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SAMPLING AND ANALYSIS WORK PLAN

LAKEVIEW FACILITY
2800 104TH STREET COURT SOUTH
LAKEWOOD, WASHINGTON
VCP IDENTIFICATION NO. SW1012

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

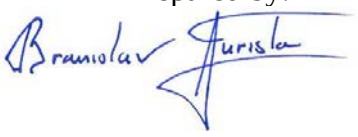
Farallon PN: 188-002

For:
Washington State Department of Ecology
Toxics Cleanup Program
300 Desmond Drive Southeast, Lacey
PO Box 47775
Olympia, Washington 98504-7775

On Behalf of:
Woodworth Capital, Inc.
3110 Ruston Way, Suite D
Tacoma, Washington 98402

September 25, 2017

Prepared by:



Brani Jurista, L.G., P.G.
Senior Geologist

Reviewed by:

Peter Jewett, L.G., L.E.G.
Principal Engineering Geologist

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APPENDIX

ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
bgs	below ground surface
DRO	total petroleum hydrocarbons as diesel-range organics
Ecology	Washington State Department of Ecology
Farallon	Farallon Consulting, L.L.C.
HASP	Health and Safety Plan
MNA	monitored natural attenuation
MTCA	Washington State Model Toxics Control Act Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
ORO	total petroleum hydrocarbons as oil-range organics
RI	Remedial Investigation
SAWP	*Sampling and Analysis Work Plan, Woodworth Lakeview Facility, 2800 104th Street Court South, Lakewood, Washington* dated September 25, 2017, prepared by Farallon Consulting, L.L.C. (this document)
TPH	total petroleum hydrocarbons
Lakeview Facility	property at 2800 104th Street Court South in Lakewood, Washington
TCE	trichloroethene
VOCs	volatile organic compounds
WAC	Washington Administrative Code
Woodworth	Woodworth Capital, Inc.
WSDOT	Washington State Department of Transportation

1.0 INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Sampling and Analysis Work Plan (SAWP) on behalf of Woodworth Capital, Inc. (Woodworth) to provide the scope of work to complete subsurface investigations to meet the technical requirements for regulatory closure of the property at 2800 104th Street Court South in Lakewood, Washington (herein referred to as the Lakeview Facility) (Figure 1). These subsurface investigations include:

- Collection of soil samples for laboratory analysis for total petroleum hydrocarbons (TPH) and potentially for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and polychlorinated biphenyls (PCBs) in Areas of Concern (AOCs) 1 through 3 (AOC-1 through AOC-3) (Figure 2).
- Collection of soil samples for laboratory analysis for volatile organic compounds (VOCs) in accessible areas proximate to the existing remediation system compound and the location of the former Washington State Department of Transportation (WSDOT) testing laboratory (Figure 3).
- Groundwater monitoring and collection of groundwater samples from existing monitoring wells and the industrial water supply well at the Lakeview Facility for laboratory analysis for VOCs, TPH, and geochemical and monitored natural attenuation (MNA) parameters. Two groundwater samples with the highest concentrations of trichloroethene (TCE) will also be analyzed for 1,4-dioxane.
- Compilation of the analytical results.
- Preparation of an addendum to the Focused Feasibility Study and Disproportionate Cost Analysis Report (Farallon 2015) to reflect the industrial exposure scenario for the vapor intrusion pathway and document the results of the soil and groundwater sampling.

The scope of work described in the SAWP is in accordance with scope of work discussed with the Washington State Department of Ecology (Ecology) at the meeting conducted on June 28, 2017; the technical memorandum regarding Scope of Work, Woodworth Lakeview Facility, Lakewood, Washington dated August 9, 2017, from Messrs. Peter Jewett and Brani Jurista of Farallon to Messrs. Jeremy Hughes and Nick Acklam and Ms. Rebecca Larson [*sic*] of Ecology (Farallon 2017b); and the telephone conversation between Ecology, Mr. Jeff Woodworth, and Farallon on August 29, 2017.

1.1 PURPOSE

The SAWP presents the scope of work to collect and evaluate sufficient information to complete characterization of the nature and extent of hazardous substances at the Lakeview Facility. The results of the subsurface investigations will be used to provide sufficient information to Ecology for evaluation of a No Further Action determination with an Environmental Covenant for the Lakeview Facility. The SAWP includes a summary of information collected for the Remedial

Investigation (RI) previously conducted by Farallon that supports Farallon's assertion that cPAHs and PCBs are not constituents of concern for the Lakeview Facility.

1.2 ORGANIZATION

This SAWP has been organized into the following sections:

- **Section 2, Supplemental Information**, provides a summary of supplemental information regarding analytical testing for PCBs and cPAHs that Ecology (2017) requested in its letter regarding Response to Comments for the Woodworth & Co. Lakeview Plant dated May 25, 2017, from Mr. Hughes of Ecology to Mr. Jurista of Farallon.
- **Section 3, Field Program Scope of Work**, describes the components of the field program that include soil sampling and site-wide groundwater monitoring and sampling.
- **Section 4, Data Compilation and Reporting Scope of Work**, presents the scope of work for preparation of an addendum to the Focused Feasibility Study and Disproportionate Cost Analysis Report that will document the results of the soil investigation and groundwater sampling conducted under this SAWP.
- **Section 5, Schedule**, describes the schedule for conducting the scope of work described in this SAWP.
- **Section 6, References**, lists the documents used in preparing this SAWP.
- **Section 7, Limitations**, provides Farallon's standard limitations.

2.0 SUPPLEMENTAL INFORMATION

Ecology (2017) requested analysis of soil and groundwater samples for PCBs and cPAHs in AOC-3, AOC-4, the asphalt plant, the tar tank, and hot-mix plant areas at the Lakeview Facility. As discussed with Ecology, previous investigations and the RI were conducted on portions of the Lakeview Facility to assess potential contamination in soil and groundwater (Farallon 2009a, 2009b, 2009c, 2010a, 2010b, 2011, 2015). The following sections provide the technical rationale that confirms PCBs and cPAHs are not constituents of concern for the Lakeview Facility.

2.1 PCBs IN SOIL

According to Table 830-1 of Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Chapter 173-340 of the Washington Administrative Code (WAC 173-340-900), releases of used motor oil, which falls under the category of heavy oils, should be analyzed for TPH as diesel-range organics (DRO) and as oil-range organics (ORO), naphthalenes, PCBs, and cPAHs, unless it can be demonstrated that oil containing PCBs was never used in the equipment suspected as the source of the release (footnote [15] in Table 830-1).

As documented in the RI, there is no evidence of the use or release of oil containing PCBs by former Woodworth operations. The source of oil releases at the Lakeview Facility is from truck engines containing used motor oil. Based on the operational history and sources of contamination limited to vehicle maintenance and releases of used motor oil, PCBs are not considered a constituent of concern for the Lakeview Facility. Separate testing for naphthalenes is not required as defined in footnote (14) in Table 830-1.

2.2 CPAHs IN SOIL

Soil samples collected from the excavation completed for the 2010 cleanup action in AOC-1 through AOC-3 with the highest concentrations of DRO and/or ORO still present in situ were also analyzed for cPAHs (Farallon 2010b) in accordance with the requirements of Table 830-1. cPAHs were not detected at concentrations exceeding MTCA Method A cleanup levels in the soil samples analyzed. Footnote (8) of Table 830-1 states that if cPAHs are detected at concentrations less than the applicable cleanup level, no further analysis is required.

cPAHs are only co-located with DRO and/or ORO and were not detected at concentrations exceeding MTCA Method A cleanup levels in the soil samples with the highest concentrations of DRO or ORO. Therefore, cPAHs would not be present in the confirmation soil samples collected from the limits of the excavation, in which DRO and/or ORO were detected at concentrations less than site-specific MTCA Method B cleanup levels.

An area identified as the asphalt plant or the hot-mix plant was observed to be paved during the RI, with no evidence of releases of hazardous substances. Therefore, soil samples were not collected in the immediate vicinity of the asphalt plant for the RI in accordance with the Ecology-approved RI Work Plan (Farallon 2009a).

The WSDOT mobile testing laboratory reportedly was located in the area west-adjacent to the roofing shredder building. The testing procedure implemented by WSDOT only used TCE, and no field evidence of releases of petroleum hydrocarbons was observed; therefore, there is no reason to evaluate soil in this area for petroleum products, PCBs, or cPAHs.

Soil samples were collected and analyzed for the RI from areas proximate to an aboveground storage tank used to store tar between AOC-1 and AOC-2 (Figure 2). DRO was not detected at concentrations exceeding laboratory detection limits; ORO was detected at concentrations an order of magnitude less than the approved MTCA Method B cleanup level in soil samples SS-11, A1-C1-SW-090810-6, and A1-C1-BTM-090810-8 collected at depths of 3, 6, and 8 feet below ground surface (bgs), respectively (Farallon 2009c, 2011). cPAHs would be co-located with DRO and ORO, and DRO and ORO were not detected at concentrations exceeding the approved cleanup level; therefore, as discussed in the June 2017 meeting with Ecology and follow-up correspondence and communications (Farallon 2017a), there is no technical basis for cPAHs to be present in soil in the areas proximate to the aboveground storage tank.

2.3 PCBs AND CPAHs IN GROUNDWATER

DRO and ORO were not detected at concentrations exceeding laboratory detection limits in groundwater samples collected from monitoring wells located throughout the Lakeview Facility except for a single groundwater sample collected from a shallow monitoring well in AOC-1. DRO or ORO were not detected at concentrations exceeding laboratory detection limits in groundwater samples collected for four consecutive quarters in 2010 and 2011 following completion of the soil excavation in AOC-1.

Based on four consecutive quarters of groundwater sampling that did not detect DRO and ORO at concentrations exceeding laboratory detection limits in groundwater, the lack of evidence of the use or release of PCBs to soil during Woodworth operations, and cPAHs detected at concentrations less than the MTCA Method A cleanup level in soil samples, PCBs and cPAHs are not constituents of concern for groundwater at the Lakeview Facility and no additional action is warranted.

At Ecology's request, the scope of work includes collection and analysis of soil and groundwater samples to confirm the effectiveness of the cleanup action completed at the Lakeview Facility. Soil and groundwater samples will be analyzed for:

- DRO and ORO; and
- PCBs and cPAHs in soil, only if DRO and/or ORO are detected at concentrations exceeding MTCA Method B cleanup levels in soil samples.

3.0 FIELD PROGRAM SCOPE OF WORK

The scope of work to collect and analyze soil and groundwater samples is provided below.

3.1 SOIL INVESTIGATION

The scope of work for the subsurface investigations is designed to collect sufficient information to address the data gaps identified by Ecology in AOC-1 through AOC-3 and in the areas of the WSDOT testing laboratory and monitoring well MW-25.

The objectives for the soil sampling field program are to assess the occurrence, nature, and extent of DRO, ORO, VOCs, and potentially cPAHs and PCBs in soil outside of the cleanup action excavation completed in 2010. Specific target areas will include collection of soil samples from:

- The former location of soil sample A1-7040710-6 in AOC-1 at a depth of approximately 7 feet bgs for laboratory analysis for DRO and ORO. Soil samples will be analyzed for PCBs and cPAHs only if DRO and/or ORO are detected at concentrations exceeding MTCA Method B cleanup levels (Figure 3).
- The former location of soil sample A2-4-040710-3 in AOC-2 at a depth of approximately 5 feet bgs for laboratory analysis for DRO and ORO. Soil samples will be analyzed for PCBs and cPAHs only if DRO and/or ORO are detected at concentrations exceeding MTCA Method B cleanup levels (Figure 4).
- The former location of soil sample A3-B2-P-100510-4.5 in AOC-3 at a depth of approximately 7.5 feet bgs for laboratory analysis for DRO and ORO. Soil samples will be analyzed for PCBs and cPAHs only if DRO and/or ORO are detected at concentrations exceeding MTCA Method B cleanup levels (Figure 5).
- Up to five locations in the accessible areas proximate to the reported location of the former WSDOT testing laboratory and the existing remediation system compound to a depth of approximately 20 feet bgs for laboratory analysis for VOCs, including TCE (Figure 6). The investigation will extend into the area directly to the east between the remediation system compound and the roofing shredder building. Up to three soil samples per boring locations will be submitted for laboratory analysis for VOCs.
- One location between prior borings B4 and B5 proximate to monitoring well MW-25 to a depth of approximately 20 feet bgs for laboratory analysis for VOCs (Figure 6). Up to three soil samples from this boring will be submitted for laboratory analysis for VOCs.

Laboratory analysis for DRO and ORO will be performed without the use of the sulfuric acid/silica gel cleanup procedure. If DRO, ORO, and VOCs are not detected at concentrations exceeding MTCA cleanup levels, no further action regarding additional soil sampling or investigations will be warranted.

3.2 GROUNDWATER MONITORING AND SAMPLING

The scope of work for groundwater monitoring and sampling is provided below. The scope of work is designed to collect sufficient information to address the data gaps identified by Ecology for site-wide comprehensive groundwater monitoring and sampling, and includes analyses for VOCs, TPH, and geochemical and MNA parameters and for 1,4-dioxane in the groundwater samples with the highest detections of TCE. The objective for the groundwater monitoring and sampling field program is to evaluate the current nature and extent of constituents of concern in both shallow and deeper water-bearing zones. The groundwater monitoring and sampling field program will include:

- Measuring the depth to groundwater at all accessible monitoring and remediation wells at the Lakeview Facility; and
- Collecting groundwater samples from monitoring and remediation wells and the industrial water supply well (Figures 2 and 7) for laboratory analysis for DRO, ORO, VOCs, total and dissolved lead and arsenic, 1,4-dioxane, and geochemical and MNA parameters in accordance with Table 1 and discussions with Ecology.

The monitoring and remediation wells that will be sampled for DRO and ORO were selected based on their proximity to AOC-1 through AOC-3, formerly impacted by TPH; and include monitoring wells specifically requested by Ecology (2017), except for monitoring and remediation wells in areas where there is no evidence of TPH releases or technical basis for TPH to be present in groundwater.

Monitoring and remediation wells that will be sampled for VOCs were selected based on their proximity to the area impacted by TCE and include wells specifically requested by Ecology (2017). Two groundwater samples with the highest detections of TCE will be analyzed for 1,4-dioxane. Historically, the two highest detections of TCE concentrations were in groundwater samples collected from monitoring wells MW-20 and MW-14.

Monitoring wells that will be sampled for total and dissolved lead and arsenic were selected based on their proximity to the area impacted by those metals. The monitoring wells selected include wells that were typically sampled for metals over the course of the RI and cleanup action.

Monitoring and remediation wells that will be sampled for geochemical and MNA parameters include wells specifically requested by Ecology (2017). VOC and geochemical data collected during the RI indicated that potential for anaerobic biodegradation of TCE and low-level 1,1,1-trichloroethane in both the shallow and deeper groundwater at the Lakeview Facility was negligible and that ongoing physical attenuation processes, including dispersion and dilution, are the mechanisms responsible for attenuation of VOCs. The continued analyses for VOCs are expected to further support Farallon's original supposition that biodegradation is a negligible process at the Lakeview Facility.

The geochemical parameters that will be analyzed and measured are the most common electron donors and metabolic byproducts of anaerobic biodegradation, including dissolved oxygen, nitrate, sulfate, ferrous iron, methane, ethane, and ethene. These geochemical parameters are sufficient to understand whether there is a potential for partial or complete biodegradation of TCE and 1,1,1-trichloroethane, whereas the other parameters requested such as nitrite, hydrogen, alkalinity, chloride, volatile fatty acids, or microbial analysis are unnecessary to meet the sampling data objectives. Further, measured groundwater sampling parameters, including pH, oxidation-reduction potential, and temperature, will also provide information regarding whether groundwater conditions in the shallow and deeper groundwater are conducive to biodegradation. Farallon concurs with Ecology that total organic carbon will be included in the suite of analyses because it may provide data regarding whether naturally occurring organic substrate material, beyond the VOCs, is present in groundwater to support biodegradation. Analysis for volatile fatty acids to further support the total organic carbon data is unnecessary and typically is not performed unless enhanced bioremediation technologies are applied to evaluate whether the electron donor introduced is resulting in volatile fatty acid production, which in turn results in an increased supply of hydrogen to support biodegradation. Direct measurement of microbial populations will not be performed because the first two lines of evidence collected during the RI indicated that there are insufficient populations of beneficial microbial populations to support biodegradation. Consequently, in Farallon's experience, the microbial analytical results will not provide data that cannot be inferred by the VOC and geochemical data regarding biodegradation potential.

3.3 FIELD PROTOCOLS

This section provides a summary of the health and safety requirements, soil and groundwater sampling protocols and guidelines, and interim reporting documentation.

3.3.1 Health and Safety

In accordance with WAC 173-340-810, a Health and Safety Plan (HASP) is required for all field activities due to the potential for exposure to hazardous substances. The HASP will comply with the requirements of the Occupational Safety and Health Act of 1970 and the Washington Industrial Safety and Health Act, Chapter 49.17 of the Revised Code of Washington. A draft of the HASP prepared for the Lakeview Facility is provided in Appendix A. Ecology approval of the HASP is not required.

3.3.2 Borings Installation

Three borings will be advanced in AOC-1 through AOC-3, five borings will be advanced in the vicinity of the reported former location of the WSDOT mobile testing laboratory, and one boring will be advanced proximate to monitoring well MW-25 (Figures 3 through 6). Borings in the vicinity of the reported former location of the WSDOT mobile testing laboratory and monitoring well MW-25 will be advanced to a total depth of approximately 20 feet bgs using a hollow-stem-auger drill rig. Soil samples will be collected from the borings at 2.5-foot depth intervals in accordance with the Sampling and Analysis Plan (SAP) provided in Appendix A of the RI Work Plan (Farallon 2009a).

3.3.3 Groundwater Monitoring

The depth to groundwater will be measured in monitoring and remediation wells and the industrial water supply well. Depth to groundwater will be measured once from all accessible wells. Groundwater monitoring will be conducted in accordance with the SAP for the RI Work Plan (Farallon 2009a).

3.3.4 Groundwater Sampling

Groundwater samples will be collected using low-flow sampling procedures detailed in the SAP for the RI Work Plan (Farallon 2009a) from monitoring and remediation wells and the industrial water supply well in accordance with analytical parameters defined in Table 1.

3.3.5 Sampling and Analysis Plan

The sampling standards and procedures will be conducted in accordance with the SAP for the RI Work Plan that was reviewed and approved by Ecology (Farallon 2009a). The SAP provides details for soil and groundwater sampling and analysis, and consists of the Field Sampling Plan and the Quality Assurance Project Plan, referenced below.

3.3.6 Quality Assurance Project Plan

The Quality Assurance Project Plan identifies the quality assurance/quality control protocols to be implemented for the scope of work presented in this SAWP for the Lakeview Facility to ensure that data quality objectives are met. The Quality Assurance Project Plan is provided in Appendix A of the RI Work Plan (Farallon 2009a).

3.3.7 Waste Disposal

Investigation-derived wastes generated by the field program will be temporarily contained in 55-gallon U.S. Department of Transportation-approved steel drums with locking lids pending receipt of laboratory analytical results. Drum storage will be coordinated with the current property owner. Analytical results from the field program will be used to profile the waste and identify appropriate disposal options.

3.3.8 Interim Reporting

The following interim reporting will be conducted:

- Validation of laboratory and field data and field-screening results will be completed within approximately 2 weeks of receipt of final laboratory reports; and
- Groundwater elevation and soil and groundwater analytical, geochemical, and MNA data will be uploaded to the Ecology Environmental Information Management database within approximately 2 weeks of completion of data validation.

4.0 DATA COMPILATION AND REPORTING

The validated laboratory analytical reports will be evaluated to confirm that data gaps identified by Ecology have been addressed. If data gaps remain, Farallon will develop a scope of work to address remaining data gaps for completion of the characterization. If no additional data gaps remain, Farallon will prepare an addendum to the Focused Feasibility study and Disproportionate Cost Analysis Report (Farallon 2015) that will include:

- A brief narrative of the scope of work and procedures completed;
- Background information, including a description of the Lakeview Facility and adjacent properties, surrounding land use and zoning, and geology and hydrogeology;
- Revision to the vapor intrusion assessment to reflect the industrial exposure scenario;
- An updated conceptual site model, if the subsurface investigation results warrant changes in the conceptual site model previously provided to Ecology;
- Evaluation of natural attenuation processes of TCE in groundwater;
- Groundwater chemistry associated with effects on the mobilization of arsenic and lead in groundwater;
- Tables summarizing analytical results and groundwater elevation, analytical, geochemical, and MNA results;
- Figures depicting the extent of constituents of concern in soil, if any, and in groundwater for each water-bearing zone, including the depth, areal extent, and isoconcentration contours of constituents of concern; and groundwater elevation contour maps for each water-bearing zone;
- Plots of groundwater elevations and contaminant concentrations through time for individual monitoring locations and combined monitoring locations;
- A summary of the results and conclusions regarding fulfilling the requirements for a No Further Action determination with an Environmental Covenant from Ecology; and
- A groundwater monitoring plan as part of the No Further Action determination.

5.0 SCHEDULE

The scope of work discussed in this SAWP will be conducted in accordance with the following schedule:

DELIVERABLE/WORK ELEMENT	SCHEDULE
SAWP	Mid-September 2017 to Ecology
Ecology Comments on the SAWP	15 days from receiving the SAWP (beginning of October 2017)
Soil Investigation Field Work	15 to 20 days from Ecology approval of the SAWP (mid-October 2017)
Groundwater Monitoring and Sampling	20 to 25 days from Ecology approval of the SAWP (end of October 2017)
Receipt of Laboratory Results	15 days from completion of field activities (mid-November 2017)
Addendum to Focused Feasibility Study and Disproportionate Cost Analysis Report	30 days from receipt of laboratory results (mid-December 2017)
Electronic Data Submittal to Environmental Information Management database	Approximately at the same time as the submittal of the Addendum to Focused Feasibility Study and Disproportionate Cost Analysis Report (mid-December 2017)
Ecology Comments on the Addendum to Focused Feasibility Study and Disproportionate Cost Analysis Report	90 days from receipt of the Addendum to Focused Feasibility Study and Disproportionate Cost Analysis Report and Electronic Data Submittal (no later than mid-March 2018)

6.0 REFERENCES

Farallon Consulting, L.L.C. (Farallon). 2009a. *Remedial Investigation Work Plan, Woodworth & Company, Inc., Lakeview Facility, 2800 104th Street South, Lakewood, Washington 98499.* Prepared for Woodworth & Company, Inc. January 26.

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U.S. Environmental Protection Agency (EPA). 1998. *Ground Water Sampling Procedure, Low Stress (Low Flow) Purging and Sampling*. March 16.

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7.0 LIMITATIONS

7.1 GENERAL 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 obtained, reviewed, and evaluated 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 or authenticity. Should the information upon which Farallon relied prove to be inaccurate or unreliable, Farallon reserves the right to amend or revise its conclusions, opinions, and/or recommendations.
- **Reconnaissance and/or Characterization.** Farallon performed a reconnaissance and/or characterization of the Lakeview Facility 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 Lakeview Facility Property that were not investigated or were inaccessible. Activities at the Lakeview Facility beyond Farallon's control could change at any time after the completion of this report/assessment.

For the foregoing reasons, Farallon cannot and does not warrant or guarantee that the Lakeview Facility 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 can be considered valid only as of the date of the report hereof.

This report/assessment has been prepared in accordance with the contract for services between Farallon and Woodworth Capital, Inc., and currently accepted industry standards. No other warranties, representations, or certifications are made.

7.2 LIMITATION ON RELIANCE BY THIRD PARTIES

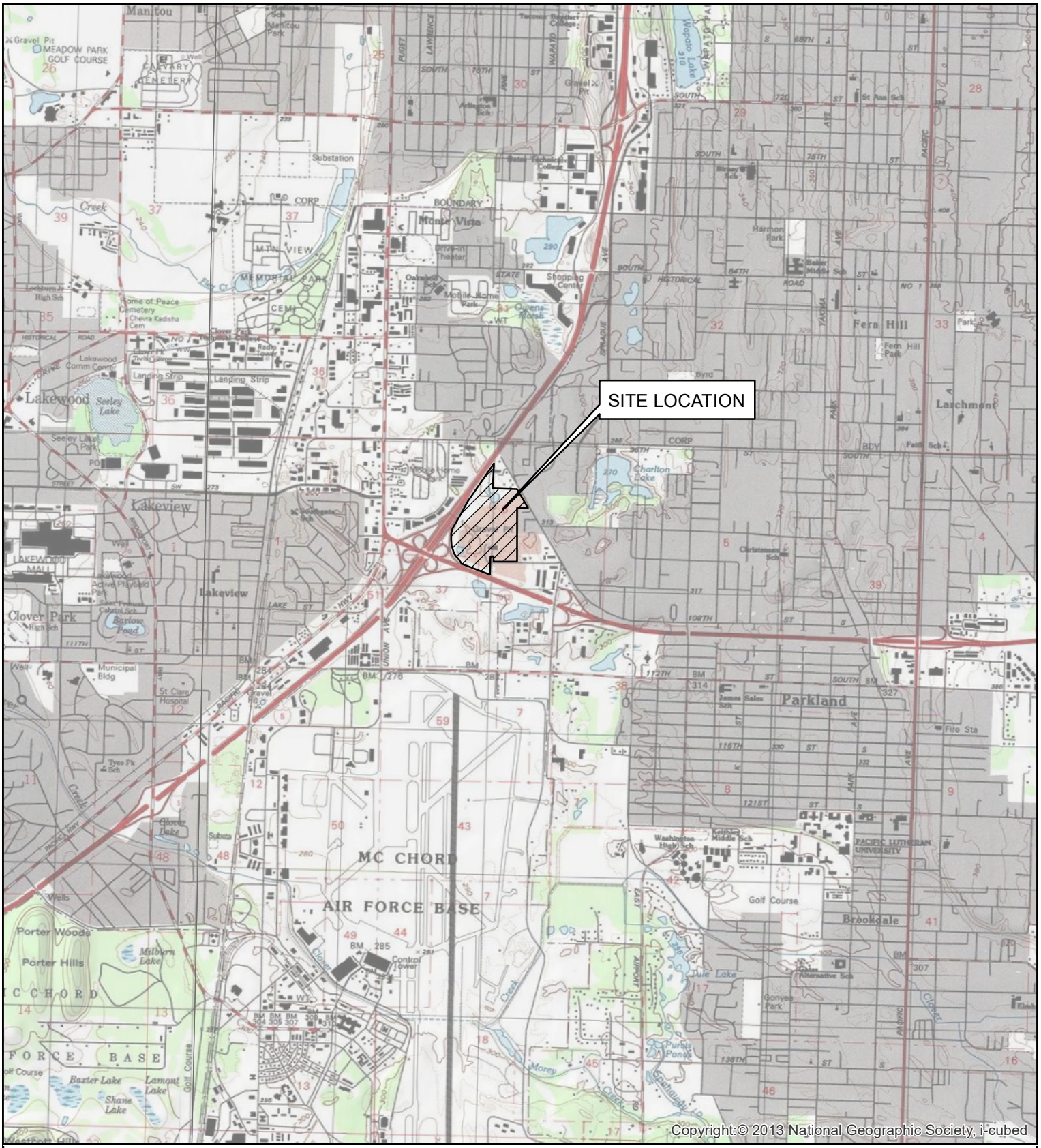
Reliance by third parties is prohibited. This report/assessment has been prepared for the exclusive use of Woodworth Capital, Inc. to address the unique needs of Woodworth Capital, Inc. at the Lakeview Facility at a specific point in time.

This is not a general grant of reliance. No one other than Woodworth Capital, Inc. may rely on this report unless Farallon agrees in advance to such reliance in writing. Any unauthorized use, interpretation, or reliance on this report/assessment is at the sole risk of that party and Farallon will have no liability for such unauthorized use, interpretation, or reliance.

FIGURES

SAMPLING AND ANALYSIS WORK PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002



REFERENCE: 7.5 MINUTE USGS QUADRANGLE TACOMA SOUTH, WASHINGTON, DATED 2011

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SCALE IN FEET

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Quality Service for Environmental Solutions | farallonconsulting.com

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Bend | Baker City

California
Oakland | Sacramento | Irvine

FIGURE 1

SITE VICINITY MAP
LAKEVIEW FACILITY
2800 104th STREET COURT SOUTH
LAKEWOOD, WASHINGTON
FARALLON PN: 188-002

Drawn By: jjones Checked By: BJ Date: 9/14/2017 Disc Reference:

Document Path: Q:\Projects\188_Woodworth\Mapfiles\FIGURE 1_SITE VICINITY MAP_WA.mxd

INTERSTATE 5 SOUTH

INTERSTATE 5 NORTH

26th STREET SOUTHEAST

NORTH POND (TWO-CELL WET POND)

MW-33

MW-34

ARSENIC AND LEAD PLUME IN GROUNDWATER

MW-31

APPROXIMATE REPORTED EXTENT OF ATLAS FOUNDRY MATERIAL (TACOMA PIERCE CO. HEALTH DEPARTMENT 2003)

TP-8

TP-7

MW-12B

MW-12

MW-32

MW-7

MW-8

MW-30

TP-9

ATLAS FOUNDRY WASTE

TP-6

TP-10

TP-5

MW-9B

TP-4

TP-3

TP-2

TP-1

MW-17A

MW-17

SHED

MW-24

AOC 3: FORMER RECYCLED STOCKPILE AREA

MW-9

MW-16

CRUSHER AREA

MW-23

RADIAL STACKER AREA

WATER WELL FOR INDUSTRIAL USE AND WELL HOUSE

MW-6

MW-22

EQUIPMENT STEAM CLEAN OPERATIONS

TWO 12,000 GALLON DIESEL FUEL ABOVEGROUND STORAGE TANKS

MW-21

MW-2

MW-18

MW-3

MW-4

REPORTED LOCATION OF FORMER WSDOT TESTING LAB

MW-14

MW-14C

PARKING

ASPHALT PLANT AREA

TCE PLUMES IN GROUNDWATER

ROOFING SHREDDER BUILDING

COVERED SECONDARY CONTAINMENT AREA

WEST POND (RETENTION POND)

EQUIPMENT SHED

MW-20

TRAILERS

TRUCK PARKING

MW-26

MW-25

SHED

AOC 2: EQUIPMENT PARKING AREA

MW-13

MW-19

MW-5

MW-15

PARKING

MW-1

MW-10

MW-10B

MW-29

MW-27

MW-28

TRUCK MAINTENANCE SHOP

104th STREET COURT SOUTH

STATE ROUTE 512

WOOD FRAME BUILDING

10,000 GALLON ABOVEGROUND TAR TANK

MW-11B

MW-11

EQUIPMENT STORAGE CARPORT

AOC 1: EQUIPMENT STORAGE CARPORT AREA

0 200

APPROXIMATE SCALE IN FEET

LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE AREA OF COMPLETED SOIL CLEANUP ACTION
- APPROXIMATE AREA OF GROUNDWATER CLEANUP ACTION
- MW-11 MONITORING WELL SCREENED IN SHALLOW WATER-BEARING ZONE
- MW-15 MONITORING WELL SCREENED IN DEEP WATER-BEARING ZONE
- MW-8 DECOMMISSIONED MONITORING WELL
- TEST PIT
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
- TCE TRICHLOROETHENE
- AOC AREA OF CONCERN

ALL LOCATIONS OF SITE FEATURES ARE APPROXIMATE.

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FIGURE 2

SITE PLAN
LAKEVIEW FACILITY
2800 104th STREET COURT SOUTH
LAKEWOOD, WASHINGTON

FARALLON PN: 188-002

Drawn By: jj Checked By: BJ Date: 09/14/2017 Disk Reference: 188002b

WOOD FRAME BUILDING

TRUCK MAINTENANCE SHOP

104th STREET COURT SOUTH

RIGHT-OF-WAY LINE

FORMER CARPORT

A1-C1-SW-090810-6
A1-C1-BTM-090810-8
A1-B2-SW-090810-6
A1-B2-BTM-090810-8
A1-D2-SW-090810-6
A1-D2-BTM-090810-8
A1-6-040710-3
A1-C2-BTM-091410-10.0
A1-B2-SW-091310-5.0
A1-C3-GW-091710-9.0
A1-C3-GW-093010-9.0
A1-C3-BTM-091310-12.0
A1-B3-SW-091310-5.0
A1-8-040710-7.5
A1-9-040710-3.5
A1-B3-BTM-091010-12.0
A1-1-040710-4
A1-B4-BTM-091310-11.5
A1-A4-SW-091310-5.0
A1-A4-BTM-091310-10.0
A1-C4-BTM-091010-13.0
A1-D4-BTM-091010-13
A3-E4-RECON-092810-8.0
A1-E4-SW-091010-8.0
MW-11
A1-B5-BTM-091310-10.5
A1-4-040710-4
MW-11B
A1-C5-BTM-091510-12.0
MW11B-012809-3
MW11B-012809-8
A1-C5-BTM-090910-10.5
A1-3-040710-5.5
A1-D5-BTM-090910-10.5
A1-E5-SW-091510-5.0
A1-E5-SW-090810-5.5
A1-5-040710-6
A1-11-040810-3
A1-A5-SW-091010-6.0
A1-A5-BTM-091010-10.0
A1-C6-SW-090810-7.5
A1-12-040810-7.5
A1-C6-BTM-090810-9
A1-D6-SW-090910-5.0
A1-B6-SW-090810-7.5
A1-B6-BTM-090810-9
A1-D6-BTM-091610-8.0
A1-D6-SW-091610-5.0
A1-E6-SW-091610-5.0
A1-C6-SW-091510-7.5

LEGEND

- SAMPLING GRID
- WOODWORTH LAKEVIEW FACILITY PROPERTY BOUNDARY
- EXCAVATION LIMITS
- PROPOSED SOIL SAMPLE
- A2-1-040710-4 — CONFIRMATION SOIL SAMPLE SEPTEMBER 2010
- A1-C5-BTM-090910-10.5 — PERFORMANCE SOIL SAMPLE SEPTEMBER 2010-EXCAVATED
- A1-9-040710-3.5 — CONFIRMATION SOIL SAMPLE APRIL 2010-NOT EXCAVATED
- A1-1-040710-4 — PERFORMANCE SOIL SAMPLE APRIL 2010-EXCAVATED
- MW11B-012809-3 — REMEDIAL INVESTIGATION PERFORMANCE SOIL SAMPLE JANUARY 2009-EXCAVATED
- A1-C3-GW-091710-9.0 — EXCAVATION WATER SAMPLE SEPTEMBER 2010
- MW-11 — MONITORING WELL SCREENED IN SHALLOW WATER-BEARING ZONE
- MW-11B — MONITORING WELL SCREENED IN DEEP WATER-BEARING ZONE
- 13 — BASE OF EXCAVATION DEPTH IN FEET BELOW GROUND SURFACE
- AOC — AREA OF CONCERN

ALL LOCATIONS ARE APPROXIMATE

0 20
SCALE IN FEET

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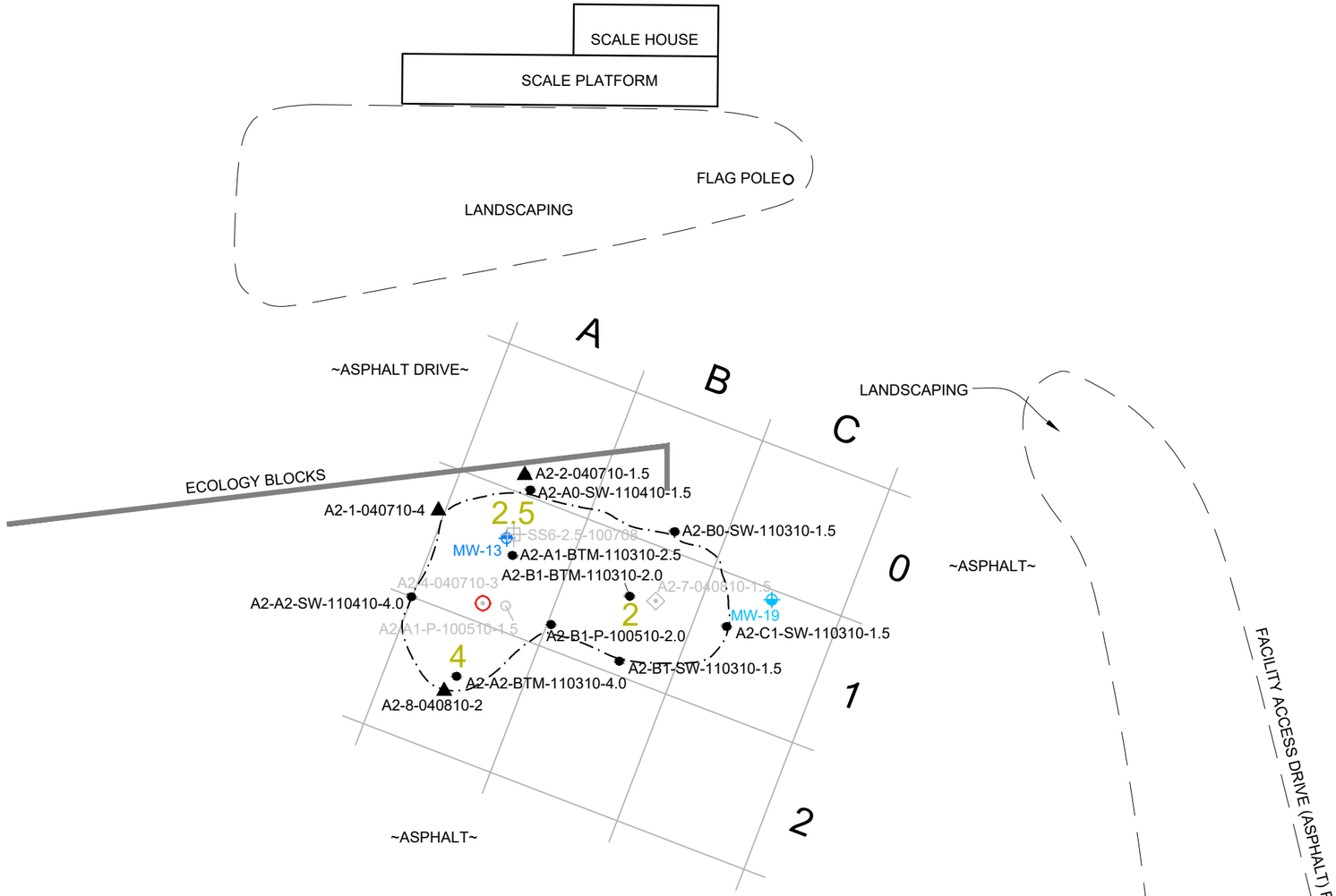
FIGURE 3

AOC 1 SOIL SAMPLE LOCATIONS
LAKEVIEW FACILITY
2800 104th STREET SOUTH
LAKEWOOD, WASHINGTON

FARALLON PN: 188-002

Drawn By: JJ | Checked By: BJ | Date: 09/14/2017 | Disk Reference: 188-002aoc



LEGEND

- A / 1 — SAMPLING GRID
- EXCAVATION LIMITS
- PROPOSED SOIL SAMPLE
- A2-A0-SW-110410-1.5 — CONFIRMATION SOIL SAMPLE OCTOBER / NOVEMBER 2010
- A2-A1-P-100510-1.5 — PERFORMANCE SOIL SAMPLE OCTOBER 2010-EXCAVATED
- A2-8-040810-2 — CONFIRMATION SOIL SAMPLE APRIL 2010-NOT EXCAVATED
- A2-4-040710-3 — PERFORMANCE SOIL SAMPLE APRIL 2010-EXCAVATED
- SS6-2.5-100708 — REMEDIAL INVESTIGATION PERFORMANCE SOIL SAMPLE OCTOBER 2009-EXCAVATED
- MW-13 — MONITORING WELL SCREENED IN SHALLOW WATER-BEARING ZONE
- MW-19 — MONITORING WELL SCREENED IN DEEP WATER-BEARING ZONE
- 4 — BASE OF EXCAVATION DEPTH IN FEET BELOW GROUND SURFACE
- AOC — AREA OF CONCERN

ALL LOCATIONS ARE APPROXIMATE

N

0 30
SCALE IN FEET

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FIGURE 4

AOC 2 SOIL SAMPLE LOCATIONS
LAKEVIEW FACILITY
2800 104th STREET SOUTH
LAKEWOOD, WASHINGTON

FARALLON PN: 188-002

Drawn By: JJ | Checked By: BJ | Date: 09/14/2017 | Disk Reference: 188-002aoc

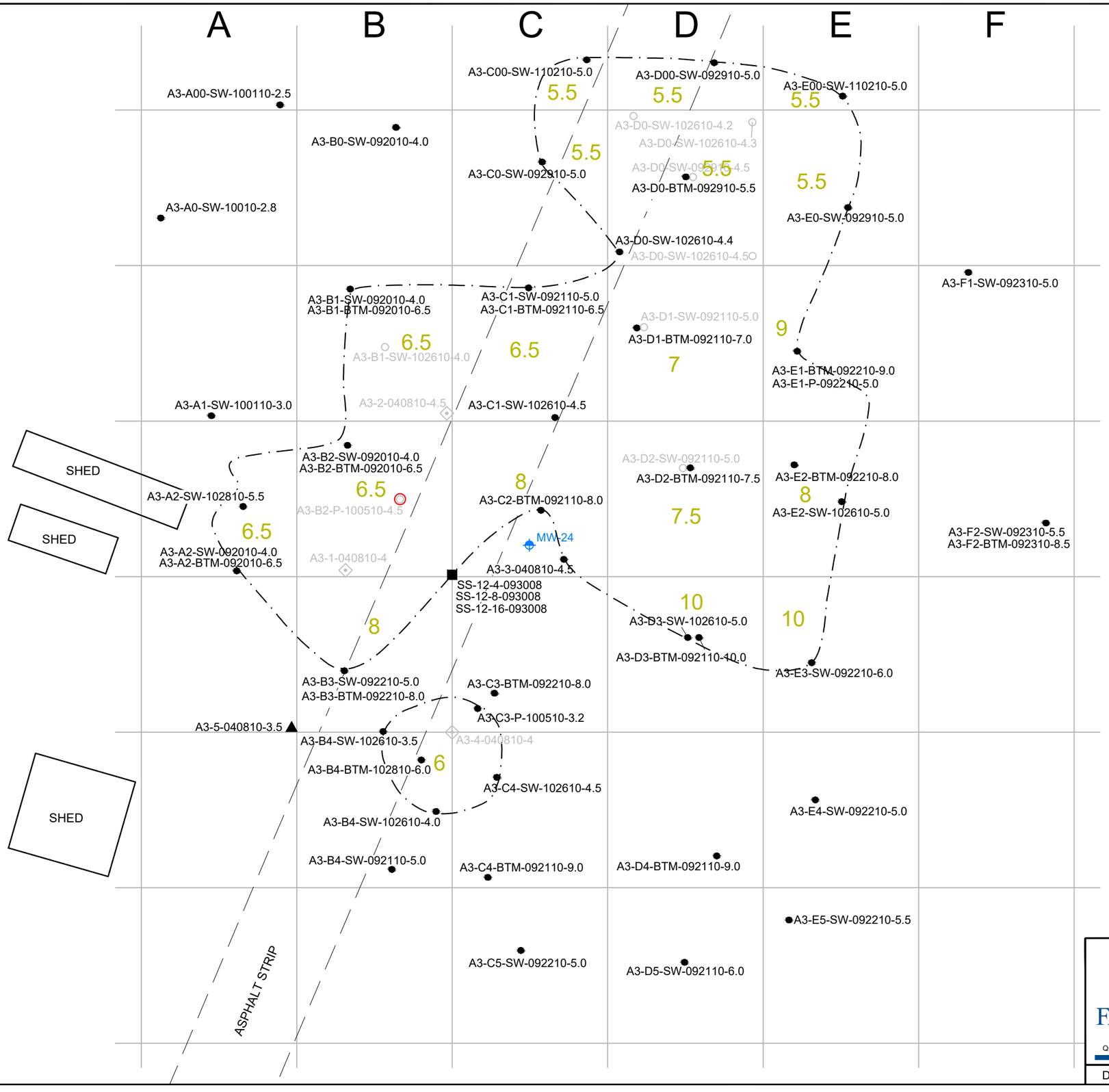

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FIGURE 5

AOC 3 SOIL SAMPLE LOCATIONS
LAKEVIEW FACILITY
2800 104th STREET SOUTH
LAKEWOOD, WASHINGTON

FARALLON PN: 188-002

Drawn By: jj | Checked By: BJ | Date: 09/14/2017 | Disk Reference: 188-002aoc

MW-14

MW-14C

AS-5/SVE-6

SVE-1

AS-4/SVE-5

ROOFING SHREDDER BUILDING

EQUIPMENT COMPOUND

MW-20

SVE-12

AS-3/SVE-4

REPORTED LOCATION OF FORMER WSDOT TESTING LAB

TRAILER

TRAILER

AS-2/SVE-3

B3

B4

B9

SHED

B7

B5

AREA OF FORMER THERMAL DESORPTION PLANT

B6

MW-25

MW-26

B2

0 30

Scale in feet

LEGEND

- PROPOSED BORING LOCATION
- BORING LOCATION
- MW-11 MONITORING WELL SCREENED IN SHALLOW WATER-BEARING ZONE
- MW-15 MONITORING WELL SCREENED IN DEEP WATER-BEARING ZONE
- SVE-12 SOIL VAPOR EXTRACTION WELL IN SHALLOW WATER-BEARING ZONE
- SVE-2 SOIL VAPOR EXTRACTION WELL IN DEEP WATER-BEARING ZONE
- AS/SVE AIR SPARGE AND SOIL VAPOR EXTRACTION WELL PAIR

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FIGURE 6

BORING LOCATIONS
LAKEVIEW FACILITY
2800 104th STREET COURT SOUTH
LAKEWOOD, WASHINGTON

FARALLON PN: 188-002

Drawn By: JJ Checked By: BJ Date: 09/14/2017 Disk Reference: 188002b

LEGEND

MW-11 MONITORING WELL SCREENED IN SHALLOW WATER-BEARING ZONE

MW-15 MONITORING WELL SCREENED IN DEEP WATER-BEARING ZONE

SVE-12 SOIL VAPOR EXTRACTION WELL IN SHALLOW WATER-BEARING ZONE

SVE-2 SOIL VAPOR EXTRACTION WELL IN DEEP WATER-BEARING ZONE

AS-1 AIR SPARGE WELL

AS/SVE AIR SPARGE AND SOIL VAPOR EXTRACTION WELL PAIR

MW-16

CRUSHER AREA

MW-23

AS-10/SVE-11

AS-9/SVE-10

AS-8/SVE-9

MW-22

SIGN STORAGE BUILDING

WATER WELL FOR INDUSTRIAL USE AND WELL HOUSE

EQUIPMENT STEAM CLEAN OPERATIONS

MW-21

AS-7/SVE-8

MW-2

MW-3

MW-18

MW-4

AS-6/SVE-7

SVE-2

AS-1

MW-14

MW-14C

AS-5/SVE-6

TWO 12,000 GALLON DIESEL FUEL ABOVE GROUND STORAGE TANKS

SVE-1

ASPHALT PLANT AREA

AS-4/SVE-5

REPORTED LOCATION OF FORMER WSDOT TESTING LAB

ROOFING SHREDDER BUILDING

REMEDIATION SYSTEM COMPOUND

MW-20

SVE-12

AS-3/SVE-4

TRAILER

TRAILER

AS-2/SVE-3

VENT STACK

SHED

MW-26

MW-25

MW-13

ACCESS ROAD

MW-19

MW-15

MW-1

MW-29

TRUCK MAINTENANCE SHOP

WOOD FRAME BUILDING

MW-27

MW-28

0 60

APPROXIMATE SCALE IN FEET

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FIGURE 7

SITE PLAN DETAIL FOR AREA
AROUND FORMER WSDOT TESTING LAB
LAKEVIEW FACILITY
2800 104th STREET COURT SOUTH
LAKEWOOD, WASHINGTON

FARALLON PN: 188-002

Drawn By: JJ Checked By: BJ Date: 09/14/2017 Disk Reference: 188-002b.dwg

TABLE

SAMPLING AND ANALYSIS WORK PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

Table 1
Groundwater Sampling Matrix
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington
Farallon PN: 188-002

Well Identification	Water-Bearing Zone	Depth to Water Measurement	DRO[1, 11]	ORO[1, 11]	HVOCs[2, 12]	1,4-Dioxane[3]	Total and Dissolved Arsenic[4, 13]	Total and Dissolved Lead[4, 13]	Geochemical and Monitored Natural Attenuation Parameters[14]												
									Dissolved Oxygen[5]	Nitrate[6]	Ferrous Iron[7]	Sulfate[8]	Nitrite[6]	Dissolved Methane[9]	Dissolved Ethane[9]	Dissolved Ethene[9]	pH[5]	Temperature[5]	Specific Conductance[5]	ORP[5]	Total Organic Carbon[10]
MW-1	Shallow	X																			
MW-2	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-3	Shallow	X			X				X								X	X	X	X	
MW-4	Shallow	X																			
MW-5	Shallow	X	X	X					X								X	X	X	X	
MW-6	Shallow	X	X	X					X								X	X	X	X	
MW-7	Deep	Destroyed																			
MW-8	Deep	Destroyed																			
MW-9	Shallow	X					X	X	X								X	X	X	X	
MW-9B	Deep	X																			
MW-10	Shallow	X																			
MW-10B	Deep	X																			
MW-11	Shallow	X	X	X					X								X	X	X	X	
MW-11B	Deep	X	X	X					X								X	X	X	X	
MW-12	Shallow	X					X	X	X								X	X	X	X	
MW-12B	Deep	X					X	X	X								X	X	X	X	
MW-13	Shallow	X	X	X					X								X	X	X	X	
MW-14	Deep	X			X	?			X	X	X	X	X	X	X	X	X	X	X	X	X
MW-14C	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-15	Deep	X			X				X								X	X	X	X	
MW-16	Deep	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-17A	Shallow	X																			
MW-17	Deep	X																			
MW-18	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-19	Deep	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-20	Deep	X			X	?			X	X	X	X	X	X	X	X	X	X	X	X	X
MW-21	Deep	X																			
MW-22	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-23	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-24	Shallow	X	X	X					X								X	X	X	X	
MW-25	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-26	Shallow	X			X				X								X	X	X	X	
MW-27	Shallow	X																			
MW-28	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
MW-29	Deep	X			X				X								X	X	X	X	
MW-30	Shallow	X					X	X	X								X	X	X	X	
MW-31	Shallow	X					X	X	X								X	X	X	X	
MW-32	Shallow	X					X	X	X								X	X	X	X	
MW-33	Shallow	X					X	X	X								X	X	X	X	
MW-34	Shallow	X					X	X	X								X	X	X	X	

Table 1
Groundwater Sampling Matrix
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington
Farallon PN: 188-002

Well Identification	Water-Bearing Zone	Depth to Water Measurement	DRO[1, 11]	ORO[1, 11]	HVOCs[2, 12]	1,4-Dioxane[3]	Total and Dissolved Arsenic[4, 13]	Total and Dissolved Lead[4, 13]	Geochemical and Monitored Natural Attenuation Parameters[14]												
									Dissolved Oxygen[5]	Nitrate[6]	Ferrous Iron[7]	Sulfate[8]	Nitrite[6]	Dissolved Methane[9]	Dissolved Ethane[9]	Dissolved Ethene[9]	pH[5]	Temperature[5]	Specific Conductance[5]	ORP[5]	Total Organic Carbon[10]
SVE-1	Deep	X			X				X	X	X	X	X	X	X	X	X	X	X	X	X
SVE-2	Deep	X	X	X	X				X								X	X	X	X	
SVE-3	Shallow	X			X				X								X	X	X	X	
SVE-4	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
SVE-5	Deep	X	X	X					X								X	X	X	X	
SVE-6	Shallow				X				X								X	X	X	X	
SVE-7	Deep	X	X	X					X								X	X	X	X	
SVE-9	Deep	X	X	X					X								X	X	X	X	
SVE-10	Deep	X			X				X								X	X	X	X	
SVE-11	Deep	X			X				X								X	X	X	X	
SVE-12	Shallow	X			X				X	X	X	X	X	X	X	X	X	X	X	X	
AS-1	Deep	X			X				X								X	X	X	X	
AS-2	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-3	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-4	Deep	X			X				X								X	X	X	X	
AS-5	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-6	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-7	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-8	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-9	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
AS-10	Deep	No groundwater monitoring or sampling planned[11, 12, 13, 14]																			
Industrial Well	Regional	X			X				X								X	X	X	X	

NOTES:

[1]Analyzed by Northwest Method NWTPH-Dx.

[2]Analyzed by U.S. Environmental Protection Agency (EPA) Method 8260C.

[3]Analyzed by EPA Method 8270D.

[4]Analyzed by EPA Method 200.8.

[5]Collected using a YSI or HORIBA multimeter and flow-through cell.

[6]Analyzed by EPA Method 353.2.

[7]Collected and analyzed in field using a portable ferrous iron test kit.

[8]Analyzed by ASTM D516-07.

[9]Analyzed by EPA Method RSK-175.

[10]Analyzed by Standard Method 5310B/EPA Method 9060A.

[11]Monitoring wells to be sampled for DRO and ORO analysis were selected based on their proximity to areas of concern formerly impacted by total petroleum hydrocarbons and include monitoring wells specifically requested to be sampled by the Washington State Department of Ecology.

[12]Monitoring wells to be sampled for HVOC analysis were selected based on their proximity to the area impacted by trichloroethene.

[13]Monitoring wells to be sampled for arsenic and lead analysis were selected based on their proximity to the area impacted by those metals.

[14]Monitoring wells sampled for geochemical and monitored natural attenuation parameters were selected based on the request by the Washington State Department of Ecology. The geochemical and monitored natural attenuation parameters selected for analysis are the most common electron donors and metabolic byproducts of anaerobic biodegradation.

DRO = total petroleum hydrocarbons as diesel-range organics

HVOC = halogenated volatile organic compounds

ORO = total petroleum hydrocarbons as oil-range organics

ORP = oxidation-reduction potential

X = Groundwater sample will be analyzed

? = Two groundwater samples with highest detections of trichloroethene will be analyzed for 1,4-dioxane. Historically, the two highest detections of trichloroethene concentrations were in groundwater samples collected from monitoring wells MW-20 and MW-14.

APPENDIX A
HEALTH AND SAFETY PLAN

SAMPLING AND ANALYSIS WORK PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

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HEALTH AND SAFETY PLAN

LAKEVIEW FACILITY
2800 104TH STREET COURT SOUTH
LAKEWOOD, WASHINGTON

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

Farallon PN: 188-002

For:
Mr. Jeff Woodworth
Woodworth Capital, Inc.
3110 Ruston Way, Suite D
Tacoma, Washington

September 25, 2017

HEALTH AND SAFETY PLAN
REVIEW AND APPROVAL

Client: Mr. Jeff Woodworth
Facility Name: Lakeview Facility
Type of Work: Drilling and Groundwater Sampling
Project Number: 188-002
Start Date: October 1, 2017
End Date: April 1, 2018

Plan Expiration Date: April 1, 2018

APPROVED BY:

Brani Jurista
Project Manager
Signature — *Date*: September 25, 2017

Joseph Rounds
Health and Safety Coordinator
Signature — *Date*: September 25, 2017

Peter Jewett
Principal-in-Charge
Signature — *Date*: September 25, 2017

This Health and Safety Plan (HASP) was written for the use of Farallon Consulting, L.L.C. (Farallon) and its employees. It may be used also by trained and experienced Farallon subcontractors as a guidance document. However, Farallon does not guarantee the health or safety of any person entering this site.

Due to the potentially hazardous nature of the site and the activities occurring thereon, it is not possible to discover, evaluate, or provide protection for all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but does not eliminate, the potential for injury. The health and safety guidelines in this HASP were prepared specifically for this site, its conditions, purposes, dates of field work, and personnel, and must be amended if conditions change.

Farallon claims no responsibility for the use of this HASP by others. This HASP will provide useful information to subcontractors and will assist them in developing their own HASP, but it should not be construed as a substitute for their own HASP. Subcontractors should sign this HASP (see Attachment 1, *Health and Safety Plan Acknowledgment and Agreement Form*) as an acknowledgement of hazard information and as notice that this HASP does not satisfy their requirement to develop their own HASP.

CONTENTS

ATTACHMENTS

1.0 SITE-SPECIFIC INFORMATION

Information specifically pertaining to the project site, the scope of work for the project, and related safety concerns are discussed in this section.

1.1 BACKGROUND INFORMATION

Farallon Consulting, L.L.C. (Farallon) has prepared this Health and Safety Plan (HASP) for the property at 2800 104th Street Court South in Lakewood, Washington (herein referred to as the Site). Farallon is planning to conduct subsurface investigation work at the Site to complete activities necessary to meet the technical requirements for regulatory closure for the Site.

Based on the information reviewed to date, past and current uses of the Site include:

- Surface mining of sand and gravel, which ceased in the 1980s due to depletion of sand and rock deposits. Since that time, the raw materials (i.e., crushed rock) used in the asphalt mix are brought to the Site from off-Site locations.
- Hot- and cold-mix asphalt production from 1971 to present.
- Past landfilling of inert waste material such as waste concrete and asphalt, concrete roof tiles, refuse sand and slag from a foundry, and clean dirt and rock from various projects.
- Treatment of petroleum-contaminated soil from 1991 to 2005.
- Recycling of inert waste material such as concrete, masonry, asphalt, asphalt-based roofing shingles, and glass.
- Maintenance shop operations for the Woodworth & Company, Inc. and Miles Resources, Inc. truck fleets.

Investigations were conducted by others between 1983 and 2008. Volatile organic compounds (VOCs), total petroleum hydrocarbons, and metals were detected at concentrations exceeding applicable Washington State Model Toxics Control Act Cleanup Regulation cleanup levels in soil and/or groundwater at the Site.

Farallon conducted a remedial investigation/feasibility study of the Site in 2009, and a cleanup action between 2010 and 2014 that included excavation of petroleum-contaminated soil and air sparging and soil vapor extraction for the area containing VOCs.

This HASP has been prepared for use during soil and groundwater sampling to evaluate the nature and extent of residual hazardous substances in soil and groundwater at the Site.

1.2 SCOPE OF WORK

This HASP was prepared for the use of Farallon personnel while performing the following tasks at the Site in accordance with *Sampling and Analysis Work Plan, Woodworth Lakeview Facility, Lakewood, Washington* dated September 25, 2017, prepared by Farallon:

- Collection of soil samples from Areas of Concern 1, 2, and 3 for laboratory analysis for total petroleum hydrocarbons and potentially for carcinogenic polycyclic aromatic hydrocarbons and polychlorinated biphenyls;
- Collection of soil samples from accessible areas proximate to the existing remediation system compound and the location of the former Washington State Department of Transportation testing laboratory for laboratory analysis for VOCs; and
- Groundwater monitoring and the collection of groundwater samples from existing monitoring wells and the industrial water supply well at the Site for laboratory analysis for VOCs, total petroleum hydrocarbons, and geochemical and monitored natural attenuation parameters. Two groundwater samples with the highest concentrations of trichloroethene will also be analyzed for 1,4-dioxane.

1.3 SITE-SPECIFIC SAFETY CONCERNS

This phase of the project involves soil and groundwater sampling. Specific hazards that the field employee(s) will encounter on this project include, but are not limited to:

- Working around heavy equipment;
- Working with hand tools and small mechanical equipment;
- Pedestrian traffic;
- Truck traffic;
- Pinch points;
- Work exclusion zone safety;
- Slips, trips, and falls;
- Loud noise;
- Chemical exposure related to contaminated soil, groundwater, and windblown dust; and
- Environmental hazards, including exposure to sun, heat, and cold.

2.0 DRUG AND ALCOHOL POLICY

It is Farallon's policy to maintain a drug-free workplace. Farallon has a responsibility to all of its staff members to provide a safe and inoffensive work environment, and a responsibility to its clients to provide accurate and consistent service. For these reasons, Farallon prohibits the following behavior by staff members in the field:

- Use of tobacco in any form by any person at any time in sensitive or hazardous areas that may pose a health and safety or environmental risk. The Site Health and Safety Officer (SHSO) may designate an area away from hazards that is safe for tobacco use.
- Possession or consumption of alcohol and/or marijuana, or being under the influence of alcohol and/or marijuana during field activities.
- Abuse of prescription and/or over-the-counter drugs in such a manner as to negatively impact performance or field safety.
- Possession, use, sale, or being under the influence of illicit drugs while in the field or during any work hours.

Violation of any of the above codes of conduct is grounds for immediate removal from the project and discipline in accordance with Farallon company policy. If an incident occurs as a result of an employee's actions, drug and alcohol testing will be performed in accordance with Farallon company policy.

3.0 WEAPONS POLICY

Farallon employees, contractors, subcontractors, and their employees working at the Lakeview Facility are to ensure that they do not bring weapons onto the work site. Weapons include but are not limited to guns, knives, and explosives. Tools that are used during the course of field events, including but not limited to box knives, are exempt from this weapons policy. All vehicles and persons can be subjected to search while working at the property.

Failure to comply with the weapons policy can result in disciplinary action for the individual(s) involved in accordance with Farallon company policy.

4.0 INCIDENT PREPAREDNESS AND RESPONSE

Farallon employees and subcontractors working at the Lakeview Facility must be prepared to respond appropriately to an incident involving injury, illness, death, spills, or utility breaches. This section outlines the degree of preparedness required for employees at a work site, and describes the actions to be taken in the event of a health and safety incident.

4.1 HEALTH AND SAFETY PREPAREDNESS

All individuals working at the Lakeview Facility are required to be familiar with the contents of this HASP. Additionally, the items on the following health and safety preparedness list should be reviewed prior to the commencement of work and during daily health and safety meetings:

- The directions to the hospital (provided in Attachment 2);
- The locations of first aid kits, personal eye washes, and fire extinguishers (located in Farallon field vehicles);
- The locations of the keys to Farallon vehicles at the Lakeview Facility; and
- Hand sign language providing for the immediate stoppage of work (such as a horizontal hand movement in front of the neck).

Additional topics for daily health and safety meetings are included in Attachment 3, Potential Topics for Daily Health and Safety Meeting. Participation in daily health and safety meetings should be documented in Attachment 4, Daily Health and Safety Briefing Log.

4.2 INJURY OR ILLNESS

If an injury or illness occurs, the following actions should be taken, regardless of the severity of the injury or illness:

- Stop work.
- Determine whether emergency response staff (e.g., fire, ambulance) are necessary. If so, dial 911 on a cell phone or the closest available telephone. Describe the location of the injured person and provide other details as requested. If an individual requires non-emergency medical care at a hospital, follow the directions to the nearest hospital, which are provided in Attachment 2. IF EMERGENCY MEDICAL CARE IS NEEDED, CALL 911.
- Administer first aid to the individual immediately, using the first aid kit provided in the Site vehicle. Use the bloodborne pathogens kit and personal eyewash, as needed.
- Notify the SHSO immediately. The SHSO is responsible for preparing and submitting an Incident Report form to Farallon's Health and Safety Coordinator (HSC) within 24 hours of the incident, and for notifying the employee's supervisor and the Principal-in-Charge. The Incident Report form is provided in Attachment 5.

- ***All incidents must be reported to the HSC within 24 hours; however, the actual investigation need not be completed within 24 hours***. **A telephone message that includes the date, time, and general incident circumstances should be left at one of the following numbers if the HSC cannot be reached directly**:
  - HSC work phone: (425) 295-0800
  - HSC cell phone: (206) 484-2748
  - If the HSC cannot be located, contact the Principal-in-Charge
- The SHSO will assume responsibility during a medical emergency until emergency response personnel arrive at the Site.

4.3 REPORTING PROCEDURES FOR MINOR CUTS, SCRATCHES, BRUISES, ETC.

Every occupational illness or injury is to be reported immediately by the employee to the SHSO. The SHSO is to complete the Incident Report form provided in Attachment 5, and report the incident to the HSC.

4.4 NEAR MISSES

A near miss is defined as an incident in which no personal injury is sustained and no property damage is incurred, but in which injury and/or property damage could have occurred under slightly different timing or location.

In the event of a near miss, the following actions are to be taken:

- Stop work if there is immediate danger of injury or property damage;
- Report the near miss to the SHSO as soon as practicable;
- Resume work upon satisfactory resolution of the near-miss condition, if work was stopped, and document the corrective action(s) taken by the SHSO; and
- Complete and submit the Near Miss Report form in Attachment 6 to the HSC within 2 business days.

4.5 MEDICAL INCIDENTS NOT REQUIRING AMBULANCE SERVICE

Medical incidents not requiring ambulance services include injuries and conditions such as minor lacerations and sprains. In the event of an injury, an illness, or a condition that does not require ambulance service, the following actions are to be taken:

- Stop work.
- Administer first aid as necessary to stabilize the individual for transport to the hospital.

- The SHSO is to facilitate prompt transportation of the individual to the hospital. Directions to the nearest hospital are provided in Attachment 2.
- A representative of Farallon or the subcontractor is to drive the individual to the medical facility and remain at the facility until the individual is able to return to the work site, or arrangements for further care have been established.
- If the driver is not familiar with the route to the hospital, a second person who is familiar with the route is to accompany the driver and the injured employee to the hospital.
- If it is necessary for the SHSO to accompany the injured employee to a medical facility, provisions must be made for another employee who is trained and certified in first aid to act as the temporary SHSO before work at the work site can resume.
- If the injured employee is able to return to the work site the same day, he/she is to bring a statement from the doctor that provides the following information:
  - Date of incident
  - Employee's name
  - Diagnosis
  - Date he/she is able to return to work, and whether regular or light duty
  - Date he/she is to return to the doctor for a follow-up appointment, if necessary
  - Signature and address of doctor
- The SHSO is to complete the Incident Report form provided in Attachment 5, and report the incident to the HSC.
- If the injured employee is unable to return to the work site the same day, the employee who transported him/her should bring the statement from the doctor back to the work site. The information on this statement should be reported to the HSC immediately.

4.6 EMERGENCY CASES REQUIRING AMBULANCE SERVICE

In the event of an injury or illness that requires emergency response and transport to a hospital by ambulance the following actions should be taken:

- **Dial 911** to request ambulance service;
- Notify the SHSO;
- Administer first aid until the ambulance service arrives;
- One designated company representative should accompany the injured employee to the medical facility and remain there until final diagnosis, treatment plan, and other relevant information has been obtained; and

- The SHSO is to complete the Incident Report form provided in Attachment 5, and report the incident to the HSC immediately.

4.7 EMPLOYEE DEATH, OR HOSPITALIZATION OF ONE OR MORE EMPLOYEES

The procedures outlined in Section 6.2 should be followed in the event of an employee injury or illness. If an employee fatality occurs, the HSC, local emergency personnel, and the coroner must be notified **immediately**. **The HSC will initiate the required State of Washington Department of Labor and Industries and Occupational Safety and Health Administration (OSHA) notifications within 8 hours of a fatality or the hospitalization of one or more employees.**

4.8 RESPONSE TO SPILLS OR UTILITY BREACHES

The location of underground utilities (e.g., product, sewer, telephone, fiber optic) and facilities (e.g., underground storage tanks, septic tanks, utility vaults) is to be noted prior to commencement of intrusive subsurface work activities. Use the public and private locate services as required and complete the Utility Clearance Log (Attachment 7). If a utility line or tank is breached or a spill or release occurs, the event is to be documented on the Incident Report form provided in Attachment 5 as soon as possible. The date, time, name of the person(s) involved, actions taken, and discussions with other affected parties are to be included. The SHSO, Project Manager (PM), and client are to be notified immediately. The PM is to notify the regulatory authority and/or utility company, as necessary.

In the event of a spill or release, the following actions should be taken:

- Stay upwind of the spill or release.
- Don appropriate personal protective equipment (PPE).
- Turn off equipment and other sources of ignition.
- Turn off pumps and shut valves to stop the flow or leak.
- Plug the leak or collect drippings, if possible.
- Use sorbent pads to collect the product and impede its flow, if possible.
- Dial 911 or telephone the local fire department immediately if a fire or another emergency situation develops.
- Inform the Farallon PM of the situation.
- Determine whether the client would like Farallon to repair the damage or would rather use an emergency repair contractor.

- Advise the client of spill discharge notification requirements, and establish who will complete and submit the required forms. ***Do not report or submit information to an agency without the client's consent.*** Document each interaction with the client and regulators, and note in writing names, titles, authorizations, refusals, decisions, and commitments to any action.
- Do not transport or approve transportation of contaminated soils or product until proper manifests have been completed and approved. Be aware that soil and/or product may meet criteria for hazardous waste.
- Do not sign manifests as a generator of wastes. Contact the PM to discuss waste transportation.

4.9 NOTIFICATIONS

A spill or release requires completion of an Incident Report form (provided in Attachment 5) per Farallon's Health and Safety program. **The PM must involve the client and/or generator in the incident reporting process. The client and/or generator is under obligation to report the incident to the appropriate government agency(ies). If the spill extends into waterways, the Coast Guard and the National Response Center must be notified immediately by the client or with client permission (1-800-424-8802).**

4.10 SHUTOFF VALVES AND/OR SWITCHES FOR UTILITIES AND PRODUCTS

Before starting work, locate, discuss, and list on the Daily Health and Safety Briefing Log the locations of utility and product line shutoff valves and switches on the work site. Review the location of shutoff valves and switches with other field personnel before beginning work.

5.0 EMERGENCY RESPONSE AND EVACUATION PLAN

Farallon personnel and subcontractors working at the Lakeview Facility are to be aware of Site-specific emergency and evacuation procedures, including alarm systems and evacuation plans and routes. If an incident occurs that requires emergency response, such as a fire or spill, **CALL 911 and request assistance**. Farallon staff, subcontractors, and/or others working in an area where an emergency occurs are to evacuate to a safe location away from the incident area, preferably upwind, and take attendance.

For this project, the emergency evacuation gathering location is the southern entrance gate on 104th Street Court South.

If the emergency causes the route to be obstructed, Farallon personnel and subcontractors are to move to an open area upwind of the hazard area, and remain there until instructed by emergency response personnel (e.g., police, fire, ambulance personnel, paramedics) to do otherwise.

Subcontractors have the responsibility to account for their own employees and provide requested information to emergency response personnel immediately upon request. Farallon staff, subcontractors, and/or contractors may not reenter the scene of the emergency without specific approval from emergency response personnel.

6.0 LOCAL EMERGENCY CONTACT NAMES AND TELEPHONE NUMBERS

Local emergency response personnel can be contacted at the following numbers. Directions and a map to the hospital are included in Attachment 2.

Emergency Contact	Name and Location	Telephone No.
Hospital	St. Clare Hospital 11315 Bridgeport Way Southwest Tacoma, Washington	(253) 588-1711
Police	Lakewood Police Department 9401 Lakewood Drive Southwest Lakewood, Washington	**911** or (253) 830-5000
Fire	Lakewood Fire Department District 2 10928 Pacific Highway Southwest Tacoma, Washington	**911** or (253) 564-1623
National Response Center		**1-800-424-8802**
Washington State Department of Ecology		**(360) 407-6300**
Poison Control		**1-800-424-5555**

7.0 PROJECT PERSONNEL AND RELEVANT INFORMATION

The following section provides contact information for the project and the HSC and client-specific health and safety requirements. Farallon field personnel training and medical surveillance dates are included in Attachment 8.

7.1 PROJECT PERSONNEL CONTACT INFORMATION

Questions about this project that are posed by neighbors, the press, or other interested parties should be directed to the Principal-in-Charge at Farallon: (425) 295-0802.

PERSONNEL TITLE PERSONNEL NAME PERSONNEL CONTACT INFORMATION	GENERAL PROJECT RESPONSIBILITIES
Health and Safety Coordinator Joseph Rounds Office: (425) 295-0843 Cell: (206) 484-2748	Provide support in implementing HASP. Provide immediate support upon notice of any incident.
Principal-in-Charge Peter Jewett Office: (425) 295-0802 Cell: (425) 765-3366	Provide immediate support upon notice of any incident.
Project Manager Brani Jurista Office: (425) 295-0800 Cell: (425) 691-7570	Provide immediate support upon notice of any incident.
Client Contact Jeff Woodworth Office: (253) 759-0165	Provide known analytical data from work performed by others. Provide notice of Site hazards. Provide access to Site. Provide information regarding available emergency supplies at the Site.

8.0 POTENTIAL CHEMICAL EXPOSURE

Farallon employees working at the Lakeview Facility may become exposed to the chemicals listed in the table below. These chemicals are present either due to current activities at the Lakeview Facility or due to the presence of contamination. This table should be reviewed prior to the start of work and questions directed to the SHSO. Air monitoring may be required at the Lakeview Facility based on the scope of work for the project. The Farallon Project Manager and SHSO will let the Farallon Field Scientists know if air monitoring will be required for the scope of work.

The air monitoring table and forms are included in Attachment 9

POTENTIALCHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTIONS						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
1,2-Dichloroethene (dichloroethylene)	PEL - TWA 200 ppm TLV - TWA 200 ppm	IDLH - 1000 ppm	Solvent odor.	Inhalation; skin absorption; ingestion; eye contact.	Typical solvent symptoms.	Liver, kidney, CNS symptoms.
1,1-Dichloroethene (vinylidene chloride)	No PEL TLV – 5 ppm	NIOSH considers this compound to be a carcinogen.	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, skin, throat; dizziness; headache; nausea; dyspnea (breathing difficulty).	Liver, kidney dysfunction; pneumonitis; potential occupational liver and kidney carcinogen. **Target Organs:** Eyes, skin, respiratory system, CNS, liver, kidneys.

POTENTIALCHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTIONS						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
Tetrachloroethene (perchloroethylene)	PEL - 100 ppm TLV - 25 ppm	PEL Ceiling - 200 ppm TLV STEL - 100 ppm IDLH - 150 ppm NIOSH considers this compound to be a carcinogen.	Colorless liquid with a mild, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, skin, nose, throat, respiratory system; nausea; flushed face, neck; vertigo (an illusion of movement); dizziness; lack of coordination; headache; skin erythema (redness).	Somnolence (sleepiness, unnatural drowsiness); liver damage; potential occupational liver carcinogen. **Target Organs:** Eyes, skin, respiratory system, liver, kidneys, CNS.
Lead	PEL - 0.05 mg/m^3 TLV - 0.05 mg/m^3	IDLH - 100 mg/m^3	A heavy, flexible, soft, gray solid.	Inhalation; dermal; ingestion; eye contact.	Lassitude (weakness, exhaustion); abdominal pain; gingival lead line; tremor; irritation to eyes; hypotension.	Insomnia; facial pallor; anorexia; weight loss; malnutrition; constipation; colic; anemia; paralysis: wrist, ankles; encephalopathy; kidney disease; potential for damage to eyes, gastrointestinal tract, CNS, kidneys, blood, gingival tissue.
Vinyl chloride	PEL - 1 ppm TLV - 1 ppm	NIOSH considers this material to be a carcinogen.	Liquid with a pleasant odor at high concentrations.	Inhalation; dermal; eye contact.	Weakness; abdominal pain; pallor or cyanosis of extremities; liquid frostbite.	Gastrointestinal bleeding; enlarged liver; potential occupational liver carcinogen; damage to CNS, blood, respiratory system, lymphatic system.
Arsenic	PEL – 0.010 mg/m^3 TLV – 0.010 mg/m^3	IDLH – 5 mg/m^3	Metal, silver-gray or tin-white, brittle, odorless solid.	Inhalation; dermal; eye contact; ingestion.	Ulceration of nasal septum; dermatitis; gastrointestinal disturbances; peripheral neuropathy; respiratory irritation; hyperpigmentation of skin.	Liver; kidneys; skin; lungs; lymphatic system.

POTENTIALCHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTIONS						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
Trichloroethene (trichloroethylene)	PEL - 100 ppm TLV - 50 ppm	PEL Ceiling - 200 ppm NIOSH considers trichloroethylene to be a carcinogen.	Colorless liquid (unless dyed blue) with a chloroform-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin; headache; vertigo (an illusion of movement); visual disturbance; fatigue; giddiness; tremor; somnolence (sleepiness, unnatural drowsiness); nausea; vomiting; dermatitis.	Cardiac arrhythmias; paresthesia; liver injury; potential occupational carcinogen of liver, kidney.

NOTES:
°F = degrees Fahrenheit
ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
AIHA WEEL = AIHA-set workplace environmental exposure limits
C = ceiling limit
CNS = central nervous system
CVS = cardiovascular system
IDLH = immediately dangerous to life or health
mg/m3 = milligrams per cubic meter
NIOSH = National Institute for Occupation Safety and Health
OSHA = Occupation Safety and Health Administration
PEL = permissible exposure limit
ppm = parts per million
RBC = red blood cells
REL = recommended exposure limit set by NIOSH
Skin = skin absorption
STEL = short-term exposure limit
TLV = threshold limit value set by ACGIH
TWA = time-weighted average

9.0 POTENTIAL SITE HAZARDS AND APPROPRIATE PRECAUTIONS

Activities listed may be associated with work performed by others. The information contained in this section is for the use of Farallon personnel and not intended for use by others. The following tables list potential hazards and appropriate precautions associated with planned field work.

The following are a few basic guidelines to remember while performing field work at the Lakeview Facility:

- No eating, drinking, or smoking at the Lakeview Facility;
- No wearing contact lenses at the Lakeview Facility;
- No facial hair that will interfere with proper respirator fit when respirators are required; and
- A safety meeting will be held every day, even if only one person is working on the project on a given day.

9.1 ENVIRONMENTAL DRILLING

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Clear drilling locations.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Traffic hazards. Overhead or underground installations. Product releases. Property damage. Occupant inconvenience.	• Refer to Utility Clearance Log (**Attachment 7**). • Coordinate with Site Manger (or designee) to minimize potential conflicts. • Review proposed locations against available construction drawings and known utilities, tanks, product lines, etc. • Mark out the proposed borehole locations. • Call underground utility locating service for public line location clearance and obtain a list of utilities being contacted. If necessary, coordinate private line locator for private property. • Develop a traffic control plan with the client and local agencies, as applicable, which may include use of cones, barrier tape, jersey barriers, etc.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Mobilize with equipment/supplies suitable for drilling.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Vehicle accident. Lifting hazards. Delay or improper performance of work due to improper equipment on Site.	• Begin each work day with tailgate safety meeting. • Follow safe driving procedures. • Employ safe lifting procedures. • Verify that subcontractors are aware of their responsibilities for labor, equipment, and supplies. • Review permit conditions.
Visually clear proposed drilling locations.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Underground or overhead installations.	• Complete Utilities and Structures checklist on the Utility Clearance Log (provided in **Attachment 7**) and adjust drilling locations as necessary.
Set up necessary traffic control.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Struck by vehicle during placement. Vehicle accident resulting from improper placement of traffic control equipment.	• Use buddy system for implementing traffic control plan, such as setting out cones and tape to define the safety area.
Assist with setup of rig.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Vehicle accident during rig movement. Damage caused by rig while accessing set-up location. Contact with overhead installations. Soft terrain. Unexpected rig movement.	• All staff should know the location of the kill switch for the drilling rig. • Verify a clear pathway to the drilling location and clearance for raising mast. • Provide hand signals and guidance to the driver, as needed, to place rig. • Visually inspect rig (e.g., fire extinguisher on board, no oil or other fluid leaks, cabling and associated equipment in good condition, pressurized hoses secured with whip-checks or adequate substitute, jacks in good condition). • Use wooden blocks under jacks to spread load, if necessary. Chock wheels.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Set up exclusion zone(s) and work stations (drilling and logging and/or sample collection).	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Struck by vehicle during setup. Slip or fall hazards.	• Implement exclusion zone setup. Set up work stations with clear walking paths to and from rig. Use safety tape and cone(s).
Clear upper 5 feet of drilling location using post-hole digger or hand auger.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, and work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, and chemical-resistant apron as required.	Back strain. Exposure to chemical hazards. Hitting an underground utility. Repetitive motion.	• Keep full-face respirator with organic vapor cartridges readily accessible. • Initiate air quality monitoring in accordance with the air monitoring protocol presented in **Attachment 9**. • Stand upwind to avoid exposure when possible. • Use the organic vapor monitor aggressively to track the airborne concentration of contaminants close to potential sources such as the core when it is raised from the hole, the core when opened, etc. • Evaluate any soil samples inside a resealable plastic bag at arm's length. DO NOT EVALUATE THE SAMPLE IN THE OPEN, IN ORDER TO AVOID UNNECESSARY EXPOSURE. • Use correct lifting techniques and tools. • Complete the Pre-Drilling section of the Borehole Clearance Review form.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Drilling.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Heat or cold. Eye injury. Noise. Exposure to chemical hazards. Breaching an underground utility. Trip or fall. Equipment failure.	• Stand clear of operating equipment. • Use correct lifting techniques. • Monitor air quality in accordance with the air monitoring protocol presented in **Attachment 9**. • Monitor drilling progress. • Keep work area clear of tripping or slipping hazards. • Perform periodic visual inspections of drill rig.
Collect samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Heat or cold. Eye injury. Noise. Exposure to chemical hazards. Breaching an underground utility. Trip or fall. Equipment failure.	• Stand clear of operating equipment. • Use correct lifting techniques. • Monitor air quality in accordance with the air monitoring protocol presented in **Attachment 9**. • Monitor drilling progress. • Keep work area clear of tripping or slipping hazards. • Perform periodic visual inspections of drill rig.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Manage cuttings.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Heat or cold. Eye injury. Noise. Exposure to chemical hazards. Breaching an underground utility. Trip or fall. Equipment failure.	• Stand clear of operating equipment. • Use correct lifting techniques. • Monitor air quality in accordance with the air monitoring protocol presented in **Attachment 9**. • Monitor drilling progress. • Keep work area clear of tripping or slipping hazards. • Perform periodic visual inspections of drill rig.
Backfill borehole.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Trip hazards. Eye injury from splashing or release of pressurized grout.	• Mix grout to specification and completely fill the hole. • Use proper lifting techniques. • Keep work area clear of tripping hazards. • Verify presence of and/or authorization by required grouting inspectors.
Develop well.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Physical injury from mechanical failure, drill rig, or air compressor. Trip hazards. Exposure to contaminants. Electric shock.	• Verify that equipment is in good working order and that pressurized hoses are whip-checked. • Keep full-face respirator with organic cartridges readily accessible. • Keep work area orderly. • Any generators must be equipped with a ground fault circuit interrupter (GFCI).

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Gauge water levels and product thickness in wells, where applicable.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Inhalation or dermal exposure to chemical hazards. Repetitive motion.	• Have full-face respirator with organic cartridges readily accessible. • Conduct air quality monitoring in accordance with the protocol presented in **Attachment 9.** • Maintain a safe distance from the well head. • Bend at knees rather than at the waist.
Purge well(s) and collect purge water.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Inhalation or dermal exposure to chemical hazards. Slip or fall. Contaminated water spill.	• Use proper lifting techniques. • Use PPE, and adhere to air monitoring guidelines as presented in **Attachment 9**. • Keep work area clear of tripping or slipping hazards. • Store purge water in appropriate containers.
Collect groundwater samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cross-contamination. Back strain. Inhalation or dermal exposure to chemical hazards. Slip or fall. Improper labeling or storage of samples. Injury from broken sample bottle (cuts or acid burns).	• Decontaminate sampling equipment between each well (unless disposable). • Use proper lifting techniques. • Have full-face respirator with organic cartridges within 3 to 5 feet of working location, and readily accessible. • Label samples in accordance with sampling plan. • Keep samples stored in appropriate containers, at correct temperature, and away from work area. • Handle bottles carefully.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Dispose of or store any purge water on the Site.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Exposure to contaminants.	• Use suitable equipment to transport water (e.g., pumps, drum dollies). • Have full-face respirator with organic cartridges within 3 to 5 feet of working location, and readily accessible. • Label storage containers properly, and locate in an isolated area away from traffic and other Site functions. • Coordinate off-Site disposal (where applicable).
Clean the Site; demobilize.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Traffic. Lifting hazards.	• Use buddy system to remove traffic control, as necessary. • Leave the Site clear of refuse and debris. • Clearly mark or barricade any borings that need topping off or curing at a later time. • Notify Site personnel of departure, final well locations, and any cuttings and/or purge water left on the Site. • Use proper lifting techniques.
Package and deliver samples to laboratory.		Back strain. Traffic accidents.	• Handle and pack bottles carefully (e.g., bubble wrap bags). • Use proper lifting techniques. • Apply safe driving practices.
Typical work.	Steel-toed and -shank shoes, hard hat, safety glasses with side shields, hearing protection, reflective safety vest, leather gloves for non-chemical aspects of work. Chemical-resistant gloves and apron if chemical exposure is suspected.	Weather-related incidents: automobile accidents, slips or falls.	• Check weather reports daily. Project visits are not to be performed during inclement weather. Sampling may be performed during light rain mist. Wear raincoats. • Drive at speed limit or less, as needed, to keep a safe distance from vehicle in front. Avoid short stops.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Typical work.		Cold stress.	• For temperatures below 40°F, adequate insulating clothing must be worn. If the temperature is below 20°F, workers will be allowed to enter a heated shelter at regular intervals. Warm, sweet drinks should be available. Coffee intake should be limited. • No one should begin work or return to work from a heated shelter with wet clothes. • Workers should be aware of signs of cold stress, such as heavy shivering, pain in fingers or toes, drowsiness, or irritability. Onset of any of these signs is an indication that immediate return to a heated shelter is needed. • Refer to ACGIH TLV Booklet for the section on Cold Stress.
Typical work.		Heat stress.	• Discuss health effects and symptoms during daily health and safety meetings. • Drink water regularly (at least one cup every 20 to 30 minutes, depending upon level of effort and the PPE worn). • Refer to ACGIH TLV booklet for heat stress guidance, especially regarding PPE, type of work, and frequency of breaks. • Breaks should be taken in an area cooler than the work area. • Monitor temperature and relative humidity using a wetbulb globe temperature (WBGT) meter.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
A safety meeting will be held every day, even if only one person is working on the project on a given day.			• Topics are to always include the work scheduled for the day and restatement of hazards and the means to avoid them. Other topics may include sampling in general, and advances in technology and how they may be applied to the project. • Use the *Daily Health and Safety Briefing Log* in **Attachment 4** to log the topics discussed.

9.2 MONITORING WELL SAMPLING/GAUGING

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Mobilize with equipment/supplies suitable for sampling.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves.	Vehicle accident. Lifting hazards. Delay or unsafe performance of work due to lack of necessary equipment on Site. Cross-contamination of wells.	• Follow safe driving procedures. • Use proper lifting techniques. • Review work plan to determine equipment/supply needs. • Verify that all sampling/gauging equipment has been decontaminated. • Bring ice for sample storage. • Review the HASP. • Gather the necessary PPE.
Set up necessary traffic control.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves.	Struck by vehicle during placement. Vehicle accident as a result of improper traffic-control equipment placement.	• Use buddy system for placing traffic control. Refer to the traffic control plan section of the HASP (which may include specific requirements based on encroachment permit).

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Set up exclusion zone(s).	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves.	Struck by vehicle. Slip or fall hazards to workers.	• Face incoming traffic. • Implement exclusion zone setup instructions of the HASP (e.g., barricades, caution tape, cones). • Set up work area free of trip hazards.
Gauge water levels and product thickness (where applicable) in wells.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Inhalation of, or dermal exposure to, chemical hazards. Repetitive motion.	• Wear required PPE. • Initiate air quality monitoring in accordance with the HASP. • Maintain a safe distance from wellhead. • Bend at knees rather than at waist.
Purge well(s) and collect purge water.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cross-contamination. Back strain. Inhalation of, or dermal exposure to, chemical hazards. Slip or fall. Contaminated water spill.	• Decontaminate purging equipment between each sampling location. • Use proper lifting techniques. • Use PPE and conduct monitoring in accordance with the HASP. • Keep work area clear of tripping or slipping hazards. • Store purge water in appropriate containers.
Collect samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cross-contamination. Back strain. Inhalation of, or dermal exposure to, chemical hazards. Slip or fall. Improper labeling or storage. Injury from broken sample bottle (e.g., cut or acid burn).	• Decontaminate sampling equipment between each well (unless disposable equipment). • Use proper lifting techniques. • Use PPE in accordance with the HASP. • Label samples in accordance with sampling plan. • Keep samples stored in suitable containers, at correct temperature, and away from work area. • Handle bottles carefully.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Dispose of or store purge water on the Site.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Exposure to contaminants. Damage or injury from improper use of on-Site treatment system equipment. Improper storage or disposal.	• Use suitable equipment to transport water (e.g., pumps, drum dollies). • Wear PPE in accordance with the HASP. • Review any necessary instructions for use of on-Site treatment systems. • Label storage containers properly and locate in an isolated area away from traffic and other Site functions. • Coordinate off-Site disposal, where applicable.
Clean the Site; demobilize.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or ear muffs, work gloves.	Traffic. Safety hazard left on the Site. Lifting hazard.	• Use buddy system to remove traffic control, as necessary. • Leave the Site clear of refuse and debris. • Notify business personnel of departure, and of any purge water left on the Site. • Use proper lifting techniques.
Package and deliver samples to laboratory.		Bottle breakage. Back strain.	• Handle and pack bottles carefully (e.g., bubble wrap bags). • Use proper lifting techniques.

10.0 WASTE CHARACTERISTICS

Waste anticipated to be generated on the Site:

Type(s): ☒ Liquid ☒ Solid ☐ Sludge ☐ Other (fill-in)_____

The approximate volume for each anticipated waste stream:

Waste: Soil cuttings from well installation Approximate Volume: One 55-gallon drum

Waste: Groundwater from well development Approximate Volume: Two 55-gallon drums

Characteristics:

☐ Corrosive ☐ Flammable/Ignitable ☐ Radioactive ☒ Toxic

☐ Reactive ☐ Unknown ☐ Other *(specify)*_____

11.0 TRAFFIC CONTROL

Work on the Site will be conducted in areas of uncontrolled traffic access. Traffic control/warning devices will be placed around the work area to prevent undesirable interface between pedestrian and automotive traffic and project workers and equipment. These devices may include:

- Cones;
- Tubular markers;
- Barricades;
- Temporary fencing; and
- Barricade tape.

The traffic control/warning devices will be placed around the work in such a way that traffic access is inhibited (i.e., place cones less than 8 feet apart so cars cannot easily drive through work area without moving a cone). Barricade tape or temporary fencing will be used to inhibit access to the work area in locations where pedestrians will be encountered.

ATTACHMENT 1
HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT AND AGREEMENT FORM

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM

(All Farallon and subcontractor personnel must sign on a daily basis.)

This Health and Safety Plan (HASP) has been developed for the purpose of informing Farallon employees of the hazards they are likely to encounter on the project site, and the precautions they should take to avoid those hazards. Subcontractors and other parties at the site must develop their own HASP to address the hazards faced by their own employees. Farallon will make a copy of this HASP available to subcontractors and other interested parties to fully disclose hazards we may be aware of, and to satisfy Farallon's responsibilities under the Occupational Safety and Health Administration (OSHA) Hazard Communication standard. Similarly, subcontractors and others on site are required to inform Farallon of any hazards they are aware of or that their work on site might possibly pose to Farallon employees, including but not limited to Material Safety Data Sheets for chemicals brought on site. This plan should NOT be understood by contractors to provide information pertaining to all of the hazards that a contractor's employees may be exposed to as a result of their work.

All parties conducting site activities are required to coordinate their activities and practices with the project Site Health and Safety Officer (SHSO). Your signature below affirms that you have read and understand the hazards discussed in this HASP, and that you understand that subcontractors and other parties working on site must develop their own HASP for their employees. Your signature also affirms that you understand that you could be prohibited by the SHSO or other Farallon personnel from working on this project for not complying with any aspect of this HASP. The SHSO will be noted on the sheet below on a daily basis.

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM					
Check for SHSO	**Name**	**Title**	**Signature**	**Company**	**Date**

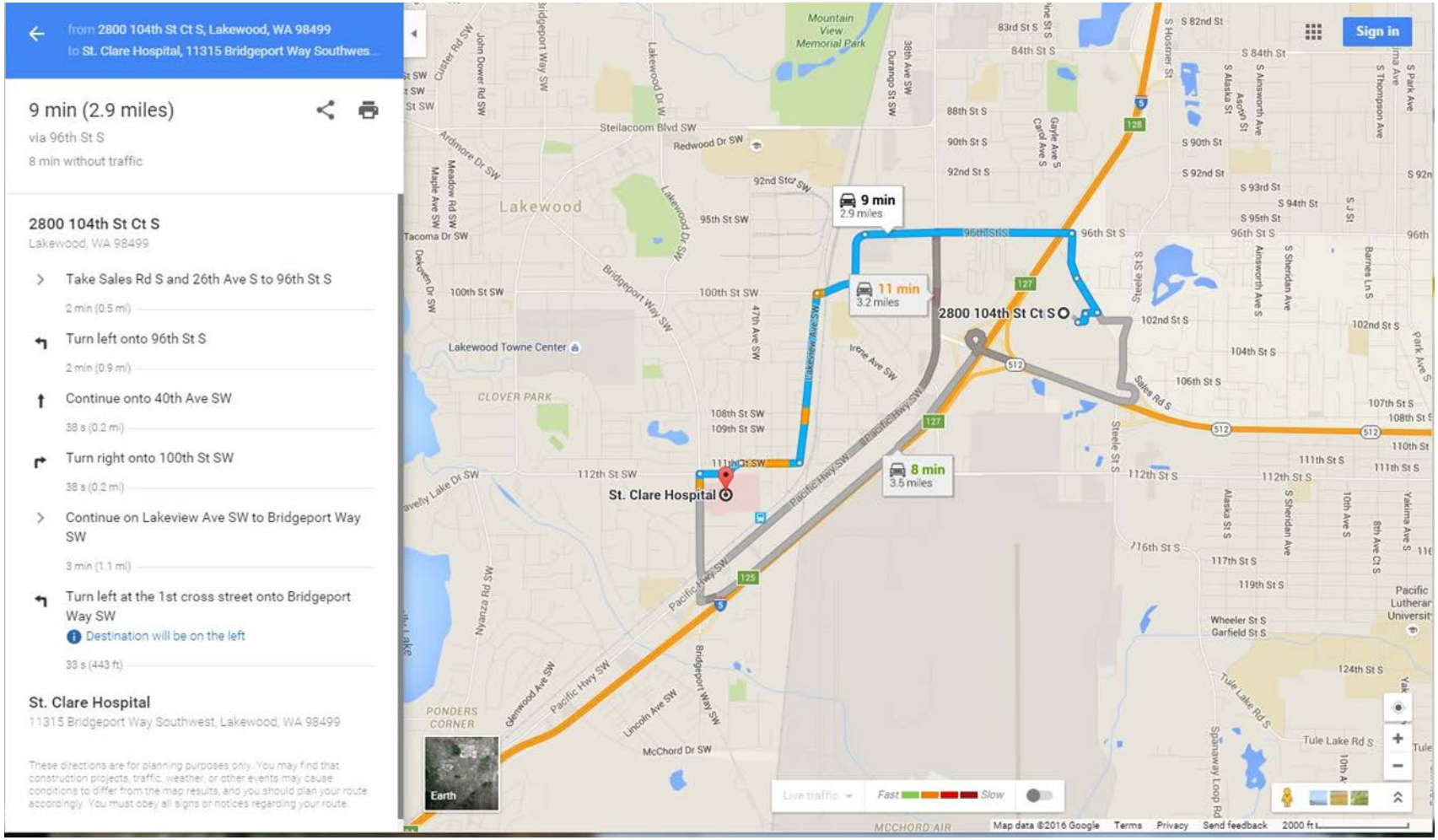
HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM					
Check for SHSO	**Name**	**Title**	**Signature**	**Company**	**Date**

ATTACHMENT 2
DIRECTIONS TO HOSPITAL

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

DIRECTIONS TO HOSPITAL



ATTACHMENT 3
POTENTIAL TOPICS FOR DAILY HEALTH AND SAFETY MEETING

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

POTENTIAL TOPICS FOR DAILY HEALTH AND SAFETY MEETING

- ☐ Emergency response plan, emergency vehicle (full of fuel) and muster point
- ☐ Route to medical aid (hospital or other facility)
- ☐ Work hours. Is night work planned?
- ☐ Hand signals around heavy equipment
- ☐ Traffic control
- ☐ Pertinent legislation and regulations
- ☐ Above- and below-ground utilities (energized or de-energized)
- ☐ Material Safety Data Sheets
- ☐ Reporting an incident: to whom, what, why, and when to report
- ☐ Fire extinguisher and first aid kit locations
- ☐ Excavations, trenching, sloping, and shoring
- ☐ Personal protective equipment and training
- ☐ Safety equipment and training
- ☐ Emergency telephone location(s) and telephone numbers (in addition to 911)
- ☐ Eye wash stations and washroom locations
- ☐ Energy lock-out/tag-out procedures. Location of “kill switches,” etc.
- ☐ Weather restrictions
- ☐ Site security. Site hazards. Is special waste present?
- ☐ Traffic and people movement
- ☐ Working around machinery (both static and mobile)
- ☐ Sources of ignition, static electricity, etc.
- ☐ Stings, bites, large animals, and other nature-related injuries and conditions
- ☐ Working above grade
- ☐ Working at isolated sites
- ☐ Decontamination procedures (for both personnel and equipment)
- ☐ How to prevent falls, trips, sprains, and lifting injuries
- ☐ Right to refuse unsafe work
- ☐ Adjacent property issues (e.g., residence, business, school, daycare center)

ATTACHMENT 4
DAILY HEALTH AND SAFETY BRIEFING LOG

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

DAILY HEALTH AND SAFETY BRIEFING LOG

PROJECT INFORMATION	
Farallon PN:	Project Name:
Site Address:	City/State:
MEETING INFORMATION	
Conducted By:	Weather:
Major Job Task:	Date:

DAILY EQUIPMENT CHECKLIST

☐ Site Check In	☐ First Aid Kit Location(s)	☐ Ear Plugs (if required)
☐ Proper ID/Safety Credentials	☐ Fire Extinguisher Location(s)	☐ Hand Protection (if required)
☐ Hard Hat	☐ Eye Wash Station	☐ Face Shield (if required)
☐ Safety Glasses	☐ Traffic Control (if needed)	☐ Respirator (if required)
☐ Orange Reflective Vest (H or X back BNSF)		☐ _____
☐ Safety Toe Boots (lace up and leather BNSF)		☐ _____

HEALTH AND SAFETY BRIEFING

☐ Head Count (No. of employees:)	☐ Chemical/Contaminant Hazards
☐ Emergency Response	☐ Health Hazards
☐ Who will...? (Provide names below.)	☐ Environmental Hazards
Call 911:	☐ Physical Hazards
Alternate to call 911:	☐ Slips, Trips, and Falls
Provide First Aid/CPR:	☐ Utility Locates
☐ Emergency Exits/Rally Points/Hospital Route	☐ Utility/Product Shut-Off Valves/Switches
☐ Site Security and Exclusion Zone	☐ Near Miss Reporting (reminder to look)
☐ Vehicle/Equipment-Specific Safety Practices	☐ Incident Reporting (procedures and forms)
☐ Stop Work Authority	☐ Traffic Control
☐ Excavation Safety (if applicable)	☐ HASP Reviewed and Signed

OTHER SITE-SPECIFIC HEALTH AND SAFETY ISSUES DISCUSSED

1)
2)
3)
4)
5)

DAILY HEALTH AND SAFETY BRIEFING ATTENDEES

NAME	COMPANY	SIGNATURE

ATTACHMENT 5
INCIDENT REPORT FORM

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

FARALLON CONSULTING

Accidental Injury, Occupational Illness, or Workplace Incident
INCIDENT REPORT

INCIDENT TYPE				INCIDENT DATE:
☐ FATALITY	☐ INDUSTRIAL NON-RECORDABLE	☐ SPILL/LEAK	☐ GENERAL LIABILITY	
☐ LOST WORKDAY	☐ NON-INDUSTRIAL	☐ PRODUCT INTEGRITY	☐ CRIMINAL ACTIVITY	
☐ LW RESTRICTED DUTY	☐ OFF-THE-JOB INJURY	☐ EQUIPMENT	☐ NOTICE OF VIOLATION	
☐ OSHA MEDICAL OR ILLNESS W/O LW	☐ MVA	☐ BUSINESS INTERRUPTION	☐ OTHER	
☐ FIRST AID	☐ FIRE	**(TO BE COMPLETED BY HEALTH AND SAFETY COORDINATOR)**		

This report must be completed by the employee or Health and Safety Coordinator immediately upon learning of the incident. The completed report must be reviewed and signed by a Principal, within 24 hours of the incident, even if employee is not available to review and sign. Employee or employee's doctor must submit a copy of the doctor's report to Joe Rounds within 24 hours of the initial exam and any subsequent exams. After hours or weekends, please call Joe Rounds, Mobile (206) 484-2748.

EMPLOYEE INFO

LAST NAME:	FIRST NAME AND MIDDLE INITIAL:	TITLE:	TIME OF EVENT OR EXPOSURE: ☐ AM ☐ PM
EMPLOYMENT STATUS: ☐ FULL-TIME ☐ PART-TIME ☐ HOURLY-AS-NEEDED		HOW LONG?	
DATE OF INJURY OR ONSET OF ILLNESS (MM/DD/YYYY)			

INJURY OR ILLNESS INFO

EXACT LOCATION OF INCIDENT (ADDRESS, GEOGRAPHICAL LOCATION, FLOOR, BUILDING, ETC.):

COUNTY: | ON EMPLOYER'S PREMISES? ☐ YES ☐ NO

COMPLETE DESCRIPTION OF INCIDENT, INCLUDE SPECIFIC ACTIVITY DURING INCIDENT (LIFTING, PUSHING, WALKING, ETC.):

DESCRIBE THE EQUIPMENT, MATERIALS, OR CHEMICALS THAT DIRECTLY HARMED THE PARTY (E.G., THE MACHINE EMPLOYEE STRUCK AGAINST OR WHICH STRUCK EMPLOYEE; THE VAPOR INHALED OR MATERIAL SWALLOWED; WHAT THE EMPLOYEE WAS LIFTING, PULLING, ETC.):

DESCRIBE THE SPECIFIC INJURY OR ILLNESS (E.G., CUT, STRAIN, FRACTURE, SKIN RASH, ETC.):

BODY PART(S) AFFECTED (E.G., BACK, LEFT WRIST, RIGHT EYE, ETC.):

DATE EMPLOYER NOTIFIED: | TO WHOM REPORTED:

MEDICAL PROVIDER (HOSPITAL, DOCTOR, CLINIC, ETC.) INFO

NAME AND ADDRESS OF HEALTH CARE PROVIDER: | PHONE NO.:

TREATED IN EMERGENCY ROOM: ☐ YES ☐ NO | HOSPITALIZED OVERNIGHT AS INPATIENT: ☐ YES ☐ NO

ILLNESS/INJURY SEVERITY	TIME LOSS (Check all that apply)	WORKDAY PHASE
☐ NO TREATMENT REQUIRED ☐ FIRST AID ONLY ☐ MEDICAL TREATMENT ☐ FATALITY, ENTER DATE:	☐ RETURN TO WORK THE NEXT DAY ☐ NO TIME LOSS ☐ RESTRICTED ACTIVITY BEGIN DATE: RETURN DATE: ☐ LOST WORKDAY, NOT AT WORK BEGIN DATE: RETURN DATE:	☐ PERFORM NORMAL WORK DUTIES ☐ MEAL PERIOD ☐ REST PERIOD ☐ ENTERING/LEAVING ☐ CHRONIC EXPOSURE ☐ OTHER, SPECIFY:

MOTOR VEHICLE ACCIDENT (MVA)			PROFESSIONAL DRIVER?	☐ YES ☐ NO	
TOTAL YEARS DRIVING:	COMPANY VEHICLE? ☐ YES ☐ NO		VEHICLE TYPE:		
NO. OF VEHICLES TOWED		NO. OF INJURIES:		NO. OF FATALITIES:	

THIRD-PARTY INCIDENTS					
NAME OF OWNER		ADDRESS		PHONE NO.:	
DESCRIPTION OF DAMAGE:					
INSURANCE INFORMATION:					
WITNESS NAME		ADDRESS		PHONE NO.:	
WITNESS NAME		ADDRESS		PHONE NO.:	

REVIEWED BY			
NAME (PRINT)	SIGNATURE	TITLE	DATE

ADDITIONAL INFORMATION (USE SPACE BELOW FOR ADDITIONAL INFROMATION AS NECESSARY TO COMPLETE THIS FORM.)			

ATTACHMENT 6
SAFETY OBSERVATION AND NEAR MISS REPORT

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

SAFETY OBSERVATION AND NEAR MISS REPORT

This report is to be filled out by any employee involved in or witnessing a near miss, or making a safety observation. A near miss is an incident that did not result in any personal injury, property damage, or production interruption, but could have under slightly different circumstances. A safety observation is witnessing any activity that places a person or property at risk of injury, accident, or damage. These are very important indicators of potentially harmful future accidents, and provide valuable insights to preventing personal injury and/or property damage.

PROJECT INFORMATION	
Farallon PN:	Project Name:
Site Address:	City/State:
INCIDENT INFORMATION	
Date:	Time: ☐ AM ☐ PM
Exact Location:	
Description of Incident or Potential Hazard:	
Corrective Action Taken:	
Lessons Learned:	

Employee Signature _____ Date: _____

Printed Name _____

Supervisor Signature _____ Date: _____

Printed Name _____

ATTACHMENT 7
UTILITY CLEARANCE LOGS

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

UTILITY CLEARANCE LOG

Project Name: _____ **Project Number:** _____

Location: _____ **Date of Work:** _____

Instructions. This log must be completed by a Farallon staff member **before** any Farallon-directed excavation (e.g., test pit excavation) or drilling operation.

DRILLING OR EXCAVATION WORK MAY NOT COMMENCE UNTIL UTILITY LOCATES HAVE BEEN COMPLETED (see the One-Call Utility Locate Request Procedure on the following page)

Farallon is responsible for having underground utilities and structures located and marked when drilling or directing test pit excavation operations. Any drilling or excavation within 2 feet of a marked utility must be done with hand tools.

Owners of underground utilities are required by law to mark underground facilities on public and private property. Owners of underground utilities are **not required** to mark existing service laterals or appurtenances. Utility owners in Washington are required to subscribe to the One-Call service.

Private utility locate services must be hired to locate service laterals and other buried utilities (e.g., on-Site electric distribution lines, irrigation pipes) on private property.

Re-mark after 10 days or maintain as appropriate.

Utility Locate Checklist

☐ Attach map showing drilling and/or excavation sites and known utilities

☐ Attach copy of One-Call Utility Notification Ticket (http://www.searchandstatus.com/)

One-Call Utility Notification Ticket Number: _____

☐ Attach copy of Side Sewer Card (available for City of Seattle; check municipality for availability)

☐ Attach copy of Private Locate Receipt

☐ Photograph all excavation and/or drilling locations and download to project file

☐ Review utilities with Site Contact:

Name:_____ Phone: _____

Utilities and Structures

Utility Type	Utility Name	Public Utilities Marked (Y/N)	Private Utilities/Laterals Marked (Y/N)	Marking Method (flags, wooden stakes, paint on pavement, etc.)
Petroleum product lines				
Natural gas line				
Water line				
Sewer line				
Storm drain				
Telephone cable				
Electric power line				
Product tank				
Septic tank/drain field				
Other				

Farallon Consulting, L.L.C.

Field Team Leader: _____ Date: _____

Electric = **RED**	*Gas-Oil-Steam =* **YELLOW**	*Comm-CATV =* **ORANGE**	*Water =* **BLUE/PURPLE**	*Sewer =* **GREEN**	*Temp Survey =* **PINK**

ONE-CALL UTILITY LOCATE REQUEST PROCEDURE

THE ONE-CALL UTILITY NOTIFICATION CENTER REQUIRES 48 HOURS NOTICE TO MARK UTILITIES BEFORE YOU CAN DIG OR DRILL

Washington: 1-800-424-5555
Oregon: 1-800-332-2344

Washington state law states that "before commencing **any** excavation," the excavator or driller must provide notice to all owners of underground utilities by use of the One-Call locator service, and that the excavator or driller shall not dig or drill until all known utilities are marked. To fully comply with the law, you **must** take the following steps:

1. **Call before you dig or drill:** Notify the One-Call Utility Notification Center (OCUNC) a minimum of 48 hours (2 full business days) before digging or drilling. Provide the following **required** information:
    a. Your name and phone number, company name and mailing address, and Farallon Account Number 25999.
    b. The type of work being done.
    c. Who the work is being done for.
    d. The county and city where the work is being done.
    e. The address or street where the work is being done.
    f. Marking Instructions: "Generally locate entire site including rights-of-way and easements."

    Provide the following information <u>if applicable or requested</u>:

    a. The name and phone number of an alternate contact person.
    b. If the work is being done within 10 feet of any overhead power lines.
    c. The nearest cross street.
    d. The distance and direction of the work site from the intersection.
    e. Township, range, section, and quarter section of the work site.
2. **Record the utilities that will be notified:** OCUNC will tell you the utilities that are on or adjacent to the work site, based on their database. Record the name(s) of the utility on the reverse side of this form.
3. **After the 48-hour waiting period, confirm that the utility locations have been marked:** Before digging or drilling, walk the work site and confirm that the utility companies have marked the utility locations in the field.
4. **If a locate appears to be missing:** If a utility locate appears to be missing and the utility company has not notified you that there are no utilities in the area, call OCUNC and:
    a. Provide the OCUNC locate number.
    b. Clearly state which utility has not been marked. The call is being recorded.
    c. Ask for a contact person at that utility.
    d. Call the contact person for the missing utility locate: Determine why there is no utility locate in the field.

Electric = **RED**	*Gas-Oil-Steam =* **YELLOW**	*Comm-CATV =* **ORANGE**	*Water =* **BLUE/PURPLE**	*Sewer =* **GREEN**	*Temp Survey =* **PINK**

e. **Record the reason(s) for the missing locate(s):** There are valid reasons that locates do not appear in the field (e.g., there are no utilities located on the work site or the utility has been abandoned). However, IF THEY ARE LATE, **YOU MUST WAIT** TO DRILL OR DIG. If the utility fails to mark a locate within the required 48 hours (2 full business days), the utility is liable for delay costs.

5. **Hand dig within 2 feet of a marked utility:** When digging or drilling within 2 feet of any marked utility, the utility must be exposed first by using hand tools.

6. **Record reason(s) for missing locate(s)**: There may be reasons that locates do not appear in the field (e.g., no utilities are located on the site, utility has been abandoned). Record the reason given. IF THEY ARE LATE – YOU WAIT TO DRILL OR DIG. If the utility failed to mark within the required two days, they are liable for delay costs.

Electric = **RED**	*Gas-Oil-Steam* = **YELLOW**	*Comm-CATV* = **ORANGE**	*Water* = **BLUE/PURPLE**	*Sewer* = **GREEN**	*Temp Survey* = **PINK**

FARALLON CONSULTING, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington
98027

TELEPHONE CONVERSATION
Date: _____ **Time:** _____
Project Name: _____
Job No.: _____
Phone No.: **1-800-424-5555 WA, 1-800-332-2344**
OR _____
Prepared By/Initials: _____
Call: ☐ **Placed** ☐ **Received**

Contact/Title: _____

Agency/Region: One-Call Utility Notification Center

PROJECT: _____

1. Your name and the Farallon Account No. #25999: _____

2. What is the type of work being conducted (e.g., environmental drilling, test pit excavation)?

_____

3. Who is the property owner? _____

4. County and city were work is being done? _____

5. Address or street where work is taking place? _____

_____

6. Nearest cross street? _____

7. Distance and direction of the work site from the intersection? _____

8. Marking Instructions (generally locate on entire Site, including rights-of-way and easements): _____

_____

_____

9. What time and date will the locate be completed? _____

10. Utility Locate Request Number? _____

11. Utilities that will be notified? _____

_____

12. Any Overhead Concerns? _____

_____

_____

cc:_____**Page**_____**of**_____

Note: Bold indicates required information.

ATTACHMENT 8
FARALLON FIELD PERSONNEL TRAINING DATES

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

Health and Safety
Certifications and Training

Name	Medical Monitoring		Annual/Biennial	Resp. Clearance	Respirator Fit Test	CPR	First Aid	Fire Extinguisher Training	Expiration Dates		GHS Training		8 Hour Supervisor	40 Hour Training Taken (Initial)	8 Hour Refresher
	Date of Last Exam	Next Exam Due							BNSF E-Railsafe (Bi-annual)	BNSF Contractor Orientation (Annual)		Lead Awareness			
Aguilar, Daniel	04/01/16	04/01/18	B	04/01/16	09/27/16			06/10/16	5/5/2018	7/20/18		04/14/17		04/08/16	01/20/17
Bailey, Amber	04/19/17	04/19/19	B	04/19/17	04/14/17	10/21/16	10/21/16	06/16/16	12/15/17	11/16/17		04/14/17		11/22/13	01/20/17
Bowser, Matthew	04/12/17	04/12/19	B	04/12/17	04/18/17	10/07/16	10/07/16	05/16/16	07/21/19	07/31/18		04/14/17		06/11/15	01/20/17
Brown, Stuart	05/11/17	05/11/19	B	05/11/17	05/11/17	01/11/17	01/11/17	06/28/11				05/11/17	06/28/11	09/08/08	01/12/17
Burns, Anastasia	05/16/16	05/16/18	B	05/16/16	07/01/16	10/21/16	10/21/16	05/16/16	04/22/18	04/19/18				09/15/14	01/03/17
Dlubac, Katherine	03/15/17	03/15/19	B	03/15/17		04/24/15	04/24/15	09/26/16						02/20/15	03/07/17
Emahiser, Parker	04/18/17	04/18/19	B	04/18/17				05/16/16						02/17/13	01/20/17
Fisco, Gavin	08/11/16	08/11/18	B	08/11/16	08/11/16	09/26/16	09/26/16	05/18/16					12/12/14	05/04/07	02/21/17
Garvin, Paul	03/10/16	03/10/18	B	03/10/16		02/09/15	02/09/15	08/29/16	11/20/17	10/03/17				06/22/12	01/20/17
Hudspeth, Amber	04/08/16	04/08/18	B	04/08/16	04/08/16			06/19/16							01/18/16
Johnson, David	04/20/16	04/20/18	B	04/20/16	03/06/12	10/07/16	10/07/16	06/15/16	04/19/19	11/17/17			11/24/14	06/06/11	01/20/17
Kerr, Jared	06/11/16	06/11/18	B	06/11/16		10/21/16	10/21/16	05/16/16	02/02/19	03/02/18				06/27/14	01/20/17
Luiten, Russell	04/19/17	04/19/19	B	04/19/17	04/12/17	10/07/16	10/07/16	05/17/16	11/22/17	10/11/17		04/14/17		6/2012?	01/20/17
Oscilia, Margaret	06/01/16	06/01/18	B	06/01/16	06/01/16	09/18/17	09/18/17	06/13/16	11/09/17	11/08/17				09/17/07	01/20/17
Ostrom, Ryan	04/11/17	04/11/19	B	04/11/17	02/12/15	10/07/16	10/07/16	06/06/16	07/31/18	07/31/18		04/14/17		05/09/13	01/20/17
Pehlivan, Yusuf	05/03/17	05/03/19	B	05/13/17	05/03/17	08/12/15	08/12/15	05/04/17				05/02/17	02/02/13	07/12/16	09/15/17
Peters, Greg	06/07/17	06/07/19	B		06/07/17			06/12/17				06/08/17		03/12/17	
Scott, Ken	01/26/16	01/25/18	B	01/26/16	04/14/17	10/21/16	10/21/16	09/02/16	10/08/17	04/11/18		04/14/17	02/17/05	09/01/95	01/20/17
Taylor, Brenden	05/10/16	05/10/18	B			09/23/14	09/23/14	08/23/16		05/11/17			04/17/09	07/18/06	01/27/17
Turpen, Nate	06/14/17	06/14/19	B	06/14/17				06/14/17				06/13/17		06/09/17	
Vining, Andrew	03/10/16	03/10/18	B	03/10/16	04/19/17	10/07/16	10/07/16	05/16/16	03/09/18	05/30/18	11/18/13	04/14/17	11/24/14	02/07/12	01/20/17
Wishnoff, Benjamin						11/24/15	04/16/16	06/24/16					06/09/15	05/29/07	01/20/17
Yankey, Scott	02/09/17	02/09/19	B	02/09/17	02/09/17			01/06/17						04/09/88	01/20/17

ATTACHMENT 9
AIR MONITORING TABLE AND FORMS

HEALTH AND SAFETY PLAN
Lakeview Facility
2800 104th Street Court South
Lakewood, Washington

Farallon PN: 188-002

ACTION LEVEL TABLE FOR AIR MONITORING

The Air Monitoring table (following page) presents protocol for monitoring ambient air for constituents of concern and other parameters that may affect worker safety. Please note the following with respect to use of this table:

- The Level for Respirator Use indicates the concentration at which a respirator must be donned. It does not require that the job stop. The respirator is a piece of equipment that is to be used while determining why a concentration has reached that level. Implement engineering controls such as water mist, spray foam, plastic cover, etc. to reduce the concentration.
- The Level for Work Stoppage indicates the concentration at which work on the job must stop. Determine why a concentration has reached that level, and how it can be decreased. Site evacuation is not necessary at this level. Stopping work does not imply that the concentration level will decrease. Implement engineering controls to reduce the concentration; resume work when it is safe to do so.
- These values can be modified under particular Site conditions and with specific knowledge of the contaminant(s). Should such conditions arise, contact Farallon's Health and Safety Officer at (425) 295-0800.

AIR MONITORING

Chemical (or Class)	Monitoring Equipment	Task	Monitoring Frequency and Location	Level for Respirator Use	Level for Work Stoppage
Volatile Organic Vapors	Flame ionization detector (FID)/photoionization detector (PID) as appropriate for chemicals of concern. Read manual to determine. Draeger Tube for vinyl chloride (Model 1/a; Part Number 67 28031). Draeger Tube for benzene (Model 0.5/a).	From start of mobilization to completion and demobilization.	Sampling should be continuous during the project while disturbing potentially contaminated soil, uncovering and/or removing tanks and piping, or drilling —at least every 15 minutes in the breathing zone. Sample at the exclusion zone boundaries every 30 minutes. Continuously sample during each soil and groundwater sampling interval. If 10 parts per million (ppm) in breathing zone, collect a Draeger Tube for benzene and/or vinyl chloride (depending upon contaminants of concern).	20 ppm above background sustained in breathing zone for 2 minutes, and no benzene and/or vinyl chloride tube discoloration. If a color change appears on the tube for benzene or vinyl chloride at 10 ppm on FID/PID, don respirator. If no Draeger Tube is available, the level for respirator use is to be 5 ppm.	50 ppm above background in breathing zone and no vinyl chloride or benzene tube discoloration. Stop work if tube indicates > 1 ppm for benzene or vinyl chloride. If no Draeger Tube is available, stop work at 25 ppm.

Chemical (or Class)	Monitoring Equipment	Task	Monitoring Frequency and Location	Level for Respirator Use	Level for Work Stoppage
Metals (Dust and Particulates)	XRF Spectrometer as appropriate for metals of concerns. Read manual to determine. Laboratory analysis for specific metals known to potentially be at levels exceeding respiratory protection requirements.	From start of mobilization to completion and demobilization.	Sampling should be continuous during the project while disturbing potentially contaminated soil at least every 15 minutes in the breathing zone. Sample at the exclusion zone boundaries every 30 minutes. Continuously during each sampling interval or excavation lift (as possible).	1 mg/m3 for mercury. Any detectable concentration of cadmium less than the PEL of 0.005 mg/m3. 0.5 mg/m3 for lead.	2.5 mg/m3 for mercury. Any concentration exceeding 0.005 mg/m3 for cadmium. 50 mg/m3 for lead.

AIR MONITORING EQUIPMENT CALIBRATION/CHECK LOG

Date	Instrument/ Model No.	Serial No.	Battery Check OK?	Zero Adjust OK?	Calibration Gas (ppm)	Reading (ppm)	Leak Check	Performed By	Comments

AIR MONITORING LOG

Date	Time	Location	Source/Area/ Breathing Zone	Instrument	Concentration/Units	Sampled by