



July 6, 2023

David Unruh  
Washington State Department of Ecology  
Toxics Cleanup Program, NWRO  
15700 Dayton Avenue North  
Shoreline, Washington, 98133

**RE: REMEDIAL INVESTIGATION DATA GAP WORK PLAN  
MORNINGSIDE ACRES TRACTS  
5001, 5015, AND 5021 RAINIER AVENUE SOUTH  
SEATTLE, WASHINGTON  
FARALLON PN: 1355-001**

Dear David Unruh:

Farallon Consulting, L.L.C. (Farallon) has prepared this Work Plan for a supplemental investigation as requested by the Washington State Department of Ecology (Ecology) May 23, 2023 letter and opinion<sup>1</sup> (May 2023 Opinion Letter), to complete the remedial investigation (RI) and investigate the nature and extent of contamination at 5001, 5015, and 5021 Rainier Avenue South in Seattle, Washington (herein referred to as the Property) (Figure 1). The Property is impacted by hazardous substances associated with previous releases of chlorinated volatile organic compounds (CVOCs) and petroleum-related compounds associated with a former automotive repair facility in the warehouse building on the southern parcel at 5021 Rainier Avenue South, and former gasoline service stations on the northern parcel at 5001 Rainier Avenue South. As defined under the Washington State Model Toxics Control Act Cleanup Regulation (MTCA) and Section 020(4) of Chapter 70.105D of the Revised Code of Washington, a "site" includes all areas where hazardous substances have come to be located at concentrations exceeding MTCA cleanup levels. The areas affected by contamination in soil and groundwater together constitute the Site.

This Work Plan has been prepared in response to the May 2023 Opinion Letter and subsequent discussions in June with Ecology and the Murakami representatives. We appreciate clarification

---

<sup>1</sup> Washington State Department of Ecology. 2023. Letter Regarding Opinion pursuant to WAC 173-340-515(5) on Remedial Action of the Following Hazardous Waste Site: Morningside Acres, 5021 Rainier Avenue S, Seattle, WA 98118. From David Unruh of Ecology. To Jerry-Alan Murakami. May 23.



of Ecology's request for limited further characterization of soil and groundwater at the Property, as described in the May 2023 Opinion Letter:

- The extent of trichloroethylene (TCE) and vinyl chloride contamination in soil and groundwater east of groundwater monitoring well MW-17 has not been defined.
- The lateral extent of total petroleum hydrocarbons as diesel-range organics (DRO) and as oil range organics (ORO) in groundwater south, east, and west of monitoring well MW-6 has not been defined.
- The extent of total petroleum hydrocarbons as gasoline-range organics (GRO), DRO, ORO, and benzene in soil and groundwater has not been defined east of boring FB-30 and monitoring well MW-18.
- The extent of petroleum contamination in soil is not defined south of boring FB-23.

The Work Plan will address the data gaps identified in Ecology's May 23 Opinion Letter following its review of Farallon's April 5, 2023 Remedial Investigation and Feasibility Study Addendum (RI/FS Addendum)<sup>2</sup> and summarized above. The additional investigation will consist of advancing nine borings, three of which will be completed as groundwater monitoring wells on the 5015 Rainier Avenue South (Middle Parcel) and 5001 Rainier Avenue South (North Parcel) parcels, as shown on Figure 1 and described in detail below. The additional characterization and data collection will be used to supplement and finalize the RI and to support the selection of the preferred cleanup action alternative for the Site with the goal of achieving a No Further Action determination from Ecology.

### SCOPE OF WORK

Farallon will advance a total of nine borings using direct-push and hollow-stem auger drilling technology to depths ranging from 10 to 45 feet below ground surface (bgs). Three of the borings will be completed as groundwater monitoring wells on the Middle Parcel, two of which will be screened at depths of 8 to 18 feet bgs and one of which will be screened from 35 to 45 feet bgs. The approximate locations of borings and monitoring wells are depicted on Figure 1. The additional characterization activities will consist of the following:

- Installation of a nested groundwater monitoring well pair (MW-26 and MW-27) east of groundwater monitoring well MW-17 for collection of soil and groundwater samples to evaluate the eastern extent of CVOCs in soil and shallow and deeper groundwater

---

<sup>2</sup> Farallon Consulting, L.L.C. 2023. Letter Regarding Remedial Investigation and Feasibility Study Addendum, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington. From Yusuf Pehlivan and Brani Jurista of Farallon. To Washin and Kathleen Murakami. April 5.



(Figure 1). The shallow and deep nested groundwater monitoring wells will be screened at depths of 8 to 18 feet bgs (MW-27) and 35 to 45 feet bgs (MW-26), respectively. Soil samples will be collected at 5, 15, 25, 35, and 45 feet bgs for CVOC analysis by U.S. Environmental Protection Agency (EPA) Method 8260D from the boring completed as deep monitoring well MW-26. No soil sample analysis is planned for the proposed monitoring well MW-27 location due to the proximity to monitoring well MW-26.

- Advancement of borings FB-31 through FB-34 on the northwestern portion of the North Parcel to depths ranging from 10 to 20 feet bgs for collection of soil and reconnaissance groundwater samples to evaluate the extent of petroleum contamination in the vicinity of existing monitoring well MW-6 (Figure 1). One soil sample will be collected at a depth of 10 feet bgs and analyzed for GRO by Northwest Method NWTPH-Gx and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B from three of the four borings (boring FB-32 to the east, boring FB-33 to the north, and boring FB-34 to the west of monitoring well MW-6). GRO and BTEX delineation in soil is not necessary in the southern direction due to existing soil information from boring FB-22. Four reconnaissance groundwater samples (one from each boring) will be collected and analyzed for GRO, DRO, ORO, DRO+ORO, BTEX, and CVOCs.
- Installation of shallow groundwater monitoring well MW-25 to a depth of 10 to 20 feet bgs for collection of soil and groundwater samples east of boring FB-30 and monitoring well MW-18 to evaluate the eastern extent of petroleum contamination in soil and shallow groundwater (Figure 1). Four soil samples will be collected at 5-foot increments at 5, 10, 15, and 20 feet bgs and analyzed for GRO, DRO, ORO, DRO+ORO, and BTEX.
- Advancement of boring FB-35 at a 45-degree angle to a vertical depth of approximately 18 feet bgs for collection of soil samples to evaluate the southern extent of petroleum contamination in soil on the North Parcel, south of boring FB-23 (Figure 1). Additional vertical boring FB-36 will be advanced to a depth of approximately 18 feet bgs proximate to boring FB-23 for collection of soil samples to verify prior soil sample results (Figure 1). Soil samples will be collected from borings FB-35 and FB-36 at depths of 10, 13, and 18 feet bgs and analyzed for GRO, BTEX, DRO, ORO, and DRO+ORO with and without silica gel cleanup procedure analysis for potential use of an empirical demonstration for the leaching pathway.
- Collection of groundwater samples at the three new groundwater monitoring wells, and existing monitoring wells MW-6, MW-11, MW-12, MW-19, MW-22, MW-23, and MW-24 to evaluate current groundwater quality at those locations. Groundwater samples from



monitoring wells listed above will be analyzed for the parameters listed in the groundwater sampling section below.

Shallow groundwater monitoring well MW-25 proposed east of boring FB-30 may require removal of shrubs, a landscape boulder, and two parking signs to accommodate the drill rig access. The landscape boulder and the signs, if removed prior to drilling, will be replaced after the drilling is complete.

## **SOIL SAMPLING**

Soil samples will be collected continuously during advancement of the borings using direct-push drilling and at 5-foot intervals during advancement of the borings during hollow-stem auger drilling. Farallon field personnel will observe subsurface conditions and retain soil samples from selected intervals based on field indications of potential contamination for submittal to an analytical laboratory. Farallon field personnel observations will be recorded on daily field report forms and boring logs. The information recorded on the field boring logs will include the soil types encountered, visual and olfactory evidence of contaminant presence, and volatile organic vapor concentrations as measured using a photoionization detector.

Reconnaissance groundwater samples will be collected from temporary monitoring well screens constructed with slotted polyvinyl chloride piping surrounded with a clean sand filter pack. Reconnaissance groundwater samples will be collected using a peristaltic pump or bladder pump after the majority of fine-grained suspended soil is removed from the well screen.

The soil and reconnaissance groundwater samples will be placed on ice in a cooler and submitted to OnSite Environmental Inc. of Redmond, Washington (OnSite) under standard chain-of-custody protocols for laboratory analysis for analytes listed above.

Additional soil samples may be analyzed as warranted based on field evidence of potential contamination and information obtained following receipt of preliminary analytical results.

## **GROUNDWATER MONITORING WELLS**

As described above, three borings will be completed as monitoring wells (Figure 1). The monitoring wells will be installed using 2-inch-diameter polyvinyl chloride well casings with a 0.010-inch slotted well screen. A filter pack consisting of No. 10/20 Colorado Silica Sand will be placed around the monitoring well screens. The boreholes will be sealed to within 2 feet of the surface with hydrated bentonite chips. The monitoring wells will be completed with flush-mounted steel monuments set in concrete and developed following installation. Monitoring well development will consist of surging and pumping with a submersible pump until the majority of



the fine-grained sediment in the well and surrounding filter pack has been removed and purge water appears clear.

## **GROUNDWATER SAMPLING**

A groundwater monitoring event will be performed a minimum of 48 hours following the monitoring well installation and well development. The monitoring event will include measuring depth to groundwater and collecting groundwater samples using low-flow sampling methods. Farallon field personnel will remove the locking well cap from each monitoring well at the Site (20 existing and 3 new wells) to allow groundwater levels to equilibrate to atmospheric pressure for a minimum of 30 minutes. The depth to groundwater will be measured from the top of the well casing in each monitoring well to the nearest 0.01 foot using an electronic water-level measuring device. The total depth of each monitoring well will be measured to evaluate siltation of the well-screen interval. Reusable equipment will be decontaminated between uses at each location.

Groundwater samples will be collected from the three new monitoring wells (MW-25 through MW-27) and existing monitoring wells MW-6, MW-11, MW-12, MW-19, MW-22, MW-23, and MW-24 in accordance with standard EPA low-flow groundwater sampling procedures (Figure 1). Each monitoring well will be purged at a low-flow rate ranging from 100 to 300 milliliters per minute using a peristaltic pump or bladder pump and dedicated tubing. Temperature, pH, specific conductance, dissolved oxygen, and oxidation-reduction potential will be monitored during purging to determine when stabilization of these parameters occurs. Following stabilization of the parameters, groundwater samples will be collected directly from the low-flow pump outlet. If the turbidity is high, the sample would not be collected. In that case, Farallon will return to the Site after 1 week to attempt to collect a sample that is less turbid.

The groundwater samples will be placed on ice in a cooler and submitted to OnSite under standard chain-of-custody protocols. Groundwater samples collected during the groundwater sampling event will be analyzed using methods listed above for the following:

- Monitoring well MW-6: GRO, DRO, ORO, DRO+ORO, and BTEX;
- Monitoring well MW-11: DRO, ORO, DRO+ORO;
- Monitoring well MW-12: DRO, ORO, DRO+ORO;
- Monitoring well MW-19: BTEX;
- Monitoring well MW-22: GRO, DRO, ORO, DRO+ORO (with and without silica gel cleanup), and BTEX;



- Monitoring well MW-23: GRO, DRO, ORO, DRO+ORO, and BTEX;
- Monitoring well MW-24: GRO, DRO, ORO, DRO+ORO, and BTEX;
- Monitoring well MW-25: GRO, DRO, ORO, DRO+ORO, and BTEX;
- Monitoring well MW-26: CVOCs; and
  - Monitoring well MW-27: CVOCs.

A Washington State-licensed surveyor will survey the locations and elevations of each completed monitoring well following installation in Washington State Plane North coordinates and the North American Vertical Datum of 1988, as required by Ecology.

### CLOSING

Upon completion of the proposed scope of work, Farallon will document the results of the supplemental data gap investigation for the RI and potential reevaluation of the FS, as necessary, in a Second Addendum to the RI/FS Report that will be provided to Ecology for review and opinion pursuant to the Voluntary Cleanup Program Agreement.

The Work Plan presented herein will be implemented in accordance with the above-referenced schedule following review and receipt of approval from Ecology, contingent on Property access.

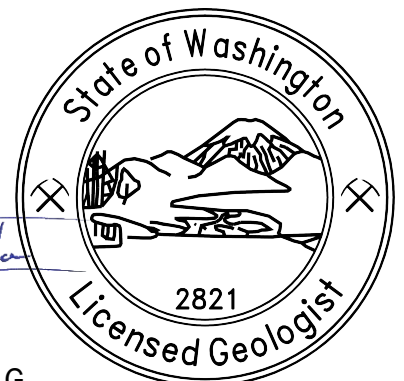
Please contact the undersigned at (425) 295-0800 if you have questions or need additional information.

Sincerely,

**Farallon Consulting, L.L.C.**

Stuart Brown  
Associate Environmental Scientist

Branislav Jurista, L.G., P.G.  
Principal Geologist



**Branislav Jurista**

Attachments: Figure 1, *Proposed Boring and Monitoring Well Locations*

cc: Allan Bakalian, Bakalian & Associates PS  
Jerry-Allan K. Murakami

SB/BJ:ca



## LIMITATIONS

The conclusions contained in this report/assessment are based on professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location. The conclusions contained herein are subject to the following inherent limitations:

- **Accuracy of Information.** Farallon reviewed certain information used in this report/assessment from sources that were believed to be reliable. Farallon's conclusions, opinions, and recommendations are based in part on such information. Farallon's services did not include verification of its accuracy. Should the information upon which Farallon relied prove to be inaccurate, Farallon may revise its conclusions, opinions, and/or recommendations.
- **Reconnaissance and/or Characterization.** Farallon performed a reconnaissance and/or characterization of the Site that is the subject of this report/assessment to document current conditions. Farallon focused on areas deemed more likely to exhibit hazardous materials conditions. Contamination may exist in other areas of the Site that were not investigated or were inaccessible. Site activities beyond Farallon's control could change at any time after the completion of this report/assessment.

Farallon does not guarantee that the Site is free of hazardous or potentially hazardous substances or conditions, or that latent or undiscovered conditions will not become evident in the future. Farallon's observations, findings, and opinions are as of the date of the report.

This report/assessment has been prepared in accordance with the contract for services between Farallon and Washin and Kathleen Murakami. No other warranties, representations, or certifications are made.

**FIGURE**

**REMEDIAL INVESTIGATION DATA GAP WORK PLAN**















Morningside Acres Tracts  
5001, 5015, and 5021 Rainier Avenue South  
Seattle, Washington

Farallon PN: 1355-001





**LEGEND**

-  PROPOSED ANGLED BORING
-  PROPOSED BORING AND GROUNDWATER RECONNAISSANCE LOCATION
-  PROPOSED MONITORING WELL LOCATION
-  BASEMENT INDOOR AIR SAMPLING LOCATION
-  FIRST FLOOR INDOOR AIR SAMPLING LOCATION
-  OUTDOOR AIR SAMPLING LOCATION
-  DECOMMISSIONED MONITORING WELL
-  MONITORING WELL
-  BORING (FARALLON)
-  BORING (G-LOGICS)
-  BORING (KLEINFELDER)
-  SUMP SEDIMENT SAMPLE
-  PROPERTY BOUNDARY
-  KING COUNTY PARCEL BOUNDARY

UST = UNDERGROUND STORAGE TANK

NOTES:  
 1. ALL LOCATIONS ARE APPROXIMATE.  
 2. FIGURE WAS PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.



Washington  
Issaquah | Bellingham | Seattle

Oregon  
Portland | Baker City

California  
Oakland | Irvine

Your Challenges. Our Priority. | [farallonconsulting.com](http://farallonconsulting.com)

Drawn By: Imurock      Checked By: SB      Date: 7/3/2023

**FIGURE 1**

PROPOSED BORING AND MONITORING WELL LOCATIONS  
 MORNINGSIDE ACRES TRACTS  
 5001, 5015, AND 5021  
 RAINIER AVENUE SOUTH  
 SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Disc Reference: Document Path: Q:\Projects\1355 Morningside\001 RainierAve\Mapfiles\016\Figure-01\_ProposedSampleLocs.mxd