:** Ecology states that well SVE-5 was decommissioned due to concerns regarding aquifer intercommunication and because SVE has been discontinued. There are other SVE wells that are or may be screened across the two aquifer zones (for example SVE-3, -5, -6, -7, -8, -9, and -10). To meet WAC 173-160-420(2), Ecology recommends decommissioning any other SVE wells that are interconnecting aquifers.

**Farallon Response:** Farallon will evaluate which soil vapor extraction (SVE) wells are screened across two water-bearing zones and will conduct decommissioning, as necessary.

**Ecology TAL Response:** Ecology is concerned that such wells were potentially screened across the shallow and deep water-bearing zones. As you know, the Chambers-Clover Creek Watershed underlies the Site and has been designated as a sole-source aquifer for approximately 400,000 residents in DuPont, Fircrest, Lakewood, Ruston, Steilacoom, Tacoma, and University Place. This regional aquifer is reported to be separated from the deep water-bearing zone at the Site by a silt and silty gravel aquitard.

Further, an industrial water supply well is currently screened at a depth of 107 to 129 feet below ground surface (bgs), presumably below the aquitard within the regional aquifer. This well was reportedly installed during 1969 to a total depth of 187 feet bgs and screened from 167 to 187 feet bgs, and later perforated from 107 to 129 feet bgs. TCE was detected in the well at a concentration of 0.39 micrograms per liter ( $\mu\text{g/l}$ ) in a groundwater sample collected in December 2017, consistent with previously reported groundwater TCE concentration results. It continues to be unclear to Ecology how TCE is entering this well across the aquitard. Possibilities that Ecology is currently concerned about include i) the industrial well is compromised and leaks between aquifers; ii) the aquitard is not comprehensive in this area of the Site and is transmitting contamination to deeper regional

groundwater; and/or iii) the industrial water supply well is screened above the aquitard and shallow groundwater contamination extends to at least 130 feet below ground surface.

***Conceptual Site Model and Nature and Extent of Contamination***

(Middle of Page 11 of the Opinion Letter):

**A. Ecology Opinion Comment (Former Recycled Stockpile Area) - Ecology**

recommends additional investigation to delineate the source of the petroleum contamination area and to assess removal of any remaining contaminated soil that may serve as a source of petroleum detections at MW-24T and B-36.

**Farallon Response:** Farallon concurs and will conduct additional characterization in this area of concern, as discussed in previous responses. Additional soil removal from this area may not be practicable due to the presence of the aforementioned overlying reclamation fill.

**Ecology TAL Response:** Ecology concurs with your response.

**B. Ecology Opinion Comment (Equipment Parking Area) - Based on the analytical results for soil samples, the calculated concentration of TPH in groundwater from monitoring well MW-13 exceeds the Method A cleanup level. Ecology recommends that additional delineation be conducted to evaluate and define the contaminant source at monitoring well MW-13.**

**Farallon Response:** Farallon seeks clarification from Ecology if MTCA Method A or Method B is applicable to the Equipment Parking Area and/or the Site as a whole. The calculated TPH concentration in groundwater did not exceed the site-specific MTCA Method B cleanup level for TPH for this area of concern. Based on Ecology's response, Farallon will review the existing information and reevaluate if any additional delineation is warranted to further define the contaminant source and nature and extent of contamination at monitoring well MW-13. Additional borings for collection of soil and reconnaissance groundwater samples may be advanced to locally define the nature and extent of contamination, if warranted.

**Ecology TAL Responses:**

- Ecology does not concur with use of area-specific Method A/B CULs. CULs need to be applied on a site-wide basis for the same media and exposure pathway.
- Ecology encourages delineation of the TPH impact at MW-13 as no other assessment has occurred at/near this location.

- C. Ecology Opinion Comment (Hot Mix Storage Area)** - Ecology recommends that cPAH should be evaluated in soil and groundwater in this area to determine if soil contaminants are causing an impact.

**Farallon Response:** Agreed and discussed in previous responses.

**Ecology TAL Response:** Ecology acknowledges this understanding.

- D. Ecology Opinion Comment (Equipment Storage Carport Area)** - The contaminants and media of concern are ORO and cPAHs in soil, and DRO and ORO in shallow groundwater. ORO and cPAH-impacted soil occur in an area approximately 30 by 45 feet to a depth of approximately 15 feet bgs. Given that residual ORO in soil is continuing to impact groundwater and that DRO should be a concern in soil given its presence in groundwater, additional investigation should be conducted in this area to assess those associations.

**Farallon Response:** Response provided in prior sections. No additional soil sampling is warranted, and monitoring wells exist in the general vicinity of this area.

**Ecology TAL Response:** Ecology does not concur that soil and groundwater has been adequately assessed in this area to determine the association between soil and groundwater impacts. As previously mentioned, boring B-12 represents a hotspot of elevated ORO and cPAH contamination that needs further localized delineation. Given soil is a heterogeneous medium with contaminant concentrations typically being anisotropically distributed over short lateral and vertical distances, the borings in the area do not adequately represent localized conditions relative to B-12, especially so given they are located well over 20 feet distant (excluding B-27). Ecology suggests expanding the assessment of the B-12 location for the identified contaminants of concern. In addition, no monitoring wells exist within the vicinity of B-12 to assess groundwater impacts. Ecology encourages further assessment in this area.

- E. Ecology Opinion Comment (Former Asphalt-Testing Laboratory Area)** - The contaminants and media of concern are ORO and cPAHs in shallow soil, and DRO, ORO, and TCE in shallow (SVE-5, MW-36) and deep water-bearing zone groundwater. ORO- and cPAH-impacted soil occur in the Former Asphalt-Testing Laboratory Area in an area approximately 25 by 50 feet to a maximum depth of approximately 10 feet bgs. The area around B-16 should be investigated further to facilitate excavation and removal of ORO-impacted soil. In addition, groundwater in the B-16 area should also be assessed for TPH impact.

**Farallon Response:** As discussed previously, the DRO, ORO, and cPAH impacts proximate to boring B-16 are limited to soil only, and sufficient data exist to demonstrate that the soil-to-groundwater pathway is incomplete (Figure 6). Farallon disagrees that additional

characterization of soil or groundwater is necessary in this area regarding the DRO, ORO, and cPAH impacts. Farallon will sample Site monitoring wells twice, 6 months apart in 2023.

**Ecology TAL Response:** Ecology does not concur that sufficient soil information exists and that the soil-to-groundwater pathway is incomplete. Boring B-16 represents a hotspot of elevated ORO and cPAH contamination that needs further localized soil and groundwater delineation. Given soil impacts in the B-16 area are undelineated, the potential exists that other higher ORO/cPAH concentrations may exist at depth that may have impacted shallow groundwater. Ecology suggests evaluating shallow groundwater in the B-16 area for potential impacts from impacted soil. Further, Ecology suggests that groundwater be sampled on a quarterly basis.

**F. Ecology Opinion Comment (Groundwater)** - Ecology suggests that further assessment be conducted that assesses the source of ORO impacts to deep groundwater in the MW-16R area. This assessment should evaluate vertical migration from the contaminated shallow water-bearing zone and consider the vapor wells SVE-3 and SVE-6 as potential conduits through the aquitard.

**Farallon Response:** Farallon will conduct additional sampling of SVE wells and evaluate if decommissioning of wells that are screened across multiple water-bearing zones is warranted. After the additional data are obtained, Farallon will reevaluate the preferred cleanup alternative for this area of concern.

**Ecology TAL Response:** Ecology acknowledges this understanding.

***Feasibility Study/Cleanup Alternative Evaluation/Disproportionate Cost Analysis, Conditional Points of Compliance Update, Environmental Covenant, and Long-Term Monitoring Plan***

(Page 13 and 14 of the Opinion Letter):

**Ecology Opinion Comment:** Ecology suggests that Feasibility Study, Cleanup Alternative Evaluation, Disproportionate Cost Analysis, Conditional Points of Compliance, Environmental Covenant, and Long-Term Monitoring Plan be updated and reevaluated following completion of the additional characterization.

**Farallon Response:** Farallon concurs and will reevaluate these elements upon completion of the additional characterization.

**Ecology TAL Response:** Ecology acknowledges this understanding.



## Limitations of the Technical Assistance

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### Technical Assistance Does Not Settle Liability with the State.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

### Technical Assistance Does Not Constitute a Determination of Substantial Equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action a party performs is substantially equivalent. Courts make that determination. *See* RCW 70A.305.080 and WAC 173-340-545.

### State is Immune from Liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70A.305.170(6).

## Contact Information

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Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). Please do not hesitate to request additional services as your investigation and cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our [Voluntary Cleanup Program web site](#).<sup>13</sup> If you have any questions about this letter, please contact me at 360-489-5347 or [joe.hunt@ecy.wa.gov](mailto:joe.hunt@ecy.wa.gov).

Sincerely,



Joseph B. Hunt, LHG  
Toxics Cleanup Program  
Southwest Region Office

JH:JS

cc by email: Jeff Woodworth/Woodworth Capital, Inc.; [jeff@woodworthandcompany.com](mailto:jeff@woodworthandcompany.com)  
Jerome Lambiotte, Ecology; [jerome.lambiotte@ecy.wa.gov](mailto:jerome.lambiotte@ecy.wa.gov)  
Ecology Site File

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<sup>13</sup> <https://www.ecy.wa.gov/vcp>