FARALLON CONSULTING

February 28, 2024

Frank P. Winslow
Washington State Department of Ecology
1250 West Alder Street
Union Gap, Washington 98903

RE: REMEDIAL INJECTION BASIS OF DESIGN
FORMER WASHINGTON COLD STORAGE BUILDING
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON
FARALLON PN: 2636-001

Dear Frank Winslow:

Farallon Consulting, L.L.C. (Farallon) has prepared this letter on behalf of CREF3 Puyallup Owner LLC to present the basis of design for remedial injection activities planned for the property at 240 15th Street Southeast in Puyallup, Washington (herein referred to as the Property) (Figures 1 and 2). The Property currently is enrolled in the Washington State Department of Ecology (Ecology) expedited Voluntary Cleanup Program and has been assigned Voluntary Cleanup Program Project Identification No. XS0012.

The Property consists of Pierce County Parcel Nos. 0420274123, 7845000161, and 7845000170, which total approximately 7.95 acres of land. The Property historically was developed with a 101,933-square-foot warehouse and freezer building constructed in 1985, which was largely destroyed by a fire in 2021; and a one-story, 19,885-square-foot industrial warehouse constructed in 1960 and used as a smokehouse, which was destroyed by a fire in 2023.

Following the fire at the Property in 2021, constituents of concern (COCs) including total petroleum hydrocarbons (TPH), benzene, halogenated volatile organic compounds (HVOCs), and per- and polyfluoroalkyl substances (PFAS) were detected in soil and/or groundwater at concentrations exceeding Washington State Model Toxics Control Act Cleanup Regulation (MTCA) cleanup levels and/or Washington State Action Levels.

Between May and July 2023. Farallon submitted a Remedial Investigation/Focused Feasibility Study and Cleanup Action Plan (RI/FFS-CAP)[1] and conducted a PFAS evaluation for Ecology's review to support planned redevelopment and cleanup activities at the Property. Following review of Farallon's RI/FFS-CAP and PFAS evaluation, Ecology issued an opinion[2] indicating that a No Further Action determination likely would be issued for the Property following completion of the cleanup action proposed in Farallon's RI/FFS-CAP and PFAS evaluation, and following evaluation of the down-gradient extent of petroleum and HVOC impacts in groundwater on adjoining properties.

Cleanup activities will be conducted in advance of and in conjunction with Property redevelopment, and will include source removal excavations to remove localized areas of contaminated soil, engineering controls to mitigate the potential for vapor intrusion into the new building that will be constructed on the Property, and remedial injections to remediate COC impacts in groundwater and prevent off-Property migration of contaminated groundwater.

Contaminated groundwater will be remediated in three treatment areas on the Property, as shown on Figure 3 and described below:

- Treatment Area 1, which contains TPH and benzene in groundwater at concentrations exceeding MTCA cleanup levels (Figure 4);
- Treatment Area 2, which contains HVOCs in groundwater at concentrations exceeding MTCA cleanup levels (Figure 5); and
- Treatment Area 3, which contains PFAS in groundwater at concentrations exceeding Washington State Action Levels (Figure 6).

The overall objectives of the remedial injections are to remediate TPH-, HVOC-, and PFAS-impacted groundwater at the Property and/or prevent off-Property migration of these compounds.

Before remedial injections are conducted, authorization from Ecology's Underground Injection Control (UIC) program is required. The UIC program is administered by Ecology in

[1] Farallon. 2023. *Remedial Investigation/Focused Feasibility Study and Cleanup Action Plan, Former Washington Cold Storage Building, 240 15th Street Southeast, Puyallup, Washington*. Prepared for CREF3 Puyallup Owner LLC. May 12.
[2] Ecology. 2023. Letter Regarding Opinion on Proposed Cleanup of a Property Associated with the following Site: Washington Cold Storage, 240 15th St SE, Puyallup, Pierce County, WA 98372. From Frank Winslow. To Brady Thomson of CREF3 Puyallup Owner, LLC. July 19.

accordance with Chapter 173-218 of the Washington Administrative Code to protect groundwater by regulating the discharge of fluids from UIC injection wells, and a UIC authorization is required for all remedial injection activities. On December 20, 2023, Farallon obtained authorization from Ecology's UIC program to conduct injection activities under UIC registration No. 37460. The UIC authorization letter is included as Attachment A.

This letter presents the basis of design to support the remedial injections that are planned as part of the cleanup action for the Property.

REMEDIAL INJECTION DESIGN

The scope of work and design for the planned remedial injections were developed by Farallon and Regenesis Remediation Solutions of San Clemente, California (Regenesis). The remedial design is based on the results of Farallon's RI/FFS; the results of the PFAS evaluation; and additional soil, groundwater, and geochemical data requested and evaluated by Regenesis. Exceedances of specific COCs in groundwater within each treatment area are presented on Figures 4 through 6; and groundwater elevation measurements, groundwater analytical results, geochemical parameters, and field parameters are presented on Tables 1 through 6.

The implementation of the remedial injections involves the injection of various substrates designed for the COCs in each treatment area. In general, the remedial approach for all three treatment areas will consist of injecting carbon-based adsorption materials via direct-push drilling to immobilize contaminants and prevent down-gradient migration of COCs off the Property. The injection programs for Treatment Areas 1 and 2 also will promote degradation of COCs by biotic and abiotic processes, which will enable cleanup standards to be met more quickly than monitored natural attenuation. The injection program for Treatment Area 3 will comprise installation of a permeable reactive barrier (PRB) down-gradient of PFAS impacts in groundwater to immobilize PFAS and prevent migration off the Property. A PRB consists of reactive materials placed in the ground, down-gradient of dissolved contamination and generally perpendicular to the direction of groundwater flow, where groundwater will pass through the reactive materials for treatment.

INJECTION DESIGN DATA COLLECTION

The results of Farallon's RI/FFS; the results of the PFAS evaluation; and additional soil, groundwater, and geochemical data were used to finalize the specific injection design elements for the cleanup action, including the following:

- Groundwater analytical results for dissolved-phase COCs were used to identify and define the injection treatment areas, determine the appropriate injection products, assist in calculating necessary product concentrations, and identify analytes and parameters for performance and confirmation monitoring.
- Observations of subsurface lithology were used to evaluate whether remedial injections would be an appropriate cleanup alternative for groundwater impacts, and to design the injection program including selecting injection point spacing, treatment intervals, and injection product concentrations. Soil encountered beneath the Property during previous investigations generally consisted of poorly graded sand with varying amounts of silt and gravel to a depth of approximately 15 feet below ground surface (bgs), underlain by intermittent layers of silt and silty sand to the maximum explored depth of 31.5 feet bgs. Grain size analysis conducted by Regenesis on soil samples collected from the Property indicated that the target treatment zone consists of fine- to medium-grained sands with generally less than 10 percent fines, which is consistent with lithological observations during previous investigations. The predominantly sand lithology with limited quantities of fine-grained material presents ideal subsurface conditions for remedial injections to be effective. Boring logs and monitoring well construction details for borings and monitoring wells installed by Farallon during the Remedial Investigation are presented in Attachment B.
- Groundwater elevation measurements and flow direction were used to determine the orientation of injection point rows and to select treatment intervals for each treatment area. Groundwater generally was encountered at elevations between approximately 48 and 52 feet North American Vertical Datum of 1988, corresponding to depths ranging from approximately 4 to 10 feet bgs (Table 1). Groundwater beneath the Property has been interpreted to flow to the north toward the Puyallup River. Injection point rows were designed to be oriented perpendicular to the direction of groundwater flow, and the tops of the treatment intervals were determined based on the approximate depth to groundwater in each treatment area.

- Slug tests were completed at monitoring wells B-8, B-9, MW-1, MW-2, MW-4, and MW-7 to characterize aquifer capacity. Slug test results were used to determine injection point spacing and product concentrations.
- Flux tracing testing was conducted to assess groundwater velocity and contaminant mass flux using a passive flux meter device installed in monitoring well MW-3.
    - The groundwater velocity measured in the target zone ranged from 500 to 1,600 feet per year. Higher groundwater velocities shorten contact time of contaminants with treatment substrates, decreasing effectiveness. With the higher velocity, the injection program for Treatment Area 3 will include calcium chloride to accelerate the settling rate of the substrates to stay within the intended barrier wall footprint. Calcium chloride injection points will be placed in close proximity to substrate injection points, focused on the down-gradient and up-gradient edges of the PRB. Calcium chloride injections will not be necessary at Treatment Areas 1 and 2 due to the grid-based design of the injection program in these treatment areas.
    - Contaminant mass flux for the sum of PFAS compounds ranged from 4 to 931 micrograms per square meter per day, with the highest mass flux at 15 to 16 feet beneath the top of the well casing at monitoring well MW-3. The contaminant mass flux data were used to develop a target treatment interval for Treatment Area 3, and to determine the necessary concentration of injection product for construction of the PRB.
- Geochemical data including analytical results for total and dissolved calcium, total magnesium, total iron, hardness, and alkalinity were collected from monitoring wells within and proximate to treatment areas to assist with determining injection point spacing and product concentrations.

The additional data were used by Regenesis to select appropriate products and develop appropriate injection volumes, product concentrations, injection point spacing, and target depths in support of a final treatment design for each treatment area. Regenesis' design details for each injection treatment area are included in Attachment C.

SPECIFIC DESIGN ELEMENTS

A retractable screen type tooling with a 3-foot screened section advanced by a direct-push drill rig will be used for injection activities. The application will be completed at flow rates of approximately 2 to 5 gallons per minute (per injection point) and at pressures typically

ranging from 20 to 60 pounds per square inch; however, some areas of the Property may require up to 100 pounds per square inch to initiate flow. A multi-point injection process will be implemented to reduce the number of field days; and a distance of approximately 20 feet or greater will be maintained at all times between any actively pumping injection points. Additional detailed design documentation is included in Attachment C.

Treatment area details are summarized in the table below, with a specific discussion of unique design elements in the following sections.

	Treatment Area 1	Treatment Area 2	Treatment Area 3
Injection Points	66	34	88 (PlumeStop) 22 (calcium chloride)
Point Spacing (feet)	6	6	5 (PlumeStop) 10 (calcium chloride)
Row Spacing (feet)	30	30 to 40	5 (PlumeStop) 5 (calcium chloride)
Substrate	PetroFix, likely supplemented with electron acceptor blend	PetroFix with SMZVI and BDI Plus	PlumeStop and calcium chloride
Mix Ratio	0.07 gallon of PetroFix and 0.032 pound of electron acceptor blend per gallon of water (per grid) 0.1 gallon of PetroFix and 0.05 pound of electron acceptor per gallon of water (per barrier wall)	0.07 gallon of PetroFix and 0.016 gallon of S-MZVI per gallon of water 1 liter of BDI Plus per injection point	0.22 gallon of PlumeStop per gallon of water 0.99 pound of calcium chloride per gallon of water
Injection Interval (feet bgs)	4 to 15	4 to 20	5 to 17
Injection Mix Amount Per Injection Point (gallons)	495 (MW-1 and MW-7 grids) 550 (barrier walls)	800	480 (PlumeStop) 180 (calcium chloride)

Treatment Area 1

TPH and benzene have been identified as the COCs for Treatment Area 1 (Figure 4). The injection program for Treatment Area 1 will consist of injecting PetroFix with an electron acceptor blend at a total of 66 injection points arranged in two barrier walls perpendicular to the flow of groundwater along the northern portion of the Property, and a grid of six injections points each centered on monitoring wells MW-1 and MW-7 where TPH and/or benzene have been detected in groundwater at concentrations exceeding MTCA Method A cleanup levels. A spacing of approximately 6 feet will be maintained between injection points in each barrier wall, and a spacing of approximately 30 feet will be maintained between the two barrier walls. The injection treatment interval will target depths between 4 and 15 feet bgs. PetroFix is an activated carbon remedial fluid (carbon milled to a diameter of 1 to 2 micrometers) commonly paired with soluble, anaerobic ammonium nitrate and sodium nitrate electron acceptors designed to biodegrade COCs. This dual-technology approach provides both carbon sorption and anaerobic biodegradation remediation pathways. The electron acceptor blend likely will be added during injection activities to maintain existing anaerobic conditions in Treatment Area 1.

Treatment Area 2

HVOCs have been identified as the COCs for Treatment Area 2 (Figure 5). The injection program for Treatment Area 2 will consist of injecting PetroFix with Sulfidated Micron Scale Zero Valent Iron (SMZVI) and Bio Dechlor Inoculum Plus (BDI Plus) additives at 34 injection points arranged in two barrier walls perpendicular to the flow of groundwater along the northern portion of the Property. A spacing of approximately 6 feet will be maintained between injection points in each barrier wall, and a spacing of approximately 30 to 40 feet will be maintained between the two barrier walls. The injection treatment interval will target depths between 4 and 20 feet bgs.

With carbon adsorption technologies, individual contaminants compete for adsorption sites, with relative affinity for adsorption. Typically, heavier compounds such as DRO and ORO dominate adsorption sites, which may lead to desorption or breakthrough of lighter compounds such as HVOCs. To prevent this, PetroFix without the standard anaerobic electron acceptors but with SMZVI and BDI Plus additives was the selected substrate mixture for Treatment Area 2. The SMZVI will promote abiotic destruction of the HVOCs, and BDI Plus will provide anaerobic bioremediation as a second destructive method for HVOCs. The SMZVI contains glycerol, which is a fast-acting electron donor that will help to jump-start anaerobic bioremediation of the HVOCs. Once anaerobic bioremediation is started, the low

levels of TPH that may be present will also act as an electron donor for synergistic degradation of both HVOCs and petroleum hydrocarbons. SMZVI will be added directly to substrate mixing batch tanks with PetroFix. BDI Plus will be injected in-line at each injection point using a compressed nitrogen carrier gas.

The injection program for Treatment Area 2 will focus on remediating the suspected source area of HVOCs proximate to monitoring well FMW-10, and will prevent down-gradient migration of HVOCs off the Property. Cis-1,2-dichloroethene (cis-1,2-DCE) was detected at concentrations slightly exceeding the MTCA cleanup level in monitoring well FMW-16, up-gradient of the proposed barrier walls in Treatment Area 2. Cis-1,2-DCE is a product of degradation of tetrachloroethene and trichloroethene, indicating that natural attenuation of HVOCs is occurring proximate to FMW-16. Farallon anticipates that the low-level exceedance of cis-1,2-DCE in monitoring well FMW-16 will continue to naturally attenuate. The proposed barrier walls in Treatment Area 2 will promote degradation of HVOCs in the northern portion of the Property and will prevent off-Property migration of HVOCs.

Treatment Area 3

PFAS have been identified as the COCs for Treatment Area 3 (Figure 6). The injection program for Treatment Area 3 will consist of injecting PlumeStop at 88 injection points arranged in two rows, with 5-foot spacing between points in each row, and 5-foot spacing between the two rows. The injection treatment interval will target depths between 5 and 17 feet bgs.

PlumeStop, similar to PetroFix, is a colloidal activated carbon fluid with organic polymers to suspend the 1- to 2-micrometer carbon particles. Colloidal activated carbon is an in-situ treatment technology that has been well-demonstrated to remove PFAS compounds from groundwater.[3] PlumeStop is also capable of adsorbing low concentrations of HVOCs and TPH, should migration from other treatment areas occur.

In addition to injection of PlumeStop, a calcium chloride solution will be injected at 22 points between the PlumeStop injection points along the up-gradient and down-gradient edges of the PRB to accelerate the settling rate of the substrates to stay within the intended barrier wall footprint. The calcium chloride injection points will be advanced in close proximity to the

[3] Ecology. 2023. *Guidance for Investigating and Remediating PFAS Contamination in Washington State*, Publication No. 22-09-058. June.

PlumeStop injection points and arranged with 10-foot spacing between points, and approximately 5-foot spacing between rows.

PERFORMANCE AND COMPLIANCE MONITORING

Performance and compliance monitoring will include sampling of groundwater monitoring wells within and proximate to each treatment area to evaluate the effectiveness of the remedial injections. The specific details of compliance monitoring will be established based on the configuration of the monitoring well network following Property redevelopment. Existing monitoring wells may require decommissioning as part of redevelopment plans. Decommissioned wells will be replaced as needed with input from Ecology to ensure that a sufficient compliance monitoring well network is present to monitor post-injection groundwater conditions. Preliminary details of the compliance monitoring well network for each Treatment Area are described below:

- Treatment Area 1: Existing monitoring wells MW-1, MW-7, FMW-08, and FMW-09 will be retained as practicable for performance and compliance monitoring within and down-gradient of Treatment Area 1 (Figure 4). Due to the planned construction of a building south of Treatment Area 1, up-gradient monitoring well(s) have not yet been selected. At least one up-gradient monitoring well will be included in the compliance monitoring network for Treatment Area 1.
- Treatment Area 2: Monitoring wells FMW-10 and FMW-16 will be retained as practicable for performance and compliance monitoring within and down-gradient of Treatment Area 2 (Figure 5). Due to the planned construction of a building south of Treatment Area 2, up-gradient monitoring well(s) have not yet been selected. At least one up-gradient monitoring well will be included in the compliance monitoring network for Treatment Area 1.
- Treatment Area 3: One monitoring well will be installed within the footprint of the PRB, and one monitoring well will be installed immediately down-gradient of the PRB for performance and compliance monitoring (Figure 6). At least one up-gradient monitoring well also will be used to evaluate groundwater conditions up-gradient of the PRB. Due to the planned construction of a building south of Treatment Area 2, up-gradient monitoring well(s) have not yet been selected. At least one up-gradient monitoring well will be included in the compliance monitoring network for Treatment Area 3. Monitoring wells FMW-14 and/or FMW-15 may be suitable for use as up-gradient performance monitoring wells if the monitoring wells can be retained during Property redevelopment.

The following parameters are proposed for performance and compliance monitoring of the remedial injections:

Parameter	Method	Purpose
COCs	GRO by Northwest Method NWTPH-Gx DRO and ORO by Northwest Method NWTPH-Dx Volatile organic compounds by U.S. Environmental Protection Agency (EPA) Method 8260D PFAS by EPA Method 537 Modified (Treatment Area 3 only)	Evaluation of the effectiveness of the remedial injections, including confirmation that COCs are being immobilized and/or degraded in the remedial injection treatment areas
pH, dissolved oxygen, oxidation-reduction potential, electrical conductivity	Handheld flow-through meter field monitoring	Monitoring whether oxidizing or reducing conditions are present in groundwater to evaluate whether conditions are favorable for degradation of COCs, and confirmation that representative groundwater samples are collected from monitoring wells
Total organic carbon	Method SM5310C	Monitor presence of carbon following injection of carbon-based injection product
Dissolved gases: methane, ethane, and ethene	Method RSK175	Monitor biological activity and degradation of HVOCs proximate to Treatment Area 2
Total iron, ferrous iron	EPA Method 6020B, Hach field test kit	Monitor presence of iron proximate to Treatment Area 2 following injection of SMZVI
Sulfate	EPA Method 300.0	Monitor presence of electron acceptor blend in Treatment Area 1 and SMZVI in Treatment Area 2
Nitrate	EPA Method 300.0	Monitor presence of electron acceptor blend in Treatment Area 1

Performance and compliance monitoring will be conducted quarterly for the first year following completion of injection activities, and at 15-month intervals for the next 5 years following completion of injection activities.

CLOSING

Farallon appreciates the opportunity to provide environmental consulting services for this project. Please contact either of the undersigned at (425) 295-0800 if you have questions or need additional information.

Sincerely,

Farallon Consulting, L.L.C.

Yusuf Pehlivan, L.G.
Associate Geologist

Pete Kingston, L.G.
Principal Geologist

Attachments: Figure 1, *Property Vicinity Map*
Figure 2, *Property Plan*
Figure 3, *Remedial Injection Treatment Areas*
Figure 4, *Treatment Area 1 Detail*
Figure 5, *Treatment Area 2 Detail*
Figure 6, *Treatment Area 3 Detail*
Table 1, *Groundwater Elevations*
Table 2, *Groundwater Analytical Results for TPH and BTEX*
Table 3, *Groundwater Analytical Results for Halogenated VOCs*
Table 4, *Groundwater Analytical Results for PFAS*
Table 5, *Groundwater Analytical Results for Geochemical Parameters*
Table 6, *Summary of Groundwater Field Parameters*
Attachment A, UIC Authorization Letter
Attachment B, Boring Logs
Attachment C, Injection Design Documents

cc: Ryan Deri, CREF3 Puyallup Owner LLC
Brady Thomson, CREF3 Puyallup Owner LLC

YP/PK:sw

LIMITATIONS

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

- Accuracy of Information. Farallon reviewed certain information used in this report/assessment from sources that were believed to be reliable. Farallon's conclusions, opinions, and recommendations are based in part on such information. Farallon's services did not include verification of its accuracy. Should the information upon which Farallon relied prove to be inaccurate, Farallon may revise its conclusions, opinions, and/or recommendations.
- Reconnaissance and/or Characterization. Farallon performed a reconnaissance and/or characterization of the Property 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 Property that were not investigated or were inaccessible. Property activities beyond Farallon's control could change at any time after the completion of this report/assessment.

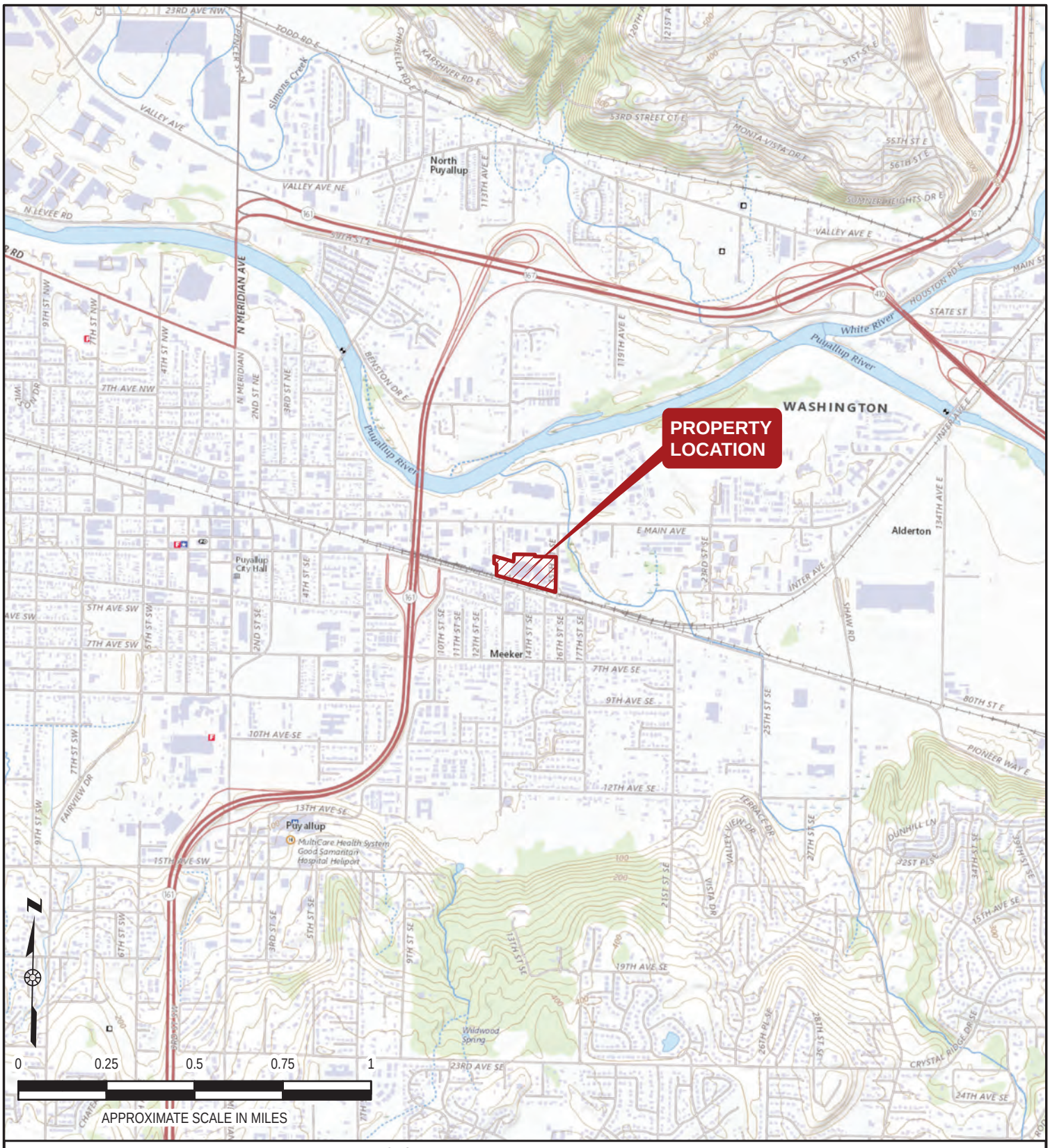
Farallon does not guarantee that the Property is free of hazardous or potentially hazardous substances or conditions, or that latent or undiscovered conditions will not become evident in the future. Farallon's observations, findings, and opinions are as of the date of the report.

This report/assessment has been prepared in accordance with the contract for services between Farallon and CREF3 Puyallup Owner LLC. No other warranties, representations, or certifications are made.

FIGURES

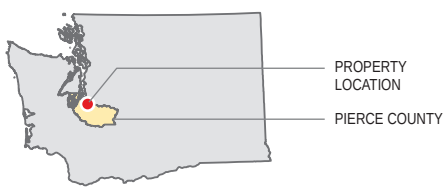
REMEDIAL INJECTION BASIS OF DESIGN
Former Washington Cold Storage Building
240 15th Street Southeast
Puyallup, Washington

Farallon PN: 2636-001



LEGEND

PROPERTY BOUNDARY



NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.

2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 1

PROPERTY VICINITY MAP

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 2/9/2024	FARALLON PN: 2636-001

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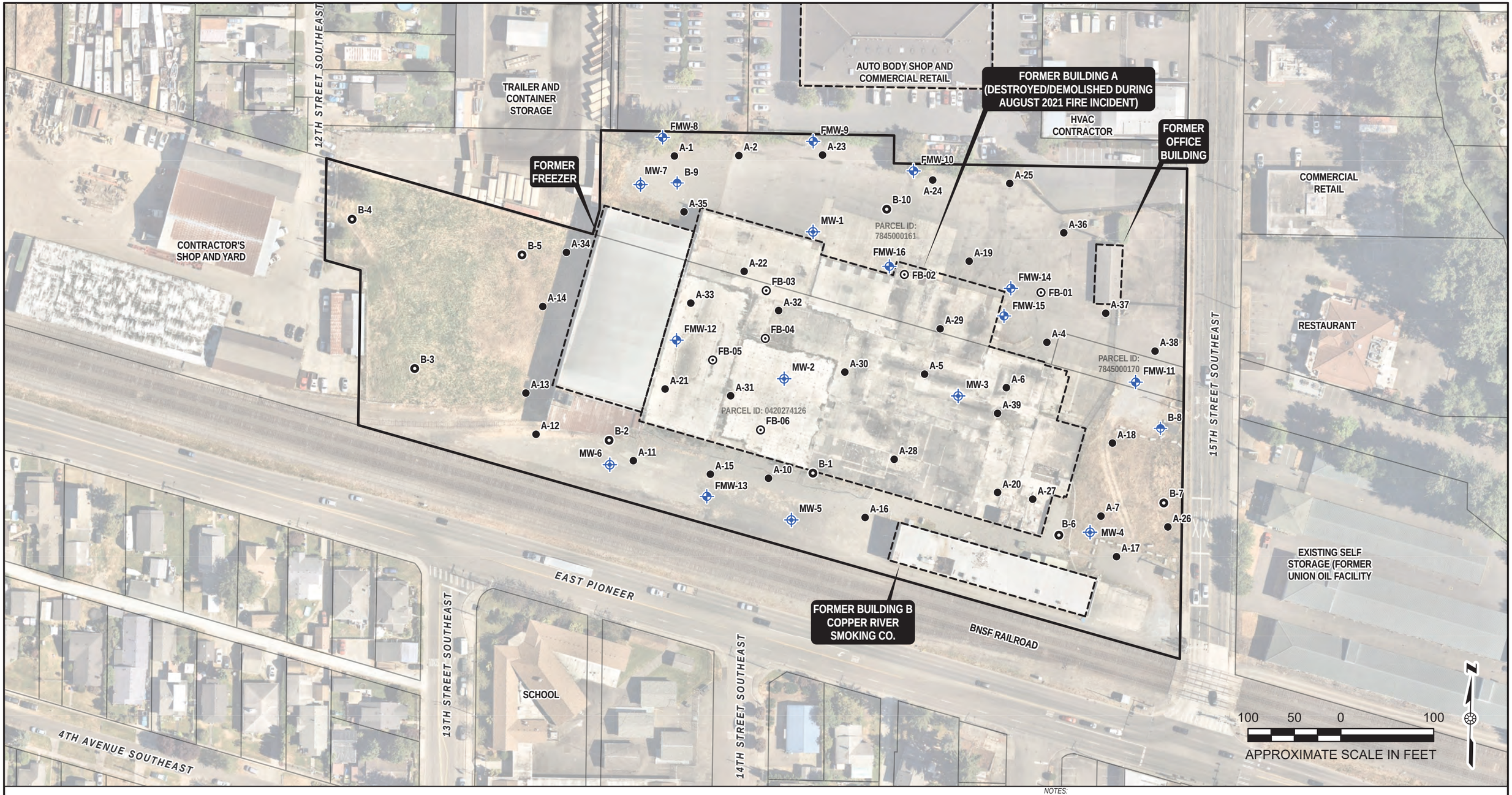

LEGEND

- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- BORING (ATLAS 2021, 2022)
- BORING (FARALLON 2023)
- BORING (TERRA ASSOCIATES 2022)
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

AERIAL IMAGERY: NEARMAP, 7/20/2022

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FIGURE 2

PROPERTY PLAN

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 2/9/2024	FARALLON PN: 2636-001

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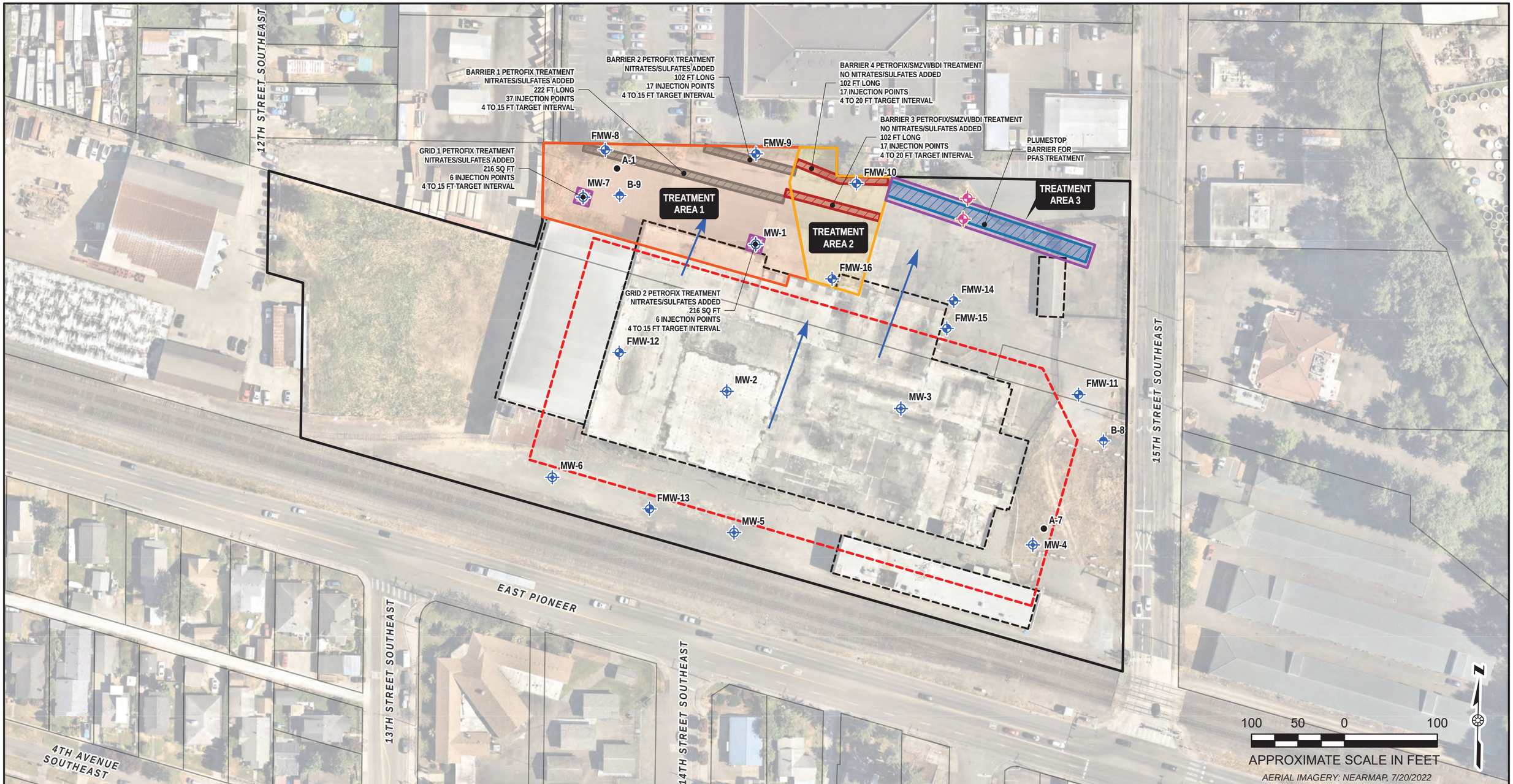

LEGEND

- PROPOSED BARRIER WALL PERFORMANCE MONITORING WELLS
- BORING (ATLAS 2021, 2022)
- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- TREATMENT AREA 1
- TREATMENT AREA 2
- TREATMENT AREA 3
- PFAS TREATMENT BARRIER WALL
- PETROLEUM TREATMENT BARRIER WALL
- PETROLEUM TREATMENT INJECTION GRID
- HVOC TREATMENT BARRIER WALL
- PROPOSED BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

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FIGURE 3

REMEDIAL INJECTION TREATMENT AREAS

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 2/9/2024	FARALLON PN: 2636-001

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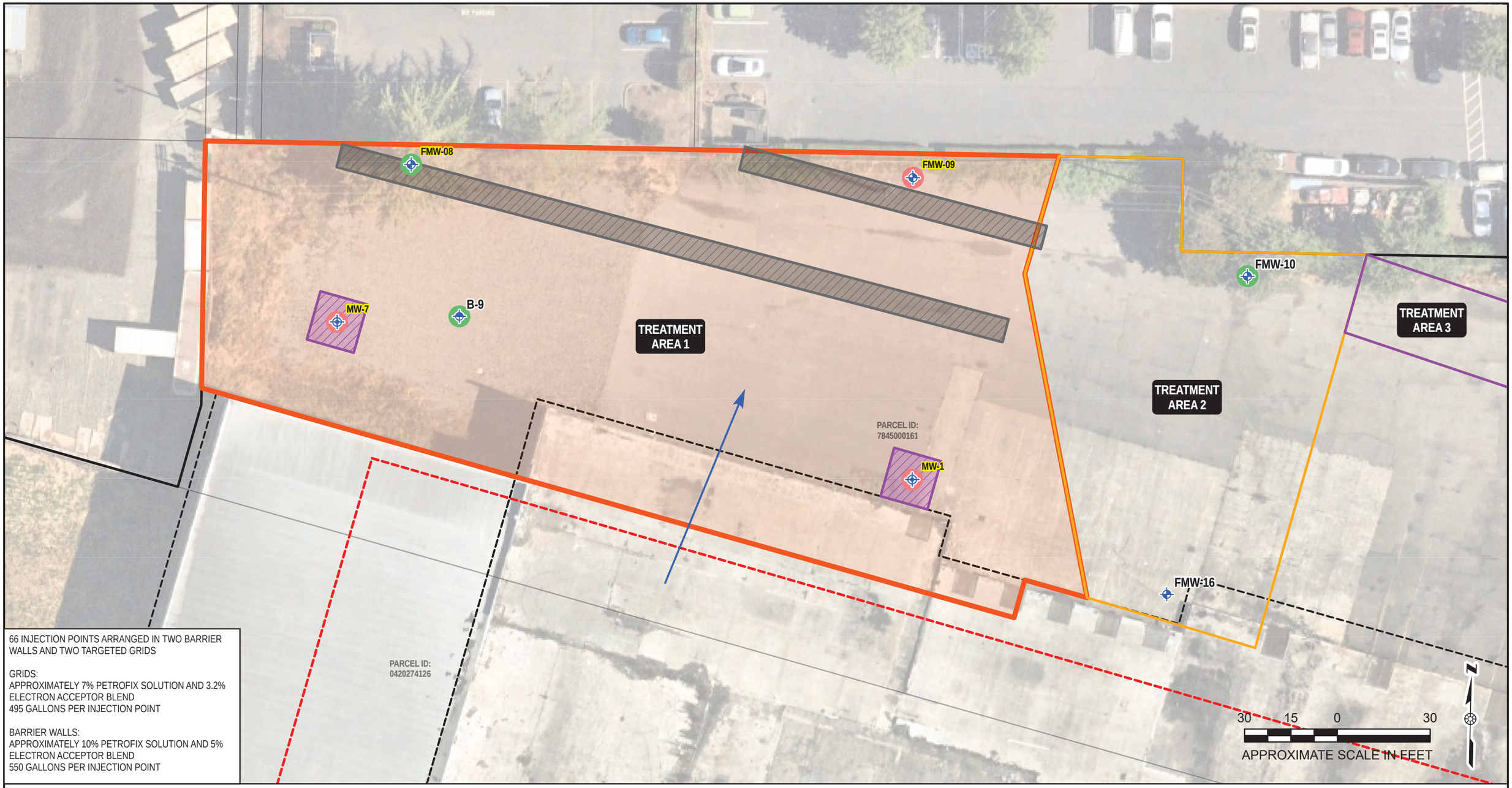

66 INJECTION POINTS ARRANGED IN TWO BARRIER WALLS AND TWO TARGETED GRIDS

GRIDS:
APPROXIMATELY 7% PETROFIX SOLUTION AND 3.2% ELECTRON ACCEPTOR BLEND
495 GALLONS PER INJECTION POINT

BARRIER WALLS:
APPROXIMATELY 10% PETROFIX SOLUTION AND 5% ELECTRON ACCEPTOR BLEND
550 GALLONS PER INJECTION POINT

LEGEND

- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- INDICATES DRO, ORO, GRO, AND BENZENE WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- INDICATES ONE OR MORE MTCA EXCEEDANCES OF DRO, ORO, GRO, AND/OR BENZENE IN GROUNDWATER
- PETROLEUM TREATMENT BARRIER WALL
- PETROLEUM TREATMENT INJECTION GRID
- TREATMENT AREA 1
- TREATMENT AREA 2
- TREATMENT AREA 3
- PROPOSED BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

EXISTING MONITORING WELLS LABELED WITH **YELLOW HIGHLIGHTS** IDENTIFIED FOR PERFORMANCE MONITORING

AERIAL IMAGERY: NEARMAP, 7/20/2022

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FIGURE 4

TREATMENT AREA 1 DETAIL

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 2/13/2024	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\Injection BDR Figures\2636-001_Fig04_TreatmentArea01.aprx

34 INJECTION POINTS ARRANGED IN TWO BARRIER WALLS
APPROXIMATELY 7% PETROFIX SOLUTION AND 1.6% S-MICRO ZERO-VALENT IRON, 800 GALLONS PER INJECTION POINT
1 LITER OF BIODECHLOR PLUS ADDED PER INJECTION POINT

LEGEND

- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- HVOC TREATMENT BARRIER WALL
- TREATMENT AREA 1
- TREATMENT AREA 2
- TREATMENT AREA 3
- INDICATES HVOCS WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- INDICATES ONE OR MORE HVOCS WERE DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- PROPOSED BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

EXISTING MONITORING WELLS LABELED WITH **YELLOW HIGHLIGHTS** IDENTIFIED FOR PERFORMANCE MONITORING

AERIAL IMAGERY: NEARMAP, 7/20/2022

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

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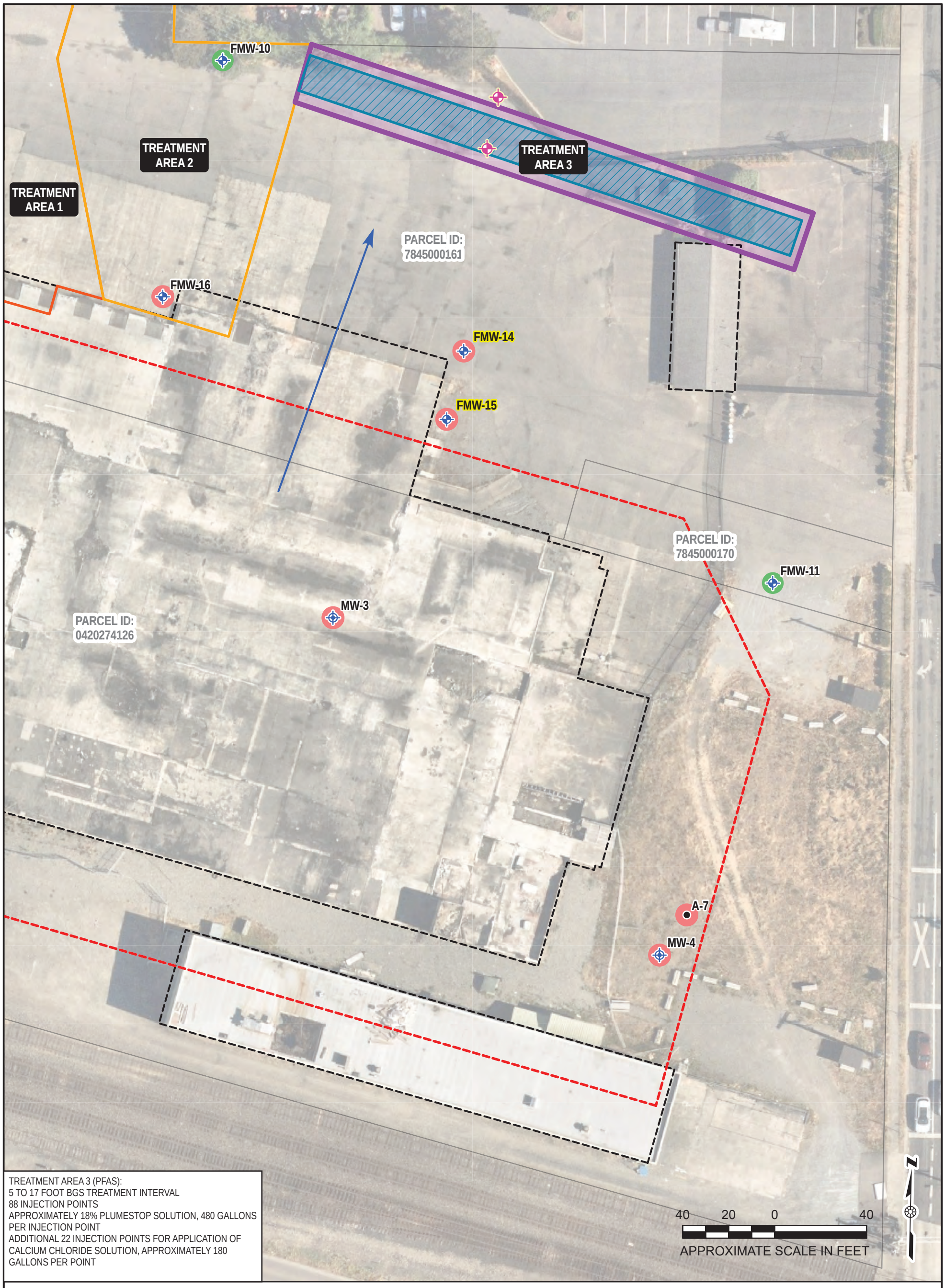
FIGURE 5

TREATMENT AREA 2 DETAIL

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 2/13/2024	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\Injection BDR Figures\2636-001_Fig05_TreatmentArea02.aprx



LEGEND

- PROPOSED BARRIER WALL PERFORMANCE MONITORING WELLS
- BORING (ATLAS 2021, 2022)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

EXISTING MONITORING WELLS LABELED WITH **YELLOW HIGHLIGHTS** IDENTIFIED FOR PERFORMANCE MONITORING

- INDICATES ONE OR MORE WASHINGTON STATE ACTION LEVEL EXCEEDANCES OF PFAS IN GROUNDWATER
- INDICATES PFAS WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING WASHINGTON STATE ACTION LEVELS IN GROUNDWATER
- PFAS TREATMENT BARRIER WALL

- TREATMENT AREA 1
- TREATMENT AREA 2
- TREATMENT AREA 3
- PROPOSED BUILDING
- FORMER BUILDING
- PIERCE COUNTY PARCEL BOUNDARIES

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

PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES

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FIGURE 6

TREATMENT AREA 3 DETAIL

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 2/9/2024	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\Injection BDR Figures\2636-001_Fig06_TreatmentArea03.aprx

TABLES

REMEDIAL INJECTION BASIS OF DESIGN
Former Washington Cold Storage Building
240 15th Street Southeast
Puyallup, Washington

Farallon PN: 2636-001

Table 1
Groundwater Elevations
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Location	Top of Casing Elevation (feet NAVD88)[1]	Well Screen Interval (feet bgs)	Measured by	Monitoring Date	Depth to Water (feet)[2]	Water Level Elevation (feet NAVD88)[1]
MW-1	55.251	5 to 15	Atlas	11/9/2021	5.23	50.02
			Atlas	2/9/2022	3.99	51.26
			Atlas	9/1/2022	5.70	49.55
			Atlas	9/22/2022	4.93	50.32
			Atlas	12/27/2022	5.14	50.11
			Farallon	1/4/2023	4.76	50.49
			Farallon	2/13/2023	4.86	50.39
			Farallon	4/11/2023	4.70	50.55
			Farallon	6/14/2023	5.53	49.72
MW-2	60.410	5 to 20	Atlas	11/9/2021	1.03	59.38
			Atlas	2/9/2022	8.27	52.14
			Atlas	9/1/2022	10.60	49.81
			Atlas	9/22/2022	9.56	50.85
			Atlas	12/27/2022	9.24	51.17
			Farallon	1/4/2023	8.85	51.56
			Farallon	2/13/2023	9.26	51.15
			Farallon	6/14/2023	10.20	50.21
MW-3	59.304	5 to 20	Atlas	11/9/2021	8.57	50.73
			Atlas	2/9/2022	7.30	52.00
			Atlas	9/1/2022	9.42	49.88
			Atlas	9/22/2022	9.82	49.48
			Atlas	12/27/2022	8.52	50.78
			Farallon	1/4/2023	8.08	51.22
			Farallon	2/13/2023	8.50	50.80
			Farallon	6/14/2023	9.04	50.26
			Farallon	9/11/2023	10.32	48.98
MW-4	55.999	5 to 15	Atlas	11/9/2021	4.87	51.13
			Atlas	2/9/2022	3.71	52.29
			Atlas	9/1/2022	5.96	50.04
			Atlas	9/22/2022	6.41	49.59
			Farallon	1/4/2023	4.40	51.60
			Farallon	2/13/2023	4.68	51.32
			Farallon	6/14/2023	5.45	50.55
MW-5	55.932	5 to 15	Atlas	11/9/2021	4.51	51.42
			Atlas	2/9/2022	3.34	52.59
			Atlas	9/1/2022	7.87	48.06
			Atlas	9/22/2022	6.21	49.72
			Atlas	12/27/2022	4.59	51.34
			Farallon	1/4/2023	3.92	52.01
			Farallon	2/13/2023	4.35	51.58

Table 1
Groundwater Elevations
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Location	Top of Casing Elevation (feet NAVD88)[1]	Well Screen Interval (feet bgs)	Measured by	Monitoring Date	Depth to Water (feet)[2]	Water Level Elevation (feet NAVD88)[1]
MW-6	55.027	4 to 12	Atlas	11/22/2021	2.52	52.51
			Atlas	2/9/2022	2.95	52.08
			Atlas	9/1/2022	5.31	49.72
			Atlas	9/22/2022	7.33	47.70
			Atlas	12/27/2022	3.44	51.59
			Farallon	1/4/2023	3.15	51.88
			Farallon	2/13/2023	3.72	51.31
MW-7	54.127	4 to 13	Atlas	11/22/2021	1.71	52.42
			Atlas	2/9/2022	3.12	51.01
			Atlas	9/1/2022	6.97	47.16
			Atlas	9/22/2022	7.88	46.25
			Farallon	1/4/2023	3.46	50.67
			Farallon	2/13/2023	3.76	50.37
			Farallon	4/11/2023	3.05	51.08
			Farallon	6/14/2023	4.90	49.23
FMW-08	53.82	3 to 13	Farallon	2/13/2023	4.38	49.44
			Farallon	4/11/2023	3.82	50.00
			Farallon	6/14/2023	5.09	48.73
FMW-09	54.54	3 to 13	Farallon	2/13/2023	5.36	49.18
			Farallon	4/11/2023	5.47	49.07
FMW-10	54.32	3 to 13	Farallon	2/13/2023	5.30	49.02
			Farallon	4/11/2023	5.21	49.11
			Farallon	6/14/2023	5.71	48.61
FMW-11	56.77	3 to 13	Farallon	2/13/2023	6.47	50.30
			Farallon	6/14/2023	4.81	51.96
FMW-12	59.10	5 to 15	Farallon	2/13/2023	8.43	50.67
			Farallon	6/14/2023	9.54	49.56
FMW-13	55.91	3 to 13	Farallon	2/13/2023	4.59	51.02
FMW-14	54.99	3 to 13	Farallon	9/11/2023	7.34	48.27
FMW-15	55.97	3 to 13	Farallon	9/11/2023	8.07	47.54
FMW-16	55.61	3 to 13	Farallon	9/11/2023	7.70	47.91
B-8	NA	20 to 30	Farallon	2/13/2023	8.41	NA
B-9	NA	20 to 30	Farallon	12/27/2022	6.28	NA
			Farallon	2/13/2023	6.61	NA

NOTES:

[1] In feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] In feet below top of well casing.

Atlas = Atlas Technical Consultants, LLC
bgs = below ground surface
Farallon = Farallon Consulting, L.L.C.
NA = not applicable

Table 2
Groundwater Analytical Results for TPH and BTEX
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sampled by	Sample Date	Sample Identification	Analytical Results (micrograms per liter)							
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Xylenes[3]	Naphthalene[3]
Reconnaissance Boring Groundwater Samples											
A-1	Atlas	9/24/2021	A-1	< 247*	< 495*	< 247*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-2	Atlas	9/24/2021	A-2	< 248*	< 497*	< 248*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-4	Atlas	9/23/2021	A-4	< 248*	< 496*	< 248*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-5	Atlas	9/24/2021	A-5	**3,050** P	< 98.7	157	**31.7**	3.82	< 0.400	< 1.50	1.60
A-6	Atlas	9/24/2021	A-6	< 246*	< 491*	< 246*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-7	Atlas	9/24/2021	A-7	**1,680**	< 100	< 250*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-10	Atlas	9/23/2021	A-10	**1,500** M	445	396	**62.3**	12.7	< 0.400	< 1.50	< 1.25
A-12	Atlas	9/23/2021	A-12	< 249*	< 498*	< 249*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-13	Atlas	9/23/2021	A-13	< 248*	< 496*	< 248*	< 0.440	< 0.750	< 0.400	< 1.50	< 1.25
A-14	Atlas	9/23/2021	A-14	< 250*	< 499*	< 250*	---	---	---	---	---
A-15	Atlas	11/3/2021	A-15	**1,510** M	< 99.4	402	**47.2**	9.52	< 0.400	< 1.50	---
A-16	Atlas	11/3/2021	A-16	< 98.4	< 98.4	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-17	Atlas	11/2/2021	A-17	< 99.5	125	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-18	Atlas	11/2/2021	A-18	< 99.7	185	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-19	Atlas	11/2/2021	A-19	< 99.0	364	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-20	Atlas	11/2/2021	A-20	**828** M	< 98.9	64.4	**18.8**	4.05	2.07	< 1.50	---
A-21	Atlas	11/2/2021	A-21	**3,270** M	< 99.4	367	**50.0**	8.89	0.592	< 1.50	---
A-22	Atlas	11/2/2021	A-22	**4,510** M	< 98.7	761	**137**	32.6	1.51	0.820	---
A-23	Atlas	11/13/2021	A-23	**4,050** M	< 98.5	350	**41.2**	12.3	1.47	0.728	---
A-24	Atlas	11/13/2021	A-24	**650** C	< 99.2	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-25	Atlas	11/13/2021	A-25	< 103	< 103	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-26	Atlas	11/13/2021	A-26	< 98.6	< 98.6	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-27	Atlas	3/7/2022	A-27	496 M	< 119	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-28	Atlas	3/7/2022	A-28	245 M	258	< 50.0	2.28	< 0.750	< 0.400	< 1.50	---
A-29	Atlas	3/7/2022	A-29	< 116	**962**	< 50.0	1.92	< 0.750	< 0.400	< 1.50	---
A-30	Atlas	3/7/2022	A-30	< 122	231	< 50.0	0.710	< 0.750	< 0.400	< 1.50	---
A-31	Atlas	3/7/2022	A-31	**937** M	< 118	92.4	**14.3**	1.49	< 0.400	< 1.50	---
A-32	Atlas	3/7/2022	A-32	**975** M	< 120	243	**51.1**	7.69	1.05	< 1.50	---
A-33	Atlas	3/7/2022	A-33	**1,650** M	< 119	86.1	**16.3**	5.19	0.657	< 1.50	---
A-34	Atlas	3/7/2022	A-34	261 M	206	< 50.0	**8.59**	0.761	< 0.400	< 1.50	---
A-35	Atlas	3/8/2022	A-35	**1,290** M	< 122	197	**28.0**	5.29	0.906	< 1.50	---
A-36	Atlas	3/8/2022	A-36	< 120	259	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-37	Atlas	3/8/2022	A-37	< 118	178	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-38	Atlas	3/8/2022	A-38	< 120	**700**	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
A-39	Atlas	3/7/2022	A-39	< 122	191	< 50.0	1.07	< 0.750	< 0.400	< 1.50	---
MTCA Method A Cleanup Level for Groundwater[4]				**500**	**500**	**800/1,000[5]**	**5**	**1,000**	**700**	**1,000**	**160**

Table 2
Groundwater Analytical Results for TPH and BTEX
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sampled by	Sample Date	Sample Identification	Analytical Results (micrograms per liter)							
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Xylenes[3]	Naphthalene[3]
Monitoring Well Groundwater Samples											
B-9	Atlas	9/2/2022	MW-7	< 94.0	106 C	< 50.0 J	< 0.440	< 0.750	< 0.400	< 1.50	---
	Farallon	12/27/2022	B-9-122722	< 83.3	< 167	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
MW-1	Atlas	11/4/2021	MW-1	**620** P	< 117	< 50.0	3.18	1.28	0.671	1.37	---
	Atlas	2/9/2022	MW-1	**4,310** C	< 118	< 50.0	**39.8**	5.44	< 0.400	< 1.50	---
	Atlas	9/2/2022	MW-1	**4,350** M	< 93.2	288 JL	**14.6**	36.4	0.660	< 1.50	---
	Farallon	12/27/2022	MW-1-122722	298 M X	< 157	266	**5.40**	46.8	< 0.500	< 1.50	< 2.00
	Farallon	2/14/2023	MW-1-021423	193 X	< 151	< 100 J	3.20 J	7.52 J	< 0.500 J	< 1.50 J	< 2.00 J
	Farallon	4/11/2023	MW-1-041123	481 X	< 151	< 100	**5.23**	2.69	< 0.500	< 1.50	< 2.00
MW-2	Atlas	11/4/2021	MW-2	**1,540** M	< 118	166	**28.5**	9.68	2.62	3.19	---
	Atlas	2/9/2022	MW-2	**1,930** C	< 119	< 50.0	**50.2**	20.3	7.67	< 1.50	---
	Atlas	9/1/2022	MW-2	141 M	< 93.3	< 50.0	2.40	1.04	1.90	< 1.50	---
	Farallon	12/27/2022	MW-2-122722	91.2 X	< 154	< 100	1.53	< 1.00	< 0.500	< 1.50	< 2.00
	Farallon	2/14/2023	MW-2-021423	< 76.9	< 154	< 100	0.690	< 1.00	0.610	< 1.50	< 2.00
MW-3	Atlas	11/4/2021	MW-3	288 M	< 115	< 50.0	**12.9**	2.76	0.941	2.205	---
	Atlas	2/9/2022	MW-3	249	< 119	< 50.0	4.49	< 0.750	< 0.400	< 1.50	---
	Atlas	9/1/2022	MW-3	< 92.5	238 C	< 50.0	0.479	< 0.750	< 0.400	< 1.50	---
	Farallon	12/28/2022	MW-3-122822	< 76.9	159 X	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
	Farallon	2/13/2023	MW-3-021323	104	< 151	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
MW-4	Atlas	11/4/2021	MW-4	**1,130**	< 108	< 50.0	1.13	< 0.750	< 0.400	< 1.50	---
	Atlas	2/9/2022	MW-4	294	< 119	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
	Atlas	9/1/2022	MW-4	< 93.3	214 C	< 50.0 J	< 0.440	< 0.750	< 0.400	< 1.50	---
	Farallon	1/4/2023	MW-4-010423	< 80.0	< 160	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
	Farallon	2/13/2023	MW-4-021323	< 75.5	< 151	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
MW-5	Atlas	11/4/2021	MW-5	230 P	< 117	< 50.0	1.18	< 0.750	< 0.400	< 1.50	---
	Atlas	2/9/2022	MW-5	< 122	< 122	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
	Atlas	9/1/2022	MW-5	< 94.2	< 94.2	< 50.0	< 0.440	< 0.750	< 0.400	< 1.50	---
	Farallon	12/28/2022	MW-5-122822	< 80.0	< 160	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
	Farallon	2/13/2023	MW-5-021323	< 75.5	< 151	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
MW-6	Atlas	11/15/2021	MW-6	267 G	< 99.3	< 50.0	2.90	< 0.750	< 0.400	< 1.50	---
	Atlas	2/9/2022	MW-6	< 118	< 118	< 50.0	1.05	< 0.750	< 0.400	< 1.50	---
	Atlas	9/1/2022	MW-6	< 93.8	171 C	< 50.0	1.01	< 0.750	< 0.400	< 1.50	---
	Farallon	12/28/2022	MW-6-122822	< 80.8	< 162	< 100	0.340	< 1.00	< 0.500	< 1.50	< 2.00
	Farallon	2/13/2023	MW-6-021323	< 75.5	< 151	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
MTCA Method A Cleanup Level for Groundwater[4]				**500**	**500**	**800/1,000[5]**	**5**	**1,000**	**700**	**1,000**	**160**

Table 2
Groundwater Analytical Results for TPH and BTEX
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sampled by	Sample Date	Sample Identification	Analytical Results (micrograms per liter)							
				DRO[1]	ORO[1]	GRO[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Xylenes[3]	Naphthalene[3]
MW-7	Atlas	11/15/2021	MW-7	**4,620** M	< 98.9	**1,440**	**120**	37.6	6.67	4.25	---
	Atlas	2/9/2022	MW-7	**7,210** C	< 119	< 50.0	**76.4**	28.2	8.82	< 1.50	---
	Farallon	1/4/2023	MW-7-010423	311 M X	< 160	213	**21.1**	29.8	9.51	< 1.50	2.13
	Farallon	2/14/2023	MW-7-021423	335 X	< 157	159	**13.7**	6.11	6.93	< 1.50	3.01
	Farallon	4/11/2023	MW-7-041123	259 X	< 154	< 100	**8.59** J	3.21 J	6.05 J	< 1.50 J	3.70
FMW-08	Farallon	2/14/2023	FMW-08-021423	< 75.5	< 151	< 100	0.340	< 1.00	< 0.500	< 1.50	< 2.00
	Farallon	4/11/2023	FMW-8-041123	< 75.5	215 X	< 100	0.340	< 1.00	< 0.500	< 1.50	< 2.00
FMW-09	Farallon	2/14/2023	FMW-09-021423	387 M X	< 151	< 100 J	**6.64** J	1.42 J	< 0.500 J	< 1.50 J	< 2.00 J
	Farallon	4/11/2023	FMW-9-041123	305 X	< 151	< 100	3.35	< 1.00	< 0.500	< 1.50	< 2.00
FMW-10	Farallon	2/14/2023	FMW-10-021423	114 N X	177 Q	< 100 J	0.260 J	< 1.00 J	< 0.500 J	< 1.50 J	< 2.00 J
	Farallon	4/11/2023	FMW-10-041123	353 X	< 151	< 100	0.370	< 1.00	< 0.500	< 1.50	< 2.00
FMW-11	Farallon	2/13/2023	FMW-11-021323	< 76.9	< 154	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
FMW-12	Farallon	2/14/2023	FMW-12-021423	< 75.5	< 151	< 100	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00
FMW-13	Farallon	2/13/2023	FMW-13-021323	< 76.9	< 154	< 100	1.38	< 1.00	< 0.500	< 1.50	< 2.00
MTCA Method A Cleanup Level for Groundwater[4]				**500**	**500**	**800/1,000[5]**	**5**	**1,000**	**700**	**1,000**	**160**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable cleanup levels.
--- denotes sample not analyzed.
< denotes analyte not detected at or exceeding the reporting limit listed.
* denotes analyzed by Northwest Method NWTPH-HCID
[1]Analyzed by Northwest Method NWTPH-Dx unless otherwise noted.
[2]Analyzed by Northwest Method NWTPH-Gx unless otherwise noted.
[3]Analyzed by U.S. Environmental Protection Agency Method 8260D.
[4]Washington State Model Toxics Control Act Cleanup Regulation Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended 2013.
[5]Cleanup level is 800 micrograms per liter if benzene is detected and 1,000 micrograms per liter if benzene is not detected.

Atlas = Atlas Technical Consultants, LLC
BTEX = benzene, toluene, ethylbenzene, and xylenes
C = chromatographic pattern indicates unresolved compound(s), or an unresolved complex mixture in the range
DRO = total petroleum hydrocarbons (TPH) as diesel-range organics
Farallon = Farallon Consulting, L.L.C.
G = chromatographic pattern resembles weathered gasoline-range material
GRO = TPH as gasoline-range organics
J = result is an estimate
JL = detection is biased high due to non-petroleum compounds
M = hydrocarbons in the gasoline range are impacting the diesel-range result
N = hydrocarbons in the oil range are impacting the diesel-range result
ORO = TPH as oil-range organics
P = chromatographic pattern indicates that the detection is due to one or more non-target compounds
Q = hydrocarbons in the diesel range are impacting the oil-range result
X = the chromatographic pattern does not resemble the fuel standard used for quantitation

Table 3
Groundwater Analytical Results for Halogenated VOCs
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sampled by	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]						
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,2-Dichloroethane	Methylene Chloride
Reconnaissance Boring Groundwater Samples										
A-1	Atlas	9/24/2021	A-1	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-2	Atlas	9/24/2021	A-2	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-4	Atlas	9/23/2021	A-4	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-5	Atlas	9/24/2021	A-5	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-6	Atlas	9/24/2021	A-6	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-7	Atlas	9/24/2021	A-7	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-10	Atlas	9/23/2021	A-10	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-12	Atlas	9/23/2021	A-12	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
A-13	Atlas	9/23/2021	A-13	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750	< 0.750
Monitoring Well Groundwater Samples										
MW-1	Farallon	12/27/2022	MW-1-122722	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	2/14/2023	MW-1-021423	< 0.400 J	< 0.400 J	< 0.400 J	< 0.400 J	< 0.400 J	< 0.400 J	< 10.0 J
	Farallon	4/11/2023	MW-1-041123	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
MW-2	Farallon	12/27/2022	MW-2-122722	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	2/14/2023	MW-2-021423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
MW-3	Farallon	12/28/2022	MW-3-122822	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	2/13/2023	MW-3-021323	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
MW-4	Farallon	1/4/2023	MW-4-010423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	2/13/2023	MW-4-021323	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
MW-5	Farallon	12/28/2022	MW-5-122822	< 0.700 K	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	2/13/2023	MW-5-021323	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
MW-6	Farallon	12/28/2022	MW-6-122822	< 0.700 K	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	2/13/2023	MW-6-021323	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
MTCA Cleanup Levels for Groundwater[2]				**5**	**5**	**16[3]**	**160[3]**	**0.2**	**5**	**5**

Table 3
Groundwater Analytical Results for Halogenated VOCs
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sampled by	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]						
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,2-Dichloroethane	Methylene Chloride
MW-7	Farallon	1/4/2023	MW-7-010423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	0.850	< 10.0
	Farallon	2/14/2023	MW-7-021423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	0.540	< 10.0
	Farallon	4/11/2023	MW-7-041123	< 0.400	< 0.400 J	< 0.400	< 0.400	< 0.400	0.510 J	< 10.0
FMW-08	Farallon	2/14/2023	FMW-08-021423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	4/11/2023	FMW-8-041123	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
FMW-09	Farallon	2/14/2023	FMW-09-021423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
	Farallon	4/11/2023	FMW-9-041123	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
FMW-10	Farallon	2/14/2023	FMW-10-021423	3.38	**6.44**	**29.8**	0.960	< 0.400	< 0.400	< 10.0
	Farallon	4/11/2023	FMW-10-041123	1.74	**9.39**	**39.5**	1.39	< 0.400	< 0.400	< 10.0
FMW-11	Farallon	2/13/2023	FMW-11-021323	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
FMW-12	Farallon	2/14/2023	FMW-12-021423	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
FMW-13	Farallon	2/13/2023	FMW-13-021323	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 10.0
FMW-16	Farallon	9/11/2023	FMW-16-091123	< 0.400	< 0.400	**17.5**	0.220 J	< 0.200	< 0.400	< 10.0
MTCA Cleanup Levels for Groundwater[2]				**5**	**5**	**16[3]**	**160[3]**	**0.2**	**5**	**5**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the reporting limit listed.

[1]Analyzed by U.S. Environmental Protection Agency Method 8260D.

[2]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.

[3]Washington State Model Toxics Control Act Cleanup Regulation Cleanup Levels and Risk Calculations, Standard Method B Values for Groundwater, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC.

Atlas = Atlas Technical Consultants, LLC

Farallon = Farallon Consulting, L.L.C.

J = result is an estimate

K = reporting limit raised due to possible carryover from previous sample

NE = not established

PCE = tetrachloroethene

TCE = trichloroethene

VOC = volatile organic compound

Table 4
Groundwater Analytical Results for PFAS
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sampled by	Sample Date	Sample Identification	Analytical Results (nanograms per liter)[2]							
				Perfluorobutanoic Acid (PFBA)	Perfluorobutane Sulfonic Acid (PFBS)	Perfluorohexanoic Acid (PFHxA)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorononanoic Acid (PFNA)	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
Reconnaissance Boring Groundwater Samples											
A-1	Atlas	9/24/2021	A-1	2.7	< 1.7	4.9	1.9	< 2.0	8.8	< 2.0	< 2.0
A-7	Atlas	9/24/2021	A-7	11	2.2	13	< 1.8	**18**	**19**	**9.1**	< 1.9
Monitoring Well Groundwater Samples											
MW-2	Farallon	6/14/2023	MW-2-061423	100	0.28 J	260	< 4.4	1.5 J	4.4	< 4.4	< 4.4
MW-3	Farallon	6/14/2023	MW-3-061423	170	3.1 J	340	1.4 J	10	**53**	1.8 J	< 4.4
MW-4	Farallon	2/13/2023	MW-4-021323	56	4.7	100	< 4.5	**37**	11	2.0 J	< 4.5
	Farallon	6/14/2023	MW-4-061423	42	2.5 J	100	< 4.5	**19**	**16**	**16**	< 4.5
MW-5	Farallon	2/13/2023	MW-5-021323	< 4.3	1.7 J	< 9.2	1.6 J	0.64 J	< 4.3	< 4.3	< 4.3
MW-6	Farallon	2/13/2023	MW-6-021323	4.6	1.0 J	10	1.6 J	3.3	1.2 J	< 4.5	< 4.5
FMW-08	Farallon	6/14/2023	FMW-8-061423	93	0.46 J	190	< 4.5	2.8	13	1.2 J	< 4.5
FMW-10	Farallon	6/14/2023	FMW-10-061423	200	< 4.4	540	1.7 J	7.6	14	1.7 J	< 4.4
FMW-11	Farallon	6/14/2023	FMW-11-061423	17	1.2 J	40	< 4.5	2.3	2.7 J	< 4.5	< 4.5
FMW-12	Farallon	6/14/2023	FMW-12-061423	11	< 4.4	36	< 4.4	2.0	0.61 J	< 4.4	< 4.4
FMW-14	Farallon	9/11/2023	FMW-14-091123	410	2.4 J	1,200	2.5 J	**15**	**18**	< 4.6	< 4.6
FMW-15	Farallon	9/11/2023	FMW-15-091123	600	1.0 J	1,800	1.5 J	**11**	**25**	2.4 J	< 4.5
FMW-16	Farallon	9/11/2023	FMW-16-091123	110	< 4.7	260	3.4 J	5.0	**43**	< 4.7	< 4.7
Washington State Action Levels[3]				**NE**	**345**	**NE**	**65**	**10**	**15**	**9**	**NE**
MTCA Method B Groundwater Cleanup Levels[3]				**8,000**	**4,800**	**8,000**	**160**	**48**	**48**	**40**	**24**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable action or cleanup levels.

< denotes analyte not detected at or exceeding the reporting limit listed.

[1]Depth in feet below ground surface.

[2]Samples analyzed by U.S. Environmental Protection Agency (EPA) Method 537 Modified. Only select analytes with established cleanup levels displayed. See laboratory report for full list of analytes.

[3]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Standard Method B Values for Groundwater from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC.

Atlas = Atlas Technical Consultants, LLC

Farallon = Farallon Consulting, L.L.C.

J = result is an estimate

NE = not established

PFAS = per- and poly-fluoroalkyl substances

Table 5
Groundwater Analytical Results for Geochemical Parameters
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Sample Date	Sample Identification	Analytical Results																
			Total Aluminum[1] (mg/L)	Total Calcium[1] (mg/L)	Dissolved Calcium[1] (mg/L)	Total Magne-sium[1] (mg/L)	Total Iron[1] (mg/L)	Hardness[2] (mg/L $CaCO_3$)	Total Alkalinity[3] (mg/L $CaCO_3$)	Bicarbonate Alkalinity[3] (mg/L $CaCO_3$)	Carbonate Alkalinity[3] (mg/L $CaCO_3$)	Hydroxide Alkalinity[3] (mg/L $CaCO_3$)	Nitrate[4] (mg/L)	Sulfate[4] (mg/L)	Methane[5] (µg/L)	Ethane[5] (µg/L)	Ethene[5] (µg/L)	Carbon Dioxide[6] (mg/L)	Total Organic Carbon[7] (mg/L)
Monitoring Well Groundwater Results																			
B-9	12/27/2022	B-9-122722	---	20.3	16.2	6.62	---	77.9	---	---	---	---	---	---	---	---	---	---	---
MW-1	12/27/2022	MW-1-122722	---	180	186	65.2	---	718	---	---	---	---	---	---	---	---	---	---	---
	6/14/2023	MW-1-061423	0.0395	202	---	57.8	131	---	744	---	---	---	---	---	---	---	---	---	---
MW-2	12/27/2022	MW-2-122722	---	32.5	27.2	4.97	---	102	---	---	---	---	---	---	---	---	---	---	---
MW-3	12/28/2022	MW-3-122822	---	60.4	48.6	21	---	237	---	---	---	---	---	---	---	---	---	---	---
	9/11/2023	MW-3-091123	< 0.0500	26.8	---	9.14	3.7	105	97.8	97.8	< 20.0	< 20.0	---	---	---	---	---	---	---
MW-4	1/4/2023	MW-4-010423	---	19.3	17.3	3.06	---	60.8	---	---	---	---	---	---	---	---	---	---	---
	6/14/2023	MW-4-061423	0.295	13.5	---	1.92	0.57	---	30.4	---	---	---	---	---	---	---	---	---	---
MW-5	12/28/2022	MW-5-122822	---	27.5	22.4	9.83	---	109	---	---	---	---	---	---	---	---	---	---	---
MW-6	12/28/2022	MW-6-122822	---	68.3	68	25.9	---	277	---	---	---	---	---	---	---	---	---	---	---
MW-7	1/4/2023	MW-7-010423	---	89.6	91.9	27	---	335	---	---	---	---	---	---	---	---	---	---	---
	6/14/2023	MW-7-061423	0.0550	58.5	---	14.7	47.5	---	245	---	---	---	---	---	---	---	---	---	---
FMW-10	6/14/2023	FMW-10-061423	0.0200	116	---	27.4	3.06	---	595	---	---	---	< 2.00 0.374 H	14.0	133	< 15.1	< 14.6	546	24.6
FMW-14	9/11/2023	FMW-14-091123	< 0.0500	33.6	---	14.9	24.5	145	102	102	< 20.0	< 20.0	---	---	---	---	---	---	---
FMW-15	9/11/2023	FMW-15-091123	0.0541	27.6	---	9.95	3.6	110	84.0	84.0	< 20.0	< 20.0	---	---	---	---	---	---	---
FMW-16	9/11/2023	FMW-16-091123	0.0919	71.0	---	17.1	67.5	248	506	506	< 20.0	< 20.0	---	---	---	---	---	---	---

NOTES:

< denotes analyte not detected at or exceeding the reporting limit listed.

--- denotes sample not analyzed.

[1]Analyzed by U.S. Environmental Protection Agency (EPA) Method 200.8.

[2]Calculated by Standard Method 2340B.

[3]Analyzed by Standard Method 2320B.

[4]Analyzed by EPA Method 300.0.

[5]Analyzed by Method RSK-175.

[6]Analyzed by Standard Method 2320B/Standard Method 4500-CO2D.

[7]Analyzed by Standard Method 5310C.

H = sample analyzed outside of holding time

µg/L = micrograms per liter

mg/L = milligrams per liter

mg/L $CaCO_3$ = milligrams per liter as calcium carbonate

Table 6
Summary of Groundwater Field Parameters
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Measurement Date	Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Specific Conductivity (µS/cm)	Turbidity (NTU)
B-8	12/27/2022	11.3	7.29	2.39	-38.9	323.4	24.00
B-9	9/2/2022	11.87	9.12	1.08	63.2	248	---
	12/27/2022	10.8	6.90	4.88	246.2	195.5	67.41
MW-1	9/2/2022	15.68	8.84	0.78	45.8	770	---
	12/27/2022	10.1	6.63	2.26	-85.8	1,513	4.05
	2/14/2023	8.9	6.77	1.19	-106.2	1,179	32.32
	4/11/2023	9.6	6.65	1.15	-103.1	1,659	72.0
	6/14/2023	14.0	6.52	0.05	-108.1	1,649	38.47
MW-2	9/1/2022	14.60	8.66	0.83	98.6	291	---
	12/27/2022	12.7	6.52	2.26	-38.9	545	26.92
	2/14/2023	12.4	6.45	0.99	9.8	551	6.80
	6/14/2023	13.7	6.29	0.39	28.0	315	12.20
MW-3	9/1/2022	18.68	8.14	0.64	88.0	244	---
	12/28/2022	13.4	5.99	2.39	146.0	8.78	49.03
	2/13/2023	12.0	6.45	0.98	33.0	276	100.34
	6/14/2023	14.8	6.16	0.19	64.6	282	13.67
MW-4	9/1/2022	19.29	7.83	1.18	88.9	84	---
	1/4/2023	10.3	6.94	10.32	40.8	151	16.16
	2/13/2023	9.2	6.76	7.27	202.1	172	4.41
	6/14/2023	14.4	6.62	5.82	194.0	135	25.50
MW-5	9/1/2022	17.64	7.60	2.10	92.9	98	---
	12/28/2022	13.4	6.39	2.28	96.9	306.0	7.25
	2/13/2023	11.9	6.19	2.37	174.2	152	3.46
MW-6	9/1/2022	18.91	8.01	0.83	81.8	241	---
	12/28/2022	12.3	6.47	2.12	50.9	592	38.01
	2/13/2023	10.2	6.20	1.10	131.7	457	60.91

Table 6
Summary of Groundwater Field Parameters
Former Washington Cold Storage Building
Puyallup, Washington
Farallon PN: 2636-001

Sample Location	Measurement Date	Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Specific Conductivity (µS/cm)	Turbidity (NTU)
MW-7	1/4/2023	8.8	6.75	9.08	34.0	876	26.64
	2/14/2023	8.0	6.60	1.13	-72.2	949	13.40
	4/11/2023	8.9	6.51	1.24	-72.9	573	62.7
	6/14/2023	12.2	6.42	0.11	-61.1	657	20.62
FMW-08	2/14/2023	9.5	7.08	1.29	-123.4	335	7.74
	4/11/2023	10.1	6.63	1.32	-90.1	274	7.4
	6/14/2023	14.1	6.60	0.16	-81.2	242	12.05
FMW-09	2/14/2023	11.8	6.76	1.09	-129.7	2,108	15.30
	4/11/2023	12.6	6.63	1.18	-95.1	2,074	26.3
FMW-10	2/14/2023	12.1	6.50	1.11	-42.0	1,740	4.34
	4/11/2023	12.3	6.46	1.36	-10.6	1,374	7.6
	6/14/2023	14.6	6.38	0.21	53.4	1,271	15.7
FMW-11	2/13/2023	11.2	6.61	1.25	-29.7	230	4.59
	6/14/2023	15.2	6.39	0.31	95.9	280	7.72
FMW-12	2/14/2023	9.6	6.29	1.09	55.3	334	12.52
	6/14/2023	10.9	6.12	0.19	66.8	332	9.00
FMW-13	2/13/2023	11.4	6.25	2.08	-25.8	374	20.42

NOTES:
--- denotes not measured.

°C = degrees
µS/cm = microSiemens per centimeter
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity unit

ATTACHMENT A
UIC AUTHORIZATION LETTER

REMEDIAL INJECTION BASIS OF DESIGN
Former Washington Cold Storage Building
240 15th Street Southeast
Puyallup, Washington

Farallon PN: 2636-001

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

December 20, 2023

Brady Thomson
Fortress Investment Group LLC
11611 San Vicente Boulevard
10th Floor
Los Angeles, CA 90049

RE: UIC Site 37460 Registration with the Underground Injection Control (UIC) Program, Washington Cold Storage, 240 15th Street SE, Puyallup, WA 98372

Dear Brady Thomson:

Ecology's UIC Program has reviewed your UIC registration application for the above-mentioned Site. Based on the information provided in the registration and the additional information provided per Ecology's request, the UIC wells are **Conditionally Rule-Authorized,** a State Waste Discharge Permit is not required to operate the wells under WAC 173-218 authorities.

The UIC registration number is 37460. The Site is undergoing independent remedial cleanup activities (IRCA). If the ICRA is to be eventually evaluated by the state to make a determination whether the IRCA has met the substantive requirements of the Model Toxics Control Act (MTCA), the Pollution Liability Insurance Agency (PLIA) will make that evaluation. The Voluntary Cleanup Program (VCP) Project Number is XS0012. The Facility Site Identification Number is 99997041.

The Cleanup Action Plan, *Remedial Investigation/Focused Feasibility Study and Cleanup Action Plan, Former Washington Cold Storage Building, 240 15th Street Southeast Puyallup, Washington, Farallon PN: 2636-001, May 12, 2023,* describes new proposed work at the Site.

Conditional Rule-Authorization - Conditions of Use

There are inherent environmental risks associated with injecting compounds into groundwater. It is incumbent upon the owner and their representative to carefully characterize, manage, and monitor the Site surface and subsurface conditions to minimize

risk and prevent unforeseen degradation of groundwater quality and other environmental risks.
Ecology will Rule-Authorize a UIC registration to operate when the two basic UIC Program requirements for Rule Authorization are met:

1. Registration of UIC wells (prior to use), and
2. The UIC well must meet the nonendangerment standard (WAC 173-218-080).

Because of the risks involved in conducting remedial activities, this Site does not meet the nonendangerment standard for Rule Authorization. Additional conditions are needed to allow for Rule-Authorization and the remedial work to proceed.

The following Site-specific UIC Program requirements for **Conditionally Rule-Authorization** include:

- The interim action is a one-time event, additional injections will require additional authorizations.
- Onsite groundwater is not approved for use to mix with the remediation products for injection into the subsurface.
- The injection activities must follow all PLIA directives or agreements. Any deviations from approved work plans or other agreements are not allowed unless the VCP Site Cleanup Manager has approved those changes in writing.
- The injections must not cause a further degradation to groundwater quality criteria at the down-gradient monitoring points per state or federal applicable criteria. If such groundwater degradation occurs, the injection activities must discontinue; any environmental release or mobilization of contaminants must be reported no later than 24-hours from the release discovery at https://ecology.wa.gov/Footer/Report-an-environmental-issue or call 1-800-645-7911.
- Additionally, notification to Ecology's UIC Program of any change in UIC well status is a required element to this registration.
- The planned IRCA start date is for January 2024.

The Site will be **Conditionally Rule-Authorized** for as long as the nonendangerment standard of WAC 173-218-080 will continue to be met and the above items have been completed. Failure to capture any of the required performance data, causing a groundwater violation, or additional degradation of the applicable groundwater quality criteria may result in a denial, modification, or termination of the UIC registration rule authorization.

A PLIA Site Cleanup Manager will have final authority to determine if the interim actions described in your UIC registration have met the substantive requirement of the MTCA if such an opinion is requested. Ecology's UIC Program will not make that determination.

At any time, Ecology may require you to apply for, and obtain, a State Waste Discharge Permit for the continued use of these compounds. You would need to obtain a formal waste

discharge approval for this project through the Ecology's State Waste Discharge Permit Program or Toxics Cleanup Program.

The owner is responsible to keep the UIC registration information current and retain all registration documents, plans, modeling, monitoring results, interim, and final reports. Upon Ecology request, the owner shall provide these documents to the UIC Program.

This UIC registration was evaluated under the presumptive approach, Ecology has presumed the conditions described in the UIC registration and other submitted documents to be truthful and factual when making the determination the injections will be protective of the Site groundwater quality and will meet the nonendangerment standard requirements of WAC 173-218-080. Any material misrepresentations or omissions of fact supplied in this application may result in the denial or revocation of this registration authorization. Ecology's UIC Program has the authority to rescind a rule authorization if Ecology determines the system no longer meets the nonendangerment standard.

Please contact Brian Johnson at UICwells@ecy.wa.gov if you have any questions. You can find additional information on the UIC Program can at our website:

https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Underground-injection-control-program

Sincerely,

Brian Johnson, LG
Water Quality Program

Cc: Yusuf Pehlivan, Farallon Consulting, LLC

ATTACHMENT B
BORING LOGS

REMEDIAL INJECTION BASIS OF DESIGN
Former Washington Cold Storage Building
240 15th Street Southeast
Puyallup, Washington

Farallon PN: 2636-001

Log of Boring: FB-01

Client:	Fortress
Project:	Fmr WA Cold Storage
Location:	Puyallup, WA
Farallon PN:	2636-001
Logged By:	M. Nelson
Reviewed By:	Y. Pehlivan

Date/Time Started:	2/7/23 @ 1220	**Depth to Water ATD (ft bgs):**	5.0
Date/Time Completed:	2/7/23 @ 1300	**Boring Diameter (in):**	2.25
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push		
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Water Level	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.3': Asphalt. Airknife to 5.0' bgs for utilities.	AC			100			
		0.3-5.0': Poorly graded SAND (100% sand), fine to medium sand, reddish brown, moist, no odor, reddish staining.	SP				0.0	FB-01-3.0	X
5		5.0-7.5': Poorly graded SAND (100% sand), fine to medium sand, grayish black, wet, no odor, no staining.	SP		▼	50	0.0	FB-01-7.0	X
		7.5-10.0': No Recovery.							
10		10-15.0': Poorly graded SAND (100% sand), fine to medium sand, grayish black, wet, no odor, no staining.	SP			100	0.0	FB-01-13.0	
15									

Completion Information

Temporary Well Casing Diameter (in):	NA	**Surface Seal:**	Concrete
Temporary Well Screened Interval (ft bgs):	NA	**Ground Surface Elevation (ft):**	NA
Boring Abandonment:	Bentonite	**Surveyed Location:**	**X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FB-02

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started: 2/7/23 @ 1630
Date/Time Completed: 2/7/23 @ 1801
Drilling Company: AEC
Drilling Method: Direct Push
Drilling Equipment: 7820DT
Drilling Operator: Blake Phillips
Sampler Type: 5' Macrocore

Depth to Water ATD (ft bgs): 8.0
Boring Diameter (in): 2.25
Total Boring Depth (ft bgs): 20.0

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Water Level	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.5': Concrete. Airknife to 5.0' bgs for utilities.	CO			100			
		0.5-5.0': Silty GRAVEL with sand (60% gravel, 25% silt, 15% sand), fine gravel, fine sand, brown, moist, no odor, reddish staining.	GM				0.1	FB-02-3.0	
5		5.0-8.0': Poorly graded SAND (100% sand), fine sand, brown, moist, no odor, reddish staining.	SP			60	0.0	FB-02-7.0	X
		8.0-10.0': No Recovery.							
10		10.0-15.0': Poorly graded SAND (100% sand), medium sand, grayish black, wet, no odor, no staining.	SP			100	0.1	FB-02-13.0	X
15		15.0-20.0': Poorly graded SAND (100% sand), medium sand, grayish black, wet, no odor, no staining.	SP			100	0.0	FB-02-17.0	
20									

Completion Information

Temporary Well Casing Diameter (in): NA
Temporary Well Screened Interval (ft bgs): NA
Boring Abandonment: Bentonite
Surface Seal: Concrete
Ground Surface Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FB-03

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started: 2/7/23 @ 1750
Date/Time Completed: 2/8/23 @ 1032
Drilling Company: AEC
Drilling Method: Direct Push
Drilling Equipment: 7820DT
Drilling Operator: Blake Phillips
Sampler Type: 5' Macrocore

Depth to Water ATD (ft bgs): 7.0
Boring Diameter (in): 2.25
Total Boring Depth (ft bgs): 25.0

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0-0.5': Concrete. Airknife to 5.0' bgs for utilities.	CO	100			
	0.5-5.0': Poorly graded SAND (100% sand), medium sand, brown, moist, no odor, no staining.	SP		0.0	FB-03-3.0	
5	5.0-7.0': Silty SAND (75% sand, 25% silt), fine sand, brown, moist, slight petroleum-like odor, greenish staining.	SM	60			
	7.0-9.0': Poorly graded SAND (100% sand), medium sand, grayish black, wet, no odor, no staining.	SP		5.6	FB-03-7.0	X
	9.0-10.0': No Recovery.					
10	10.0-15.0': Poorly graded SAND (100% sand), medium sand, grayish black, wet, no odor, no staining.	SP	100	0.1	FB-03-13.0	X
15	15.0-20.0': Silty SAND (75% sand, 25% silt), fine sand, brown, wet, slight petroleum-like odor, no staining.	SM	100	3.1	FB-03-17.0	X
20	20.0-25.0': Poorly graded SAND (100% sand), medium sand, grayish black, wet, no odor, no staining.	SP				
25				0.0	FB-03-24.0	X

Completion Information

Temporary Well Casing Diameter (in): NA
Temporary Well Screened Interval (ft bgs): NA
Boring Abandonment: Bentonite
Surface Seal: Concrete
Ground Surface Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FB-04

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/8/23 @ 1256	**Depth to Water ATD (ft bgs):**	8.2
Date/Time Completed:	2/8/23 @ 1336	**Boring Diameter (in):**	2.25
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	20.0
Drilling Method:	Direct Push		
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Water Level	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.5': Concrete. Airknife to 5.0' bgs for utilities.	CO			100			
		0.5-5.0': Poorly graded SAND (100% sand), fine sand, gray, moist, no odor, reddish staining.	SP				0.0	FB-04-3.0	
5		5.0-10.0': Poorly graded SAND (100% sand), fine sand, gray, moist, wet at 8.2' bgs, organic odor, no staining.	SP		▼	100	1.6	FB-04-7.0	X
10		10.0-15.0': Poorly graded SAND (100% sand), fine sand, transition to medium sand at 13.0' bgs, gray, wet, organic odor, no staining.	SP			100	1.1	FB-04-13.0	X
15		15.0-20.0': Poorly graded SAND (100% sand), fine sand, gray, wet, organic odor, no staining.	SP			100	0.4	FB-04-17.0	X
20									

Completion Information

Temporary Well Casing Diameter (in):	NA	**Surface Seal:**	Concrete
Temporary Well Screened Interval (ft bgs):	NA	**Ground Surface Elevation (ft):**	NA
Boring Abandonment:	Bentonite	**Surveyed Location:**	**X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FB-05

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/8/23 @ 1343	**Depth to Water ATD (ft bgs):**	7.8
Date/Time Completed:	2/8/23 @ 1430	**Boring Diameter (in):**	2.25
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	20.0
Drilling Method:	Direct Push		
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0-0.5': Concrete. Airknife to 5.0' bgs for utilities.	CO	100			
	0.5-5.0': Poorly graded SAND (100% sand), medium sand, brown, moist, no odor, no staining.	SP		0.0	FB-05-3.0	X
5	5.0-8.0': Silty SAND (85% sand, 15% silt), medium sand, brownish gray, moist, wet at 7.8' bgs, no odor, no staining.	SP-SM	60	0.0	FB-05-7.5	X
	8.0-10.0': No Recovery.					
10	10.0-15.0': Poorly graded SAND (100% sand), fine sand, brownish gray, wet, no odor, no staining.	SP	100	0.0	FB-05-13.0	
15	15.0-20.0': Poorly graded SAND (100% sand), fine sand, brownish gray, wet, no odor, no staining.	SP	100	0.0	FB-04-17.5	
20						

Completion Information

Temporary Well Casing Diameter (in):	NA	**Surface Seal:**	Concrete
Temporary Well Screened Interval (ft bgs):	NA	**Ground Surface Elevation (ft):**	NA
Boring Abandonment:	Bentonite	**Surveyed Location:**	**X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FB-06

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started: 2/8/23 @ 1438
Date/Time Completed: 2/8/23 @ 1528
Drilling Company: AEC
Drilling Method: Direct Push
Drilling Equipment: 7820DT
Drilling Operator: Blake Phillips
Sampler Type: 5' Macrocore

Depth to Water ATD (ft bgs): 8.6
Boring Diameter (in): 2.25
Total Boring Depth (ft bgs): 20.0

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Water Level	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.5': Concrete. Airknife to 5.0' bgs for utilities.	CO			100			
		0.5-1.6': Foam Insulation.	FILL						
		1.6-2.0': Concrete.	CO						
		2.0-5.0': Silty SAND (65% sand, 35% silt), medium sand, brown, wet, chemical-like odor, no staining.	SM				1.5	FB-06-3.0	X
5		5.0-8.0': Poorly graded SAND (100% sand), fine to medium sand, brownish gray, moist, no odor, orange staining.	SP			60	0.0	FB-06-7.0	X
		8.0-10.0': No Recovery.			▼				
10		10.0-15.0': Poorly graded SAND (100% sand), medium sand, gray, wet, no odor, no staining.	SP			100	0.0	FB-06-13.0	
15		15.0-20.0': Poorly graded SAND (100% sand), medium sand, gray, wet, no odor, no staining.	SP			100	0.0	FB-06-17.0	
20									

Completion Information

Temporary Well Casing Diameter (in): NA
Temporary Well Screened Interval (ft bgs): NA
Boring Abandonment: Bentonite
Surface Seal: Concrete
Ground Surface Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FMW-08

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/7/23 @ 1310	**Depth to Water ATD (ft bgs):**	3.0
Date/Time Completed:	2/7/23 @ 1420	**Boring Diameter (in):**	3.5
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.3': Asphalt. Airknife to 5.0' bgs for utilities.	AC		100				Concrete
		0.3-5.0': Silty SAND (75% sand, 25% silt), fine sand, brown, moist, wet at 3.0' bgs, organic odor, no staining.	SM						Bentonite Sand Pack
						0.4	FMW-08-3.0	X	Water Level
5		5.0-10.0': Silty SAND (85% sand, 15% silt), fine to medium sand, grayish brown, wet, no odor, no staining.	SM		100				
						0.0	FMW-08-7.0	X	Well Screen
10		10-15.0': Silty SAND (85% sand, 15% silt), fine to medium sand, grayish brown, wet, no odor, no staining.	SM		100				
						0.0	FMW-08-13.0		Native
15									

Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	54.10
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	53.82
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:** X: 682232.65	Y: 1198762.78
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:** BNM 678	

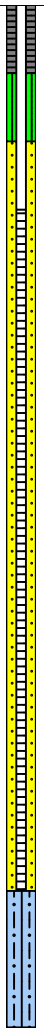
FARALLON CONSULTING

Log of Boring: FMW-09

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/7/23 @ 0930	**Depth to Water ATD (ft bgs):**	5.2
Date/Time Completed:	2/7/23 @ 1053	**Boring Diameter (in):**	3.5
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0-0.3': Asphalt. Airknife to 5.0' bgs for utilities.	AC	100			
	0.3-5.0': Poorly graded SAND (100% sand), fine to medium sand, reddish brown, moist, no odor, reddish staining.	SP		0.0	FMW-09-3.0	X
5	5.0-9.0': Poorly graded SAND (100% sand), medium sand, gray, moist, wet at 5.2' bgs, faint petroleum-like odor, no staining.	SP	80	0.2	FMW-09-7.0	X
	9.0-10.0': No Recovery.					
10	10-15.0': Silty SAND (70% sand, 30% silt), medium sand, brown, moist, no odor, no staining.	SM	100	0.0	FMW-09-13.0	X
15						



Concrete
Bentonite
Sand Pack
Water Level
Well Screen
Native

Well Construction Information

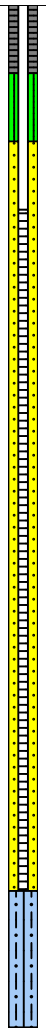
Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	54.80
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	54.54
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:** **X:** 682228.36	**Y:** 1198924.92
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:** BNM 679	

Log of Boring: FMW-10

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/7/23 @ 1046	**Depth to Water ATD (ft bgs):**	5.3
Date/Time Completed:	2/7/23 @ 1204	**Boring Diameter (in):**	3.5
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0-0.3': Asphalt. Airknife to 5.0' bgs for utilities.	AC	100			
	0.3-5.0': Poorly graded SAND (100% sand), fine to medium sand, reddish brown, moist, no odor, reddish staining.	SP		0.0	FMW-10-3.0	X
5	5.0-10.0': Poorly graded SAND (100% sand), fine sand, gray, moist, wet at 5.3' bgs, no odor, no staining.	SP	100	0.0	FMW-10-7.0	X
10	10-15.0': Silty SAND (85% sand, 15% silt), fine sand, brownish black, wet, no odor, no staining.	SM	100	0.0	FMW-10-13.0	
15						



Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	54.74
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	54.32
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:** X: 682196.53	Y: 1199033.03
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:**	BNM 680

Log of Boring: FMW-11

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/7/23 @ 1225	**Depth to Water ATD (ft bgs):**	5.0
Date/Time Completed:	2/7/23 @ 1545	**Boring Diameter (in):**	3.5
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.3': Asphalt. Airknife to 5.0' bgs for utilities.	AC		100				Concrete
		0.3-5.0': Poorly graded SAND (100% sand), fine to medium sand, reddish brown, moist, no odor, reddish staining.	SP			0.0	FMW-11-3.0	X	Bentonite Sand Pack
5		5.0-10.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, brown, black at 7.0' bgs, wet, no odor, no staining.	SP		100	0.0	FMW-11-7.0	X	Water Level Well Screen
10		10-15.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, black, wet, no odor, no staining.	SP		100	0.0	FMW-11-13.0		Native
15									

Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	56.38
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	56.77
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:** **X:** 681969.20	**Y:** 1199272.26
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:** BNM 681	

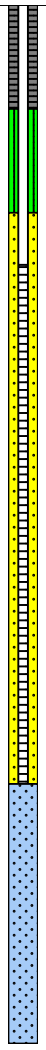
FARALLON CONSULTING

Log of Boring: FMW-12

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/8/23 @ 0915	**Depth to Water ATD (ft bgs):**	5.0
Date/Time Completed:	2/8/23 @ 1130	**Boring Diameter (in):**	3.5
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	20.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	15.0
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0-0.5': Concrete. Airknife to 5.0' bgs for utilities.	CO	100			
	0.5-5.0': Poorly graded SAND (100% sand), fine sand, brown, dry, no odor, no staining.	SP		0.0	FMW-12-3.0	
5	5.0-10.0': Silty SAND (75% sand, 25% silt), fine to medium sand, brown, wet, no odor, reddish staining.	SM	100	0.0	FMW-12-7.0	X
10	10.0-13.0': Poorly graded SAND (100% sand), fine sand, brown, moist, no odor, no staining.	SP	100			
	13.0-20.0': Poorly graded SAND (100% sand), medium sand, grayish black, moist, no odor, no staining.	SP		0.0	FMW-12-13.0	X
15			100			
				0.0	FMW-12-17.0	
20						



Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	59.34
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	59.10
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 682014.42	**Y:** 1198777.73
Screened Interval (ft bgs):	5-15	**Boring Abandonment:**	NA	**Unique Well ID:**	BNM 683

Log of Boring: FMW-13

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	2/7/23 @ 1541	**Depth to Water ATD (ft bgs):**	4.6
Date/Time Completed:	2/7/23 @ 1650	**Boring Diameter (in):**	3.5
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7820DT		
Drilling Operator:	Blake Phillips		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.6': Poorly graded GRAVEL (100% gravel), coarse gravel, gray, no odor.	GP		100				Concrete
		0.6-5.0': Poorly graded SAND (100% sand), reddish brown, moist, wet at 4.6' bgs, no odor.	SP						Bentonite
						0.1	FMW-13-3.0	X	Sand Pack
									Water Level
5		5.0-9.0': Poorly graded SAND (100% sand), reddish brown, black at 7.0' bgs, moist, no odor.	SP		80				
						0.0	FMW-13-7.0	X	
									Well Screen
		9.0-10.0': No Recovery.	SP						
10		10.0-15.0': Poorly graded SAND (100% sand), black, moist, no odor.	SP		100				
						0.0	FMW-13-13.0		Native
15									

Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	56.20
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	55.91
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 681846.15	**Y:** 1198810.38
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:** BNM 682	

FARALLON CONSULTING

Log of Boring: FMW-14

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	8/29/23 @ 1045	**Depth to Water ATD (ft bgs):**	7.7
Date/Time Completed:	8/29/23 @ 1320	**Boring Diameter (in):**	3.5
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Boring/Well Construction Details
0	0.0-0.3': Asphalt. Hand-cleared to 5.0' bgs for utilities.	AC	100			Concrete
	0.3-1.0': Sandy SILT (50% silt, 45% sand, 5% gravel), medium sand, fine gravel, brown, dry, no odor, no staining.	ML				Bentonite
	1.0-5.0': Poorly graded SAND (95% sand, 5% silt), medium sand, brown, no odor, red staining.	SP		0.0	FMW-14- 2.0	Sand Pack
				0.0	FMW-14-4.0	
5	5.0-8.0': Poorly graded SAND (95% sand, 5% silt), medium sand, brown, no odor, no staining.	SP	60	0.0	FMW-14-6.0	
						Water Level
	8.0-10.0': No Recovery.			0.0	FMW-14-8.0	Well Screen
10	10.0-15.0': Poorly graded SAND (95% sand, 5% silt), medium sand, black, wet, sulfur-like odor, no staining.	SP	100	0.0	FMW-14-10.0	
				0.0	FMW-14-12.0	
				0.0	FMW-14-14.0	Slough
15						

Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	55.61
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	54.99
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 1199137.87	**Y:** 682070.12
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:**	BPW-292

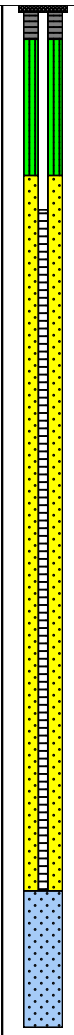
FARALLON CONSULTING

Log of Boring: FMW-15

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	8/29/23 @ 0853	**Depth to Water ATD (ft bgs):**	8.0
Date/Time Completed:	8/29/23 @ 1045	**Boring Diameter (in):**	3.5
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0-0.3': Gravel. Hand-cleared to 5.0' bgs for utilities.	GP	100			
	0.3-2.0': Sandy SILT (50% silt, 45% sand, 5% gravel), medium sand, fine and course gravel, brown, dry, no odor, no staining.	ML				
	2.0-5.0': Poorly graded SAND (95% sand, 5% silt), medium sand, brown, dry, no odor, red staining.	SP		0.0	FMW-15- 2.0	
				0.0	FMW-15-4.0	
5	5.0-8.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, brown, dry, wet at 8.0' bgs, organic odor, no staining.	SP	60			
				0.0	FMW-15-6.0	
	8.0-10.0': No Recovery.			0.0	FMW-15-8.0	
10	10.0-15.0': Poorly graded SAND (95% sand, 5% silt), medium sand, black, wet, sulfur-like odor, no staining.	SP	100	0.0	FMW-15-10.0	
				0.0	FMW-15-12.0	
				0.0	FMW-15-14.0	
15						



Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	56.36
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	55.97
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 1199130.44	**Y:** 682040.40
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:**	BPW-291

Log of Boring: FMW-16

Client: Fortress
Project: Fmr WA Cold Storage
Location: Puyallup, WA
Farallon PN: 2636-001
Logged By: M. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	8/29/23 @ 1320	**Depth to Water ATD (ft bgs):**	7.5
Date/Time Completed:	8/29/23 @ 1545	**Boring Diameter (in):**	3.5
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	13.0
Drilling Equipment:	7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' Macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.4': Concrete. Hand-cleared to 5.0' bgs for utilities.	CO		100				Concrete
		0.4-5.0': Silty SAND (80% sand, 20% silt), medium sand, gray-brown, dry, no odor, no staining.	SM			0.0	FMW-16- 2.0		Bentonite
						0.0	FMW-16-4.0		Sand Pack
5		5.0-7.5': Poorly graded SAND with silt (90% sand, 10% silt), gray, dry, no odor, no staining.	SP-SM		50	0.0	FMW-16-6.0		
		7.5-10.0': No Recovery.				0.0	FMW-16-7.5		Water Level
									Well Screen
10		10.0-15.0': Poorly graded SAND with silt (90% sand, 10% silt), gray, dry, faint petroleum-like odor from 10.0-12.0' bgs, no staining.	SP-SM		100	0.0	FMW-16-10.0		
						0.0	FMW-16-12.0		
						0.0	FMW-16-14.0		Slough
15									

Well Construction Information

Monument Type:	Flush	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	56.06
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	55.61
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 1199006.95	**Y:** 682093.75
Screened Interval (ft bgs):	3-13	**Boring Abandonment:**	NA	**Unique Well ID:**	BPW-293

ATTACHMENT C
INJECTION DESIGN DOCUMENTS

REMEDIAL INJECTION BASIS OF DESIGN
Former Washington Cold Storage Building
240 15th Street Southeast
Puyallup, Washington

Farallon PN: 2636-001

REGENESIS

Technology-Based Solutions for the Environment

PROJECT NAME

Cold Storage Facility

PetroFix & S-MicroZVI Treatment

Revision I

PREPARED FOR

Farallon Consulting
Yusuf Pehlivan
ypehlivan@farallonconsulting.com

PREPARED BY

REGENESIS
Chris Lee
clee@regenesis.com

Keith Munsey
kmunsey@regenesis.com

January 29, 2024

Project Summary

REGENESIS appreciates the opportunity to provide Farallon Consulting our remedial design and cost estimate for the Cold Storage Facility project. This proposal includes an overview of our proposed solution, the project goals, technologies proposed, application design summary table and a treatment area map.

Proposed Solution

The Cold Storage site consists of low level petroleum hydrocarbons with some co-mingling with chlorinated volatile organic compounds (CVOCs) on the eastern quarter of the treatment area. We propose the use of PetroFix Remedial Fluid to remediate dissolved phase hydrocarbons at your project site. Where there are co-mingled petroleum hydrocarbons and CVOCs, we propose PetroFix with Sulfidated Micron Scale Zero Valent Iron (SMZVI) and Bio Dechlor Inoculum Plus (BDI Plus) for destruction of the CVOCs. The SMZVI will provide aboitic destruction of the CVOCs. BDI Plus will provide anaerobic bioremediation as a second destructive method for CVOCs. The SMZVI contains glycerol which is a fast acting electron donor which will help to jump start anaerobic bioremediaiton of the CVOCs. Once anaerobic bioremediation is started, the total petroleum hydrocarbons present will also act as an electron donor. The site layout and proposed solution is presented on Figure 1.

The proposed application will be completed via direct-push injection. Based on our review of the boring logs and site geology, Regenesis recommends using a retractable screen type tooling with a 3 foot screened section for injection. The application should be completed at flow rates of 2 to 5 gallons per minute (per injection point) and at pressures typically ranging from 20 to 60 psi; however some areas of the site may require up to 100 psi in order to initiate flow. A multi-point injection process is encouraged to reduce the number of field days; however a distance of approximately 20 feet or greater should be maintained at all times between any actively pumping injection points.

Technologies Proposed

- PetroFix
- S-MicroZVI®
- Bio-Dechlor INOCULUM® Plus (BDI Plus)

Click above to access product specification sheets

Project Goals

- Treat Petroleum Hydrocarbons and CVOCs
- Single application remedial approach
- Co-applied remedial technologies
- Prevent further offsite plume migration

Representative Case Studies

PetroFix Case Study - All

- PetroFix® Case Study - Success at 6 UST Sites
- PetroFix Case Study - Former Gas Station Closure and +99% Reductions - CO

- PetroFix Case Study - All

Design Assumptions

- Groundwater Velocity is between 150 to 350 feet per year
- Dissolved Phase TPH contaminants do not exceed 10 mg/L
- Contaminants are not present beneath 15 feet near MW-1, MW-7, barrier 1 and barrier2
- Contaminants are not present beneath 20 feet near barriers 3 and 4.

Design Summary

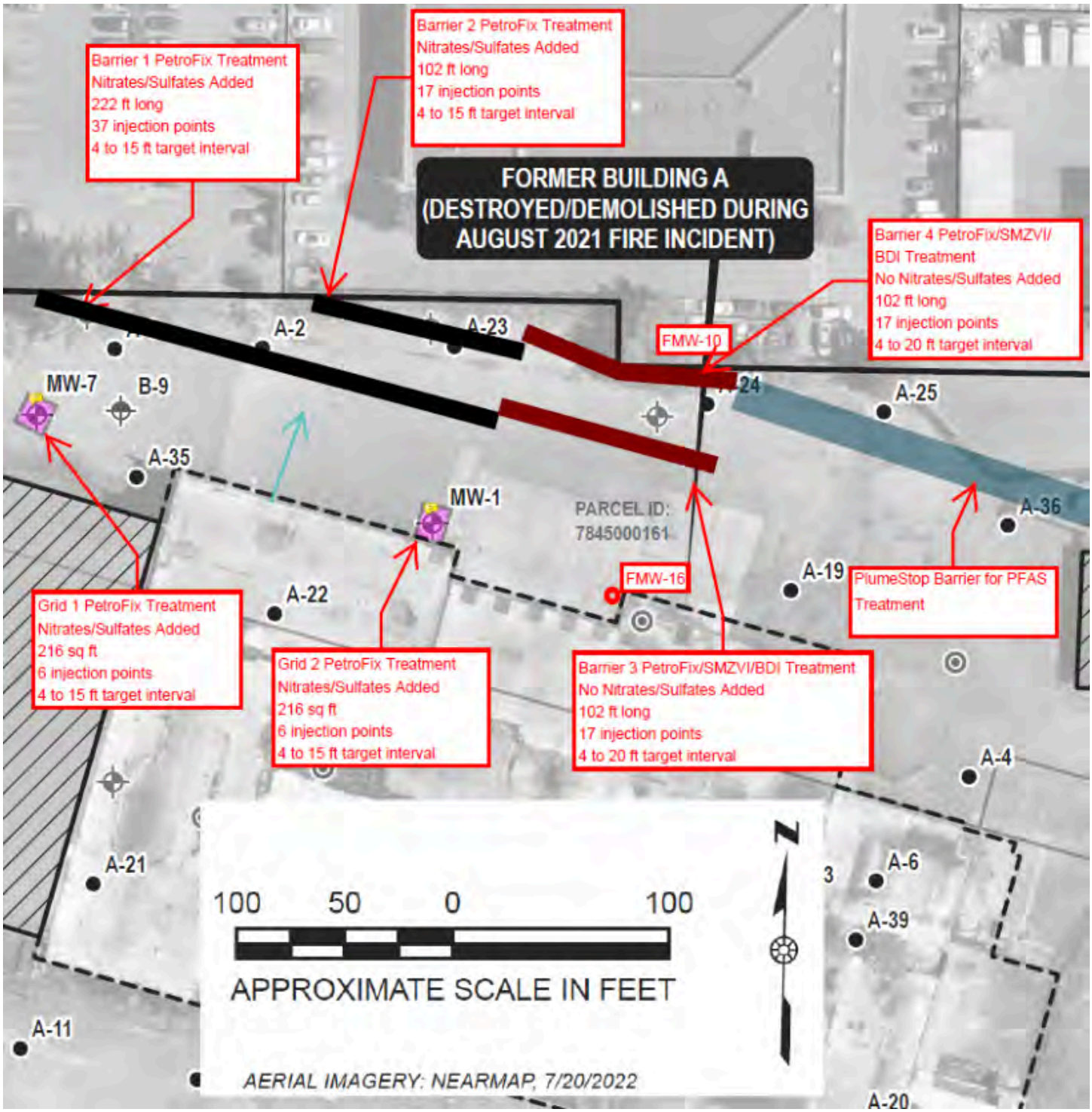
Area Name	Grid Type	Area Square Footage	Spacing within rows (feet)	Spacing Between Grid Rows (feet)	Injection Points Per Area	Vertical Injection Interval (ft bgs)	Vertical Treatment Thickness (feet)	PetroFix Amount (lb)	SMZVI Amount (lb)	BDI Amount (L)	Injection Volume Per Area (gallons)	Mix Water Per Area (gallons)	PetroFix + Mix Water Per Point (gallons)	PetroFix + Mix Water Per Foot (gallons)
PetroFix Grid Estimates														
Grid 1	Symmetric	216 sq ft	6.0	6.0	6	4 to 15	11	1,800	-	-	2,970	2,786	495	45
Grid 2	Symmetric	216 sq ft	6.0	6.0	6	4 to 15	11	1,800	-	-	2,970	2,786	495	45

Area Name	Barrier Length (feet)	Rows Per Barrier	Spacing Within Barrier Rows (feet)	Spacing Between Barrier Rows (feet)	Injection Points Per Barrier	Vertical Injection Interval (ft bgs)	Vertical Treatment Thickness (feet)	PetroFix Amount (pounds)	SMZVI Amount (lb)	BDI Amount (L)	Injection Volume Per Area (gallons)	Mix Water Per Area (gallons)	PetroFix + Mix Water Per Point (gallons)	PetroFix + Mix Water Per Foot (gallons)
PetroFix Barrier Estimates														
Barrier 1	222	1	6.0	NA	37	4 to 15	11	18,000	-	-	20,350	18,508	550	50
Barrier 2	102	1	6.0	NA	17	4 to 15	11	8,400			9,350	8,490	550	50
Barrier 3	102	1	6.0	NA	17	4 to 20	16	8,000	3,000	17	13,600	12,781	800	50
Barrier 4	102	1	6.0	NA	17	4 to 20	16	8,000	3,000	17	13,600	12,781	800	50

Total Injection Points:	100

Total Injection Volume is 62840 gallons and the Total Mix Water Required is 58132 gallons

S-MZVI & BDI Plus Application Design Summary		
To be co-applied with the PetroFix Design for Area 2 Barriers 3 & 4		
Treatment Unit		
Treatment Type	**Barrier**	**SMZVI to be added directly to the PetroFix batch tanks in Grid 2. BDI to be slip stream injected into each injection interval using compressed nitrogen. Nitrates and Sulfates should not be added to the PetroFix-SMZVI mix.**
Distance Perpendicular to Flow (ft)	204	
Spacing Within Rows (ft)	6	
Number of Rows	1	
DPT Injection Points	34	
Top Application Depth (ft bgs)	4	**Field Mixing Ratios**
Bottom Application Depth (ft bgs)	20	3DME Concentrate per Pt (gals)
S-MZVI to be Applied (lbs)	**6,000**	S-MZVI Volume per Pt (gals)
S-MZVI Volume (gals)	397	11.69
BDI Plus to be Applied (L)	**34**	BDI Volume per Pt (L)
BDI Plus Mix Water Volume (gals)		1.0
Total Application Volume (gals)	**397**	Volume per pt (gals)
		11.69
Prepared by: Christopher Lee - Sr. Design Specialist		Volume per vertical ft (gals)
Date: 1/29/2024		0.73



Cold Storage Facility

Farallon Consulting

January 29, 2024

Figure 1-Treatment Area Map

REGENESIS

Technology-Based Solutions for the Environment

Technical Approach

PetroFix is a unique activated carbon remedial fluid (carbon milled to a diameter of 1 to 2 micrometers) paired with soluble, anaerobic electron acceptors designed to remediate dissolved hydrocarbons. This allows the product to be injected as a fluid using low pressure. PetroFix is commonly used for source and plume treatment, excavation polishing, and barrier applications. PetroFix features:

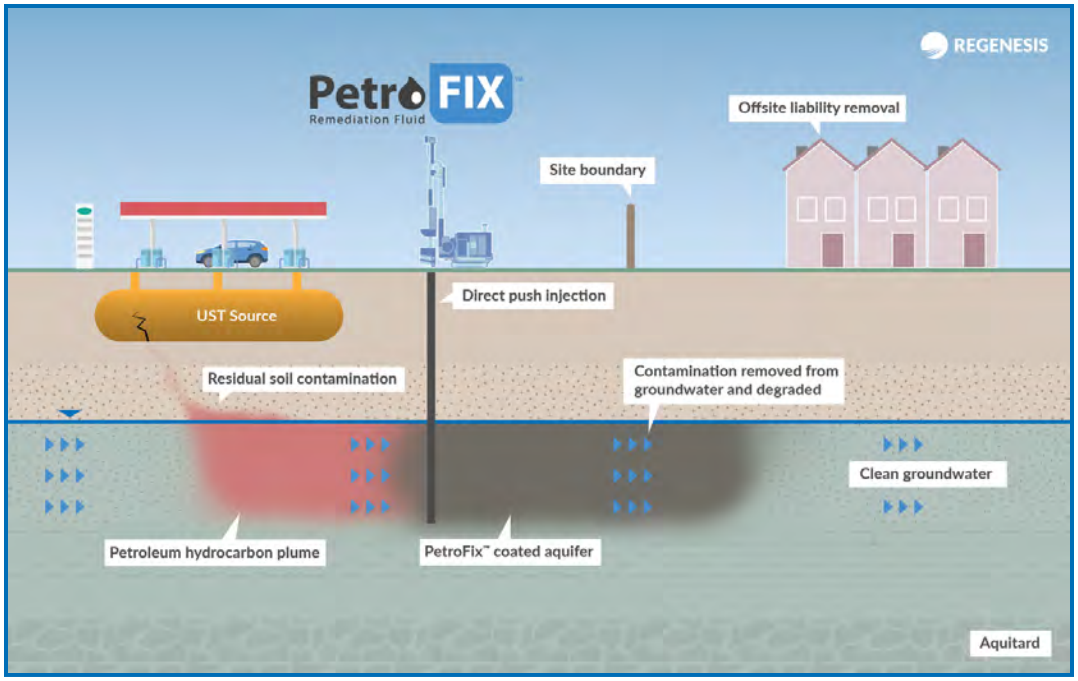
- Provides rapid and sustained results allowing for faster and more certain site closure
- Dual-technology approach relies on both carbon sorption and anaerobic biodegradation
- Low-pressure "flooding" vs high pressure "fracturing" improves distribution and reduces surfacing
- Safe to handle because is non-hazardous and shipped as a liquid (no fugitive carbon dust)
- Mitigates hydrocarbon back diffusion which is a cause of concentration rebound

PetroFix is typically self-applied and is supported by a large library of application instruction, technical bulletin, and videos (www.petrofix.com/resources). Based on our experience at hundreds of sites we have developed recommendations listed in a hyperlinked planning document included in the following sections. Below are links for additional technologies information:

PetroFix® - An Animated Overview

PetroFix® - All Webinars

PetroFix Monitoring Parameters



Pricing

Below is the cost estimate to provide the remediation technologies and execute the application design provided in this proposal. Please also see the assumptions and qualifications section.

Description	Price	Qty	Subtotal
PetroFix Totes (2000 lb)	$4.05	46000	$186,300
PetroFix EA Blend Pail (20 lb)	$0	1500	$0
S-MicroZVI	$10.50	6000	$63,000
Bio Dechlor Inoculum Plus	$198	34	$6,732
Subtotal			$256,032
Shipping and Tax (17.14%)			+$43,883.88
Total			**$299,915.88**

Electron Acceptor Blend (a mix of ammonium sulfate and sodium nitrate) is included in the price of PetroFix.

COST ESTIMATE DISCLAIMER: The cost listed assumes conditions set forth within the proposed scope of work and assumptions and qualifications. Changes to either could impact the final cost of the project. This may include final shipping arrangements, sales tax or application-related tasks such as product storage and handling, access to water, etc. If items listed need to be modified, please contact Regenesis for further evaluation. Shipping estimate is valid for 30 days.

REGENESIS developed this Scope of Work in reliance upon the data and professional judgments provided by those who completed the earlier environmental site assessment(s), and in reliance upon REGENESIS' prior experience on similar project sites. The fees and charges associated with the Scope of Work were generated through REGENESIS' proprietary formulas and thus may not conform to billing guidelines, constraints or other limits on fees. REGENESIS does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where REGENESIS may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by REGENESIS, it is the sole responsibility of the entity seeking reimbursement to ensure the Scope of Work and associated charges are in compliance with and acceptable to the Government prior to submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from Government, REGENESIS does not knowingly present or cause to be presented any claim for payment to the government.

PROFESSIONAL JUDGEMENT: In generating this estimate, REGENESIS relied upon professional judgment and site-specific information provided by others. Using this information as input, we performed calculations based upon the known chemical and geologic relationships to generate an estimate of the mass of product and subsurface placement required to effect remediation of the site.

Direct Push Injection Planning Document

PLEASE REVIEW THE 3 CRITICAL PHASES TO COMPLETING A SUCCESSFUL PETROFIX DIRECT PUSH INJECTION

PHASE 1: PRE-APPLICATION PLANNING AND BID RESOURCES

Please follow the specific handling, injection tips, and field distribution verification steps recommended. Examples include having long, multi-port injection tips and budgeting a few hours for Day 1 field distribution observation and adjustments. Please review:

Guidelines for Obtaining Direct Push Application Bids (1 page)

Pre-Application Presentation (includes field verification testing)

Storage requirements for freezing or hot weather

Safety Data Sheets (SDS)

PHASE 2: IMPLEMENTING YOUR PROJECT

In addition to best practices addressed in the "Pre-Application" planning resources, it is recommended you review the available application instructions. Some practitioners opt for a clear water post-injection flush at the end of their injection activities.

Petrofix Application Document Library

Well Flushing Technical Bulletin

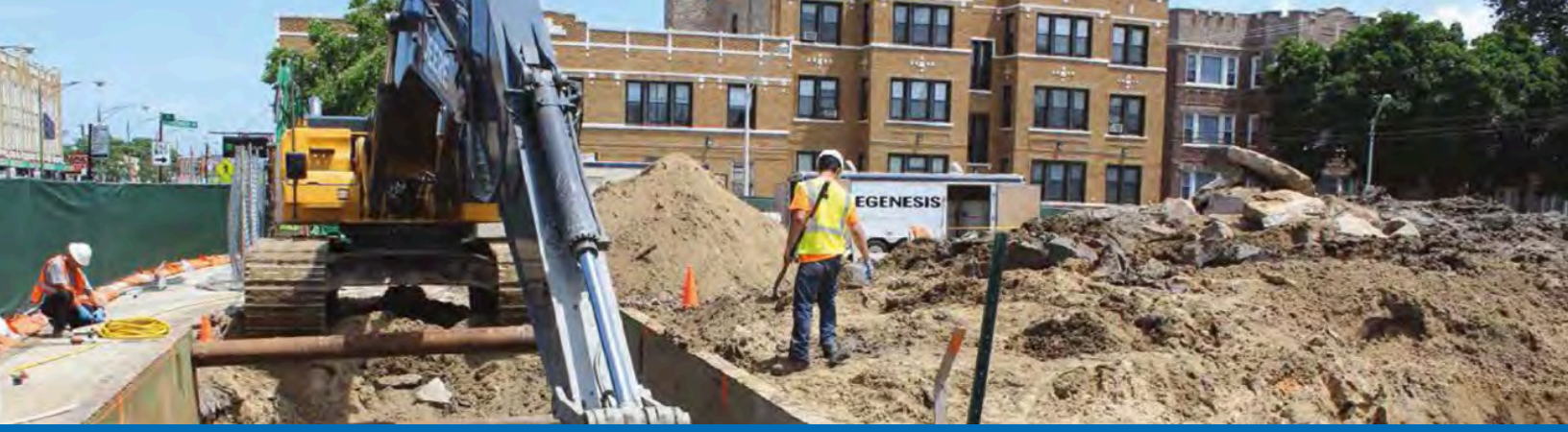
Well Flushing Calculator (download the file)

PHASE 3: POST APPLICATION GROUNDWATER SAMPLING

Please note, PetroFix takes up to a few months to fully attach to soils. If PetroFix is >100 mg/L in concentration (difficult to see through a 40 ml VOA), it is recommended groundwater not be sampled. Each PetroFix shipment comes with one (1) a colorimetric field test kit taped to the top of a tote or drum to help assess field concentrations. For additional information, please review the "Groundwater Sampling Guidance Document".

Recommended Performance monitoring Parameters

Groundwater Sampling Guidance Document



Acknowledgement

This scope and associated costs are budgetary and should not be considered final. Listed below are the next steps to secure a final design and cost estimate from REGENESIS.

Steps to Final Design and Scope of Work

1. Signature notifying REGENESIS to proceed with final design.
2. REGENESIS technical team contacts Farallon Consulting to review final scope of work and provide detailed design and cost estimate
3. Provide Detailed Remediation Services Scope of Work, if applicable.
4. Confirm Implementation Schedule
5. Submit Detailed Design and Cost Estimate to Farallon Consulting for review and final approval

Signature below confirms signee accepts this preliminary scope of work and would like REGENESIS to proceed with a detailed design and cost estimate.

SIGNATURE
Yusuf Pehlivan

Not yet accepted

Farallon Consulting | Yusuf Pehlivan, Project Geologist

Terms & Conditions

1. **PAYMENT TERMS.** Net 30 Days. Accounts outstanding after 30 days will be assessed 1.5% monthly interest. Volume discount pricing will be rescinded on all accounts outstanding over 90 days. An early payment discount of 1.5% Net 10 is available for cash or check payments only. We accept Master Card, Visa and American Express.
2. **RETURN POLICY.** A 15% re-stocking fee will be charged for all returned goods. All requests to return product must be pre-approved by seller. Returned product must be in original condition and no product will be accepted for return after a period of 90 days.
3. **FORCE MAJEURE.** Seller shall not be liable for delays in delivery or services or failure to manufacture or deliver due to causes beyond its reasonable control, including but not limited to acts of God, acts of buyer, acts of military or civil authorities, fires, strikes, flood, epidemic, war, riot, delays in transportation or car shortages, or inability to obtain necessary labor, materials, components or services through seller's usual and regular sources at usual and regular prices. In any such event Seller may, without notice to buyer, at any time and from time to time, postpone the delivery or service dates under this contract or make partial delivery or performance or cancel all or any portion of this and any other contract with buyer without further liability to buyer. Cancellation of any part of this order shall not affect Seller's right to payment for any product delivered or service performed hereunder.
4. **LIMITED WARRANTY.** Seller warrants the product(s) sold and services provided as specified on face of invoice, solely to buyer. Seller makes no other warranty of any kind respecting the product and services, and expressly DISCLAIMS ALL OTHER WARRANTIES OF WHATEVER KIND RESPECTING THE PRODUCT AND SERVICES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE AND NON-INFRINGEMENT.
5. **DISCLAIMER.** Where warranties to a person other than buyer may not be disclaimed under law, seller extends to such a person the same warranty seller makes to buyer as set forth herein, subject to all disclaimers, exclusions and limitations of warranties, all limitations of liability and all other provisions set forth in the Terms and Conditions herein. Buyer agrees to transmit a copy of the Terms and Conditions set forth herein to any and all persons to whom buyer sells, or otherwise furnishes the products and/or services provided buyer by seller and buyer agrees to indemnify seller for any liability, loss, costs and attorneys' fees which seller may incur by reason, in whole or in part, of failure by buyer to transmit the Terms and Conditions as provided herein.
6. **LIMITATION OF SELLER'S LIABILITY AND LIMITATION OF BUYER'S REMEDY.** Seller's liability on any claim of any kind, including negligence, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair or use of any goods or performance of any services covered by or furnished hereunder, shall in no case exceed the lesser of (1) the cost of repairing or replacing goods and repeating the services failing to conform to the foregoing warranty or the price of the goods and/or services or part thereof which gives rise to the claim. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, OR FOR DAMAGES IN THE NATURE OF PENALTIES.
7. **INDEMNIFICATION.** Buyer agrees to defend and indemnify seller of and from any and all claims or liabilities asserted against seller in connection with the manufacture, sale, delivery, resale or repair or use of any goods, and performance of any services, covered by or furnished hereunder arising in whole or in part out of or by reason of the failure of buyer, its agents, servants, employees or customers to follow instructions, warnings or recommendations furnished by seller in connection with such goods and services, by reason of the failure of buyer, its agents, servants, employees or customers to comply with all federal, state and local laws applicable to such goods and services, or the use thereof, including the Occupational Safety and Health Act of 1970, or by reason of the negligence or misconduct of buyer, its agents, servants, employees or customers.

8. **EXPENSES OF ENFORCEMENT.** In the event seller undertakes any action to collect amounts due from buyer, or otherwise enforce its rights hereunder, Buyer agrees to pay and reimburse Seller for all such expenses, including, without limitation, all attorneys and collection fees.
9. **TAXES.** Liability for all taxes and import or export duties, imposed by any city, state, federal or other governmental authority, shall be assumed and paid by buyer. Buyer further agrees to defend and indemnify seller against any and all liabilities for such taxes or duties and legal fees or costs incurred by seller in connection therewith.
10. **ASSISTANCE AND ADVICE.** Upon request, seller in its discretion will furnish as an accommodation to buyer such technical advice or assistance as is available in reference to the goods and services. Seller assumes no obligation or liability for the advice or assistance given or results obtained, all such advice or assistance being given and accepted at buyer's risk.
11. **SITE SAFETY.** Buyer shall provide a safe working environment at the site of services and shall comply with all applicable provisions of federal, state, provincial and municipal safety laws, building codes, and safety regulations to prevent accidents or injuries to persons on, about or adjacent to the site.
12. **INDEPENDENT CONTRACTOR.** Seller and Buyer are independent contractors and nothing shall be construed to place them in the relationship of partners, principal and agent, employer/employee or joint ventures. Neither party will have the power or right to bind or obligate the other party except as may be expressly agreed and delegated by other party, nor will it hold itself out as having such authority.
13. **REIMBURSEMENT.** Seller shall provide the products and services in reliance upon the data and professional judgments provided by or on behalf of buyer. The fees and charges associated with the products and services thus may not conform to billing guidelines, constraints or other limits on fees. Seller does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where seller may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by seller, it is the sole responsibility of the buyer or other entity seeking reimbursement to ensure the products and services and associated charges are in compliance with and acceptable to the Government prior to submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from the Government, seller does not knowingly present or cause to be presented any claim for payment to the Government.
14. **APPLICABLE LAW/JURISDICTION AND VENUE.** The rights and duties of the parties shall be governed by, construed, and enforced in accordance with the laws of the State of California (excluding its conflict of laws rules which would refer to and apply the substantive laws of another jurisdiction). Any suit or proceeding hereunder shall be brought exclusively in state or federal courts located in Orange County, California. Each party consents to the personal jurisdiction of said state and federal courts and waives any objection that such courts are an inconvenient forum.
15. **ENTIRE AGREEMENT.** This agreement constitutes the entire contract between buyer and seller relating to the goods or services identified herein. No modifications hereof shall be binding upon the seller unless in writing and signed by seller's duly authorized representative, and no modification shall be effected by seller's acknowledgment or acceptance of buyer's purchase order forms containing different provisions. Trade usage shall neither be applicable nor relevant to this agreement, nor be used in any manner whatsoever to explain, qualify or supplement any of the provisions hereof. No waiver by either party of default shall be deemed a waiver of any subsequent default.

Detailed Design Tables

REGENESIS

PetroFix™ Application Summary
Grid Estimate
Cold Storage MW-7 Location
Grid 1

PetroFIX Remediation Fluid

PetroFix Amount	1,800 lb
Electron Acceptor Amount	90 lb
Treatment Surface Area	216 ft^2
Injection Points	6
Point Spacing	6.0 ft
Top of Treatment Interval	4.0 ft bgs
Bottom of Treatment Interval	15.0 ft bgs
Treatment Volume	88 yd^3
PetroFix Dose	20.5 lb/yd^3

Total Volume	2,970 gal
Product Volume	184 gal
Water Volume	2,786 gal
Injection Volume Per Point	495 gal
Injection Volume Per Vertical Foot	45 gal
Product/Point	30.7 gal
Water/Point	464.3 gal
Soil Type	Mix of Coarse and Fine
Effective Pore Volume Fill %	84%

Mix Tank Volume*	275 gal
Dilution Factor	16.1 x
PetroFix per Mix Tank	17.1 gal
Water Per Mix Tank	257.9 gal
Electron Acceptor per Mix Tank	8.3 lb
Number of Batches Required	10.8

**Adjust tank volume to that used in field.*

AREA NOTES

Reported Groundwater Concentrations (mg/L)

Benzene	0.100	Isopropylbenzene	0.000
Toluene	0.000	Naphthalenes	0.000
Ethylbenzene	0.000	MTBE	0.000
Xylenes	0.000	TPH-GRO	1.000
Trimethylbenzenes	0.000	TPH-DRO	5.000
Butylbenzene	0.000	TPH-ORO	0.000

PetroFix™ Application Summary
Grid Estimate
Cold Storage MW-1 Location
Grid 2

PetroFix Amount	1,800 lb
Electron Acceptor Amount	90 lb
Treatment Surface Area	216 ft^2
Injection Points	6
Point Spacing	6.0 ft
Top of Treatment Interval	4.0 ft bgs
Bottom of Treatment Interval	15.0 ft bgs
Treatment Volume	88 yd^3
PetroFix Dose	20.5 lb/yd^3

Total Volume	2,970 gal
Product Volume	184 gal
Water Volume	2,786 gal
Injection Volume Per Point	495 gal
Injection Volume Per Vertical Foot	45 gal
Product/Point	30.7 gal
Water/Point	464.3 gal
Soil Type	Mix of Coarse and Fine
Effective Pore Volume Fill %	84%

Mix Tank Volume*	275 gal
Dilution Factor	16.1 x
PetroFix per Mix Tank	17.1 gal
Water Per Mix Tank	257.9 gal
Electron Acceptor per Mix Tank	8.3 lb
Number of Batches Required	10.8

**Adjust tank volume to that used in field.*

AREA NOTES

Reported Groundwater Concentrations (mg/L)

Benzene	0.100	Isopropylbenzene	0.000
Toluene	0.000	Naphthalenes	0.000
Ethylbenzene	0.000	MTBE	0.000
Xylenes	0.000	TPH-GRO	1.000
Trimethylbenzenes	0.000	TPH-DRO	5.000
Butylbenzene	0.000	TPH-ORO	0.000

PetroFix™ Application Summary
Barrier Estimate
Cold Storage
Barrier 1

PetroFix Amount	18,000 lb
Electron Acceptor Amount	900 lb
Barrier Length	222 ft
Delivery Points	37
Point Spacing Within Rows	6.0 ft
Point Spacing Between Rows	N/A ft
Number Of Barrier Rows	1
Top of Treatment Interval	4.0 ft bgs
Bottom of Treatment Interval	15.0 ft bgs
Treatment Area	1,998 ft^2
PetroFix Dose Within Barrier	22.1 lb/yd^3

Total Volume	20,350 gal
Product Volume	1,842 gal
Water Volume	18,508 gal
Injection Volume Per Point	550 gal
Injection Volume Per Vertical Foot	50 gal
Product/Point	49.8 gal
Water/Point	500.2 gal
Soil Type	Mix of Coarse and Fine
Effective Pore Volume Fill %	62%

Mix Tank Volume*	275 gal
Dilution Factor	9.4 x
PetroFix per Mix Tank	24.9 gal
Water per Mix Tank	250.1 gal
Electron Acceptor per Mix Tank	12.1 lb
Number of Batches Required	74.0

**Adjust tank volume to that used in field.*

AREA NOTES

Reported Groundwater Concentrations (mg/L)			
Benzene	0.100	Isopropylbenzene	0.000
Toluene	0.000	Naphthalenes	0.000
Ethylbenzene	0.000	MTBE	0.000
Xylenes	0.000	TPH-GRO	1.000
Trimethylbenzenes	0.000	TPH-DRO	5.000
Butylbenzene	0.000	TPH-ORO	0.000

PetroFix™ Application Summary
Barrier Estimate
Cold Storage
Barrier 2

PetroFix Amount	8,400 lb
Electron Acceptor Amount	420 lb
Barrier Length	102 ft
Delivery Points	17
Point Spacing Within Rows	6.0 ft
Point Spacing Between Rows	N/A ft
Number Of Barrier Rows	1
Top of Treatment Interval	4.0 ft bgs
Bottom of Treatment Interval	15.0 ft bgs
Treatment Area	918 ft^2
PetroFix Dose Within Barrier	22.5 lb/yd^3

Total Volume	9,350 gal
Product Volume	860 gal
Water Volume	8,490 gal
Injection Volume Per Point	550 gal
Injection Volume Per Vertical Foot	50 gal
Product/Point	50.6 gal
Water/Point	499.4 gal
Soil Type	Mix of Coarse and Fine
Effective Pore Volume Fill %	62%

Mix Tank Volume*	275 gal
Dilution Factor	9.3 x
PetroFix per Mix Tank	25.3 gal
Water per Mix Tank	249.7 gal
Electron Acceptor per Mix Tank	12.3 lb
Number of Batches Required	34.0

**Adjust tank volume to that used in field.*

AREA NOTES

Reported Groundwater Concentrations (mg/L)

Benzene	0.100	Isopropylbenzene	0.000
Toluene	0.000	Naphthalenes	0.000
Ethylbenzene	0.000	MTBE	0.000
Xylenes	0.000	TPH-GRO	1.000
Trimethylbenzenes	0.000	TPH-DRO	5.000
Butylbenzene	0.000	TPH-ORO	0.000

PetroFix™ Application Summary
Barrier Estimate
Cold Storage cVOC Treatment Area
Barrier 3

PetroFix Amount	8,000 lb
Electron Acceptor Amount	0 lb
Barrier Length	102 ft
Delivery Points	17
Point Spacing Within Rows	6.0 ft
Point Spacing Between Rows	N/A ft
Number Of Barrier Rows	1
Top of Treatment Interval	4.0 ft bgs
Bottom of Treatment Interval	20.0 ft bgs
Treatment Area	918 ft^2
PetroFix Dose Within Barrier	14.7 lb/yd^3

Total Volume	13,600 gal
Product Volume	819 gal
Water Volume	12,781 gal
Injection Volume Per Point	800 gal
Injection Volume Per Vertical Foot	50 gal
Product/Point	48.2 gal
Water/Point	751.8 gal
Soil Type	Mix of Coarse and Fine
Effective Pore Volume Fill %	62%

Mix Tank Volume*	275 gal
Dilution Factor	14.2 x
PetroFix per Mix Tank	16.6 gal
Water per Mix Tank	254.4 gal
Electron Acceptor per Mix Tank	0.0 lb
Number of Batches Required	49.5

**Adjust tank volume to that used in field.*

AREA NOTES

4.0 gallons of SMZVI to be added per batch tank using the mix tank volumes shown to the left. BDI is to be slip stream applied as PetroFix/SMZVI mixture is injected. With all products mixed, application volume should be 50 gallons per vertical ft, excluding the BDI slip stream.

Reported Groundwater Concentrations (mg/L)

Benzene	0.000	Isopropylbenzene	0.000
Toluene	0.000	Naphthalenes	0.000
Ethylbenzene	0.000	MTBE	0.000
Xylenes	0.000	TPH-GRO	1.000
Trimethylbenzenes	0.000	TPH-DRO	5.000
Butylbenzene	0.000	TPH-ORO	0.000

PetroFix™ Application Summary
Barrier Estimate
Cold Storage cVOC Treatment Area
Barrier 4

PetroFix Amount	8,000 lb
Electron Acceptor Amount	0 lb
Barrier Length	102 ft
Delivery Points	17
Point Spacing Within Rows	6.0 ft
Point Spacing Between Rows	N/A ft
Number Of Barrier Rows	1
Top of Treatment Interval	4.0 ft bgs
Bottom of Treatment Interval	20.0 ft bgs
Treatment Area	918 ft^2
PetroFix Dose Within Barrier	14.7 lb/yd^3

Total Volume	13,600 gal
Product Volume	819 gal
Water Volume	12,781 gal
Injection Volume Per Point	800 gal
Injection Volume Per Vertical Foot	50 gal
Product/Point	48.2 gal
Water/Point	751.8 gal
Soil Type	Mix of Coarse and Fine
Effective Pore Volume Fill %	62%

Mix Tank Volume*	275 gal
Dilution Factor	14.2 x
PetroFix per Mix Tank	16.6 gal
Water per Mix Tank	254.4 gal
Electron Acceptor per Mix Tank	0.0 lb
Number of Batches Required	49.5

**Adjust tank volume to that used in field.*

AREA NOTES

4.0 gallons of SMZVI to be added per batch tank using the mix tank volumes shown to the left. BDI is to be slip stream applied as PetroFix/SMZVI mixture is injected. With all products mixed, application volume should be 50 gallons per vertical ft, excluding the BDI slip stream.

Reported Groundwater Concentrations (mg/L)

Benzene	0.000	Isopropylbenzene	0.000
Toluene	0.000	Naphthalenes	0.000
Ethylbenzene	0.000	MTBE	0.000
Xylenes	0.000	TPH-GRO	1.000
Trimethylbenzenes	0.000	TPH-DRO	5.000
Butylbenzene	0.000	TPH-ORO	0.000

REGENESIS

Technology-Based Solutions for the Environment

PROJECT NAME

Cold Storage Facility

PlumeStop® Design and Application Proposal

PREPARED FOR

Farallon Consulting
Yusuf Pehlivan
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PREPARED BY

REGENESIS

Keith Munsey
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Chris Lee
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January 08, 2024

Project Summary

In this document, REGENESIS outlines a comprehensive approach, encompassing the proposed solution, project objectives, recommended technologies, a concise application design summary, and a treatment area depiction.

Proposed Approach

This technical proposal outlines a plan for implementing a permeable reactive barrier (PRB) to eliminate the migration of perfluoroalkyl and polyfluoroalkyl substances (PFAS) compounds emanating from a building near the loading dock. The primary constituents of concern (COCs) are perfluorooctane sulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and perfluorononanoic acid (PFNA). The PRB will utilize PlumeStop® Colloidal Activated Carbon™ (PlumeStop), a colloidal form of activated carbon designed to physically remove PFOA, PFOS and PFNAs from the aqueous phase preventing further migration of the plume and removing the inherent risk associated with dissolved phase contaminants.

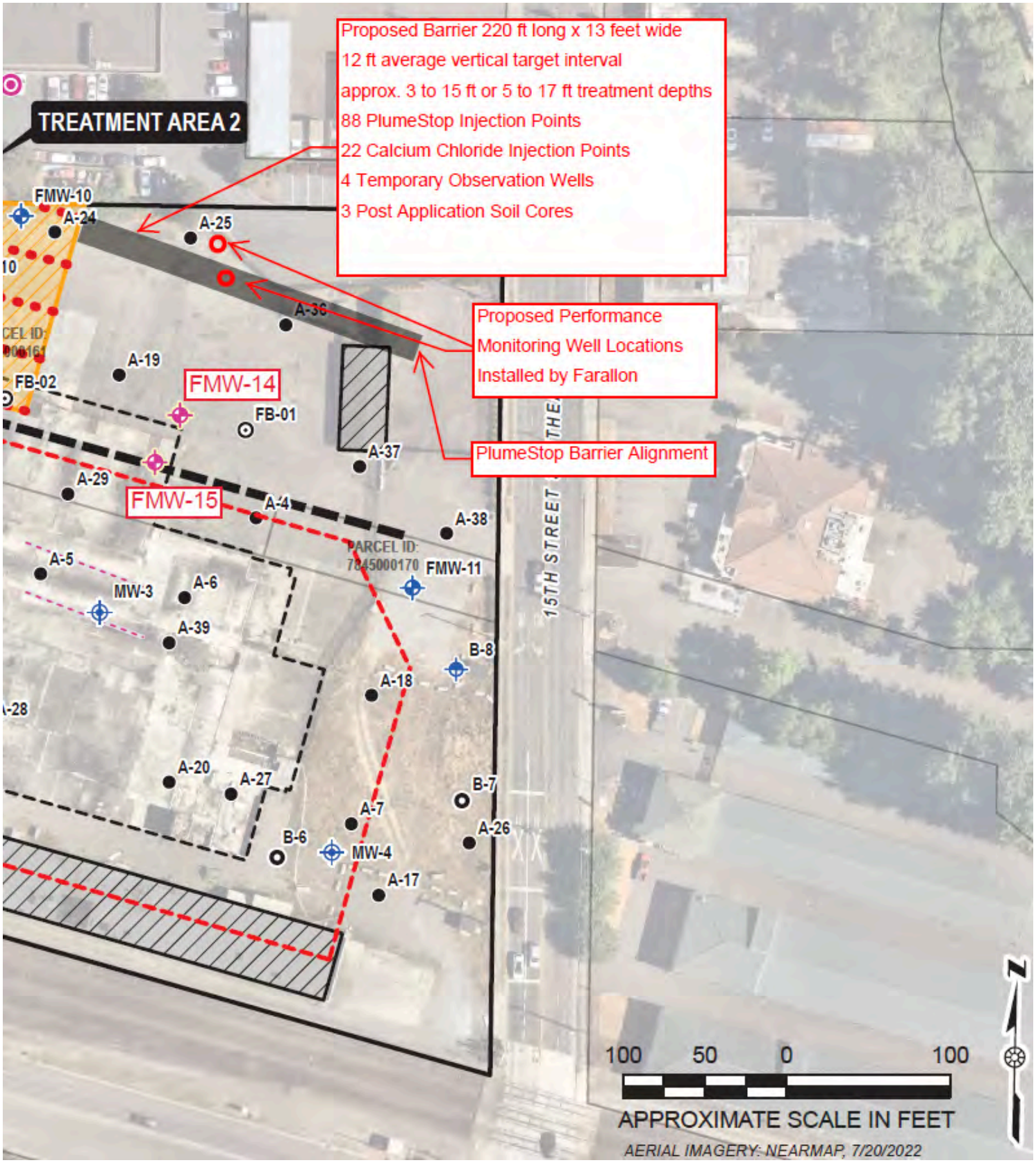
Farallon has conducted several rounds of testing at the site including design verification testing (DVT) as prescribed by REGENESIS. The results of the DVT indicate that the soils at the site comprising the aquifer unit where PFAS contaminants are migrating are fine to medium grained sands and most contain less than 10% fines. Groundwater velocity has been measured to be relatively fast as compared to other sites, with velocities in the target zone ranging from 500 to 1600 feet per year. The relatively faster groundwater velocities are significant because they make even low concentrations of contaminants have a much greater effect on a PRB over a long period of time.

Following the collection of DVT data, REGENESIS has adjusted the barrier dimensions, product quantities, and injection concentrations of PlumeStop. Furthermore, based on the site geology and relatively quick groundwater velocity, Regenesis requires an additional step to the application. Upon completion of the PlumeStop injections, calcium chloride will be injected into the target zone to accelerate the destabilization of the biodegradable polymer causing PlumeStop to "park" or stay within the barrier footprint. The calcium chloride injection points will be placed in close proximity to the PlumeStop injection points with some of the points on the upgradient edge of the PlumeStop barrier and most of the points on the downgradient edge of the PlumeStop barrier. When completed, the barrier will consist of 88 PlumeStop injection points comprising a double row along with 22 calcium chloride injection points. The redesign for PlumeStop along with the calcium chloride quantities are provided in the Design Summary on page 2. It should be noted that all depth intervals referenced in this proposal are approximated based on the existing data. The target intervals will be finalized once Farallon has installed the performance wells prior to the installation of the PlumeStop barrier.

The application of PlumeStop and calcium chloride will be completed by our Regenesis Remediation Services (RRS) Division.

Project Goals

- Install a colloidal activated carbon barrier along the northeast section of the property to prevent further migration of PFAS.
- Reduce groundwater concentrations of PFAS to State of Washington regulations
- Designed to provide a 15-year treatment longevity.



Cold Storage Facility

Farallon Consulting

January 08, 2024

Figure 1-Treatment Area Map

REGENESIS

Technology-Based Solutions for the Environment

REMEDIAL DESIGN SUMMARY

PlumeStop® Application Final Design Summary		
PFAS Barrier		
Treatment Unit		**Technical Notes**
Treatment Type	**Barrier**	
Distance Perpendicular to Flow (ft)	220	**All PlumeStop to be applied first, followed by parking using Calcium Chloride**
Spacing Within Rows (ft)	5.0	
Number of Rows	2	
DPT Injection Points	**88**	
Top Application Depth (ft bgs)	approx. 3 to 5 ft	**Approx. Field Mixing Ratios**
Bottom Application Depth (ft bgs)	approx. 15 to 17 ft	PlumeStop Concentrate per Pt (gals)
PlumeStop to be Applied (lbs)	**70,000**	88
PlumeStop to be Applied (gals)	7,769	Mix Water per Pt (gals)
Volume Water (gals)	**34,471**	392
		Volume per pt (gals)
Total Application Volume (gals)	**42,240**	480
Prepared by: Chris Lee - Sr Design		Volume per vertical ft (gals)
Date: 1/8/2024		40

Calcium Chloride Parking Design Summary	
Single Row Injection Point Centers (ft)	10
Number of Injection Points	22
Top of Interval Depth (ft)	approx. 3 to 5 ft
Bottom of Interval Depth (ft)	approx. 15 to 17 ft
Gallons Per Ft	15.0
Total Gallons of CaCl Solution	3960
Rate Lbs of CaCl2 Per Total Gallon Solution	0.99747
Amount of CaCl2 Product Needed (lbs)	3950

Technical Approach

RRS will apply PlumeStop in a PRB configuration across the plume to intercept and treat the PFAS mass flux zones, thereby removing the PFAS contaminants in groundwater. Deploying this approach will prevent the further expansion of the contamination plume, significantly reducing the potential exposure risk to downgradient receptors. This PRB will be applied near the property boundary as indicated in Figure 1 above.

PlumeStop's patented CAC formula* contains organic polymers that maintain blood-cell-sized (i.e., 1 to 2 microns) carbon particles in suspension without clumping. This key material innovation of PlumeStop allows it to move through the much larger soil/rock pore throats while uniformly painting the subsurface materials with highly reactive carbon. Without this innovation, the carbon particles aggregate and cannot be injected into a treatment area without creating significant gaps in the treatment that render it ineffective.

With the aquifer matrix transformed into a vast sorption surface totaling 100 acres per pound of CAC, this groundbreaking technology facilitates rapid contaminant sorption. PlumeStop routinely eliminates groundwater contaminants within a treatment area by the first post-injection monitoring event, making it a solution that can quickly achieve the most stringent cleanup goals.

*US Patents: 7,585,132; 9,770,743; 9,776,898; 10,005,684. Europe Patents: 3,027,562 and 3,105,190.

Qualifiers (Design Considerations)

A list of pertinent qualifiers has been provided below to define the performance expectations for this remedy. REGENESIS will be happy to discuss these with you in detail.

- Seepage velocity/mass flux is a primary driver of dose for PlumeStop projects. This is the basis for our recommendation of Passive Flux Meters at your site. A seepage velocity of 1163 feet per year was used for modeling.
- We recognize VOCs and TPH are also present on-site. Low level cVOCs have been included in modeling of the PFAS barrier. The barrier's performance is also contingent upon total cVOCs fluxing into the barrier to remain below 50 ug/L.
- Farallon is responsible for determining groundwater flow direction and placement/orientation of the proposed barrier to ensure flow is perpendicular to barrier orientation throughout the hydrogeologic cycle. The location and orientation presented in this proposal are to be confirmed by Farallon.
- PFAS contamination that has already moved past the proposed barrier may not be addressed during the monitoring phase of this project. Areas downgradient of the PlumeStop barrier are subject to matrix back-diffusion, subsurface heterogeneities, and groundwater flow anomalies.
- This design assumes that the overall trend in VOC and PFAS concentrations fluxing into the proposed barrier location are not increasing.
- This design also assumes that there is not a significant amount of soil-bound mass near the target area.
- Assume that no other incompatible treatments will be applied near this barrier in the future.
- The designation of in-barrier performance wells assumes they are positioned on the downgradient edge and within five (5) of the PRB.

- REGENESIS has the right to reject the results of any samples collected and analyzed for performance target analysis that shows the presence of colloidal carbon or a dark color that may interfere with the PFAS sample results. REGENESIS may choose to use data from a different sampling event to evaluate performance target goal compliance.
- The quantity and volume of the injection scope will not change however injection interval may vary dependent on the data collected from monitoring well installation within the barrier footprint.

Performance Objectives

The proposed treatment is intended to inhibit the migration PFAS compounds emanating downgradient of the installed PRB. The primary COCs are PFOS, PFOA, and PFNA.

To measure performance at your site, we recommend that the following analytical parameters be collected at key wells within the zone of influence of treatment.

In-Situ Performance Monitoring Parameters	
Analytical Parameter	**Method**
Contaminants of Concern (COC's)	Varies
pH	Meter reading taken in flow-through cell (DO can also be measured with a Hach kit)
Dissolved Oxygen (DO)	
Oxidation Reduction Potential (ORP)	
Total Organic Carbon (TOC)	EPA 415.1 or EPA 9060

Performance Monitoring Program

One, yet to be installed, performance monitoring well within the zone of influence of the barrier (in-barrier well) will be used to measure performance at this site. This well should be sampled monthly for the first 6 months and quarterly thereafter.

Performance Targets

PFOS (ng/L)	PFOA (ng/L)	PFNA (ng/L)
15	10	9

Before implementation, the following steps will need to be completed

1. Install two additional performance monitoring wells (see figure 1), comprising:
    - One in-barrier well as shown in Figure 2.
        - REGENESIS recommends a screened interval of 5 to 15 ft bgs or fully within the PlumeStop vertical treatment zone.
        - Designated performance monitoring well for the Monitoring Phase of the project
    - One downgradient well as shown in Figure 2 (15' downgradient)
        - REGENESIS recommends a screened interval that matches the PlumeStop vertical treatment zone.
2. Conduct a baseline sampling event for PFAS, TPH, VOCs, and DOC for all predetermined monitoring well locations. If PFOS, PFNA, or PFOA are detected at a concentration above 100 ng/L, REGENESIS reserves the right to determine alternate performance targets. Once baseline sampling data are reviewed, the final performance target goals will be confirmed.

PROJECT SEQUENCE

The table below outlines the sequence of steps toward project implementation.

Description
☐ **Baseline Sampling Event** Analytical results are to be provided to REGENESIS for evaluation against the initial design. Design and Performance Criteria are to be confirmed.
☐ **Confirm Design Assumptions** If PFOS, PFNA, or PFOA are detected at a concentration above 100 ng/L, REGENESIS reserves the right to determine alternate performance targets. Once baseline sampling data are reviewed, the final performance target goals will be confirmed.
☐ **Project Implementation** • Sign acceptance of the proposal • Finalize contract documents • Confirm account credit status • Complete remediation services logistics evaluation • Complete Design Verification Testing • Confirm delivery address and date • Schedule application and ship product • Initiate project application • Post remedy sampling • Performance evaluation

RRS Statement of Qualifications

RRS provides turn-key remediation planning, design, and application services. RRS field scientists are college degreed professionals that understand the details of each remediation design, the site conceptual site model, the remediation chemistry being applied, the significance of the designed amendment dosing and achieving subsurface distribution, and how a breakdown of any one of these and other factors can result in poor remediation performance. They have the unique background and experience to understand the significance of modifications made in the field.

RRS' direct management of the injection program optimizes the design and ultimately, the overall remedy performance. No one has more professional experience handling and applying *in situ* remediation products than RRS personnel.

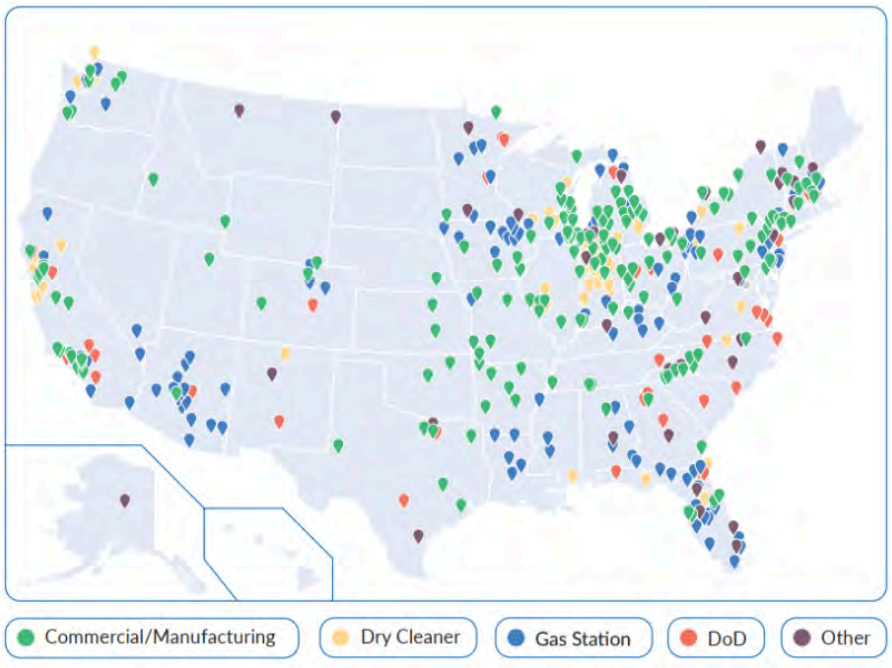
RRS has been offering industry-leading application services combined with excellence in field activity management for over a decade. We succeed by meeting the cleanup objectives established by the environmental engineering firms who contract our services. To produce this outcome, we employ field-experienced, disciplined, and dedicated project teams who work with our clients to address the unique requirements of each project site. Astute technical insight and timely, direct, and honest communication are hallmarks of RRS. Our reputation for meeting or exceeding clients' objectives has been proven in project successes throughout North America.

Further information on what sets RRS apart is provided in the following technical resources:

- RRS: Performance Driven, Results Based
- The RRS Difference
- RRS Project Experience

With decades of application experience, RRS is strategically located across the country to mobilize and assist on a wide range of sites throughout the US.

Over 100 Projects Completed Annually Across the US



RRS Scope of Services

RRS, as part of its role, will operate under the guidance of Farallon Consulting to execute the remedial actions in the field, employing the chosen remediation methodologies. The collaboration between RRS and Farallon Consulting will entail joint responsibilities in carrying out this scope of work.

Additionally, prior to and during the injection, **Placement Validation (PV) testing** will be conducted. PV serves as a standard in-field methodology involving the extraction of soil cores and the observation of water samples to assess the dispersion of amendments during the remedial application. RRS will execute PV at the outset of the application and periodically thereafter. In-field adaptations may be implemented during the application if PV testing suggests adjustments are required to ensure the distribution of remedial amendments aligns with the design.

The distribution of responsibilities is elaborated upon in this section as well as under the Assumptions/Qualification segment. At the outset of each day, RRS will convene a safety tailgate meeting to discuss the day's objectives, procedures, assigned roles, and review health and safety concerns.

RRS will be outfitted with various injection tool alternatives compatible with 1.5-inch diameter Direct Push Technology (DPT) rods. The injection tool configuration will be advanced either to the upper or lower extent of the target treatment zone, and injections will be conducted utilizing either a bottom-up or top-down technique based on the subsurface lithology.

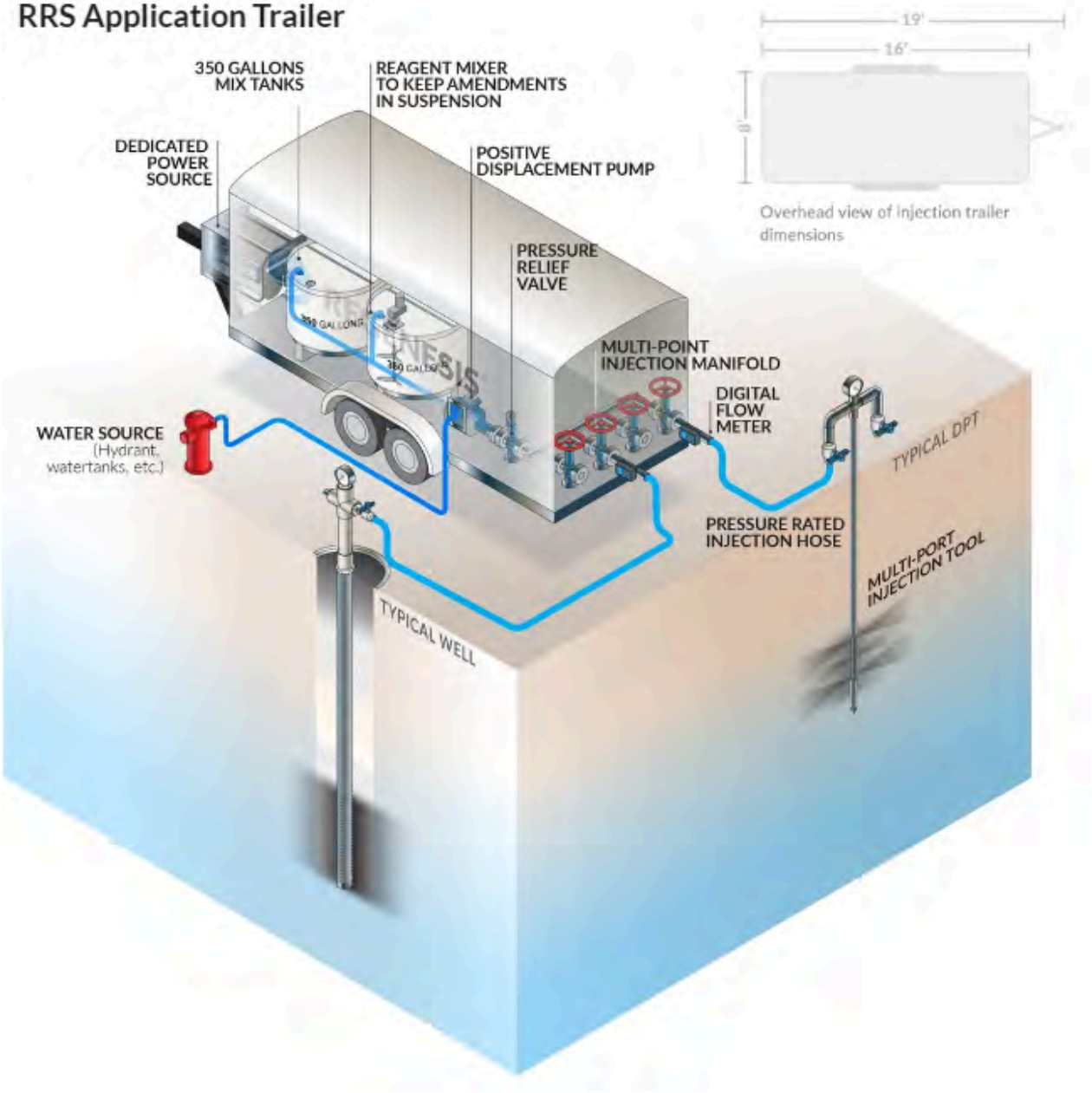
Remediation technologies will be mixed with water water utilizing a custom built injection system (see below), adhering to the specified solution concentration. This mixture will be consistently agitated during the injection process. Parameters such as pressures, flow rates, and overall volume will be closely monitored and digitally recorded for each injection interval. To enhance efficiency on-site, simultaneous injections at multiple locations may be performed. RRS will vigilantly monitor the injection points and their surroundings for any indications of surfacing, and a spill response kit will remain on standby.

Throughout the application, real-time data will be collected and analyzed to corroborate design assumptions and the dispersion of reagents in the subsurface. Depending on the remedial agent applied, the gathered and analyzed data may encompass groundwater quality parameters (e.g., pH, conductivity, Dissolved Oxygen (DO), Oxidation-Reduction Potential (ORP), etc.), measurements of water table depth, visual indicators observed via groundwater or soil samples, and in-field concentration tests of injected substances. This data collection is typically conducted during the application process when operating within 10 feet of appropriately screened monitoring wells.

Guided by the collected information, the project team may introduce adjustments to the remediation design to enhance the injection application's efficacy. These adjustments might involve alterations in injection concentrations and volume per location.

Upon the conclusion of the injection operation, RRS will demobilize all equipment and personnel from the site. A comprehensive injection summary report, encompassing details of injection points (interval depths, injection pressure/flow rates, reagent volume, time elapsed, and surfacing occurrences), on-site observations, and any notable information, will be prepared and submitted to Farallon Consulting.

RRS Application Trailer



Project Responsibilities

RRS will:

- Provide and ship the specified quantities of the remediation reagents to the site address provided by Farallon Consulting. RRS shipping estimates assume all products will be shipped to the site simultaneously.
- Coordinate with Farallon Consulting prior to any shipment of product. Alternative shipping locations or phases could lead to an increase in freight costs.
- Take delivery of the remediation chemistry and stage inside a secure storage location where the material will not be affected by inclement weather.
- Provide qualified and experienced 40-hour HAZWOPER certified personnel to implement and manage the remediation application scope of work.
- Provide a custom-built injection system and other miscellaneous support equipment to handle, prepare, and apply the remediation technologies during the application process.
- Subcontract a Direct Push Technology contractor with a qualified operator and crew of sufficient size to advance the appropriate tooling to the targeted treatment depth. The Direct Push Technology contractor will be equipped with enough downhole tooling for multiple simultaneous injections, hole abandonment supplies, and other required items to complete the scope of work.
- Provide a forklift for the project's duration to maneuver the product containers.
- Coordinate with the Direct Push Technology contractor and request a public utility locate through the nationwide "811 call before you dig" resource to approximate the location of buried public utilities at the site.
- Perform site reconnaissance and pre-application activities that include H&S orientation, sensitive receptor identification and protection, treatment area layout, point location placement assistance, and equipment staging.
- Prepare a site-specific health and safety plan.
- Provide site safety equipment including cones and caution tape to delineate the immediate work area while making efforts to limit the impact on business operations at the site.
- Perform real-time reagent distribution diagnostics during injection activities to allow for field modifications, as needed, to ensure optimal results.
- Work directly with our design team to fill any data gaps identified during the injection application to maintain the project objectives and goals more effectively.
- Collect project related refuse and empty treatment chemistry containers daily to keep the site clean.
- Generate a detailed injection summary report upon completion of injection event. Items to be incorporated will include injection depths, material quantities, injection flow rates and pressures, an injection location map, implementation pictures, and other noteworthy field observations.

Farallon Consulting will:

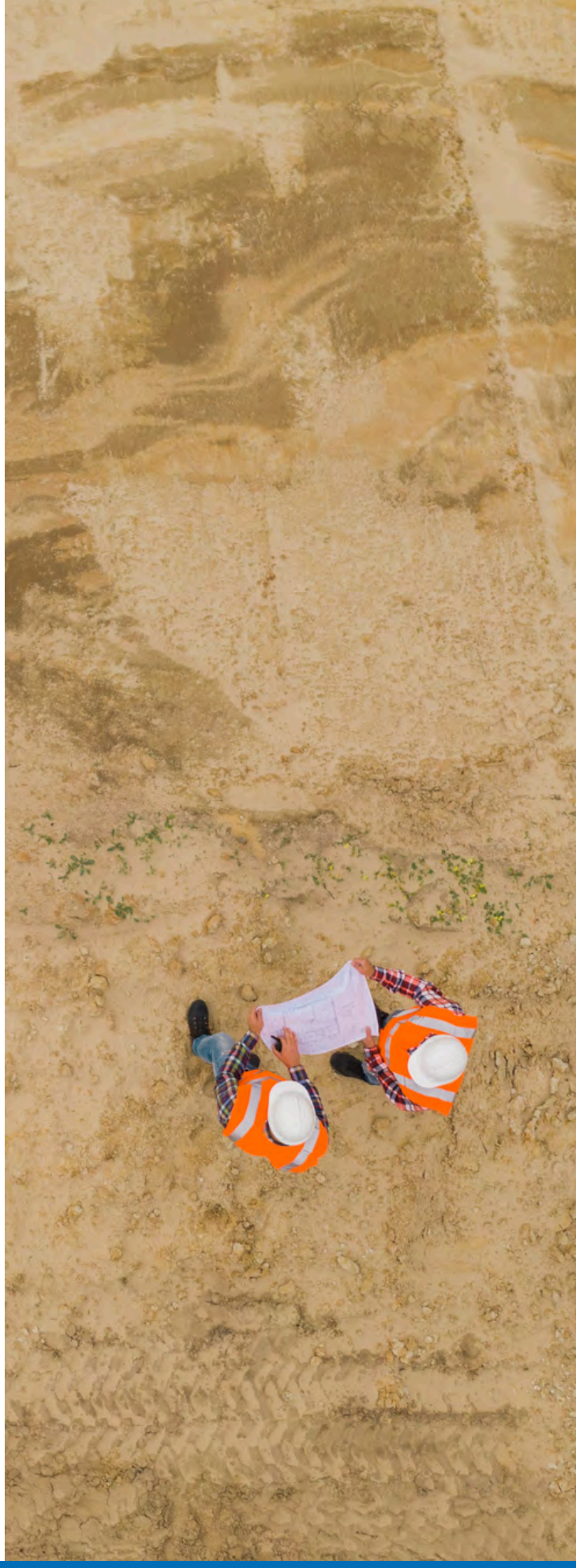
- Coordinate project schedule and reagent order with RRS to ensure adequate shipping and mobilization time.
- Coordinate site access with the property owner to coincide with the project schedule and identify a secure product staging area.
- **Farallon Consulting** will provide a water source (e.g. hydrant) capable of producing at least 30 gpm for the duration of the project within 300 ft. of the project staging area, at no cost to RRS. **Farallon Consulting**will coordinate and provide a backflow preventer for on-site hydrant utilization.
- Should private underground utilities be within or near the treatment area, **Farallon Consulting** will contract with a private utility locating service provider to identify and mark the approximate location prior to RRS mobilization.
- **Farallon Consulting** will procure any necessary permits needed to complete the project including the right of way, UIC and municipal.
- **Farallon Consulting** is responsible for all soil, air, and groundwater sampling and analysis.
- **Farallon Consulting** is responsible for the transportation and disposal of any contaminated waste generated on-site during injection activities, though we do not anticipate generating any such waste during injection activities.
- **Farallon Consulting** will provide a depth-to-water meter and field water quality meter similar to a YSI 556 with a down-hole sensor capable of reaching the water table and well screen interval while on-site for injection activities.
- **Farallon Consulting** will provide access to a restroom during on-site hours.
- All empty product containers will be the responsibility of **Farallon Consulting** for proper disposal/recycling. General refuse will be collected and disposed of in a **Farallon Consulting** refuse container on-site.
- Any traffic control requirement beyond providing cones and caution tape is the responsibility of **Farallon Consulting**

RRS Assumptions and Qualifications

In generating this proposal, RRS relied upon professional judgment and site-specific information provided by others. Using this information as input, we performed calculations based upon known chemical and geologic relationships to estimate product quantities and subsurface placement required to achieve the remedial goals. The attached design summary tables specify the assumptions used to complete the remedial design. We request that these modeling input assumptions be verified by your firm before injection. Other assumptions and qualifications related to this proposal are as follows:

- The product and services cost outlined will be valid for 60 days the proposal date. If beyond 60 days, RRS reserves the right to update the cost.
- The freight charges included for product delivery above are estimated at the time of proposal generation. Actual freight charges are neither set nor guaranteed by RRS and are calculated when the product order is placed. This price may vary from what is estimated above. Actual freight charges for product delivery will be invoiced.
- Freight delivery time frames cannot be guaranteed and RRS will not be responsible for any delays or increased costs associated with those delays.
- If applicable, sales tax charges for product, freight, and services are considered estimated at the time of proposal submittal. The appropriate sales tax category (i.e., product, freight, and services) and actual sales tax rate are finalized at the time of invoice and may change from date of proposal submittal.
- RRS will have access to the site for equipment operation and secure storage of materials and equipment throughout the project duration. Access to each work area location will be clear and free of obstructions. RRS also assumes the injection trailer can be staged within 80 feet of the furthest injection point location.
- For safety reasons, access to the treatment area will be limited to RRS and Farallon Consulting personnel.
- The remediation design and injection procedures contain the necessary precautions to minimize the likelihood of surfacing of the treatment chemistry. RRS will monitor the injection flow rates and pressures and observe for signs of reagent surfacing around active injection areas. If surfacing is detected, RRS will stop or slow down injection activities at that location to stop additional surfacing and remove/vacuum up recoverable surfaced fluid. RRS is not responsible for treatment chemistry infiltration into undesired locations beyond our visible control.
- RRS personnel will have access to the site for work up to 12 hours per day Monday through Friday (daylight hours). However, the standard workday does not exceed 10 hours with travel time Monday through Friday. A 10-hour workday does not mean 10 hours on-site and/or injection pumping. Additional charges may apply for work completed on Saturday and Sunday.
- RRS is not responsible for damage to unmarked utilities and subsurface structures. Farallon Consulting will review as-built drawings with RRS to confirm clearance prior to advancing DPT injection tooling and marking injection point locations.
- Pricing and work schedule assume union labor and prevailing wages (Davis-Bacon) are not required.

- This proposal assumes probing and drilling will begin at the ground surface. If hand auger, concrete/asphalt coring, or air knife services are required, additional charges, including for surface restoration will apply.
- RRS assumes that direct-push style drill rig (7800 series or smaller) can access all injection point locations and drive a minimum of 1.5" diameter injection tooling to the required depth. If site conditions limit the use of the provided direct-push rig or tooling for any injection point and other drilling methods are required to complete the task, additional charges will apply.
- RRS will close/backfill all injection points to ground surface with bentonite. Ground surface restoration costs have not been included. Additional charges will apply if surface restoration is needed.
- Site conditions can change over time and should be monitored post injection. RRS is not responsible for changing site conditions after completing the scope of work and demobilizing. Such changes include but are not limited to changes related to borehole abandonment (i.e., swelling of backfill material), surface restoration, well conditions, and on-site utilities.



Health and Safety Plan

RRS is committed to providing a safe and healthy working environment for all on-site employees, including Farallon Consultings and contractors on-site. Before mobilization, RRS will develop a site-specific Health and Safety Plan (HASP) and designate an on-site safety officer. All personnel on-site are required to participate in daily safety tailgate meetings to proactively identify potential hazards and mitigate risks to the full extent possible.

In addition to the hours of rigorous safety training courses all personnel are required to complete, RRS also incorporates a behavior-based safety program by utilizing our DoneSafe mobile application (app) interface on every site. This app encourages our personnel to actively search for potential on-site risks and document mitigation actions. The effectiveness of our safety program can be seen in our industry-leading Experience Modification Rating (EMR) listed in table below.

Year	Total Hours	EMR
2022	189,458	0.73
2021	125,592	0.71
2020	162,037	0.64
2019	169,964	0.66
2018	144,600	0.70

RRS safety tailgate meetings and HASP will include the following:

- Site map with entrance and exit points and best possible muster points depending on conditions.
- List of personnel and contact information for employees on-site and supporting the project.
- Route to the nearest occupational treatment facility and hospital along with contact information.
- Job Hazard Analysis (JHA) detailing each job task on-site with its potential hazards and best practices to avoid those hazards.
- Description and hazards of the contaminants of concern (COC) with appropriate Personal Protection Equipment (PPE) requirements.
- List and description of REGENESIS chemicals on-site including a Safety Data Sheet (SDS) for each chemical.
- Checklist of site safety equipment including fire extinguishers, eyewash station, first aid kit, spill prevention kit and any site-specific equipment needed.
- Daily tailgate safety meeting sheet with identified hazards and risks associated with the site and job tasks for that day, along with shared learning observations from the previous day.

Pricing

Below is the cost estimate to provide the remediation technologies and execute the scope of work provided in this proposal.

Description	Subtotal
Remediation Products and Services Included product acceptance, Forklift, DPT, Shipping and Sales Tax.	$622,599.29
Total	**$622,599.29**

The cost provided above is inclusive of all product, estimated product freight, product mixing, injection services as outlined within this proposal, tax and materials to complete the work. We will submit invoice(s) when product ships and upon project completion or end of calendar month for remediation services. **Payment terms are Net 30 days upon invoice submittal. Should payment terms be extended beyond 30 days, finance charges may be applied.**

Please note that this pricing is contingent upon completion of this scope of work without delays or work stoppages once mobilization occurs. RRS has allotted twelve (12) on-site working days (10-hr days, Monday through Friday) to apply the remediation technologies. and one (1) extra day to accept product. RRS believes the scope of work provided above can be completed in this timeframe proposed, however, if the project is delayed due to circumstances beyond our control, RRS will utilize a daily rate of $7,500.00. plus applicable tax to the invoice price. Should the project be completed ahead of schedule, a portion of the daily rate may be credited to the final invoice after review. RRS reserves the right to modify the design and associated cost if additional information gathered warrants modification.

COST ESTIMATE DISCLAIMER: The cost listed assumes conditions set forth within the proposed scope of work and assumptions and qualifications. Changes to either could impact the final cost of the project. This may include final shipping arrangements, sales tax, or application-related tasks such as product storage and handling, access to water, etc. If the items listed need to be modified, please contact REGENESIS for further evaluation.

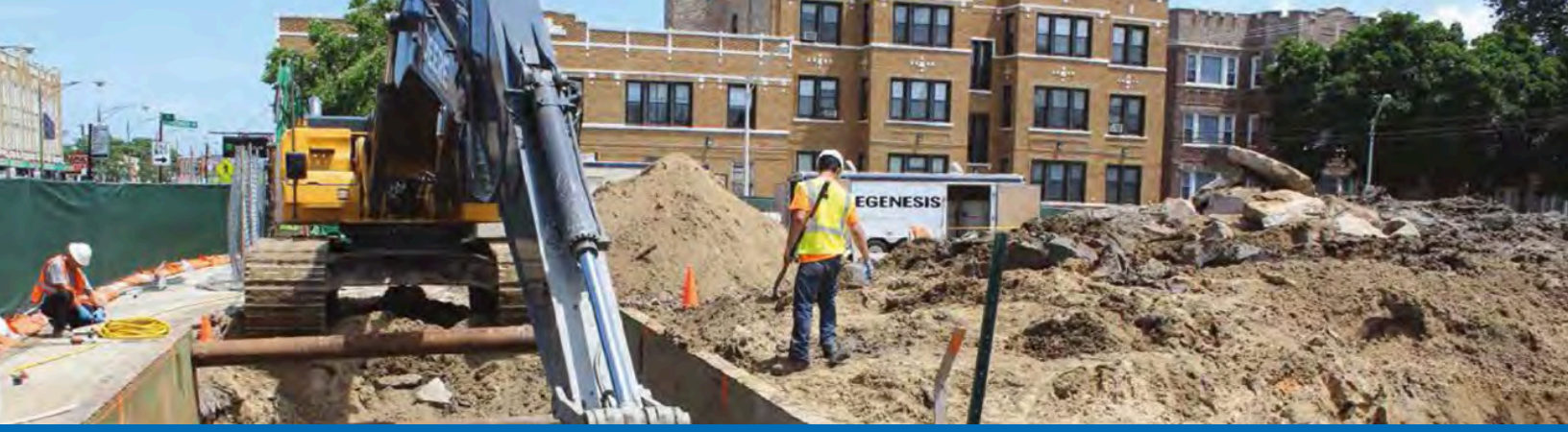
REGENESIS developed this Scope of Work in reliance upon the data and professional judgments provided by those who completed the earlier environmental site assessment(s) and in reliance upon REGENESIS' prior experience on similar project sites. The fees and charges associated with the Scope of Work were generated through REGENESIS' proprietary formulas and thus may not conform to billing guidelines, constraints, or other limits on fees. REGENESIS does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where REGENESIS may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by REGENESIS, it is the sole responsibility of the entity seeking reimbursement to ensure the Scope of Work and associated charges are in compliance with and acceptable to the Government before submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from Government, REGENESIS does not knowingly present or cause to be presented any claim for payment to the government.

PROFESSIONAL JUDGEMENT: In generating this estimate, REGENESIS relied upon professional judgment and site-specific information provided by others. Using this information as input, we performed calculations based upon the known chemical and geologic relationships to generate an estimate of the mass of product and subsurface placement required to effect the remediation of the site.

Terms & Conditions

1. **PAYMENT TERMS.** Net 30 Days. Accounts outstanding after 30 days will be assessed 1.5% monthly interest. Volume discount pricing will be rescinded on all accounts outstanding over 90 days. An early payment discount of 1.5% Net 10 is available for cash or check payments only. We accept Master Card, Visa and American Express.
2. **RETURN POLICY.** A 15% re-stocking fee will be charged for all returned goods. All requests to return product must be pre-approved by seller. Returned product must be in original condition and no product will be accepted for return after a period of 90 days.
3. **FORCE MAJEURE.** Seller shall not be liable for delays in delivery or services or failure to manufacture or deliver due to causes beyond its reasonable control, including but not limited to acts of God, acts of buyer, acts of military or civil authorities, fires, strikes, flood, epidemic, war, riot, delays in transportation or car shortages, or inability to obtain necessary labor, materials, components or services through seller's usual and regular sources at usual and regular prices. In any such event Seller may, without notice to buyer, at any time and from time to time, postpone the delivery or service dates under this contract or make partial delivery or performance or cancel all or any portion of this and any other contract with buyer without further liability to buyer. Cancellation of any part of this order shall not affect Seller's right to payment for any product delivered or service performed hereunder.
4. **LIMITED WARRANTY.** Seller warrants the product(s) sold and services provided as specified on face of invoice, solely to buyer. Seller makes no other warranty of any kind respecting the product and services, and expressly DISCLAIMS ALL OTHER WARRANTIES OF WHATEVER KIND RESPECTING THE PRODUCT AND SERVICES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE AND NON-INFRINGEMENT.
5. **DISCLAIMER.** Where warranties to a person other than buyer may not be disclaimed under law, seller extends to such a person the same warranty seller makes to buyer as set forth herein, subject to all disclaimers, exclusions and limitations of warranties, all limitations of liability and all other provisions set forth in the Terms and Conditions herein. Buyer agrees to transmit a copy of the Terms and Conditions set forth herein to any and all persons to whom buyer sells, or otherwise furnishes the products and/or services provided buyer by seller and buyer agrees to indemnify seller for any liability, loss, costs and attorneys' fees which seller may incur by reason, in whole or in part, of failure by buyer to transmit the Terms and Conditions as provided herein.
6. **LIMITATION OF SELLER'S LIABILITY AND LIMITATION OF BUYER'S REMEDY.** Seller's liability on any claim of any kind, including negligence, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair or use of any goods or performance of any services covered by or furnished hereunder, shall in no case exceed the lesser of (1) the cost of repairing or replacing goods and repeating the services failing to conform to the foregoing warranty or the price of the goods and/or services or part thereof which gives rise to the claim. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, OR FOR DAMAGES IN THE NATURE OF PENALTIES.
7. **INDEMNIFICATION.** Buyer agrees to defend and indemnify seller of and from any and all claims or liabilities asserted against seller in connection with the manufacture, sale, delivery, resale or repair or use of any goods, and performance of any services, covered by or furnished hereunder arising in whole or in part out of or by reason of the failure of buyer, its agents, servants, employees or customers to follow instructions, warnings or recommendations furnished by seller in connection with such goods and services, by reason of the failure of buyer, its agents, servants, employees or customers to comply with all federal, state and local laws applicable to such goods and services, or the use thereof, including the Occupational Safety and Health Act of 1970, or by reason of the negligence or misconduct of buyer, its agents, servants, employees or customers.

8. **EXPENSES OF ENFORCEMENT.** In the event seller undertakes any action to collect amounts due from buyer, or otherwise enforce its rights hereunder, Buyer agrees to pay and reimburse Seller for all such expenses, including, without limitation, all attorneys and collection fees.
9. **TAXES.** Liability for all taxes and import or export duties, imposed by any city, state, federal or other governmental authority, shall be assumed and paid by buyer. Buyer further agrees to defend and indemnify seller against any and all liabilities for such taxes or duties and legal fees or costs incurred by seller in connection therewith.
10. **ASSISTANCE AND ADVICE.** Upon request, seller in its discretion will furnish as an accommodation to buyer such technical advice or assistance as is available in reference to the goods and services. Seller assumes no obligation or liability for the advice or assistance given or results obtained, all such advice or assistance being given and accepted at buyer's risk.
11. **SITE SAFETY.** Buyer shall provide a safe working environment at the site of services and shall comply with all applicable provisions of federal, state, provincial and municipal safety laws, building codes, and safety regulations to prevent accidents or injuries to persons on, about or adjacent to the site.
12. **INDEPENDENT CONTRACTOR.** Seller and Buyer are independent contractors and nothing shall be construed to place them in the relationship of partners, principal and agent, employer/employee or joint ventures. Neither party will have the power or right to bind or obligate the other party except as may be expressly agreed and delegated by other party, nor will it hold itself out as having such authority.
13. **REIMBURSEMENT.** Seller shall provide the products and services in reliance upon the data and professional judgments provided by or on behalf of buyer. The fees and charges associated with the products and services thus may not conform to billing guidelines, constraints or other limits on fees. Seller does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where seller may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by seller, it is the sole responsibility of the buyer or other entity seeking reimbursement to ensure the products and services and associated charges are in compliance with and acceptable to the Government prior to submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from the Government, seller does not knowingly present or cause to be presented any claim for payment to the Government.
14. **APPLICABLE LAW/JURISDICTION AND VENUE.** The rights and duties of the parties shall be governed by, construed, and enforced in accordance with the laws of the State of California (excluding its conflict of laws rules which would refer to and apply the substantive laws of another jurisdiction). Any suit or proceeding hereunder shall be brought exclusively in state or federal courts located in Orange County, California. Each party consents to the personal jurisdiction of said state and federal courts and waives any objection that such courts are an inconvenient forum.
15. **ENTIRE AGREEMENT.** This agreement constitutes the entire contract between buyer and seller relating to the goods or services identified herein. No modifications hereof shall be binding upon the seller unless in writing and signed by seller's duly authorized representative, and no modification shall be effected by seller's acknowledgment or acceptance of buyer's purchase order forms containing different provisions. Trade usage shall neither be applicable nor relevant to this agreement, nor be used in any manner whatsoever to explain, qualify or supplement any of the provisions hereof. No waiver by either party of default shall be deemed a waiver of any subsequent default.



Acknowledgement

Signature below confirms signee has reviewed the proposal and agrees with all outlined responsibilities and assumptions/qualifications. Please also review our terms and conditions.

Here is a list of next steps toward implementation of this project. Please note these steps may take 4-6 weeks to complete depending upon the complexity of the project and previous experience with your company. RRS will contact you soon to begin the implementation process.

Steps to Project Implementation

1. Sign acceptance of proposal
2. Finalize contract documents incorporating this proposal or formal REGENESIS Subcontract Agreement
3. Confirm account credit status
4. Complete remediation services logistics evaluation
5. Confirm delivery address and date
6. Schedule application

Please sign below to acknowledge acceptance of proposal PlumeStop Proposal-PFAS Barrier Detailed Design for the Cold Storage Facility Site and authorize REGENESIS to proceed with a final contract and work authorization:

SIGNATURE
Yusuf Pehlivan

Not yet accepted

Farallon Consulting | Yusuf Pehlivan, Project Geologist

PFAS TECHNICAL LIBRARY

Case Studies

- Plumestop® Case Study: Martha's Vineyard Airport Successfully Treated Using PlumeStop to Eliminate PFAS Risk
- Plumestop® Case Study: NY Brownfield PFAS + CVOC Remediation
- PlumeStop® Case Study: PFAS Treatment at Camp Grayling Army Airfield
- PlumeStop® Case Study: Remedy Addresses PFAS Risk at Superfund Site
- Plumestop® Case Study: Successful Remediation of PFAS at Fairbanks Alaska Airport

Technical Bulletins

- PlumeStop® Technical Bulletin 1.1: Distribution Through a Permeable Medium
- PlumeStop® Technical Bulletin 2.2: Sorption of Contaminants from Solution-Column Study
- PlumeStop® Technical Bulletin 5.1: In-Situ Containment of PFOA and PFOS Using Liquid Activated Carbon
- Colloidal Activated Carbon (CAC) Sampling Guidance Document

3rd Party Journal Articles

- In-Situ Treatment of TCE and PFAS in Groundwater within a Silty Sand Aquifer-Wiley's Remediation Journal
- The Effect of Heterogeneity on the Distribution and Treatment of PFAS: Frontiers in Environmental Chemistry
- Evaluating the Longevity of a PFAS In Situ Colloidal Activated Carbon Remedy
- Six Pilot Scale Studies Evaluating the In-Situ Treatment of PFAS in Groundwater

Videos

- PlumeStop® Treats PFAS and Protects Island Community Resources
- Identifying PFAS as a CERCLA Hazardous Substance: Are You Ready for This?
- PFAS Contamination? The Fallacy of Pump & Treat

Other

- Podcast: Talking Under Water: Interview with Scott Wilson
- FluxTracer® Flux Mapping Tool
- PlumeShield® Performance Warranty Program

Intellectual Property

REGENESIS is the developer of PlumeStop® colloidal activated carbon technology and holds a patent portfolio related to the use of colloidal activated carbon for in situ remediation:

- Patent controlling the injection of activated carbon particles into subsurface media under low pressure:
  - US Patent #7,585,132
- Patents covering the use of colloidal activated carbon to treat heterogeneous media to stop matrix back-diffusion:
  - US Patent # 9,776,898
  - US Patent # 10,005,684
  - Europe Patent # 3,105,190
- Patent controlling the engineering of subsurface hydrophobicity in order to sorb contaminants from aquifer waters:
  - US Patent # 10,478,876
  - Europe Patent # 17813929 (pending)
- Patent covering chemistries to suspend and disperse colloidal activated carbon particles for optimum distribution within subsurface media
  - US Patent #9,770,743
  - Europe Patent # 3,027,562

REGENESIS Indemnification

The use of PlumeStop® is free from infringement of any other intellectual property. REGENESIS will indemnify customers, who have purchased and properly applied PlumeStop, against claims of infringement of any other intellectual property.

Placement Validation Plan

Placement Validation (PV) seeks to evaluate that the designed injection point spacing and volumes achieve a modeled radius of influence within the target treatment zone. Evaluation will be based on the reagent fluid monitoring at nearby monitoring locations during the injection process and modifications may be made if design optimization is identified based on field results. PV is also used to document visual PlumeStop sorption onto aquifer materials after its initial colloidal fluid state. As such, RRS will conduct various field tests to evaluate the distribution and radius of influence of the remedial reagents (PlumeStop) in the subsurface throughout the injection application.

The field tests will include pre-injection soil cores to view the lithology and confirm vertical treatment as designed; installation of temporary piezometers to monitor water level, groundwater parameters, and groundwater color; and lastly, collection of post-injection soil cores to observe PlumeStop adhered to the aquifer matrix. Visual observation of PlumeStop is a function of the geology, soil color, etc., therefore it often is not used as the sole indicator of PlumeStop distribution during PV activities.

In general, RRS may utilize several field test procedures in combination or individually to evaluate the distribution and influence of the remedial reagents being applied. Materials for PV will need to be coordinated with the subcontracted drilling firm. **RRS estimates that up to six temporary piezometers, three pre-application, and three post application soil cores will be utilized to conduct placement validation procedures for this project.** These quantities are estimated and may be changed in the field based on access, the progress of placement validation results during the injection, or any other potential unforeseen scenarios.

Site-Specific Procedure

The site-specific procedure for Placement Validation (PV) of the PlumeStop® Liquid Activated Carbon™ (PlumeStop) injection process includes the following steps:

1. Collect pre-injection soil cores to 18 ft. bgs to facilitate temporary wells and pre-examine soils prior to injection. These cores may be kept on-site for direct comparison to post-injection soil cores following the application.

2. Install temporary piezometers, screened to mimic final injection interval. Temporary piezometers will be monitored by bailers during the application of PlumeStop. The wells will be removed upon completion of the PlumeStop application.

3. Complete injection locations directly adjacent to each of the piezometers.

a.) If the piezometers reach or exceed a PlumeStop concentration of 1,000 mg/L, the remainder of the application will be completed as designed.

b.) If piezometers do not reach or exceed a PlumeStop concentration of 1,000 mg/L, then Regenesis may alter the design to increase distribution into the correct target zones.

4. After the completion of all injection points in the area, confirmation cores will be collected to 18 ft. bgs. Cores will be examined and compared to pre-injection cores to note any color changes which are an indication of PlumeStop distribution. Due to the generally dark color of the soils at the site, this direct comparison could be difficult but is nonetheless important as a second verification method for measuring the distribution of PlumeStop.