Appendix J

PetroFIX™
Remediation Fluid

TAKE CONTROL

You Design, You Apply.

REGENESIS®

PetroFIX™
Remediation Fluid

Key Benefits:

- Fast Results
- Affordable and Reliable
- Excellent Distribution Properties
- Simple Online Design Assistant
- Full Customer Support
- Safe to Use

Easy to Apply:

- Inject Under Low Pressure
- Pour Into Open Excavations
- Add to UST or Pipework Bedding

Target Contaminants:

- Petroleum Hydrocarbons – both Gasoline and Diesel range
- BTEX
- MTBE
- Naphthalene
- PAHs

Overview

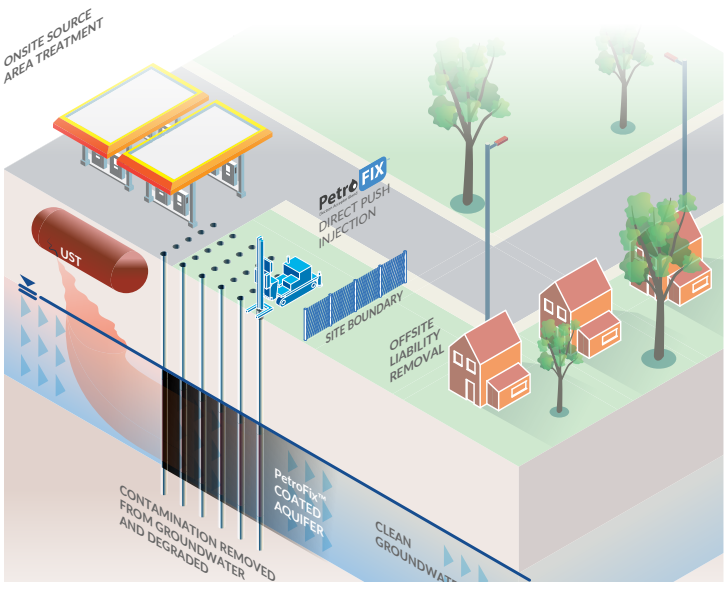
PetroFix: Technology at-a-glance

PetroFix™ is a cost-effective solution for petroleum spills that equips environmental professionals with tools to take control of the remediation process. This technology works hand-in-hand with the PetroFix Design Assistant™, an online tool that enables users to design and apply individually-tailored remediation plans.

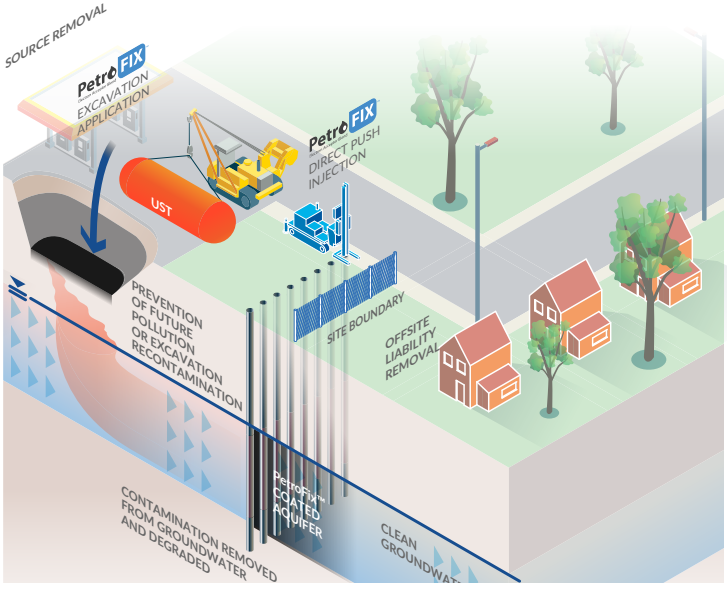
A Dual-Functioning, Activated Carbon Remedial Technology for Treating Petroleum Hydrocarbons

Petrofix has a dual function: it removes hydrocarbons from the dissolved phase by adsorbing them onto activated carbon particles and then stimulates hydrocarbon biodegradation by adding electron acceptors. The environmentally-compatible formulation of micron-scale activated carbon (1-2 microns) is combined with both slow and quick-release inorganic electron acceptors. Practitioners can select between a sulfate and nitrate combination blend (recommended) or sulfate only for the additional electron acceptors required.

Source Treatment Using a Grid Injection Design



Excavation with a Barrier Application Design

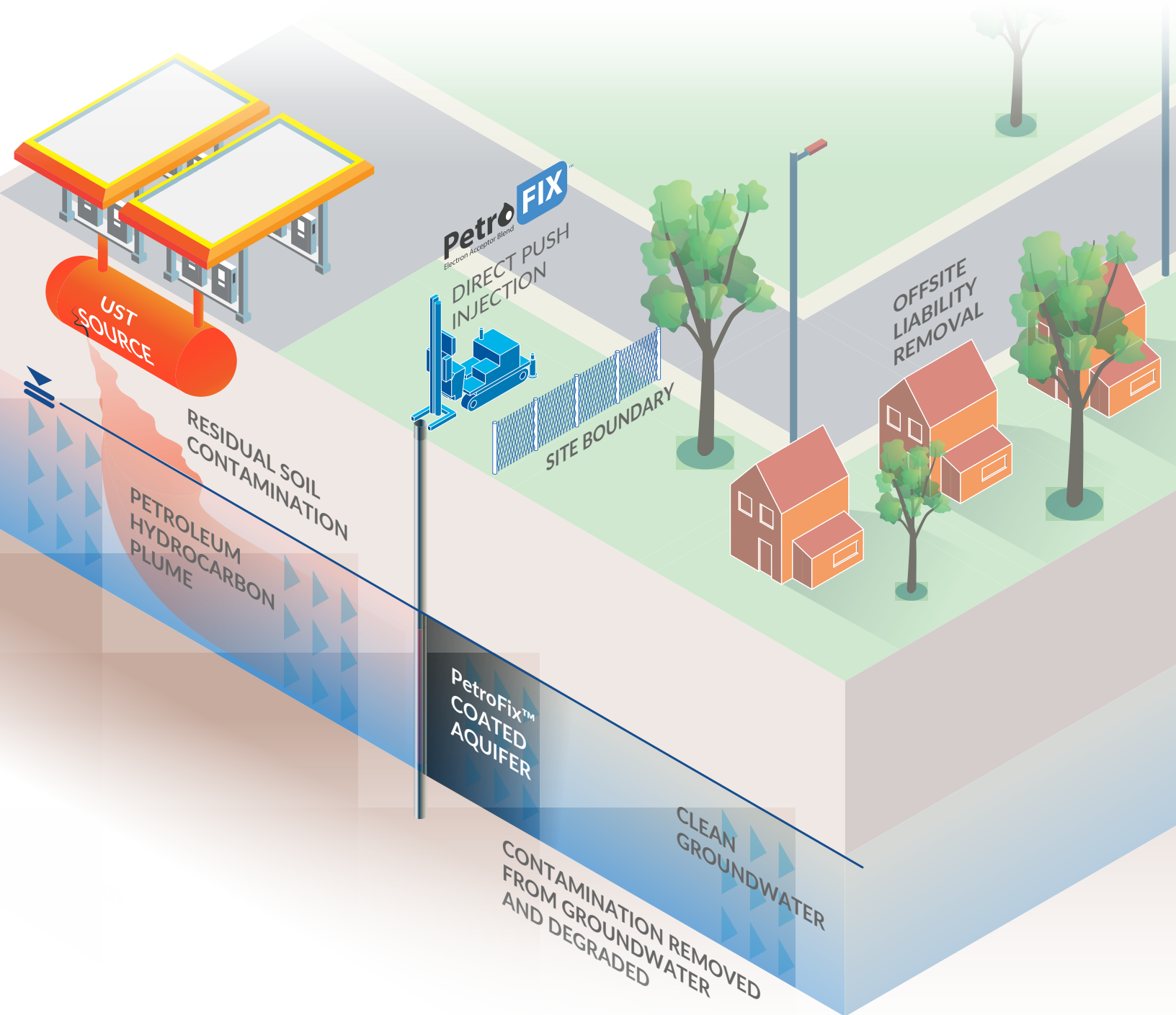


A Wide Range of Applications

- Target hydrocarbon plumes caused by recent spills or old leaks
- Treatment barriers to prevent plume migration and remove off site liability
- Excavation applications to prevent recontamination and mitigate future releases
- Suppress vapor risk from subsurface hydrocarbon contamination
- Protect against future pollution events by coating bedding material around tanks and pipework

Safe to Use

PetroFix is made from natural nonhazardous carbon and nutrients. It requires only dilution before application.



The PetroFix Design Assistant: You Design

Use our Online Software to Generate an Estimate When you Need it

To make applying PetroFix simple and easy to use, REGENESIS created an innovative and effective online tool for developing recommended dosage and designs for your site. The PetroFix Design assistant equips environmental professionals with the tools to design individually-tailored remediation plans. This self-design, self-apply tool guides users toward effective designs that will yield the best results and allows users to easily order PetroFix through REGENESIS' customer service department. Educational resources and best practices are also offered along with an online video tutorial which walks the user step-by-step through the design and ordering process.

1 Create Your Account

Begin by creating an account with details about your site including the surface area and average vertical thickness and whether or not NAPL is present at this time.

2 Recommended Treatment

After providing the soil grain size and the groundwater contaminant levels, the Design Assistant will provide results showing the suggested treatment including the recommended volume, dosing, and product required for treatment.

3 Order PetroFix

Once all areas for the site are submitted, start the order process directly within the Design Assistant.

Simple
Easy to Use

Flexible
Designs Tailored to Your Site

Fast
No Waiting for a Design

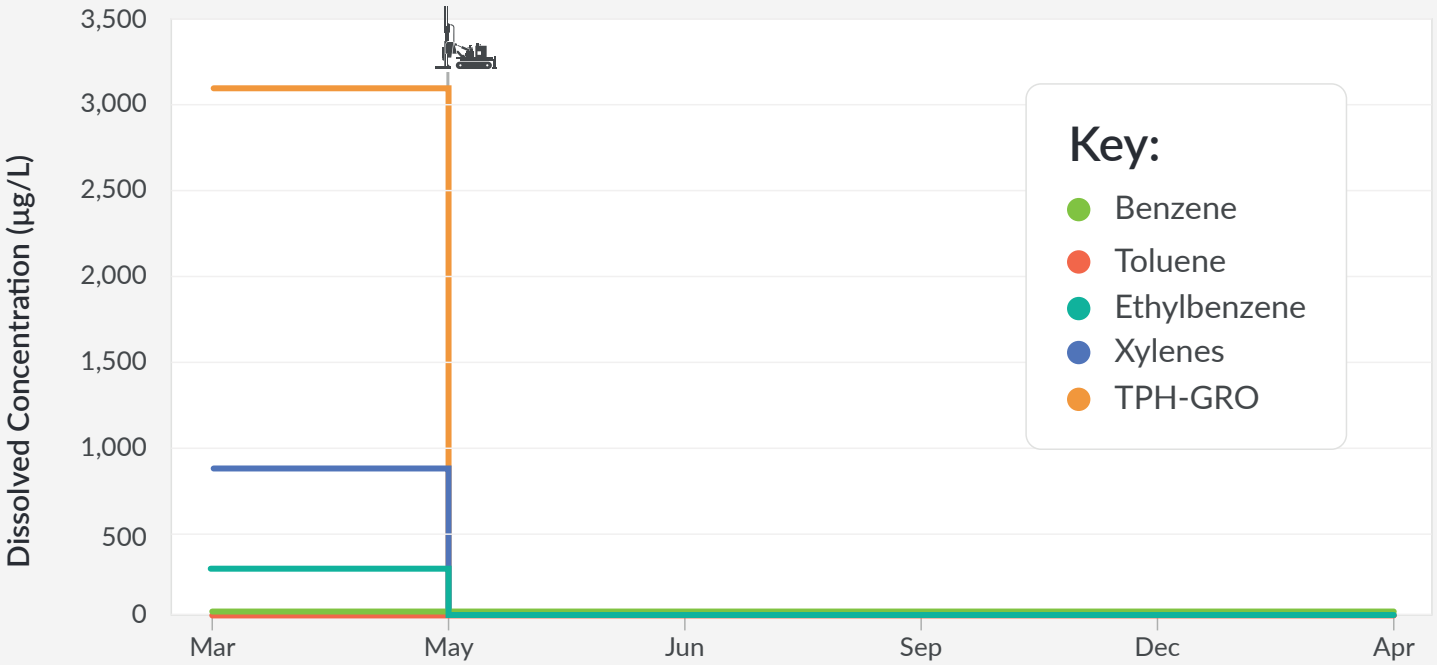
Fast and Effective

Case Study: PetroFix Provides Rapid and Long-Lasting Results

PetroFix is simply mixed with water and applied

A multi-use convenience store located in Panama City Beach, Florida was impacted by contamination from a leaking underground storage tank (UST). A 2007 report determined that 1,000 gallons of fuel were discharged from this tank and subsequently contaminated the soil and water table.

After various remediation strategies failed to adequately reduce groundwater contaminant concentration levels, A new strategy was needed. PetroFix proved to be the ideal solution for this site because it is easy to apply, is highly versatile, and promises rapid, lasting results. Just 60 days after the PetroFix injection, the contaminant concentrations were below detection and have remained so after one year post-injection. PetroFix was able to degrade the petroleum contaminants within a fast-moving, 200-foot plume.



PetroFix was able to degrade petroleum contaminants within a fast-moving 150-yard plume. Within just 60 days post-injection all contaminant concentrations reached non-detect.

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Remediation Fluid

Excavation Application Guidance For PetroFix™

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Excavation Application Guidance for PetroFix

Questions?
Get in touch with us.

Phone: 949-366-8000
Email: info@petrofix.com

Or visit https://petrofix.com/apply today to learn more.

Introduction

Excavation Application Guidance for PetroFix

PetroFix™ Remediation Fluid (PetroFix) is an environmentally-compatible formulation of micron-scale activated carbon (1-2 microns) that is combined with both slow and quick-release inorganic electron acceptors (Electron Acceptor Blend or EA Blend). PetroFix can be applied to the floor and sidewalls of an excavation through *in situ* soil mixing or direct spraying. PetroFix should generally be applied to the vertical interval of the excavation that is naturally saturated with groundwater or expected to become naturally saturated.

REGENESIS has prepared this guidance document for remediation practitioners who are planning to use PetroFix as an amendment for remedial excavations. Two methods of application are described: Direct and *in situ* soil mixing.

For guidance on application methods that are not described in either document, please contact REGENESIS directly at 949-366-8000 or send an inquiry to info@petrofix.com.

H&S Note: Prior to use all personnel should review the specific SDSs to assure compliance and preparedness for any type of emergency that arises. OSHA (29 CFR 1910.1200)

PetroFix Health & Safety Information

Storage and Handling Guidelines

- Store away from incompatible materials and in original closed container
- Store at temperatures between 40°F and 95°F
- Do not allow material to freeze or store in direct sunlight
- Freezing and hot weather technical memo can be accessed here
- Dispose of waste and residues in accordance with local authority requirements

LEVEL D

Level D Protection is primarily a work uniform and is used for nuisance contamination only. It requires only coveralls and safety shoes/boots. Other PPE is based upon the situation (types of gloves, etc.). It should not be worn on any site where respiratory or skin hazards exist.

Source: https://chemm.nlm.nih.gov/ppe.htm

Note: *This recommendation is only for PetroFix and does not supersede additional precautions due to site conditions and potential exposures.*

Personal Protective Equipment (PPE) Requirements for Safe Installation

PetroFix is considered nonhazardous although it is recommended that personnel working with or in areas where there is a potential for contact with PetroFix should be required at a minimum to be fitted with Level D personal protective equipment. However, this recommendation is only for PetroFix and does not supersede additional precautions due to site conditions and potential exposures.

PPE should be upgraded from modified Level D based on site-specific hazards and requirements.

Typical Requirements

Features, Installation Equipment and Supplies Needed for PetroFix Application

- Secure storage area for PetroFix
- PetroFix SDS
- Appropriate Personal Protective Equipment (PPE)
- Qualified heavy equipment operators if mechanically mixing PetroFix
- Water source for mixing and spraying
- Access to electricity if spray pumps are used
- Mixing tanks – size based on the desired amounts of water to use and site logistics
- Drum mixer for homogenizing PetroFix in its 55-gallon drums (examples given later in this document)
- Hosing between mixing tank/drum and spray pump
- Spray pump if doing a direct spray application

More specifics are provided in the following sections.

Application Process

Pre-Mixing of PetroFix

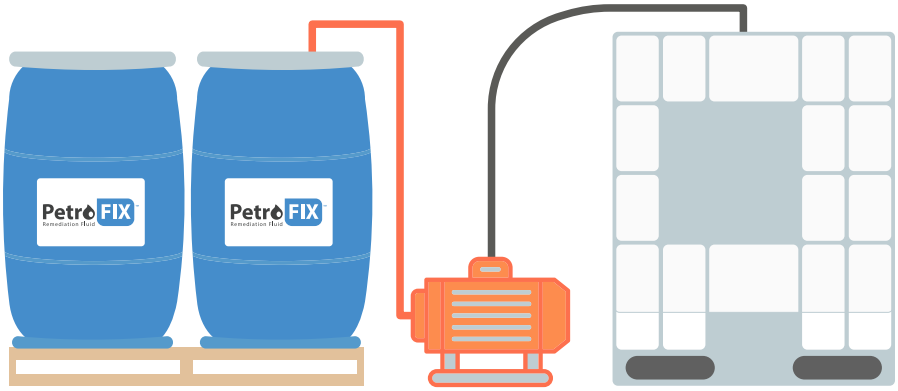
Shipping Information: PetroFix fluid is shipped in 55-gal. polyethylene drums and the EA version is shipped in 20-lb plastic pails.

PetroFix fluid is shipped in 55-gallon polyethylene drums and the EA Blend is shipped in 20-lb plastic pails. There are 41 gallons of fluid in each drum. PetroFix fills to roughly 12 to 14 inches below the top of the drum. PetroFix fluid can be transferred from its drum into a mix tank using either a diaphragm pump, trash pump, or a drum pump.

Note: *Always add water to mixing tank prior to adding PetroFix Remediation Fluid*

In most instances PetroFix will need to be diluted in a larger mixing tank and then pumped from that mixing tank to spray or pour into the excavation. Both PetroFix and the supplied electron acceptor should be diluted in the mixing tank and not in the drum the material was shipped in. **Mix tank volumes of 200 to 500 gallons should be enough for most sites and one should expect repeated re-fills of the tank until PetroFix is distributed.** Always add water to mixing tank prior to adding PetroFix Remediation Fluid.

- Assemble product transfer system to move the PetroFix from the drums to the mix tank. A diaphragm pump such as a Yamada diaphragm pump can be used to pump PetroFix form a drum to a mix tank.



The image shows an example PetroFix transfer and mixing setup where a tote was chosen as the mix tank

The image shows the homogenization of PetroFix using a high torque/high rpm mixer with appropriate mixing paddle.

- Always pre-mix PetroFix in its container prior to pumping material out of the container

- PetroFix is easy to mix with a proper power drill/mixer and a mixing blade combination. In cold weather or prolonged storage times PetroFix may settle a few inches at the bottom of the 55-gallon poly drum. Any such settling can be resuspended in the field with little time and the right equipment. A recommended mixing combination for all circumstances would be a high torque, double handle mixer such as a QEP or Rigid thinset grout and mortar power mixer with QEP 30" pro spiral mixing paddle, or equivalent (available at Home Depot). Other high torque mixers and paddle combinations can be used if they can create a vortex in the drum.

- If the PetroFix is difficult to pump after mixing with our recommended mixer you may need to thin the material. We recommend you add 3 to 5 gallons of water to the drum and blend that into the material. This will reduce the viscosity to allow for proper homogenization and transfer to dilution tanks.

- Transfer appropriate volume of PetroFix remediation fluid to the water in the mix tank.

- Thoroughly mix PetroFix solution in the mixing tank using an impeller type drum mixer or by recirculating the product inside the tank.

- Add recommended ratio of PetroFix Electron Acceptor Blend to the mixed solution in the tank. One tip is to use a scale to measure mass of electron acceptor blend needed for partial mix batches. Standard dosing is one bucket of electron acceptor blend per one drum of PetroFix.

  CAUTION: DO NOT mix PetroFix Electron Acceptor (EA) blend from the 20 lb buckets into undiluted PetroFix Remediation Fluid in the drums or totes. Only add the PetroFix EA blend into the diluted PetroFix solution in the mix tank. Adding the EA blend directly into the PetroFix Remediation Fluid will prevent the EA blend from properly dissolving in the mix water.

- As the drum is emptied into the mixing tank, flush out the drum with water to fully use all material. Flush water can be used as mix water.

Excavation Applications

The following text provides general guidance for how to apply PetroFix by direct application through spraying or in-excavation soil mixing. This document should not be considered an exhaustive review of all potential PetroFix application techniques and only provides a brief discussion on procedures recommended by REGENESIS.

PetroFix should never be applied by personnel within the excavation, unless proper shoring or sidewall cutback is in place.

Aerial view of PetroFix application an excavation site via direct-spraying

Direct Application

PetroFix can be sprayed onto the floor and sidewalls of an excavation by mixing PetroFix with water in above-ground mixing tanks and spraying using a high-volume water pump to fully cover the treatment area. PetroFix application should be focused in areas where complete excavation was not possible or where there is a concern for potential contaminant rebound. To facilitate focused application for sidewalls or areas of concern, application of the PetroFix solution can be sequenced to coincide with the incremental lifts during the soil backfilling.

PetroFix should be applied on a mass basis per treatment area using the design recommendations provided by REGENESIS. The minimum recommended mixing ratio for PetroFix for spraying is 1:1 by volume with water (i.e. 41 gallons of PetroFix fluid + 20 lb of supplied EA Blend to 41

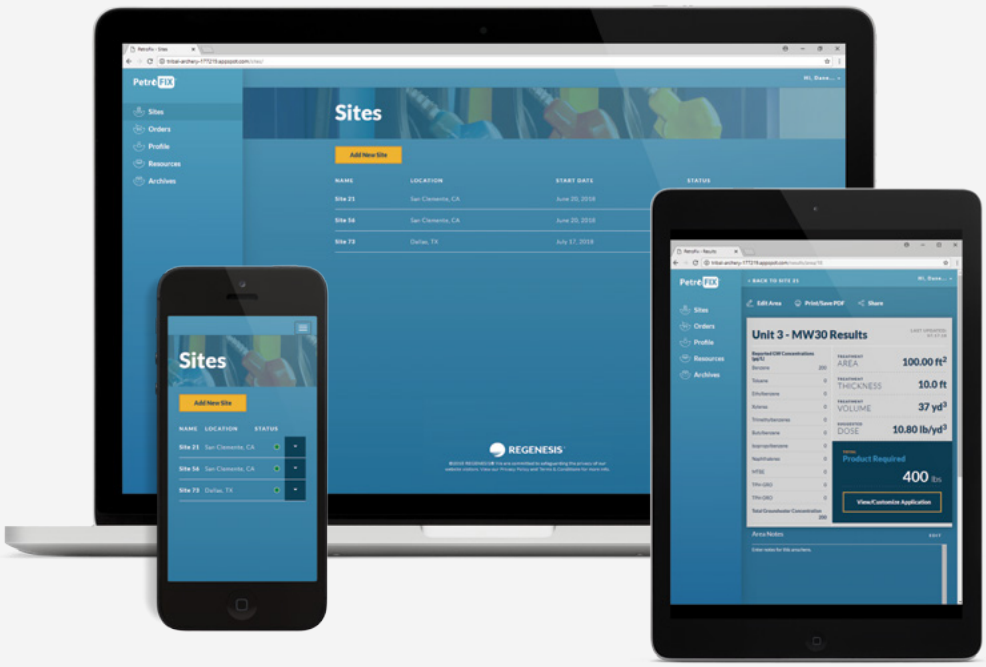
H&S Note: All excavations should be assessed by an "excavation competent person" as defined in OSHA (29 CFR 1926.50) to assure that personnel and equipment applying the product are a safe distance away from sheer walls to prevent engulfment and injury.

gallons of mix water) and this is usually used for relatively small excavations where a large area of distribution is not needed. Higher dilution volumes would be recommended where PetroFix is sprayed into the middle of a large excavation that is harder to reach. The volume of mix water can be increased or decreased as needed to fully cover the treatment area and is usually determined in field. As a rule-of-thumb, plan on using at least 5x as much volume of mix water as PetroFix remedial fluid used and vary as needed so that you feel you have enough water to achieve the coverage that you need. Enough water should be used to spread PetroFix through the entire excavation treatment area. If the excavation is not saturated, enough water should be used to attain coverage and saturate the first few inches of the excavation and cause some downward percolation.

PetroFix can be applied directly to the soil using a towable water trailer (such as Wastecorp 500 to 1,600 gallon water trailers) equipped with an onboard centrifugal water pump and sprayed using a 1.5" lay flat hose fitted with a 1.5" fire nozzle. This equipment can be rented at most construction rental supply stores. PetroFix and the associated Electron Acceptor Blend can be mixed by recirculating the solution within the water tank using either the onboard water pump or an external pump. PetroFix and the EA Blend should be mixed with water for approximately five minutes before it is ready to be sprayed into the excavation. It is recommended to flush the pump, hose, and nozzle with clean water after spraying each PetroFix drum and at the end of the day to prevent potential clogging. Follow OSHA-required health and safety practices while spraying and follow regulations on appropriate distances to stand away from the edges of the excavation. Use caution when spraying PetroFix upwind and it is advised to wear a face shield to prevent liquid splashing on the face.

In Situ Soil Mixing

In situ soil mixing can be performed to improve PetroFix distribution within the soil targeted for remediation. PetroFix can be added undiluted into the excavated area and mixed *in situ* with standing groundwater. If the excavated area is dry, it is recommended to add water to the floor of the excavation to aid in soil mixing and saturate at a minimum the first few inches of soil. Add water as needed to aid in mixing and plan for enough water based on the volume of excavation to be treated. Another option is that PetroFix can be diluted (per instructions in the prior section) with higher volumes of water and then sprayed into the excavation at the mixing head. Mechanical mixing can be performed using a variety of excavator attachments, including bucket, auger, or rotary tool.



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Appendix K

Table K-1: Evaluation of Potentially Applicable or Relevant and Appropriate Requirements (ARARs) for IA Design and Implementation

Type	Law/Regulation/Requirement	Brief Synopsis of Law/Regulation/Requirement	Chemical	Location	Action	ARAR?	Comment for IA Design and/or Implementation
Cleanup and Waste Management	State Model Toxics Control Act (Chapter 70A.305 RCW, Chapter 173-340 WAC)	Processes and standards are used to identify, investigate, and cleanup sites where hazardous substances are located.	✓		✓	**Yes**	MTCA regulations are the primary requirement for the IA. The IA will be designed to address applicable MTCA regulations. ARARs that were already used to develop MTCA SLs (e.g., federal and state drinking water standards) are not repeated in this table.
	Federal Resource Conservation and Recovery Act (42 USC 6901 et seq., 40 CFR 257-268)	The characterization, generation, transportation, treatment, storage, and disposal of hazardous solid wastes are regulated (Subtitle C), and minimum national guidelines exist for management of non-hazardous solid wastes (Subtitle D).	✓		✓	**Yes**	The IA will be designed such that the characterization, generation, transportation, treatment, storage, and disposal of solid waste generated during IA implementation will be conducted in accordance with applicable federal, state, and local waste management regulations. A Waste Management Plan will be developed during the design phase to account for all potential waste streams. For instance, it is expected that soil to be excavated, groundwater to be dewatered, and hazardous building materials to be abated will be characterized and profiled at waste facilities permitted to receive these wastes using investigation data collected during the design phase.
	State Solid Waste Management (Chapter 70A.205 RCW, Chapter 173-350 WAC, Chapter 173-304 WAC)	The state's regulation for the management of non-hazardous and non-dangerous solid waste.			✓	**Yes**	
	State Hazardous Waste Management (Chapter 70A.300 RCW, Chapter 173-303 WAC)	The state's regulation for the characterization, generation, transportation, treatment, storage, and disposal of hazardous solid wastes defined in Resource Conservation and Recovery Act Subtitle C and additional dangerous solid wastes defined in Chapter 173-303 WAC.	✓		✓	**TBD**	
	Federal Hazardous Materials Transportation (49 USC 5101 et seq., 49 CFR Parts 171-180)	Requirements exist (e.g., packaging, labeling, placarding, communications, emergency response) for the transportation of hazardous materials, including hazardous waste.			✓	**TBD**	
	State Sediment Management Standards (Chapter 70A.305 RCW, Chapter 90.48 RCW, various other RCW chapters, Chapter 173-204 WAC)	Processes and standards are used to serve as the basis for making decisions about pollutant discharges that affect surface sediments and the cleanup of contaminated surface sediments.	✓		✓	No	These are not ARARs because this IA does not involve contaminated surface sediment or open water disposal of dredged material.
	State Dredge Materials Management (various RCW chapters, Chapter 332-30-166 WAC)	Requirements exist for open water disposal of dredged material obtained from marine or fresh waters.			✓	No	
USTs	Federal UST Program (42 USC 82 Subchapter IX, 40 CFR 280, 40 CFR 281)	Requirements exist for UST owners and operators regarding the installation, operation and maintenance, release detection, release reporting, cleanup, and closure of regulated UST systems as well as the delegation of state UST programs.			✓	No	These are not ARARs because USTs are not present at the Site.
	State UST Program (Chapter 70A.355 RCW, Chapter 173-360A WAC)	Requirements exist for UST owners and operators regarding the installation, operation and maintenance, release detection, release reporting, cleanup, and closure of regulated UST systems.			✓	No	
Worker Health and Safety	Federal Occupational Safety and Health Standards (various laws, 29 CFR 1910)	Development and enforcement of national safety standards are used to establish safe and healthful working conditions for workers, including hazardous waste operations and emergency response workers in 29 CFR 1910.120.	✓		✓	**Yes**	The IA will be designed such that IA implementation will be conducted in accordance with applicable federal and state health and safety regulations. For instance, IA implementation fieldwork will be conducted in accordance with a project-specific health and safety plan.
	Federal Construction Safety and Heath (Contract Work Hours and Safety Standards Act, 29 CFR 1926)	Development and enforcement of national safety standards are used to establish safe and healthful working conditions for construction workers.			✓	**Yes**	
	State Industrial Safety and Health Act (Chapter 49.17 RCW, various Chapter 296 WACs)	Development and enforcement of state safety standards are used to establish safe and healthful working conditions for workers, including hazardous waste operations workers (Chapter 296-843 WAC) and construction workers (Chapter 296-155 WAC).	✓		✓	**Yes**	

Table K-1: Evaluation of Potentially Applicable or Relevant and Appropriate Requirements (ARARs) for IA Design and Implementation

Type	Law/Regulation/Requirement	Brief Synopsis of Law/Regulation/Requirement	Chemical	Location	Action	ARAR?	Comment for IA Design and/or Implementation
Biological Resources	Federal Endangered Species Act (16 USC 1531 et seq., 50 CFR 17, 50 CFR 402)	The taking of any listed endangered species is prohibited. In addition, federal agencies are required to ensure that any federally funded or permitted project is not likely to jeopardize the continued existence or adversely effect critical habitat for a listed endangered species.		✓		No	These are not ARARs because there is no reason to believe IA implementation activities could result in the taking of an endangered species, migratory bird species, bald eagle, or golden eagle given the nature and urban location of the IA implementation activities. As a result, biological studies or monitoring are not necessary for the IA.
	Federal Migratory Bird Treaty Act (16 USC 703 et seq., 50 CFR 10.13)	The taking of a migratory bird species is prohibited without a permit.		✓		No	
	Federal Bald and Golden Eagle Protection Act (16 USC 668 et seq., 50 CFR 22)	The taking (e.g., pursuing, killing, capturing, collecting, disturbing) of a bald or golden eagle, including their parts, nests, or eggs, is prohibited without a permit.		✓		No	
	State Bald Eagle Protection Rules (Chapter 77.12.655 RCW, Chapter 220-610-100 WAC)	Requirements exist to protect bald eagle habitat by promoting cooperative land management efforts that incorporate eagle habitat needs.		✓		No	
	Federal Fish and Wildlife Coordination Act (16 USC. 661 et seq., 33 CFR 320-330)	Coordination with federal and state fish and wildlife agencies is required to ensure adequate protection of fish and wildlife resources for any federally funded or permitted project that proposes to modify a water body.		✓		No	These are not ARARs because no water bodies will be modified during any of the IA implementation activities.
	State Hydraulic Project Approval (Chapter 77.55 RCW, Chapter 220-660 WAC)	Requirements (e.g., obtaining a permit from the Washington Department of Fish and Wildlife) exist for using, diverting, obstructing, or changing the natural flow or bed of a water of the state to ensure that fish and their aquatic habitats are protected.		✓	✓	No	
Cultural Resources	Federal Historic Preservation Act (54 USC 300101 et seq., 36 CFR Part 800)	Federal agencies are required to take into account the effect of an action upon any district, site, building, structure, or object that is included in, or eligible for, the National Register of Historic Places (generally 50 years old or older).		✓		**Yes**	Given the location and nature of the Site, the potential for encountering cultural resources (e.g., human remains, tribal artifacts, historical resources, archaeological resources) during the IA is likely low. Nonetheless, an Inadvertent Discovery Plan is included in the IAWP, and will be implemented in the unlikely event that a cultural resource is inadvertently discovered during IA activities.
	State Executive Order 21-02	Consultation with DAHP and any affected tribes and implementation of measures to avoid, minimize, or mitigate adverse effects to archeological and historic archaeological sites, historic buildings/structures, traditional cultural places, sacred sites, or other cultural resources are required for state-funded construction or acquisition projects.		✓		**Yes**	
	Federal Archaeological and Historic Preservation Act (54 USC 312501 et seq., 43 CFR 7)	Requirements exist to evaluate and preserve historical and archaeological data.		✓		**Yes**	
	Archaeological Sites and Resources (Chapter 27.53 RCW, Chapter 25-46 WAC, Chapter 25-48 WAC)	Requirements exist to conserve, preserve, and protect archaeological sites and resources, including procedures for (1) registering previously unreported historic archaeological resources discovered on state-owned aquatic lands, (2) issuing archaeological excavation and removal permits, and (3) issuing civil penalties.		✓		**Yes**	
	Indian Graves and Records (Chapter 27.44 RCW, Chapter 25-48 WAC)	Requirements exist to protect Indian burial sites, cairns, glyptic markings, and historic graves, including procedures for (1) notifying affected Indian tribes which may consider the site to be of historic or cultural significance, (2) issuing archaeological excavation and removal permits, and (3) issuing civil penalties.		✓		**Yes**	
	Protection of Historic Graves (RCW 68.60.050)	Requirements exist to protect historic graves, including (1) issuing a felony for anyone who knowingly damages a historic grave, and (2) working under DAHP supervision for inadvertent discovery of a historic grave during construction.		✓		**Yes**	
	Historic Preservation (Chapter 15.76 AMC)	Requirements exist to designate, preserve, protect, enhance, and perpetuate those sites, buildings, districts, structures and objects which reflect significant elements of Auburn's, the county's, state's and nation's cultural, aesthetic, social, economic, political, architectural, ethnic, archaeological, engineering, historic, and other heritage located within the City of Auburn.		✓		**Yes**	

Table K-1: Evaluation of Potentially Applicable or Relevant and Appropriate Requirements (ARARs) for IA Design and Implementation

Type	Law/Regulation/Requirement	Brief Synopsis of Law/Regulation/Requirement	Chemical	Location	Action	ARAR?	Comment for IA Design and/or Implementation
Water	Federal Clean Water Act (33 USC 1251 et seq., 40 CFR 122-136)	Requirements (e.g., obtaining a NPDES permit) exist for wastewater and stormwater discharges to avoid adversely affecting water quality.	✓		✓	**TBD**	Management of water generated during any dewatering activities will be further assessed during the design phase. In general, water generated from dewatering would be (1) containerized and disposed of at an off-site facility permitted to receive the waste, (2) treated and re-used in accordance with an applicable permit, and/or (3) treated (as necessary) and discharged to a sanitary sewer or stormwater utility in accordance with an applicable permit. Coverage under the general construction stormwater NPDES permit and preparation of a stormwater pollution prevention plan are not required or necessary since the IA excavations will disturb less than one acre of land. Even though essentially no land will be disturbed (i.e., the IA excavations will occur in paved areas on fully developed properties that are flat and already paved, with re-paving of the excavation areas at the end of the project), the IA design will require implementation of best management practices to minimize erosion and potential adverse affects from construction stormwater.
	State NPDES Permit Program (Chapter 90.48 RCW, Chapter 173-220 WAC)	A state program exists to regulate the discharge of pollutants, wastes, and materials to surface waters of the state via Clean Water Act NPDES permits.	✓		✓	**TBD**	
	State Waste Discharge Permit Program (Chapter 90.48 RCW, Chapter 173-216 WAC)	A state program exists to regulate the discharge of waste materials from industrial, commercial, and municipal operations into municipal sewerage systems and waters of the state via non-NPDES individual permits.	✓		✓	**TBD**	
	State Waste Discharge General Permit Program (Chapter 90.48 RCW, Chapter 173-226 WAC)	A state program exists to regulate the discharge of pollutants, wastes, and other materials to municipal sewerage systems and waters of the state via non-NPDES general permits.	✓		✓	**TBD**	
	City Sewers (Chapter 13.20 AMC)	Requirements exist for users who discharge wastewater to the City of Auburn sewer system. Per AMC 13.20.130, "no surface water, groundwater or storm drainage shall be discharged into the sanitary sewer system." Prohibited discharges are designated in AMC 13.20.140.	✓		✓	**TBD**	
	City Storm Drainage Utility (Chapter 13.48 AMC)	Requirements exist to regulate stormwater discharges from development and construction projects consistent with the NPDES Phase II Municipal Stormwater Permit issued by Ecology to the City of Auburn.	✓		✓	**TBD**	
	Federal UIC Program (42 USC 300f et seq., 42 USC 6901 et seq., 40 CFR 144 through 147)	Establishes requirements, technical criteria, and standards for the UIC program, specifies procedures for approving state UIC programs, and establishes applicable UIC program elements for each state.			✓	**Yes**	Per WAC 173-218-030, spraying PetroFix into the IA excavations would be considered a subsurface fluid distribution system, which is a UIC well. Spraying PetroFix into the IA excavations will be rule authorized and registered beforehand as discussed in Section 5.5.3 of the main text.
	State UIC Program (Chapter 90.48 RCW, Chapter 173-218 WAC)	Protects groundwater quality and prevents groundwater contamination by regulating the discharge of fluids into UIC wells.			✓	**Yes**	
	State Well Construction Standards (Chapter 18.104 RCW, Chapter 173-160 WAC)	Establishes standards for construction, maintenance, and decommissioning of water supply wells and resource protection wells (e.g., monitoring wells).			✓	**Yes**	MWs within the IA excavation areas (i.e., MW3 and MW11) will be decommissioned per WAC 173-160-460 or via IA excavation activities. New MWs installed following IA excavation activities will be constructed pursuant to Chapter 173-160 WAC. If UIC injection points are used for in-situ groundwater treatment, these injection points will be decommissioned in accordance with Chapter 173-160 WAC to satisfy UIC requirements in Chapter 173-218 WAC.
	Federal Clean Water Act Permits for Dredge or Fill Materials (33 USC 1344, 33 CFR 323)	Unless exempted, the discharge of dredge or fill material into waters of the United States, including wetlands, requires a permit.		✓	✓	No	This is not an ARAR since IA implementation does not involve discharge of dredge or fill material into a water of the United States.
	Federal Floodplain Management (Executive Order 11988)	Federal agencies shall take actions in order to avoid, to the extent possible, the adverse effects associated with modifications of floodplains and direct or indirect support of floodplain development whenever there is a practicable alternative.		✓	✓	No	These are not ARARs since IA implementation does not involve modification of floodplains or wetlands.
	State Floodplain Management (Chapter 86.16 RCW, Chapter 173-158 WAC)	Establishes standards to be administered by local governments, and provides assistance to local governments. In addition, local governments are encouraged to avoid the adverse impacts associated with the destruction or modification of wetlands.		✓	✓	No	
	Federal Protection of Wetlands (Executive Order 11990)	Federal agencies shall take actions in order to avoid, to the extent possible, the adverse effects associated with modifications of wetlands and direct or indirect support of new construction in wetlands whenever there is a practicable alternative.		✓	✓	No	

Table K-1: Evaluation of Potentially Applicable or Relevant and Appropriate Requirements (ARARs) for IA Design and Implementation

Type	Law/Regulation/Requirement	Brief Synopsis of Law/Regulation/Requirement	Chemical	Location	Action	ARAR?	Comment for IA Design and/or Implementation
Air	Federal Clean Air Act (42 USC 7401 et seq., 40 CFR 50)	Air emissions from stationary and mobile sources are regulated by directing states to develop state implementation plans to achieve National Ambient Air Quality Standards.	✓		✓	No	These are not ARARs since IA implementation does not involve regulated air emissions.
	State General Regulations for Air Pollution Sources (Chapter 70A.15 RCW, Chapter 173-400 WAC)	Establishes standards and rules generally applicable to the control and/or prevention of the emission of air contaminants from stationary sources. Dust control requirements were evaluated as a separate requirement.	✓		✓	No	
	State Controls for New Sources of Toxic Air Pollutants (Chapter 70A.15 RCW, Chapter 173-460 WAC)	Establishes controls for new or modified sources emitting toxic air pollutants by requiring best available control technologies, toxic air pollutant emission quantifications, and human health and safety protection demonstrations.	✓		✓	No	
	State Ambient Air Quality Standards (Chapter 70A.15 RCW, Chapter 173-476 WAC)	Adopts National Ambient Air Quality Standards for particulate matter, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide.	✓		✓	No	
	PSCAA Regulation I	Establishes regulations to control the emission of air contaminants from sources (e.g., new sources, outdoor burning, solid fuel burning) in Pierce, King, Snohomish, and Kitsap Counties. Dust control requirements were evaluated as a separate requirement.	✓		✓	No	
	PSCAA Regulation III	Adopts state and federal requirements for regulation of toxic air contaminants in Pierce, King, Snohomish, and Kitsap Counties.	✓		✓	No	
	Dust control requirements (WAC 173-400-040(9), PSCAA Regulation I Article 9.15)	Requirements exist to implement reasonable precautions to prevent or minimize visible emissions of fugitive dust during activities such as construction.			✓	**Yes**	The IA design will require dust control measures to prevent and minimize visible emissions of fugitive dust during IA implementation.
Local/Other	State Environmental Policy Act (Chapter 43.21C RCW, Chapter 197-11 WAC)	Requires all government agencies to consider and assess the environmental impacts of a proposed action within the state before making a decision.			✓	**TBD**	A SEPA checklist will be prepared prior to IA implementation if necessary to support City of Auburn permit decisions or an Ecology VCP opinion.
	City Permits (various AMC requirements)	Permits are required for various activities conducted in the City of Auburn in order to protect public health, safety, and welfare.			✓	**Yes**	Applicable City of Auburn permits will be determined during the design phase and will be obtained prior to IA implementation. Based on the nature and location of the IA implementation activities, it is expected that select City of Auburn permits (e.g., building demolition permit, grading permit) will apply, while other City of Auburn permits (i.e., right-of-way permit, electrical permit) will not apply.
	City Critical Areas (Chapter 16.10 AMC)	Implements the City of Auburn's goals, procedures, criteria, and requirements to protect and regulate use of critical areas (i.e., wetlands, streams, wildlife habitat, geologic hazards, aquifer recharge areas, flood hazards).		✓	✓	**TBD**	Based on January 2024 communication with the City of Auburn Department of Community Development, IA implementation activities will not impact any of the City of Auburn's critical areas. However, this conclusion will be confirmed while determining applicable permits during the design phase.
	State Shoreline Management Act (Chapter 90.58 RCW; Chapter 173-26 WAC)	Requirements exist for substantial development occurring within 200 feet of a state shoreline to prevent harm from uncoordinated and piecemeal development of shorelines.		✓	✓	No	These are not ARARs since IA implementation activities will not occur within 200 feet of the ordinary high water mark of the Green River or White River.
	City Shoreline Master Program (2019 Shoreline Master Program per Chapter 16.08 AMC and Ordinance No. 6733)	Implements the state Shoreline Management Act by preparing a Master Program in accordance with the state law, and establishing a permit system for developments proposed within 200 feet of the ordinary high water mark for a City of Auburn shoreline (i.e., Green River and White River).		✓	✓	No	
	State Noise Control Act (Chapter 70A.20 RCW, Chapter 173-60 WAC)	Establishes maximum noise levels at specified times for specified durations, with some exemptions such as temporary construction activity per 173-60-050(3)(a).			✓	**Yes**	The IA design will require noise control measures to comply with applicable noise requirements (e.g., limiting construction activities to the working hours specified in AMC 8.28.010(B)(8)).
	City Noise Control (Chapter 8.28 AMC)	Requirements exist to mitigate the adverse impact of public noise disturbances within the City of Auburn at specified times, with some exemptions such as temporary construction activity per AMC 8.28.010(B)(8).			✓	**Yes**	

Notes:

AMC: Auburn Municipal Code; ARAR: Applicable or relevant and appropriate Requirements; CFR: Code of Federal Regulations; DAHP: Department of Archaeology and Historic Preservation; FEMA: Federal Emergency Management Agency; MTCA: Model Toxics Control Act; NPDES: National Pollutant Discharge Elimination System; PSCAA: Puget Sound Clean Air Agency; RCW: Revised Code of Washington; SEPA: State Environmental Policy Act; TBD: to-be-determined; UIC: underground injection control; USC: United States Code; WAC: Washington Administrative Code

Appendix L

Health and Safety Plan

Sunset Auburn – REV1

Prepared by:

PIONEER TECHNOLOGIES CORPORATION

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May 2021

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Appendices

Revisions to the HASP

This Health and Safety Plan (HASP) is an "evergreen" document (i.e., it will be revised/updated as conditions change). Changes in conditions could range from updating phone numbers to discovering additional constituents of potential concern, underground utilities, and physical or biological hazards. All revisions to the HASP should be documented in the following table. Minor revisions to this HASP (e.g., updating phone numbers) should be made to the text and be documented in the table below. Major revisions to this HASP (e.g., discovering physical or biological hazards) will be added as addenda and documented in the table below.

HASP Revisions

Rev. No.	HASP Section	PM Initials	HSM Initials	SSO Initials	Date	Explanation
1.	Sections 1, 2, 3, 4, 6, and 9 plus Figures, Tables, and App H	JH/TB		JH	5/6/2021	Updated to include information on test pits, methane, and excavation safety.
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

SECTION 1: INTRODUCTION

1.1 General Information

The location of the Sunset Auburn Site (the Site) and the name and contact information for the Site contacts are presented below.

Project Name: **Sunset Auburn Remedial Investigation**
Plant/Facility Name: **Sunset Auburn**
Plant/Facility Address: **3317, 3319, and 341 Auburn Way North, Auburn, Washington**

Title	Name	Phone Number
Client:	Kim Seeley	Cell: 253-203-6820
PIONEER Project Manager:	Troy Bussey	Office: 360-570-1700 Cell: 360-810-0640
PIONEER Health and Safety Manager:	Kevin Gallagher	Office: 360-570-1700 Cell: 206-226-3623
Site Contact:	Joel Hecker	Cell: 360-828-3739
Site Supervisor:	Joel Hecker	Cell: 360-828-3739

1.2 General Information

The purpose of this Health and Safety Plan (HASP) is to present health and safety (H&S) procedures that should be used during investigation field activities at the Site. This HASP was developed in compliance with requirements set forth in 29 Code of Federal Regulations (CFR) 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER), Washington Administrative Code (WAC) 296-843-120, and WAC 173-340-810.

This document is for use in conjunction with any applicable work plans, hazard analyses, and any project-specific addendums to this HASP. The PM, Site Supervisor (SS), and Site Safety Officer (SSO) have shared responsibility for implementing and enforcing this HASP. The SSO will evaluate this HASP for continuing adequacy throughout the course of field activities. All proposed revisions to this HASP will be reviewed and approved prior to implementation by the project team and annotated on the revision checklist provided at the beginning of this document.

All participants involved in the project will be briefed on and afforded the opportunity to question this HASP. In addition, all personnel will sign the HASP Compliance Form provided in Appendix A. Workers will keep a copy of this HASP at the Site.

This HASP (and any future addenda to this HASP) should be used with all applicable work plans, and project safety analyses (PSAs). This document is an "evergreen" document (i.e., it will be revised/updated as conditions change). Changes in conditions could range from updating phone

numbers to discovering additional constituents of potential concern, underground utilities, and physical or biological hazards. All revisions to the HASP should be documented in the HASP Revisions table on page vii of this HASP. Minor revisions to this HASP (e.g., updating phone numbers) should be made to the text and be documented in the HASP revisions table. Major revisions to this HASP (e.g., discovering physical or biological hazards) will be added as addenda and documented in the HASP Revisions table.

ATTENTION CONTRACTORS

All contractors are responsible for protecting their employees in accordance the requirements set forth in Occupational Safety and Health Act (OSHA) and all other regulatory requirements.

1.3 Site Description/History

The Site is located approximately 650 feet south of the intersection of Auburn Way North and 37th Street Northeast on the west side of Auburn Way North in Auburn, Washington (see Figure 1). It consists of five parcels of land totaling 4.83 acres. Four buildings are present on the site, including, from north to south:

- One 11,369-square-foot automobile dealership building with the address 3401 Auburn Way North,
- One 585-square-foot office building with the address 3401 Auburn Way North,
- One 16,240-square-foot automobile service building with the address 3319 Auburn Way North, and
- One 7,220-square-foot automobile dealership/office/maintenance shop building with the address 3317 Auburn Way North (see Figure 2).

The Site is currently surrounded by commercial and light industrial buildings (e.g., automotive service and sales to the north, east, and south, and multi-tenant light industrial to the east and west) and asphalt parking lots.

The Site has been used for automotive service, sales, and fueling related operations since the late 1960s. Up to five 10,000-gallon underground storage tanks (USTs) were historically present on the site and may still remain (see Figure 3). A car wash, multiple offices and showrooms, and three automotive service areas with trench and floor drains, above-grade hydraulic lifts, and oil-water separators are currently present; formerly present subsurface hydraulic lifts have been removed (see Figure 2). Historical releases of petroleum products above applicable Model Toxics Control Act (MTCA) cleanup levels in both soil and GW have occurred on the southeastern portion of the site (see Figure 3). The impact is primarily total petroleum hydrocarbons (TPH) in the gasoline range (TPH-G) and volatile organic compounds (VOCs). Additionally, methane has been found in subsurface soil vapor at levels exceeding the lower and upper explosive limit (5 and 15% by volume respectively). To date, most of the investigation has been focused on the area east of the 3317 Auburn Way North building (the southeastern most building).

The Site is currently undergoing independent remedial investigation, with likely future application to the Washington State Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP) as described in Washington Administrative Code (WAC) 173-340-515.

1.4 PIONEER Injury and Illness Prevention Plan and Accident Prevention Plan

PIONEER's Injury and Illness Prevention Plan and Accident Prevention Plan are included as Appendix D to this HASP. PIONEER developed this corporate-wide program for injury, illness, and accident prevention to reflect its commitment to the safety of its employees. The Accident Prevention Plan is mandated by Washington Administrative Code 296-800-140. PIONEER's subcontractors are required to have their own Accident Prevention Plan per applicable state regulations.

SECTION 2: SCOPE OF WORK

This HASP applies to all field activities that will be conducted as part of the investigations planned at the Site. At this time, no regulatory framework is applicable to this work. The potential activities associated with this project are summarized in this section.

Field activities may include collecting soil, sediment, groundwater, surface water, soil gas, indoor air, and outdoor ambient air samples, and completing test pits in the vicinity of the USTs. The following types of activities are also anticipated:

- Mobilizing equipment and facilities
- Auditing and overseeing field activities
- Installing monitoring wells with a hollow stem auger to depths of up to 50 feet below grade
- Installing vapor pins below the floor slab to depths of 0.5 feet below grade inside the building
- Advancing soil borings and installing temporary monitoring wells with a geoprobe to depths of 20 feet below grade
- Collecting soil and groundwater samples from soil borings.
- Collecting sediment samples using a trowel from the edge of a stormwater detention basin.
- Collecting surface water samples using a peristaltic pump or bailer from the edge of a stormwater detention basin.
- Sampling and managing investigation-derived waste (IDW)
- Transporting wastes for off-site disposal (as needed)
- Conducting global positioning system (GPS) and other field surveys
- Completing test pits using excavators
- Backfilling open excavations
- Decontaminating and demobilizing from the Site

The anticipated work areas are shown in Figure 3 and Figure 4.

Project-specific hazard analysis will be prepared prior to the execution of work through the Project Safety Analysis (PSA) process (see Section 4).

SECTION 3: PROJECT ROLES AND RESPONSIBILITIES

3.1 PIONEER Responsibility

Safety is a core value at PIONEER. Safety is the primary focus for all PIONEER projects and safety is always prioritized over production. PIONEER will continually strive to engage management and employees in identifying and eliminating hazards that may develop during work activities with the goal of avoiding all injuries.

PIONEER will provide a copy of this HASP to each contractor and subcontractor in accordance with WAC 173-340-810 to inform them of Site hazards and emergency procedures. All subcontractors are expected to conduct work in accordance with this HASP.

However, PIONEER is not responsible for contractor or subcontractor employees. Contractors and subcontractors are solely responsible for the safe and healthful performance of all work conducted by each employee and/or support personnel who may enter the Site.

3.2 Personnel Roles and Responsibilities

3.2.1 Project Managers

Joel Hecker, LG and Troy Bussey, PE, LG, LHG

The project manager (PM) for the remedial investigation field work is Joel Hecker. The PM for the overall project is Troy Bussey. The PM is responsible for overall coordination of Site activities, day-to-day operational safety, and the H&S of all workers. The PM is also responsible for:

- Implementing the HASP throughout field activities.
- Ensuring a hazard analysis (e.g., PSA) is completed in advance of planned field activities.
- Demonstrating a personal commitment to safety at all times.
- Never compromising safety for any reason.
- Ensuring that projects are audited to verify compliance with the project H&S program (field audit procedures and form are included in Appendix B.

3.2.2 PIONEER Health and Safety Manager

Kevin Gallagher MS, ASP

The HSM for the investigation work is Kevin Gallagher. The HSM will be consulted on all H&S-related issues that arise in the field including any amendments to or deviations from the HASP. The HSM has final authority on the HASP. The HSM should be consulted when preparing PSAs, Job Safety Analyses (JSAs), and other safety processes. In addition, the HSM will perform site audits and assessments in accordance with PIONEER and Site requirements.

3.2.3 Site Supervisor

***Joel Hecker* or a qualified person designated by the PM**

The Site Supervisor (SS) for the investigation work is Joel Hecker. The SS is responsible for overseeing all field-related activities (under the direction of the PM), managing field operations in accordance with project requirements, and resolving H&S issues with the SSO. The SS is expected to (1) be an H&S leader, (2) oversee PIONEER's subcontractors, (3) monitor contract expenditures as necessary, and (4) facilitate the overall success of the projects. The SS may also serve as the SSO based on the nature of field activities.

3.2.4 Site Safety Officer

Joel Hecker or a qualified person designated by the PM and approved by the HSM

The SSO is responsible for the implementing and enforcing the HASP, overseeing the safety of daily operations (if applicable), serving as the Respiratory Protection Program Administrator, and coordinating safety with subcontractors. Specifically, the SSO is responsible for:

- Ensuring that workers are aware of the provisions of this HASP and are instructed in work practices, safety, waste management, and emergency procedures.
- Establishing and maintaining Site work zones.
- Monitoring the work area and worker breathing zone and ensuring workers are complying with pre-established, personal protection levels.
- Evaluating Site conditions (e.g., weather, chemical, physical) and recommending modifications to existing controls and personal protective equipment (PPE).
- Ensuring that daily safety briefings are conducted with assistance from the SS.
- Initiating emergency response procedures, if necessary, and immediately communicating with the PM.
- Exercising stop-work authority if workers are in imminent danger.
- Resolving noncompliance issues with the SS.
- Conducting regular inspections to determine the effectiveness of the HASP.
- Maintaining the SSO log book.
- Ensuring the Respiratory Protection Program is adequate and that workers properly use, clean, inspect, and store respirators.
- Maintaining copies of documents on site (e.g., training, medical, fit test).

3.2.5 *Environmental Site Workers*

PIONEER's workers (employees and subcontractors) will be identified on a task-specific basis. All workers will be responsible for the following:

- Reviewing and complying with this HASP
- Reviewing the PSA(s) applicable to their scope of work
- Taking all reasonable precautions to prevent injury to themselves and other workers
- Conducting only those tasks that they believe they can do safely
- Using safety equipment, PPE, and other devices and procedures necessary for their protection.
- Reporting all unexpected occurrences (UOs) and/or unsafe conditions to the SSO
- Exercising stop-work authority if workers are in imminent danger

SECTION 4: HAZARD EVALUATION

The processes for identifying hazards, assessing risks, and eliminating/controlling hazards (i.e., PSAs, tailgate briefings, and JSAs) are discussed in this section. Task-specific hazard evaluations are provided in Appendix C; the completed PSA form will be attached to the HASP.

A hazard is any condition in the workplace that can potentially cause occupational injury, death, or disease. Site hazards and risks are addressed using one or more of the control measures listed below (in order of preference):

1. **Elimination**: Physically removing a hazard (the most effective control method)
2. **Substitution**: Replacing something that causes a hazard with something that does not
3. **Engineering Controls**: Isolating workers from hazards (does not eliminate the hazard)
4. **Administrative Controls:** Changing work practices (e.g., adding worker training)
5. **PPE:** Wearing protective equipment (the least effective control method because if the equipment fails, workers are exposed to the hazard).

4.1 Project Safety Analysis

A PSA is required for all field activities and must be conducted before activities are conducted to achieve the following:

- Identify likely hazards associated with the field activities
- Reach consensus as to how eliminate or mitigate hazards
- Ensure work is performed safely in compliance with applicable regulations

The PSA is a process used to identify safety and health hazards in the field, which may be known or anticipated, and the associated control measures that should be implemented. During the PSA, the following should be reviewed:

- Physical hazards
- Chemical hazards
- Process safety hazards
- Non-regulated process and other hazards
- Project staffing and background documentation

The PSA procedures and a copy of the PSA template are included in Appendix C. The SSO will keep a copy of the complete PSA at the Site and will review it with Site workers.

Prior to conducting tasks that require physical labor or mechanical equipment, associated hazards and mitigation measures will be reviewed. If at any time, a task that was not in the PSA is being performed, a review of the hazards associated with that task will be conducted prior to the start of work. Additional hazard assessments will be completed when new substances, processes, procedures, workers, or equipment are brought onto the Site. The time and level of worker involvement in the PSA should be appropriate to the complexity of the tasks being performed. The additional hazard assessment should be documented in the daily report.

4.2 Tailgate Briefings

Daily safety tailgate briefings will be conducted before each work shift at a location designated by the SSO. A tailgate briefing is a meeting in the field in which workers can discuss the safety aspects of the field activities for that day.[1] During the briefing, planned work tasks and associated hazards are identified, mitigation measures are discussed, and the need to evaluate modifications to the plan as work progresses is reinforced. Tailgate briefing attendance will be documented in the Tailgate Briefing Log, which is included in Appendix A.

4.3 Safety Inspection Procedures

PIONEER is committed to identifying hazardous conditions and practices likely to result in employee injury or illness. Safety inspections will include field audits and walk-around safety inspections as follows:

- In accordance with WAC 296-155-110, walk-around safety inspections will be conducted at the beginning of projects and weekly thereafter (minimum frequency) during site work lasting for more than one week in duration. The Site Supervisor and a contractor representative will complete the weekly walk-around safety inspection and complete the inspection checklist provided in Appendix B.
- In addition, audits will be conducted at least once during site work lasting for more than one week in duration. The auditor will complete the Safety Audit Form in Appendix B to document and verify work is conducted in accordance with the site-specific HASP (see Appendix B). The audit results will be used to eliminate or control obvious hazards.

4.4 Chemical Hazards

The potential hazards that may be encountered on the Site and the procedures used to monitor/reduce these hazards are discussed in the listed in the following sections.

4.4.1 Constituents of Interest

Constituents of interest (COIs) for the Site are those commonly associated with historical on-site and nearby operations as well as those previously identified in soil and groundwater. Auto repair operations commonly use petroleum products; therefore, total petroleum hydrocarbons (TPH) and VOCs would be COIs. Based on historical operations on or near the Site and previous sampling data, workers may encounter the following constituents COIs in soil or groundwater while performing the field activities listed in Section 2 (See Figure 3).

Soil COIs	Groundwater COIs
TPH in the gasoline range (TPH-G)	TPH-DRO
TPH in the diesel range (TPH-D)	TPH-GRO
TPH in the heavy oil range (TPH-HO)	TPH-HO

[1] Workers who are unavailable for the tailgate briefing will be required to check in with the SSO for a briefing prior to starting work.

Soil COIs	Groundwater COIs
VOCs	VOCs
PAHs	PAHs
RCRA 8 Metals	RCRA 8 Metals

VOCs, TPH-D and TPH-G exceed Model Toxic Control Act Method A Cleanup Levels in soil and/or groundwater (Robinson-Noble 2020). Maximum concentrations are described in the Remedial Investigation Work Plan (PIONEER 2020b) and shown below:

COI	Max Concentration in Soil (mg/kg)	Max Concentration in GW (ug/L)
TPH-G	10,200	27,600
Benzene	13	543
Toluene	52	No exceedance
Ethylbenzene	202	1,180
Xylenes	972	5,370
Naphthalene	86	177

The presence of the remaining listed COIs and their respective concentrations are unknown. Applicable exposure limits, chemical characteristics, primary routes of exposure, and symptoms of exposure to COIs in Site soil and groundwater are presented in Table 1. Vapor Action Levels for volatile organic compounds (VOCs) are presented in Table 2 and are discussed in more detail in Section 6.

Additionally, methane is present in soil vapor at concentrations exceeding the LEL and UEL. Measured concentrations beneath the eastern portion of the building slab of the 3317 Auburn Way structure are 90-100% methane by volume (see Figure 3).

4.4.2 Potential Exposure Routes and Risk Mitigation Measures

The primary exposure pathways of concern and the associated risk mitigation measures are discussed in the following sections.

Ingestion of Contaminants

Incidental ingestion of COIs is possible during field activities. The potential for incidental ingestion of COIs will be controlled and minimized as follows:

- Eating, drinking, using tobacco products, chewing gum, and applying lip balm will be prohibited within exclusion zones and contamination reduction zones (see Section 8).
- All workers are required to decontaminate themselves (e.g., hands, exposed skin) prior to leaving exclusion zones and contamination reduction zones (see Section 8).
- Workers are required to wear task-appropriate PPE (see Section 5).

Skin and Eye Contact with Contaminants

Skin and eye contact with some of the Site COIs may cause eye, skin, throat, central nervous system, or mucous membrane irritation/damage. Dermal absorption is possible for some of the COIs via exposed

skin and eyes. Potential hazards will be reduced through decontamination and the stipulated use of PPE (see Section 6). The hazard hierarchy (i.e., elimination, substitution, etc.) will also be used to eliminate and/or reduce risks posed to workers. Emergency eyewashes for use in the event of an accidental chemical exposure will be available in the personnel decontamination area.

Inhalation of Contaminants

Inhalation of particulates, dust, and vapors from volatile COIs is possible during work activities. Soils will be moist, therefore reducing the potential for inhalation of particulates and dust during drilling activities. During coring of concrete and drilling for sub-slab soil gas pins, concrete will be wetted and a dust mask will be worn. To minimize the potential for worker exposure to vapors from volatile COIs in subsurface soil and groundwater, workers will perform activities upwind of soil disturbing activities. The level of PPE will be assessed and may be upgraded if conditions change and additional controls will be used to limit worker exposure (see Section 5). Air monitoring will be performed to ensure that COI concentrations are below applicable limits and verify that the controls are adequate when performing drilling activities (see Section 6).

Administrative Controls

The following administrative controls will be used to limit exposure to COIs.

- Workers will perform activities upwind of soil disturbing activities;
- Workers will use good personal hygiene including hand washing and personal decontamination;
- Workers will undergo proper task-specific training and hazard assessment;
- Workers considered essential to the field activities being performed are the only workers who will be allowed in the exclusion zones/work areas; and
- Workers will be required to seek medical attention for potential exposures to COI concentrations above action levels and/or PELs (see Section 7).

All drilling and PIONEER staff will be 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained and have up to date certification.

4.4.3 Safety Data Sheets

The SSO must receive Safety Data Sheets (SDSs) for all materials or products brought onto the Site to accomplish field activities. The SSO must review and approve the SDSs before the products can be used on the Site. SDSs must be kept on-Site for the duration the products are used at the Site. All hazardous materials must be labeled and stored in accordance with regulatory requirements.

4.5 Physical Hazards

The physical hazards that may be encountered on the Site and the procedures to be used to monitor/reduce these hazards include the following:

4.5.1 Cutting Hazards

Identify all hand safety hazards as part of the job planning process BEFORE starting work. Remember that gloves are a secondary level of defense when it comes to hand safety; the primary way to avoid

hand injuries is by proper hand placement and using the right tool for the job. When using any cutting tool, set up your work so that you cut away from your body or anyone else working nearby and pay attention to the location of your free hand when cutting. Workers will use tube cutters when cutting tubing. No glove can eliminate the potential for cuts or punctures; however, cut resistant (e.g., Kevlar®) gloves should be worn to reduce the hazard when handling sharp cutting tools or sharp objects.

4.5.2 Drum Handling

Do not attempt to move full drums by hand. Partially fill drums to reduce weight when possible. Get help when moving drums. Use a drum cart or fork lift with a drum grappler or other mechanical lifting device, if possible. Wear gloves and pay close attention to the positions of hands and feet.

4.5.3 Portable Electrical Equipment

Portable electrical tools and equipment should only be plugged into electrical circuits protected by a properly-functioning ground fault circuit interrupter (GFCI). All electrical cords and extension cords should be inspected prior to use. Tools with damaged or defective cords should not be used. Do not overload plugs.

4.5.4 Excavation Safety and Underground Utilities

No workers will enter an excavation at any time for any reason (even to conduct sampling or inspections) unless appropriate excavation safety measures (e.g., sloping, shoring) are used. Rather, samples should be collected from the excavator bucket, from the excavation using of a remote sampling tool, or from the stockpile/storage container. Excavation safety procedures apply whenever excavations are six inches or deeper. Safety procedures are presented in Appendix H. As part of these procedures, an Excavation Safety Checklist must be completed prior to excavation and a Daily Excavation Inspection Report must be completed for excavations left open.

Underground utilities include electric lines, communication lines, pipelines, sewer lines, etc., that are buried below the surface. Underground Service Alert (i.e. Washington 811) must be notified before intrusive work is conducted and utilities must be located before intrusive activities begin. The SSO is responsible for completing an underground obstruction evaluation and verifying that the appropriate method(s) of identifying underground utilities are implemented prior to initiating all subsurface work. Both private and public utility locates will be completed, including a ground penetrating radar survey. A search for tension cables and/or pipes will be completed prior to coring/cutting through concrete. The PM is responsible for ensuring that underground obstruction evaluations are in the project budget and are implemented. If an underground obstruction evaluation is deemed unnecessary, the PM is responsible for obtaining a variance. See the Underground Obstruction Evaluation SOP (Appendix H) for procedure methodology and information regarding underground hazards.

4.5.5 Exertion/Strains and Sprains

See Section 4.5.11 (Materials Handling).

4.5.6 Fire/Explosion

Methane concentrations exceeding the LEL have the potential to explode if a flame or spark is present. A ventilation fan with ducting will be used to ventilate the excavations and prevent buildups of methane. Additionally, a landfill gas monitor (e.g. GEM2000) or a four gas meter will be used to screen air around the work area to verify methane concentrations are less than 1% (20% of the LEL). A PID will also be used to monitor levels of VOCs and that their respective VOC stand down levels for protection of inhalation exposures of (0.6 ppm) is much lower than the explosion hazard stand down levels. Asphalt and concrete will be wetted prior to saw cutting in order to prevent sparks. Additional mitigation measures during excavation activities will include 1) using a smooth bucket rather than a toothed bucket, 2) directing force downward and curling the bucket rather than scraping motions, 3) saw-cutting the edges of the asphalt parking lot after excavation rather than before (methane will have vented and not be built up in the subsurface just below the pavement), 4) no smoking on the site, and 5) no use of any spark inducing tools in the vicinity of open excavations containing constituent concentrations in excess of stand down levels presented in Table 3. PIONEER will also alert the Auburn Fire Department of the upcoming excavation work and the potential explosion hazards several days prior to starting work.

Fueling of gas- or diesel-powered equipment (e.g., generator, pressure washer, or drill rig) should be performed only after the equipment has cooled down. Generators and portable gas tanks should be removed from the bed of the truck prior to fueling. Portable gas tanks will be stored outside the exclusion zones at all times. An appropriately-sized spill kit will be provided by the contractor and readily accessible. Grounding techniques will be used during transfer of fuel and/or other flammable liquids. Type A/B/C fire extinguishers will be located at several locations in the work area. Because workers are not trained firefighters, never attempt to extinguish a fire under the following conditions and evacuate the area immediately:

- You don't know what's burning.
- The fire appears to be too large to handle with one extinguisher.
- The fire is spreading rapidly beyond the spot where it started.
- An adequate or appropriate fire extinguisher is unavailable.
- You might inhale toxic smoke.
- Your instincts tell you not to.

A dedicated fire watch is required for all welding and grinding work. Grass will be mowed prior to mobilization. Avoid driving through tall grass in any vehicle. If driving through tall grass is absolutely necessary, get out of vehicle and inspect the undercarriage to confirm that no flammable materials are stuck against a heat source.

4.5.7 Heat Stress/Cold Stress

The SSO will inform all workers of anticipated weather conditions (e.g., weather forecasts) and associated concerns during tailgate meetings each day. The SSO will monitor changing weather conditions during the workday and is responsible for implementing changes, if needed. All workers should be trained on symptoms and prevention of heat and cold stress. During cold weather, wear

layered clothing, and gloves/hats, as necessary. During wet weather, use rain gear and have a change of clothing available. During hot weather, try to schedule work (especially work involving Tyvek®) during the cooler times of the day, make cooling vests available to workers, keep water and fluids available at all times, and drink water/fluids regularly (i.e., at least 1 quart per hour) to prevent dehydration. To prevent sunburn, apply sunscreen of SPF 30 or greater, and/or keep skin covered as much as possible. A shaded area will be provided as close as practicable to the work area whenever temperatures exceed 85°F or upon worker request.

During hot weather, the SSO will implement and document work/rest cycles. Use the buddy system and let other workers know if they are exhibiting signs of heat or cold stress. In addition, the SSO will monitor workers for signs of heat and cold stress as discussed in Section 6.3. Be aware that the use of PPE increases the potential for heat stress because it reduces evaporative cooling.

4.5.8 Drill Rig

All operators must be qualified and certified to operate the drill rig. All drill rigs will be inspected prior to arrival on site and then daily throughout the project. Backup alarms must be operable on all equipment. High visibility vests, a hard hat, and steel-toed boots are required for anyone in close proximity of machinery (i.e., spotter). Drilling safety procedures are included as Appendix E.

4.5.9 Heavy Equipment (Excavator)

Consult and follow the procedures presented in the earth-moving equipment procedures SOP which is included as Appendix H. Minimize pedestrian exposure to heavy equipment by restricting access to non-essential personnel in areas where heavy equipment is being used. Always make eye contact with equipment operators prior to walking or placing yourself in the path of equipment operations. Never use cell phones while walking around working equipment. Workers should always devote their full attention to operating equipment. Backup alarms must be operable on all equipment. In addition, all operators of earth-moving equipment must be qualified, and operators will inspect all earth-moving equipment prior to first use and quarterly thereafter and the SSO will review the inspection form (see Earth-Moving Equipment Inspection form in Appendix A).

4.5.10 Rigging and Suspended Loads

All tasks resulting in suspended loads, such as the placement or movement of equipment will require preplanning and equipment inspection. Inspect all equipment prior to use. Verify that rigging equipment is approved for lifting, and that the rated capacity of the slings, wire rope, or chains is not exceeded for the load and the load angle. All rigging equipment must have permanently affixed durable identification stating the rated capacity. Hooks, links, or other attachments must have at least an equal rating. No makeshift links or fasteners are allowed. Verify a clear pathway when materials are moved, and check for overhead lines and other obstructions. Never allow personnel under a suspended load. Barricade work area to prevent unauthorized access.

4.5.11 Lone Worker

Workers should use of the buddy system or have a means of communication (e.g., cell phones, two-way radios, satellite phones) available to keep in contact with other workers and for emergency purposes (see Section 8.2 for additional lone worker procedures).

4.5.12 Materials Handling

Use proper lifting techniques when handling heavy materials. Ask for assistance or use hand trucks or carts as needed. A physically fit worker may lift a maximum of 50 pounds (35 pounds for repetitive tasks) under ideal conditions (i.e., no reaching or overextension). A team or mechanical equipment should be used to lift anything over 50 pounds. Teams should not manually lift more than 80 pounds. Avoid repetitive motions. Alternate workers if repetitive activities involving bending, reaching, or forceful motions are required.

Use the following proper lifting techniques when handling materials:

- Get a good footing
- Place feet shoulder width apart
- Bend knees to pick up load (do not bend from waist).
- Keep back straight
- Get a firm hold on the load
- Grasp opposite corners of the load, if possible
- Keep back as upright as possible and lift gradually by straightening the load
- Do not jerk the load and keep the weight as close to the body as possible
- When changing direction, turn the entire body, including the feet and do not twist the body
- Plan the lifting job ahead of time to balance and evenly distribute the load
- Wear gloves

4.5.13 Noise

Potential sources of noise will be identified prior to the start of field activities during the Project Safety Analysis (PSA). Workers should wear approved hearing protection when (1) working around equipment that produces sound levels at or above 85 decibels and (2) voices must be raised to be heard at a distance of three feet or less. All hearing protection must have a noise reduction rating that adequately reduces noise to below the PEL of 85 decibels based on an 8-hour time weighted average. Noise exposure, taking into account noise reduction from hearing protection, can be determined using the following formula:

Estimated Exposure (decibels) = Time Weighted Average (decibels) – (Noise Reduction Rating – 7 decibels)

4.5.14 Overhead Hazards

Before field activities start, all work areas and haul routes will be evaluated to identify any overhead obstructions (OHOs). OHOs include electrical and communications lines, piping, bridges, and crosswalks.

Drill rigs and/or heavy equipment (e.g., excavators) will remain a safe distance (minimum of 20 feet) from any OHOs. All work areas will be cleared of unnecessary overhead hazards to the extent feasible. If field activities will be performed adjacent to OHOs, an OHO work plan must be developed.

4.5.15 Pinch Points

Pinch points include vehicle doors and tailgates, heavy equipment components, drill rig components, and hand tools. To reduce pinch point hazards, workers should be aware of limb or body position when near moving equipment. Appropriate hand protection should be worn to protect hands.

4.5.16 Portable Generator

A portable generator should be used only when necessary, and only to power essential equipment or appliances. When using a portable generator, use caution and the buddy system when unloading and loading the generator onto a vehicle. Be aware of pinch points. Do not operate the generator in a vehicle or in an enclosed space. Generators can produce high levels of carbon monoxide very quickly, which can be deadly. Portable generator-powered electrical circuits should be protected by a GFCI to help prevent electrocutions and electrical shock injuries. Do not overload the generator.

Make sure fuel for the generator is stored safely, in properly labeled containers, and away from fuel-burning appliances. Before re-fueling, turn the generator off and let it cool down. Make sure extension cords used with generators are rated for the load, are free of cuts and worn insulation, and have three-pronged plugs.

4.5.17 Pressure Washing

Only low-pressure pressure washers (i.e., less than 3000 pounds per square inch, and with a wand length of at least 42 inches) should be used at the Site during field activities. When using the pressure washer, both hands must be on the control gun while in use. No portion of the body should ever be placed in front of the water jet. Never pass the control gun to another operator or place the control gun on the ground without disengaging the water spray.

4.5.18 Slip/Trip/Fall

To avoid slips/trips/falls, keep work areas free and clear of obstacles. Check work areas for potential slip/trip hazards and remove or mark these areas prior to starting field activities. Wear sturdy shoes/boots with adequate tread and rubber boots/boot covers for wet or slippery conditions. Maintain the work areas and equipment to minimize hazards. Use good housekeeping practices to prevent slip/trip/fall hazards. Place tools out of the way when not in use. Use caution when walking to prevent slip/trip/fall hazards caused by terrain. Use hand rails when walking down steps and use three points of contact when entering/existing equipment. Do not use a cell phone while walking.

4.5.19 Tools and Equipment

Inspect all hand tools before using to determine if they are the proper size, are in good condition, and are free of oil or grease. Use tools for the purpose for which they are designed (i.e., use the correct tool for the job).

4.5.20 Terrain

The Site terrain is asphalt/concrete and generally level can be uneven in places. Be aware of any uneven ground. Be careful walking off roadways.

4.5.21 Portable Electrical Equipment

Portable electrical tools and equipment should only be plugged into electrical circuits protected by a properly-functioning ground fault circuit interrupter (GFCI). All electrical cords and extension cords should be inspected prior to use. Tools with damaged or defective cords should not be used. Do not overload plugs.

4.5.22 Vehicle/Truck Traffic

Barricades, traffic cones, or other appropriate measures will be used at the Site to control vehicle traffic during field activities. All workers should remain alert of traffic while at the Site. Spotters will be used to backup trucks and equipment. Workers should wear high visibility vests at all times. Emergency flashers should be used when parking on the road shoulder.

4.5.23 Weather Hazards

Weather hazards at the Site may include torrential rain, lightning, flooding, excessive cold, heat stress, snow, or high winds. The SSO is responsible for being up-to-date on anticipated weather conditions and preparing workers. In the event of lighting or thunder, seek shelter in vehicles or other locations. Do not resume field activities for 30 minutes after lightning or thunder is seen or heard.

4.6 Biological Hazards

The paved, commercial setting of the Site lends itself to very few biological hazards. However, those listed in this section may be present. Procedures to be used to monitor/reduce these biological hazards include the following:

4.6.1 Poisonous Spiders

Black widow and brown recluse spiders are known to be present in the region. Workers should be able to recognize all poisonous spiders in the area. Use caution, especially when moving materials that have been stacked. Seek immediate medical attention if bit by a spider.

4.6.2 Mosquitoes

Mosquitoes may be present at the Site and may be carriers of malaria, yellow fever, encephalitis, West Nile Fever, and other diseases. Wear mosquito repellant as necessary, especially on areas not protected by clothing. Drain pooled or standing water if possible. Be aware of the mosquito-borne illnesses in the area.

4.6.3 Stinging Insects

If stung by a bee, carefully remove the stinger by gently scraping with a fingernail (do not squeeze). Wash the area with soapy water and apply a cold (ice) compress to decrease the absorption and

spreading of the venom. If excessive swelling or redness appears, seek immediate medical attention. Allergic reactions to bee stings can be life threatening; therefore, be aware of workers who may be allergic to bees prior to field activities. All workers are encouraged to document medical conditions that be affected by work activities in the HASP Compliance Agreement and Field Emergency form in Appendix A.

4.6.4 Blood-borne Pathogens

Assume all blood and bodily fluids are infectious. Follow universal precautions whenever the potential exists for contact with blood or other bodily fluids. At a minimum, all workers should wear gloves if they are performing procedures in which human blood or other bodily fluids may be handled or contacted. All workers should wear masks and eye protection devices when splashes, splatters, droplets of blood or other potentially infectious materials can reasonably be anticipated to come in contact with a worker's eye, nose or mouth. Anyone assisting with blood or other bodily fluid issues should have a current first aid training certification.

4.6.5 COVID-19

COVID-19, like other coronaviruses, can spread between people. Infected people can spread COVID-19 through their respiratory secretions, especially when they cough or sneeze. According to the CDC, spread from person-to-person is most likely among close contacts (about 6 feet). Person-to-person spread is thought to occur mainly via respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza and other respiratory pathogens spread. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. It's currently unclear if a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes (OSHA 2020).

Prior to starting work, all PIONEER workers will undergo training on COVID-19 infection prevention (see Section 7). In addition, the PIONEER Exposure Control, Mitigation, and Recovery Plan will be implemented using a "multiple barrier approach" to reduce exposure and transmission of the COVID-19 virus (see Appendix F).

In accordance with Executive Order (Proclamation 20-05), face coverings will be used in public spaces while indoors and when within six feet of other people outdoors. The following additional practices will be used to control and limit potential worker infection of COVID-19:

- Maintain a minimum of 6 feet between workers.
- Frequently wash your hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand rub with at least 60% alcohol. Always wash hands that are visibly soiled.
- Avoid touching your eyes, nose, or mouth with unwashed hands.
- Avoid close contact with people who are sick.

In addition, where exposure to COVID-19 may occur, the following hazards and controls recommended by OSHA will be evaluated and implemented for project tasks during the PSA (OSHA 2020):

- Prompt identification and isolation of potentially infectious individuals, which is a critical first step in protecting workers, visitors, and others at the worksite.
- Immediately isolate people suspected of having COVID-19.
- Take steps to limit spread of the person's infectious respiratory secretions, including by providing them a facemask and asking them to wear it.

Protect workers in close contact with the sick person by using additional engineering and administrative control, safe work practices and PPE.

SECTION 5: PERSONAL PROTECTIVE EQUIPMENT

5.1 Definition of Project-Specific PPE Levels

The levels of protection for tasks are defined as follows:

- Level A and B are not authorized without PM, HSM, and client approval and a HASP addendum.
- Level C:
  - Full-face respirator with organic vapor cartridge and high-efficiency particulate arrestance (HEPA) filter dust cartridge (respirator cartridges will be replaced daily after use)
  - Coveralls:
    - Minimum protection level of Tyvek® (or equivalent) if no splash hazards are present;
    - Minimum protection level of TyChem® QC if there is potential for exposure to contaminated liquids; or
    - Gas-impermeable hooded coverall if there is potential for exposure to organolead.
  - High-visibility vest or shirt or equivalent
  - Steel-toed boots or steel-toed chemical-resistant boots if walking in wet, potentially-contaminated media (e.g., drilling mud or contaminated soils)
  - Hard hat
  - Thin-mil (e.g., 4-mil) Nitrile undergloves, and leather overgloves when mechanical protection is needed
  - Hearing protection as appropriate
- Modified Level D:
  - Safety glasses with side shields, and face shield when pressure washing
  - Coveralls:
    - Minimum protection level of Tyvek® (or equivalent) if no splash hazards are present; or
    - Minimum protection level of TyChem® QC if there is potential for exposure to contaminated liquids.
  - High-visibility vest or shirt or equivalent
  - Steel-toed boots or steel-toed chemical-resistant boots if walking in wet, potentially-contaminated media (e.g., drilling mud or contaminated soils)
  - Hardhat
  - Thin-mil (e.g., 4-mil) Nitrile or latex undergloves, leather overgloves when mechanical protection is needed, and thicker Nitrile overgloves ($\geq$ 8 mil) when pressure washing.
  - Hearing protection as appropriate
  - A CDC compliant protective covering of their mouth and nose, such as such as surgical masks, homemade cloth masks, a properly folded bandana or other type of covering that is properly secured to cover both respiratory pathways.
  -

- Level D:
  - Safety glasses with side shields
  - Work clothing including pants and long-sleeve shirts
  - High-visibility vest or shirt or equivalent
  - Steel-toed boots or steel-toed chemical-resistant boots if walking in wet, potentially-contaminated media (e.g., drilling mud or contaminated soils)
  - Hardhat
  - Thin-mil (e.g., 4-mil) Nitrile undergloves, and leather overgloves when mechanical protection is needed
  - Hearing protection as appropriate
  - A CDC compliant protective covering of their mouth and nose, such as such as surgical masks, homemade cloth masks, a properly folded bandana or other type of covering that is properly secured to cover both respiratory pathways.

5.2 Task-Specific Personal Protection Levels

Each task will be initiated using the personal protection level(s) discussed below and in Appendix C. The levels of PPE were selected by evaluating the potential hazards, the performance characteristics of the PPE, and the nature of field activities. An upgrade or downgrade to the specified level of protection will be based on constituent concentrations. The PM and HSM must approve any changes or adjustments to these personal protection levels.

If a significant COI concentration is suspected or detected above exposure criteria (see Table 1) or action levels (see Section 6), then the team must stop work, consult with the HSM, and reevaluate the hazard assessment, hazard controls, and PPE selection. In this situation, the HSM may require the hazard assessment be revised, and a project-specific HASP addendum be prepared to address the COI(s) and/or TEL, which may trigger an upgraded level of PPE.

Level D (at a minimum) will be the minimum PPE level for all work conducted at the Site. Modified Level D will be worn if there is a potential to contact potentially contaminated materials (e.g. splash hazards).

SECTION 6: WORKER MONITORING

6.1 Air Monitoring

6.1.1 Real-time Air Monitoring

Real-time vapor monitoring for volatile organic constituents (VOCs) will be performed during intrusive activities (e.g., monitoring well installation) using a photoionization detector (PID). The need for additional vapor monitoring will be evaluated during the pre-planning phases of projects (e.g., PSAs) and continually as conditions change. At a minimum, real-time vapor monitoring should be conducted using a PID equipped with an 11.7 eV lamp. If concentrations in the worker breathing zone exceeding the vapor action level (0.6 parts per million [ppm]; see Table 2) are detected, workers will stop work and reassess.

Level C PPE will be used if airborne VOC concentrations in the breathing zone measured by the PID are equal to or greater than 0.6 ppm. In addition, the level of PPE may need to be upgraded to Level C if there are indications of exposure (e.g., irritation, odor). Maximum use VOC concentrations for level C PPE are determined for individual constituents as follows:

Maximum Use Concentration for Level C PPE (PPM) = PEL (ppm) x PID Response Correction Factor x 50 (Assigned protection factor for a full face respirator)

All monitoring equipment including PIDs will be calibrated prior to the first use each day in accordance with the manufacturer's instructions. Calibration date and results (e.g., calibration gas/flow rates) will be documented in the field log book and/or air monitoring data sheets. In addition, the procedures specified in the PID Standard Operating Procedures should be followed (PIONEER 2020a).

Dust/Particulate Sampling

Minimal dust is expected to be generated during field activities based on existing exposure barriers (e.g., gravel, asphalt, and concrete) throughout the Site, and (2) due to the nature the activities typically involving moist subsurface soils. Prior to cutting concrete and asphalt, the surface will be wetted to eliminate any dust hazards and a dust mask should be worn. To the extent feasible, activities and workers will be positioned upwind of dust generating activities. Therefore, real-time dust/particulate monitoring will not be performed.

Methane Monitoring

Real-time methane monitoring will be achieved using a landfill gas monitor (e.g. GEM2000) or a four gas meter. Ambient air as well as air within excavations will be screened to verify methane concentrations are less than 1% by volume (20% of the LEL). If methane concentrations exceed 1% by volume, personnel will stop the use of heavy equipment until the concentration drops below 1% by volume.

6.2 Noise Monitoring

Noise monitoring is not required for this project. Noise levels are anticipated to be less than the OSHA action level of 85 decibels measured on the A scale (dBA) as a time weighted average for an 8-hour workday during project activities.

Hearing protection is required in any area where workers must raise their voices to communicate at a distance of three feet or less and any area where hearing protection is mandatory. In addition, hearing protection is required for activities with the potential to expose workers to noise in excess of the PEL (85 dBA). At a minimum, workers should wear hearing protection if near or operating heavy equipment. Potential noise sources and additional controls (if needed) should be identified during the PSA (i.e., prior to the start of field activities).

6.3 Heat/Cold Stress Monitoring

The SSO is responsible for monitoring heat and cold stress based on the forecasted weather for the day and actual conditions during the workday. The SSO will periodically monitor for physiological signs and symptoms of heat and cold stress during each workday and behavioral changes (e.g., disorientation and confusion or an unusual level of irritability). Based on the weather conditions and the results of heat and cold stress monitoring, the SSO will implement corrective action as necessary. In addition, the SSO will train workers how to identify signs and symptoms of heat and cold-related illnesses and empower workers to request work breaks (or other preventative measures) as conditions warrant. The SSO will qualitatively document the monitoring results in their field notes.

6.4 Monitoring Equipment

PIDs equipped with 11.7 eV lamps will be used to collect real-time vapor levels during intrusive work activities (e.g., test pits, soil boring and monitoring well installation). Four-gas meters and GEM2000 will be used to collect real-time methane concentrations in air during intrusive work activities. All monitoring equipment will be calibrated and used in accordance with manufacturer recommendations. Personnel will be instructed on how to operate monitoring equipment prior to use.

SECTION 7: WORKER TRAINING AND MEDICAL SURVEILLANCE

All personnel involved in field activities will be required to participate in a health and safety training program that complies with criteria set forth by WISHA in accordance with WAC 296-843-200 and OSHA in 29 CFR Part 1910.120(e) (HAZWOPER). The H&S training program components are presented in this section.

7.1 HAZWOPER and Pre-Assignment Training

Prior to arrival on Site, PIONEER will confirm that all workers meet the applicable Hazardous Waste Operations and Emergency Response (HAZWOPER) training requirements, which include:

- 40-hour initial training
- 8-hour annual refresher
- 3 days of documented field experience under a qualified supervisor
- A pre-assignment physical examination in which it is documented that the worker is capable of wearing respiratory protection.
- A documented respirator fit test

7.2 Site Supervisor Training

Consistent with WAC 296-843-200, workers designated as SSs and SSOs require an additional eight hours of specialized management training (Certified HAZWOPER Supervisor) prior to arrival on Site.

7.3 Site Safety Officer Training

All SSOs must be knowledgeable in WISHA general industry, construction standards, and the contents of this HASP. In addition, individuals designated as SSO should have current training (minimum of every three years) in First Aid and CPR.

7.4 Site Training

A site safety orientation, as well as HASP and JHA reviews, is required for all personnel performing work at the site. This training will be performed prior to commencing any work and will address hazards present at the site. Hazards that could be encountered will be discussed and reviewed at the site orientation and daily safety meeting.

Initial HASP Review

In addition to WAC 296-843-200 training, all site employees will attend an initial HASP review prior to initiating field activities. This review must include the following:

- Project Personnel Roles and Responsibilities: Personnel will understand the lines of authority regarding health and safety, and site personnel roles and responsibilities.

- Site-Specific Health and Safety Hazards: Personnel will be informed of specific hazards related to the site and site operations, such as health hazards of site chemicals and specific safety hazards of process equipment.
- Personal Protective Equipment: Personnel will be trained in the proper use of PPE.
- Safe Work Practices/Engineering Controls: Personnel will be informed of appropriate work practices and engineering controls that will reduce risk of exposure to site hazards.
- Communication Methods: Personnel will be informed of means for normal site and emergency communication.
- Air Monitoring: Personnel will be informed of the frequency and types of air monitoring, personnel monitoring, and sampling techniques to be used on site.
- Medical Surveillance Program: Personnel will be informed of the medical surveillance requirements, including recognition of symptoms and signs of exposure.
- Site Control Methods: Personnel will understand site methods used to reduce exposure to on-site and off-site personnel.
- Decontamination Procedures: Personnel will be trained in proper decontamination procedures, including decontamination of PPE, equipment, and vehicles.
- Emergency Response: Personnel will be trained to respond properly in the event of an emergency.

7.5 Daily Briefings

Daily briefings will be conducted before each work shift by the SS and/or SSO at a location designated by the SSO. All workers will be required to attend this briefing in order to participate in field activities for that day.[2] Attendance at the briefing will be documented in the Daily Work Permit form included in Appendix A.

7.6 Visitor Procedures

All Site visitors will be escorted onto the Site and will be required to review and comply with the provisions of this HASP. In addition, visitors will sign in and out of the Site logbook. Only visitors who meet the training and medical monitoring HAZWOPER requirements of 29 CFR 1910.120 will be allowed to enter exclusion zones or contamination reduction zones.

7.7 COVID-19 Safety Training

In accordance with State of Washington and OSHA guidance, all workers will undergo training on COVID-19 infection and prevention. In addition, all workers will be instructed to promptly report COVID-19 symptoms to the CSR and SSO. COVID-19 safety training materials are presented in Appendix G.

[2] Workers who are unavailable for the initial tailgate briefing will be required to check-in with the SSO for a briefing prior to starting field activities.

7.8 Medical Surveillance

Contractors will assume responsibility for obtaining the necessary medical monitoring for their employees and will provide a medical clearance letter to the SSO, if requested. Contractors shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place. Each employee will be notified in writing of the medical surveillance results of that employee's exposure within five working days of receipt of laboratory or physician results.

7.8.1 Initial Medical Surveillance

Initial medical surveillance is available to employees who are occupationally exposed to any constituent at or above the action level. Initial medical surveillance is required for all non-temporary workers who are or may be occupationally exposed to COIs above action levels or PELs based on a TWA for more than 30 days in any consecutive 12 months. Work activities are not anticipated to exceed action levels. At a minimum, initial medical surveillance consists of a medical examination and shall include the following:

- A standard posterior-anterior chest x-ray;
- A nasal and skin examination; and
- Other examinations which the physician believes appropriate because of the employee exposure to inorganic arsenic or because of required respirator use.

A written opinion from the examining physician will be obtained. In accordance with 29 CFR Part 1910.1018(n) and WAC 296-155-17621, the opinion will include:

- The results of the medical examination;
- The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to inorganic arsenic (or lead);
- Recommended limitations for an employee's potential exposure to lead or arsenic or use of PPE such as respirators; and
- A statement that that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further explanation or treatment.

The contractor will instruct the physician to avoid revealing specific findings or diagnoses unrelated to occupational exposure in the written opinion.

7.8.2 Follow-up Medical Surveillance

Additional biological sampling will be performed every six months for workers who are occupationally exposed to any COI above action levels for more than 30 days per year. Medical examinations and additional biological sampling will be available at an increased frequency for any employee under the following situations:

- The employee exhibits signs or symptoms commonly associated with arsenic intoxication;
- The employee has demonstrated difficulty in breathing during a respirator fit test or use;
- The employee is pregnant; or

- The employee has requested medical advice concerning the effects of current or past exposure and the employee's ability to procreate a healthy child.

7.8.3 Medical Removal Protection

Medical removal protection (MRP) involves the temporary removal of an employee from a worksite due to a physician's opinion, to a place of significantly lower exposure without loss of earnings or seniority or other employment rights or benefits.

An employee is included in the MRP program when a medical determination indicates a medical condition that places the employee at "increased risk of material impairment to health" due to constituent exposure.

An employee removed from work because of a physician's recommendation may return to their former job status when the physician indicates it is safe to do so.

SECTION 8: SITE CONTROL AND ILLUMINATION

8.1 Site Control Measures

Site control measures include the following:

- As appropriate, the Site will have two zones where there is potential for exposure to Site-related chemicals and physical hazards, and where entrance is restricted: exclusion zones (hot) and contamination reduction zones (warm). The location of the exclusion and contamination reduction zones will vary during the project as investigation and remediation progresses. Zones will be clearly delineated using tape, barriers, fences, signs, or by other means appropriate for the Site.
- Workers will enter and exit exclusion zones only through contamination reduction zones. Decontamination will occur in designated areas and must occur prior to exiting contamination reduction zones.
- Only authorized workers at the discretion of the SS will be allowed to enter exclusion zones and contamination reduction zones.
- The SSO will draw a sketch of the work zones in the SSO logbook, and establish communication devices and protocols prior to beginning field activities.
- Appropriate containers will be used to temporarily store contaminated clothing and PPE. The SSO will ensure that waste containers are clearly dated and that the contents are identified and managed.
- In event of an emergency, the SSO will alert all workers to leave exclusion zone and wait for further instructions.

8.2 Lone Worker

A Lone Worker is defined as one whose assigned task will take him/her out of both direct visual and verbal contact with other workers. Working alone at the Site will be minimized to the extent feasible. Workers will use of the buddy system or have a way to communicate with others (i.e., cell phones, two-way radios, satellite phones) for emergency purposes while in the field. If working alone is necessary, an alternate method of maintaining contact with others must be used. If working alone is necessary, the following applies:

- Arrangements will be stated in a written plan (e.g., PSA, tailgate briefing log).
- The degree of contact required with a lone worker is directly proportional to the degree of hazard to which the worker is exposed.
- Contact may include contractors, security, or the SS. Contact will occur at intervals agreed upon in the written plan prior to the field activity.
- Workers selected for potential lone worker field activities will be competent to carry out tasks independently. The SS will involve the PM in decisions regarding whether or not the worker selected has sufficient training for and familiarity with the assignment to be able to perform the field activity with minimal guidance or oversight.

8.3 Illumination

Field activities will be performed during daylight hours only. Adequate artificial lighting will be provided as necessary for all outdoor and indoor activities.

SECTION 9: DECONTAMINATION

9.1 Worker Decontamination Procedures

Worker decontamination procedures include the following, as applicable, in the order presented:

1. Equipment drop
2. Boot wash
3. Boot rinse
4. Outer glove wash
5. Outer glove rinse
6. Boot removal
7. Outer glove removal
8. Suit removal
9. Respirator removal
10. Inner glove removal (if wearing)

When project requirements necessitate deviations from the listed steps, deviations will be noted in the field logbook. Worker decontamination will occur in contamination reduction zones.

9.2 Sampling Equipment Decontamination Procedures

Sampling equipment must be decontaminated before exiting exclusion zones and contamination reduction zones, prior to and following sample collection, and as needed to ensure good hygiene. The following steps should be used to decontaminate sampling equipment:

1. Brush equipment in a container or bucket containing a non-phosphate detergent and tap water solution;
2. Rinse equipment with tap water;
3. Give equipment a second rinse with tap water; and
4. Allow to air dry.

Water produced while decontaminating the sampling equipment should be containerized and handled, characterized, and disposed of in accordance with all applicable waste management regulations.

9.3 Heavy Equipment Decontamination Procedures

The effected portions of heavy equipment that will be re-used from location to location and could potentially be contaminated (e.g., excavator bucket, drill rig components) must be decontaminated before exiting exclusion zones and contamination reduction zones. Procedures to decontaminate heavy equipment will include the following:

1. Brush the equipment to remove all visible soil; and
2. If needed, pressure wash the equipment until all visible soil or dust is removed. The pressure washer must have a 42-inch wand (minimum) and cannot generate a pressure more than 3,000 pounds per square inch.

Water produced from heavy equipment decontamination will be containerized and handled, characterized, and disposed of in accordance with all applicable waste management regulations.

9.4 Respirator Cleaning and Storing Procedures

Respirators are not anticipated to be used in this project. However, if needed, workers will only use their own respirators. Each worker will be responsible for inspecting his/her respirator prior to use and cleaning the respirator after use. Respirators will be field cleaned in contamination reduction zones after each use. Respirator cleaning shall include the following:

1. Remove and discard used filters, cartridges, or any components recommended by the manufacturer.
2. Wash components in warm (43°C [110°F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer.
    a. A stiff bristle (not wire) brush may be used to help remove the dirt.
    b. If the detergent or cleaner does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
        i. A bleach solution (concentration of 50 parts per million of chlorine). The bleach solution can be made by adding approximately one milliliter of laundry bleach to one liter of water at 43°C (110°F)
        ii. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer
3. Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably, running water.

    *** The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces could cause dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.*
4. Drain components.
5. Air-dry components or hand dry components with a clean, lint-free cloth.
6. Reassemble the face piece components.
7. Test the respirator to make sure all components work properly (conduct the seal checks).

The water produced from cleaning respirators will be containerized and handled, characterized, and disposed of in accordance with all applicable waste management regulations and procedures.

When not in use, respirators should be stored so they are protected from contamination (e.g., dust or damaging chemicals) and the following:

- Deformation of the face piece or exhalation valve;
- Sunlight or extreme temperatures; and
- Excessive moisture.

The SSO will periodically inspect respirators to verify that they are being properly cleaned and stored.

SECTION 10: SANITATION

Sanitation facilities will be provided as discussed below. The highest number of workers (PIONEER and contractors) anticipated on the Site at any time is 6.

10.1 Potable Water

☒ Provided by Site ☒ Provided by PIONEER ☒ Provided by Contractor

All potable drinking water will be clearly marked, kept tightly closed when not in use. PIONEER or other contractors will provide workers with water in the field in water bottles. Provisions will be made for sanitary storage and proper disposal of drinking vessels. The Site will supply potable water as necessary for working and decontamination purposes. Potable water is located in the on-site building.

10.2 Toilet Facilities

☒ Provided by Site ☐ Provided by PIONEER ☐ Provided by Contractor

Toilet and handwashing facilities with wash water, hand soap, and individual hand towels are present in each on-site building. The facilities will be kept clean, regularly maintained, stocked with an adequate supply of toilet paper, and designed in a manner that will ensure privacy.

10.3 Washing/Showering

☒ Provided by Site ☒ Provided by PIONEER (eyewash only) ☐ Provided by Contractor (eyewash only)

Hand washing facilities are located in each on-site building as discussed above. In addition, all field teams are required to carry deionized or potable water, hand soap, and paper towels for hand washing at each work location. Self-contained eyewash facilities will be provided by PIONEER in the work area if contact with corrosive, toxic, or strongly irritating chemicals is possible. Emergency eyewash facilities will be in accessible locations that require the worker can reach in no more than 10 seconds. The eyewash facility will be free of any items that may obstruct the operation. Self-contained eyewashes will meet the requirements of American Nation Standards Institute (ANSI) Z358.1-1981 including:

- The eyewash will supply potable water at flow rates and time durations specified in the ANSI standard.
- The control valve will be designed so that the water flow remains on without requiring the use of the operator's hands, and so that the valve remains activated until intentionally shut off for all but hand-held drench hoses.
- Units will be maintained in accordance with the manufacturer's instructions.

Are showering facilities necessary? ☐ Yes ☒ No

Employee exposure to COI concentrations above action levels and/or PELs is not anticipated. Showering facilities will be provided in the event of constituent exposure or the potential for exposure above the applicable PELs.

10.4 Personal Hygiene

Are hand-washing facilities necessary? ☒ Yes ☐ No

☒ Provided by Site ☒ Provided by PIONEER ☒ Provided by Contractor

Prior to eating and drinking, workers must thoroughly wash their hands and face. Hand washing facilities are located in each on-site building. In addition, all field teams are required to carry deionized or potable water, hand soap, and paper towels for hand washing at each work location. Eating and drinking will only be allowed outside of exclusion zones and contamination reduction zones. See Section 9 for details on required decontamination procedures.

SECTION 11: EMERGENCY CONTINGENCY PLANNING

In the event of an emergency, the emergency procedures will be followed.

11.1 Pre-Planning

The evacuation route and assembly area/rally spot will be identified by the SSO prior to field activities and reviewed with all workers.

A first aid kit, fire extinguisher, and emergency bottle eyewash. Field teams will have these supplies with them when conducting field activities.

The SSO should have a current First Aid and Cardio Pulmonary Resuscitation certification (minimum of every three years). Any incidents that require first aid or off-site transportation for emergency care must be reported to the SS.

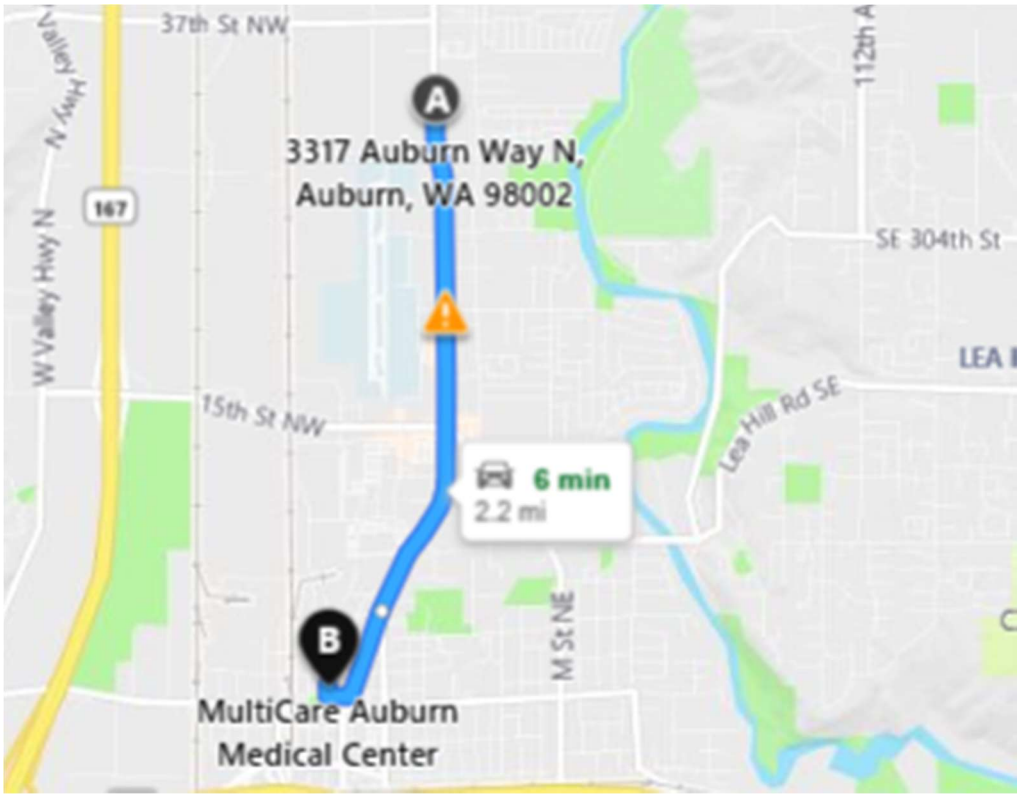
11.2 Emergency Phone Numbers

Key emergency action information is summarized below.

Contact	Name	Number
Ambulance	Auburn Fire Department	911
Fire	Auburn Fire Department	911
Police	Auburn Police Department	911
Hospital	MultiCare Auburn Medical Center 202 N Division St, Auburn, WA 98001	(253) 833-7711
PIONEER PMs	Joel Hecker	Office: (360) 570-1700 Cell: (360) 828-3739
PIONEER HSM	Kevin Gallagher	Office: (360) 570-1700 Cell: (206) 226-3623
Environmental Release Contact	Washington State Department of Ecology – 24-Hour Emergency Response	360-753-2355

Directions to the hospital are provided below.

↑	1.	Head **south** on **Auburn Way N** toward 30th St NE ▲ *Construction: Between 22nd St NE and Auburn Way S - Construction work.* ▲ *Construction: Between 22nd St NE and Auburn Way S - Construction work.* ▲ *Construction: Between 22nd St NE and Auburn Way S - Construction work.*	1.7 mi
↱	2.	Bear **right** onto **Auburn Ave SE** Ford on the corner	0.3 mi
↱	3.	Turn **right** onto **1st St NE**	400 ft
↱	4.	Turn **right** onto **N Division St**	210 ft
		Arrive at **N Division St** on the right	



Distance: 2.2 miles

Time: 6 minutes

11.3 Injury Response

In the event of event of an injury or illness, first aid will be administered only by on-site workers trained and qualified to do so. All emergency medical treatment, other than first aid, will be administered by the local paramedics. In all cases, critical injuries must be immediately referred for professional medical attention. Workers who are allergic to insect bites, bee stings, etc. should carry the appropriate medication and alert other workers to the condition prior to the start of work.

The following steps and rules will be followed in the event of an injury or illness:

1. Evaluate the extent of injuries or seriousness of illness.
2. Determine if the worker can be safely transported to a hospital.
3. If a worker requires urgent medical attention,
   a. Call for emergency assistance;
   b. Send a crew member to guide emergency personnel to the accident;
   c. Inform emergency personnel where the guide will meet them; and
   d. Administer first aid while awaiting an ambulance or paramedics.
4. All vehicles used to transport injured workers to the off-site medical facility will be given directions and a map to the medical facility.

11.4 Fire/Explosion Response

In the event of a fire or explosion:

1. Ensure that all equipment is shut off.
2. Phone **911** for emergency assistance.
3. Gather at the **designated rally spot** as pointed out at the Site orientation.
4. Take a head count.
5. Secure the area until emergency assistance arrives.
6. Meet emergency crew and advise fire chief of location and nature of the situation.

11.5 Spill/Release Response

In the event of a spill or leak:

1. Ensure that all equipment is shut off.
2. Phone Joel Hecker (PM) who will determine the need for a spill response crew, and contact the spill response crew, if needed.
3. Secure the area.
4. Locate and stop or contain the spill if it can be done safely (proper PPE must be worn).
5. As necessary, meet spill response crew and advise them of the location and material that has spilled.
6. Begin investigation.

11.6 Tornado/Earthquake Response

In the event of a tornado or earthquake:

1. Blow an air horn to alert all site workers.
2. Gather at the designated rally spot.
3. Take a head count.

11.7 Emergency Equipment

The following emergency equipment must be adequate, accessible, and inspected:

- First-aid kit (in work area and readily available).
- Fire extinguisher (at a minimum, in work area and on each piece of heavy equipment).
- Emergency eyewash (decontamination station in the personnel contamination reduction zone). The eyewash must be able to:
  - Irrigates and flushes both eyes simultaneously while the user holds their eyes open.
  - Activate in one second or less and remains on without user assistance until intentionally turned off.
  - Deliver at least 0.4 gallons (1.5 liters) of water per minute for fifteen minutes or more.
- Spill kit (one mobile kit on-Site).

SECTION 12: REPORTING AND NOTIFICATIONS

Any unsafe acts or conditions that are observed must be reported to the SS and SSO, who will make efforts to correct the situation. The PM will be notified of the situation and will assist in the response and implementation of additional corrective actions, as needed.

In addition, the following incidents must be reported to the Washington State Department of L&I at 1-800-423-7233:

- A workplace fatality or in-patient hospitalization of any employee within eight (8) hours of the incident.
- A non-hospitalized amputation or loss of an eye(s) of any employee within twenty-four (24) hours of the incident

When reporting a fatality, in-patient hospitalization, amputation, or loss of an eye(s) you must provide:

- Your contact name and phone number.
- The name of the establishment/business.
- The location/address of the work-related incident.
- The date and time of the incident.
- How many employees suffered a fatality, in-patient hospitalization, amputation, or loss of an eye, and their name(s).
- A brief description of the work-related incident.

SECTION 13: REFERENCES

OSHA. 2020. COVID-19 HAZARD Recognition. https://www.osha.gov/SLTC/covid-19/hazardrecognition.html. Last accessed on March 31, 2020.

PIONEER. 2018. Injury & Illness Prevention Plan & Accident Prevention Plan. July.

PIONEER. 2020a. Standard Operating Procedure 7. Field Measurements Using a Photoionization Detector (PID). January.

PIONEER. 2020b. Remedial investigation Work Plan. Sunset Auburn Site. 3317, 3319, and 3401 Auburn Way North. Auburn, Washington. July.

RAE Systems. 2016. Technical Note TN-106: A Guideline for PID Instrument Response. January. Correction Factors, Ionization Energies, and Calibration Characteristics.

Robinson-Noble. 2020. Additional Remedial Investigation 3317 Auburn Way North, Auburn, Washington. March.

Tables

Table 1: Potential Chemical Hazards in Soil and Groundwater

Chemical Name [1] (Synonyms, trade name, CAS No.)	Exposure Limits [2]	Characteristics [3]	Route of Exposure	Symptoms of Exposure
VOCs (Benzene for example) (71-43-2)	PEL: 1 ppm TLV: 0.1 ppm STEL: 5 ppm CEILING: N/E IDLH: 500 ppm (Ca) Skin: No	Colorless to light-yellow liquid with an aromatic odor. MW: 78.1 BP: 176°F Sol: 0.07% Fl.P: 12°F IP: 9.24 eV Sp. Gr: 0.88 VP: 75 mmHg FREEZING POINT: 42°F LEL: 1.2% UEL: 7.8%	INH (Inhalation) ABS (Skin absorption) ING (Ingestion) CON (Skin and/or eye contact)	Symptoms include irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression. Potential occupational carcinogen.
PAHs (Naphthalene for Example) (91-20-3)	PEL: 10 ppm (50 mg/m^3) TLV: N/E STEL: 15 ppm CEILING: N/E IDLH: 250 ppm	Colorless to brown solid with an odor of mothballs. MW: 128.2 BP: 424°F MP: 176°F Sol: 0.003% Fl.P: 174°F IP: 8.12 eV Sp.Gr: 1.15 VP: 0.08 mmHg LEL: 0.9% UEL: 5.9%	INH (Inhalation) ABS (Skin absorption) ING (Ingestion) CON (Skin and/or eye contact)	Symptoms include irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage

Table 1: Potential Chemical Hazards in Soil and Groundwater

Chemical Name [1] (Synonyms, trade name, CAS No.)	Exposure Limits [2]	Characteristics [3]	Route of Exposure	Symptoms of Exposure
Total Petroleum Hydrocarbons Gasoline Range Organics (TPH-GRO), Diesel Range Organics (TPH-DRO), and Oil Range Organics (TPH-ORO) **Information presented is for TPH-GRO.	PEL: 900 mg/m^3 (300 ppm) TLV: None STEL: 1500 mg/m^3 (500 ppm) CEILING: N/E IDLH: N.D. (Ca) Skin: No	Clear liquid with a characteristic odor. MW: 110 (approx.) BP: 102°F Sol: Insoluble Fl.P: -45°F IP: UN Sp.Gr (60°F): 0.72-0.76 VP: 38-300 mmHg FRZ: UN LEL: 1.4% UEL: 7.6% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.	INH (Inhalation) ABS (Skin absorption) ING (Ingestion) CON (Skin and/or eye contact)	Symptoms include irritation of eyes, skin, and mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, and convulsions; chemical pneumonitis (aspiration liquid); possible liver and kidney damage. Potential occupational carcinogen.
Diesel Range Organics (as Diesel exhaust) (No CAS # Provided)	PEL: None TLV: None STEL: None IDLH: N.D. (Ca) Skin: Not Listed Prop 65: Cancer	Appearance and odor vary depending upon the specific diesel exhaust component. MW: Properties vary depending upon the specific diesel exhaust component.	INH (Inhalation) CON (Skin and/or eye contact)	Symptoms include eye irritation and pulmonary function changes. Potential occupational carcinogen.
Arsenic (inorganic 7440-38-2)	Action Level: 0.005 mg/m^3 PEL: 0.01 mg/m^3 TLV: 0.01 mg/m^3 STEL: N/E CEILING: N/E IDLH: 5 mg/m^3 (Ca) Skin: No	Metal: Silver-gray or tin-white, brittle, odorless solid. MW: 74.9 BP: Sublimes Sol: Insoluble Fl.P: N/A IP: N/A Sp. Gr: 5.73 (metal) VP: 0 mmHg (approx.) MLT: 1135°F (Sublimes) LEL: N/A UEL: N/A Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.	INH (Inhalation) ABS (Skin absorption) ING (Ingestion) CON (Skin and/or eye contact)	Symptoms include ulceration of nasal septum, dermatitis, gastrointestinal disturbances, respiratory irritation, and peripheral neuropathy, and hyperpigmentation of skin. Potential occupational carcinogen.

Table 1: Potential Chemical Hazards in Soil and Groundwater

Chemical Name [1] (Synonyms, trade name, CAS No.)	Exposure Limits [2]	Characteristics [3]	Route of Exposure	Symptoms of Exposure
Chromium (7440-47-3)	PEL: 1 mg/m^3 TLV: 0.5 mg/m^3 STEL: N/E CEILING: N/E IDLH: 25 mg/m^3 (Ca) Skin: No	Noncombustible Solid in bulk form, but finely divided dust burns rapidly if heated in a flame. MW: 52.0 BP: 4788°F Sol: Insoluble Fl.P: N/A IP: N/A Sp. Gr: 7.14 VP: 0 mmHg FREEZING POINT: N/A LEL: N/A UEL: N/A	INH (Inhalation) ABS (Skin absorption) ING (Ingestion) CON (Skin and/or eye contact)	Symptoms include irritation eyes, skin; lung fibrosis (histologic)
Lead (Elemental & inorganic as Pb) (7439-92-1)	PEL: 0.05 mg/m^3 TLV: 0.05 mg/m^3 STEL: N/E IDLH: 100 mg/m^3 Skin: No Prop 65: Cancer, Developmental Toxicity, Male Reproductive Toxicity, Female Reproductive Toxicity	A heavy, gray, ductile, soft solid. MW: 207.2 BP: 3164°F Sol: Insoluble Fl.P: N/A IP: N/A Sp.Gr: 11.34 VP: 0 mmHg (approx.) MLT: 621°F LEL: N/A UEL: N/A Noncombustible Solid in bulk form	INH (Inhalation) ING (Ingestion) CON (Skin and/or eye contact)	Symptoms include lassitude (weakness, exhaustion) and insomnia; facial pallor; anorexia, weight loss, and malnutrition; constipation, abdominal pain, and colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation of the eyes; hypertension.
Methane (74-82-8	No exposure limits. Simple asphyxiant	Methane is a colorless and odorless gas. MW: 16.04 BP: -258.7°F Sol: 0.033% Sp. Gr: N/A VP: N/A LEL: 5% UEL: 15%	INH (Inhalation)	Methane is an asphyxiant and may displace oxygen in a workplace atmosphere. Asphyxia may result if the oxygen concentration is reduced to below 18% by displacement

Notes:

[1] Source: Environmental Site Assessment Northern LOTT Parcels (PIONEER 2020)

[2] **PEL**: Permissible exposure limit established by Chapter 296-841 WAC; **Ceiling**: The ceiling concentration to not be exceeded during any part of the working exposure established by Chapter 296-841 WAC; **TLV**: Threshold limit value for an eight-hour, time-weighted average established by the American Conference of Governmental Industrial Hygienists; **STEL**: Short-term exposure limit for a 15-minute, time-weighted average established by Chapter 296-841 WAC; **IDLH**: Immediately dangerous to life or health concentration established by National Institute for Occupational Safety and Health; **(Ca)**: Potential or confirmed human carcinogen; **Skin**: The potential contribution to the overall exposure by the cutaneous route, including mucous membranes and eye, either by airborne or, more particularly, by direct contact with the substance; **N/E**: Not established

[3] **LEL**: Lower explosive limit; **UEL**: Upper explosive limit; **IP**: Ionization potential; **VP**: Vapor pressure, **Fl.P**: Flashpoint; **N/A**: Not Applicable

Table 2: Determination of Vapor Action Level for Inhalation Exposures

Volatile Constituent [1]	PEL (ppm) [2]	PID Response Correction Factor [3]	PID Adjusted Action Level (ppm) [4]	Resulting Stand Down Level (ppm)
Benzene	1	0.60	0.60	0.60
Toluene	100	0.51	51	
Ethylbenzene	100	0.51	51	
Xylenes	100	0.38	38	
Naphthalene	10	0.40	4.0	
Gasoline	300	0.50	150	

Notes:

[1] Expected COIs based on site usage and/or historical reports.

[2] PELs are Washington PELs for Time-weighted averages per WAC 296-841-20025; not federal OSHA PELs.

[3] Source: RAE Systems 2016. The PID Correction Factor applies to vapor monitoring conducted using a PID equipped with an 11.7 eV lamp.

[4] The PEL multiplied by the PID response correction factor.

Table 3: Determination of Vapor Action Level for Explosion Hazards

Constituent [1]	Lower Explosive Limit (% by volume)	PID Conversion (ppm)	Resulting Stand Down Level [2] (% by volume)	Resulting Stand Down Level [2] (ppm)
Benzene	1.2	12,000	0.24	2,400
Toluene	1.2	12,000	0.24	2,400
Ethylbenzene	1.0	10,000	0.20	2,000
Xylenes	1.1	11,000	0.22	2,200
Naphthalene	0.9	9,000	0.18	1,800
Methane	5.0	50,000	1.0	10,000
Gasoline	1.4	14,000	0.28	2,800

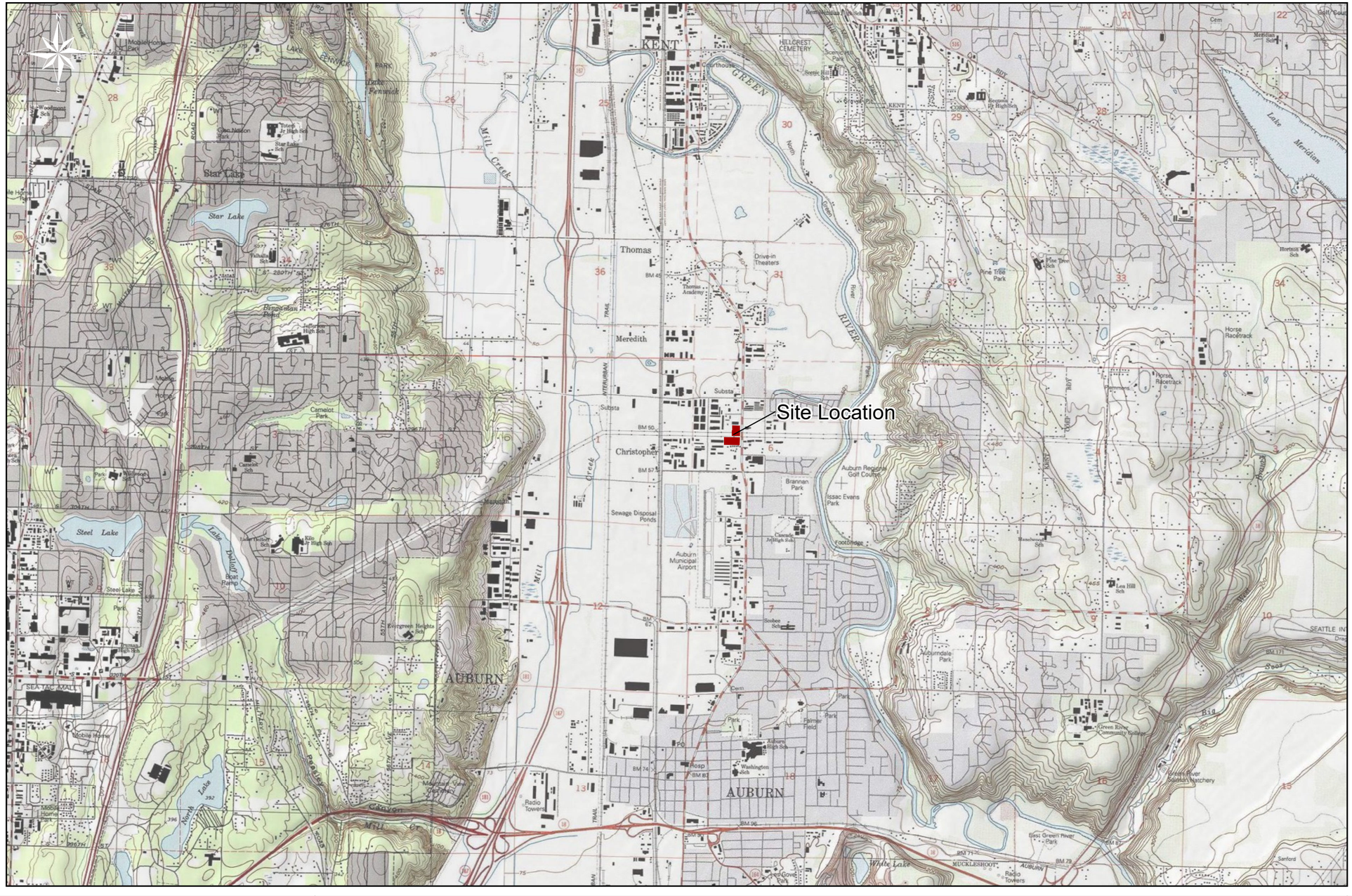
Notes:

Gasoline and methane are the predominant COCs in the work area.

[1] Expected COIs based on site usage and/or historical reports.

[2] Stand down level is 20% of the LEL.

Figures

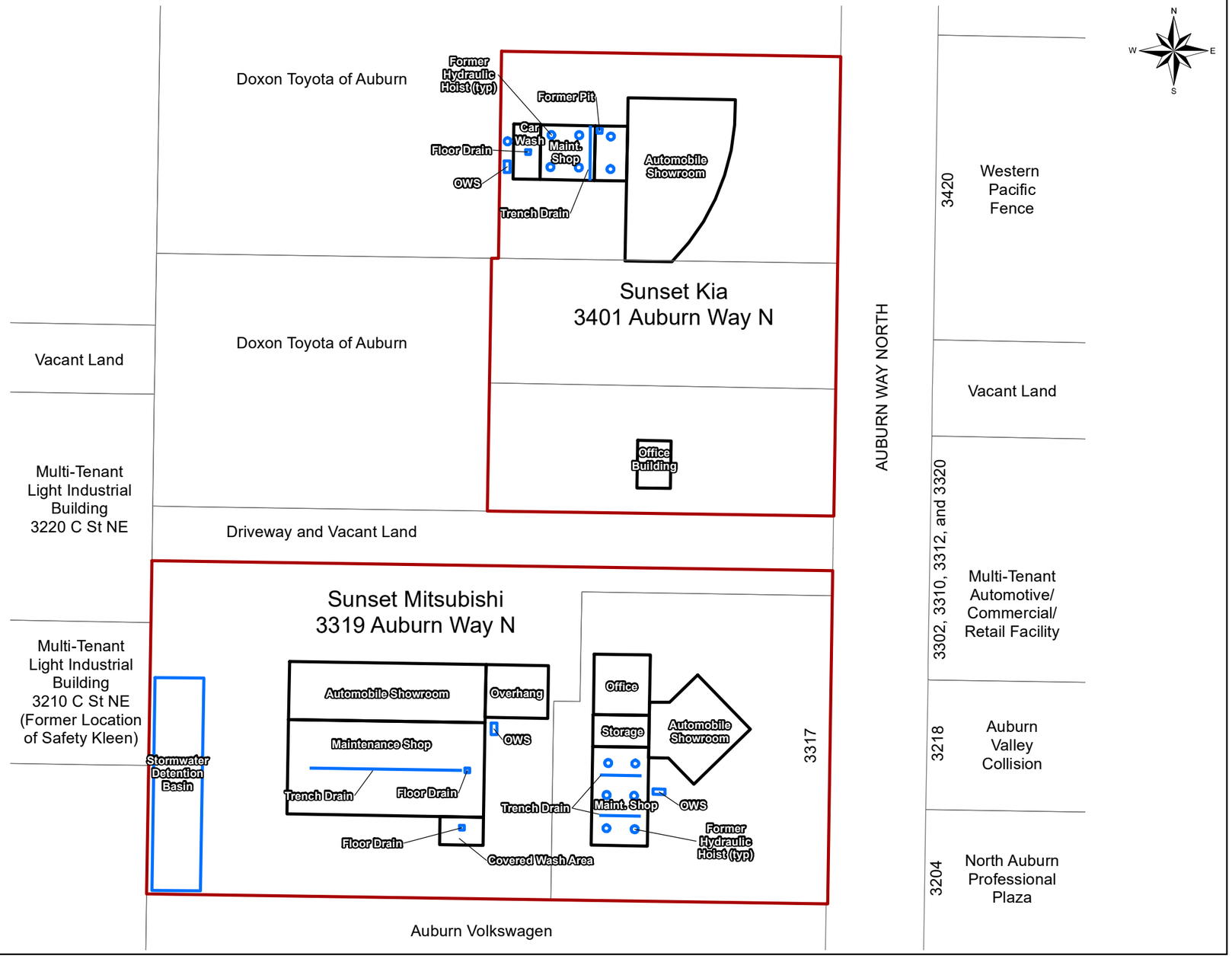


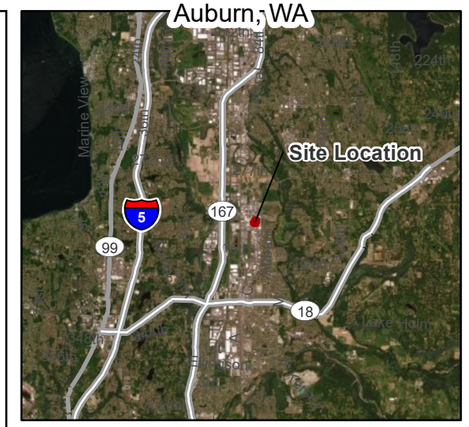
PIONEER TECHNOLOGIES CORPORATION

Site Overview
Remedial Investigation Work Plan
Sunset Auburn

Figure 1

Document Path: G:\Projects\Coastline Law\Sunset Auburn\Maps\RI Work Plan\Fig_1 Site Overview.mxd; Author: VN; Date Saved: 6/26/2020





Legend

- Key Operational Features
- Buildings
- King County Tax Parcels
- Site Location

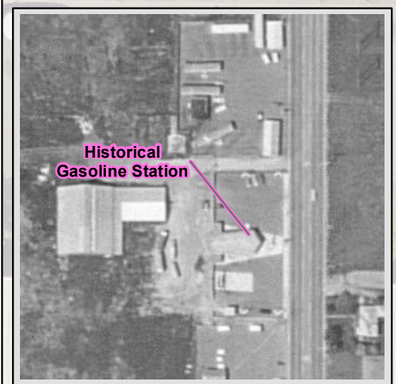
Notes:
All building partition, oil-water separator (OWS), floor drain, trench drain, and former hoist locations are approximate. Actual locations will be determined during field activities.

0 75 150 225 Feet

PIONEER TECHNOLOGIES CORPORATION

Key Operational Features
Remedial Investigation Work Plan
Sunset Auburn

Figure 2



1970

1981

August 14, 1985

Exclusion Zone - All Cars to be removed

Historical Gasoline Station

Legend

TPH-G Soil Sample Depth
- Sample Top ≤ 4 feet
- 4 feet < Sample Top ≤ 8 feet
- 8 feet < Sample Top ≤ 12 feet

All TPH-G Soil Results
- TPH-G soil ≤ 30 mg/kg
- 30 mg/kg < TPH-G soil ≤ 300 mg/kg
- 300 mg/kg < TPH-G soil ≤ 5,000 mg/kg
- TPH-G soil > 5,000 mg/kg

Methane Soil Gas Results from September 2020 Samples
- Methane SG ≤ 1.25%
- 1.25% < Methane SG ≤ 5%
- 5% < Methane SG ≤ 30%
- Methane SG > 30%

TPH-G GW Results from July 2020 GWM Event and Direct-Push GW Samples
- TPH-G GW ≤ 800 ug/L
- 800 ug/L < TPH-G GW ≤ 4,000 ug/L
- 4,000 ug/L < TPH-G GW ≤ 20,000 ug/L
- TPH-G GW > 20,000 ug/L

Historical Operations in 3317 Auburn Way North Parcel
- Key Gasoline Station Features (operated circa 1969-1985)
- Suspected UST Locations Based on GPR Results
- Key Auto Dealership Features (installed circa 1986)

Other Site Features
- Current Conceptual Gasoline Release Locations
- King County Tax Parcels
- Property Location

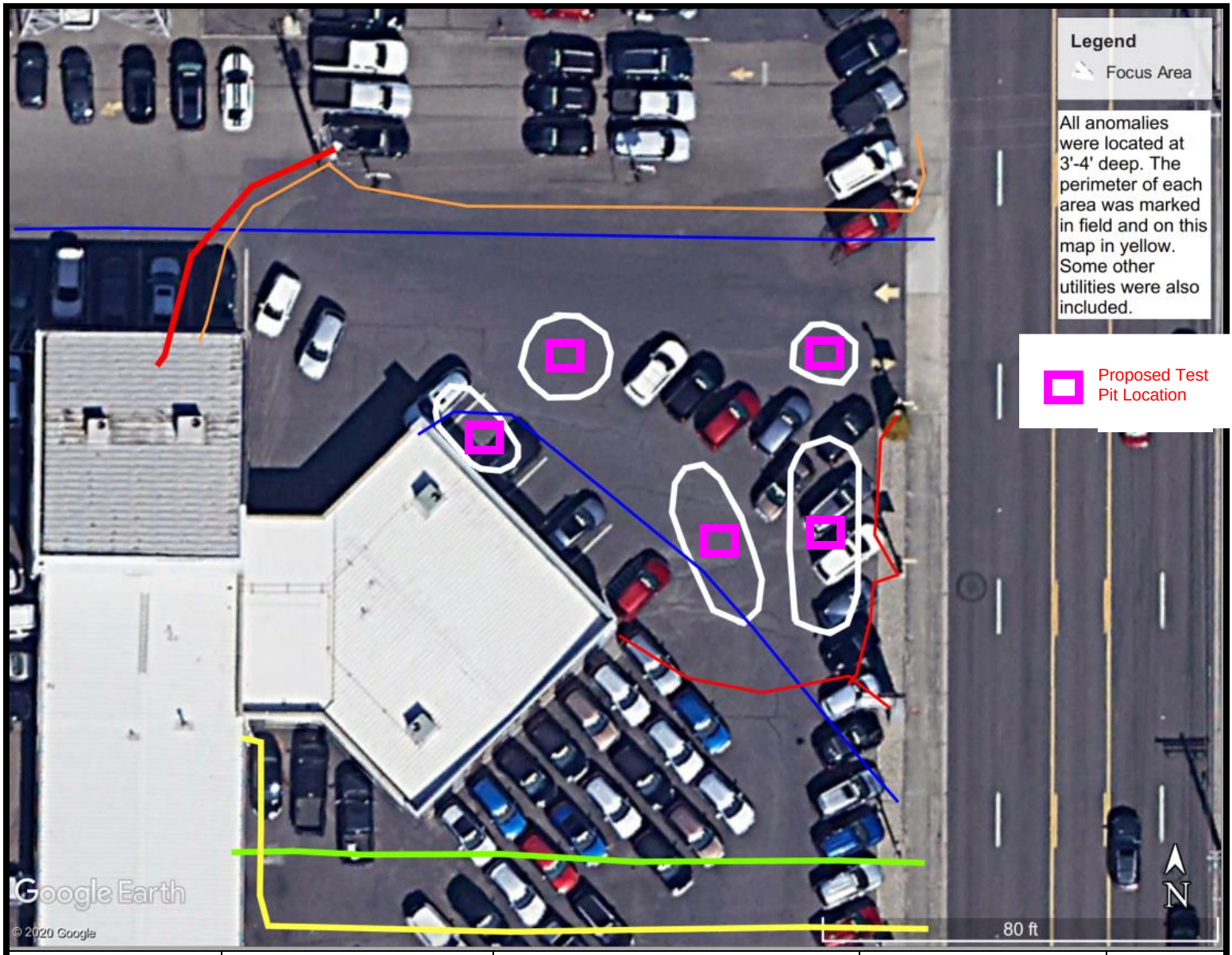
Notes:
GW: groundwater
SG: soil gas
- Geospatial data were provided by other consultants or georeferenced from reports by other consultants or were estimated based on field observations. All locations are approximate.

0 25 50 75 Feet

PIONEER TECHNOLOGIES CORPORATION

Summary of Gasoline and Methane Impacts in 3317 Auburn Way North Parcel Investigation Summary Report for Arbitration

Figure 3



Prepared for: Pioneer Tech. Prepared By: Jesse Moorhouse Date of Scanning: 7/1/2020	**Terms and Conditions** GPRS does not provide land survey or civil engineering data collection or documentation. This is provided as a reference map of the field markings and is not survey-grade.	**LEGEND**			Kia Dealership Site address: 3317 Auburn Way N., Auburn, WA	Prepared by: GPRS
		ELECTRIC		SANITARY		
		WATER		STORM		
		COMM		UNKNOWN		
		GAS	WHITE	Tanks/Backfill		

Proposed Test Pit and Subsurface Utility Locations
Sunset Auburn

Figure 4

Appendix A

DAILY SAFETY BRIEFING PROCESS

The Contractor Supervisor completes Work Permit for work to be performed that day. The SSO and the contractor supervisor discuss the work to be performed and any safety observations from the previous day's work. Once all parties are in agreement with the work, tasks and safety mitigation measures, the work permit is signed. The contractor supervisor begins tailgate meeting by discussing the day's activities and assigning tasks and then leads into an interactive discussion regarding the safety hazards of the day's work. With assistance from the SSO, the discussion should be started by asking open ended questions to solicit comments from field crew. Areas for improvement, positive observations, mitigation measures, key points regarding mitigation measures, etc., should be noted in the space below.

Date and Time of Meeting: _____

Discussion:

_____

_____

_____

_____

_____

Attendee's Name (Printed) Signature _____

Supervisor: _____

SSO: _____

WORK PERMIT

Date: _____ **Start Time:** _____ **Finish Time:** _____ **Project Name:**_____

Work Location: _____

Work Description: (Summary of Tasks): _____

_____

Special Procedures to Follow

Check all that apply	HASP	Section	Does the JHA Address the Hazards?	Special Permits Required	Required	Complete
Equipment Operation / Drill Rigs						
Biological Hazards						
Traffic Control						
Work Over or on Water						
Confined Space Entry Permit						
Explosive or Reactive Materials						
Heat / Cold Stress						
Overhead Obstruction Plan (OHOP)						
Truck Tarping and Lining (Site Specific)						
Rigging and or Crane Operations						
Scaffold Construction and Use						
Electrical Safety and GFCI Protection						
Elevated Work / Fall Protection						
Radiation, X-Ray, Microwave, or Laser Hazards						
Waste Management / Drum Handling						
Site Control and Communications						

	Yes	No
Field personnel aware of the hazards and required permits identified above?	□	□
Have all vehicles, equipment, and tools been inspected?	□	□
Has the work area been inspected?	□	□
Have there been any changes in work area conditions that require revision to the JHA or HASP?	□	□

PPE Level: (e.g., Level D) also add additional PPE (e.g., body harness): _____

In Case of Emergency:

Nearest designated rally point: _____

SSO emergency phone number: _____

Implement UO Notification Chain as written in the HASP: _____

Approved by: _____ Date: _____

Contractor Supervisor Signature: _____

WORK PERMIT

Work Must Not Start Until Permit is Signed and All Precautions Are Taken!

Check Topic(s)

Overhead utilities
- ☐ Power de-energization required
- ☐ Required clearance distance ft

Underground Utilities
- ☐ Review as-builts
- ☐ Sub-subsurface surveys
- ☐ Received excavation permit
- ☐ Required clearance distance _____ ft
- ☐ Safe work zone mark

Excavations
- ☐ Permits
- ☐ Inspected prior to entrance
- ☐ Proper Sloping/shoring
- ☐ Barricades provided
- ☐ Access/Egress provided
- ☐ Protection from accumulated water

Vehicle traffic or Heavy Equipment
- ☐ Traffic barricades
- ☐ Cones and/or Signs
- ☐ Flagmen
- ☐ Lanes closure
- ☐ Communication with equipment operator
- ☐ Spotters
- ☐ Equipment Inspection Forms

Hand & Power Tools
- ☐ Inspect general conditions
- ☐ GFCI in use
- ☐ Identified PPE required for each tool
- ☐ Reviewed safety requirements in operators Manual(s)
- ☐ Guarding OK

Manual Lifting:
- ☐ Reviewed proper lifting technique
- ☐ Identified material requiring lifting equipment
- ☐ Hand protection required

Scaffolds:
- ☐ Inspect general condition before use
- ☐ Tags in place
- ☐ Properly secured
- ☐ Toe boards used
- ☐ Footing adequate
- ☐ Material properly stored on scaffold

Pinch Points:
- ☐ List pinch points: _____

_____
- ☐ Working near equipment
- ☐ Hand/body position

Heat Stress
- ☐ Heat stress monitoring (<85F)
- ☐ Liquids available
- ☐ Cold down periods
- ☐ Sun Screen
- ☐ Exposure monitoring conducted

Equipment Operator
- ☐ Training documentation

Crane or other lifting equipment
- ☐ Signalman assigned
- ☐ Tag lines in use
- ☐ Lifting equipment inspected

Electrical
- ☐ Lock Out/Tag Out/Try Out
- ☐ Confirm that equipment is de-energized

Fire Hazard
- ☐ Hot work
- ☐ Fire extinguishers ( ) Fire Watch
- ☐ Adjacent area protected
- ☐ Unnecessary flammable material removed
- ☐ Grounding and bonding of fuel containers

Noise > 85dB
- ☐ Hearing Protection
- ☐ Ear Plug

List sharp tools, material, equipment
- ☐ 1.
- ☐ 2.
- ☐ 3.
- ☐ 4.
- ☐ PPE gloves, etc.
- ☐ Protected sharp edges as necessary

WORK PERMIT

Ladders:

- ☐ Inspect ladder prior to use
- ☐ Ladder tied off or held
- ☐ Proper angle and placement
- ☐ Review ladder safety

Slips, Trips, Falls:

- ☐ Inspect for trip hazards
- ☐ Hazards Marked
- ☐ Tool and material properly stored
- ☐ Extension cords properly secured
- ☐ Work zone free of debris

Barricades/covers:

- ☐ Caution tape required
- ☐ Danger barricade tape required
- ☐ Rigid barricade
- ☐ Covers over opening ()
- ☐ Warning sign required

Cold Stress

- ☐ Proper clothing (i.e., gloves, coat,
- ☐ coveralls) Wind chill <32F,
- ☐ Reviewed cold stress symptoms
- ☐ Warm up period

Environmental:

- ☐ Are Spill kit available?
- ☐ Are container labels

HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

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

I have read, understood, and agree with the health and safety protocols presented in the Health and Safety Plan (HASP) and the information discussed in the health and safety briefing. I also understand that noncompliance with the HASP may result in dismissal from the site.

Printed Name	Organization	Signature	Date

Personnel Health and Safety briefing conducted by:

Name	Signature	Date

Attachment C-5.2-1

Earth-Moving Equipment Inspection

Check equipment to be inspected: Dump Truck _____ Front – end Loader _____
Backhoe _____ Bulldozer _____ Motor Grader _____
Other _____

Equipment identification number _____

ITEMS	CONDITION			REMARKS
	good	rejected	n/a	
1. Access & Egress*				
2. Backup Alarms*				
3. Body				
4 Excess slack in boom*				
5. Boom Pins*				
6. Brakes*				
7. Bulk Head Partition*				
8. Clutch*				
9. Cotter Pins/Hardened Pins*				
10. Cover				
11. Fire Extinguisher				
12. Frame				
13. Fuel Systems*				
14. Glass*				
15. Guards*				
16. Horn*				
17. Hydraulic System* (no leaks)				
18. Operator Controls Labeled				
19. Lights				
20. Lugs				
21. Muffler & Exhaust Pipe*				
22. Muffler Guards*				
23. Outriggers*				
24. Parking Brakes*				
25. Platform Decking				
26. Positive Dump Bed Latch*				
27. Rear View Mirror				
28. Rollover Protection*				
29. Seat Belts*				
30. Side Mirrors (Both)*				
31. Steering Mechanism*				
32. Tracks, Tires, Wheels*				
33. Turn Signals				
34. Windshield Wipers				
35. Steps and Grabs				

* If any of these are rejected, the equipment shall not be used.

Inspected by _____ Date _____

Excavation Safety Checklist

Job Site

	YES	NO	N/A
Prior to starting the job, were utilities notified and underground services located?	☐	☐	☐
Were overhead transmission lines noted and precautions taken to ensure that equipment does not come in contact with them?	☐	☐	☐
Have adequate signs been posted and barricades provided?	☐	☐	☐
Are the workers wearing reflective vests if necessary?	☐	☐	☐
Are vehicles, equipment, and spoil piles correctly placed to allow for the safe passage of traffic and the progress of construction?	☐	☐	☐
Has traffic control (fire departments, etc.) been notified?	☐	☐	☐
Is the appropriate safety gear on site?	☐	☐	☐

Excavation, Concrete Breaking, Drilling

	YES	NO	N/A
Have the supervisors and workers been trained in excavation safety laws and procedures?	☐	☐	☐
Have buildings, utility poles, trees, and any other surface encumbrances or destabilizing forces been taken into consideration?	☐	☐	☐
Has soil classification been done?	☐	☐	☐
Has the appropriate means of safeguarding the excavation by OSHA requirements been determined?	☐	☐	☐
For excavations 4 feet (1.2 meters) deep or more, are ladders, steps, or ramps available within 25 feet (7.6 meters) of lateral travel?	☐	☐	☐
Are spoil piles at least three feet (one meter) from the edge of the excavation and properly sloped?	☐	☐	☐
Have confined-space atmospheric hazards been considered? (For more information on confined-space entry, see FCSM B-24.1.)	☐	☐	☐
Have undermined structures been shored, braced, or underpinned, or has a registered professional engineer determined that such measures are not necessary?	☐	☐	☐
Do bridges and walkways have standard guardrails?	☐	☐	☐
Are utilities crossing the excavation supported from above, and does protection from falling material exist?	☐	☐	☐
Have means been provided to remove water from the excavation?	☐	☐	☐
Are all open pits or shafts either covered or barricaded?	☐	☐	☐
Is a competent person available to make at least daily inspections?	☐	☐	☐

NOTE: *Shoring and shielding must be removed in a manner that ensures the safety of workers, and excavations must be backfilled as soon as work is completed.*

Appendix B

Field Audit Report

Date:

Site:

Audit Team:

Audit Focus (based on past audits, areas of concern, and/or interest):

Activities Audited:

Number of Personnel Audited:

Field Team Contact Name:

---

1. Positive Observations *within* Audit Focus

2. Improvement Observations *within* Audit Focus
   (include recommended corrective action, responsible person, and timing for completion)

3. Positive Observations *outside of* Audit Focus

4. Improvement Observations *outside of* Audit Focus
   (include recommended corrective action, responsible person, and timing for completion)

5. Environmental Observations

6. Unsafe Acts

7. Unsafe Conditions

8. Next Audit Suggestions (include discrepancies or findings of this audit)

Workplace Inspection Checklist

Inspected by: _____ Date:_____

Item	Condition	Follow-up needed?
Emergency & First Aid		
☐ Fire alarm stations clearly marked and readily accessible		
☐ Fire alarms free from visible damage		
☐ Lights above emergency exits have all bulbs lit		
☐ No obstructions in path to exits		
☐ "Crash bar" operates easily		
☐ Signs showing locations of fire extinguishers clearly visible		
☐ Fire extinguishers fully charged		
☐ Fire extinguishers have current inspection documented		
☐ Signs showing locations of first aid stations clearly visible		
☐ First aid kits readily accessible		
☐ First aid kit contents match inventory sheets		
☐ Signs showing locations of emergency eyewash stations clearly visible		
☐ Emergency eyewash stations fully accessible		
☐ Emergency eyewash stations check for operation		

Note: *This checklist does not address all possible workplace hazards. To learn how to identify hazards in your workplace, see* [*http://www.lni.wa.gov/safety/GettingStarted/HazardsTasks/*](http://www.lni.wa.gov/safety/GettingStarted/HazardsTasks/)

Employee Information Bookcase & Bulletin Board ☐ Sufficient copies of "Accident, Incident & Injury Report forms available ☐ APP, MSDS file & Safety Committee meeting minutes up to date ☐ Required L&I posters in separated location ☐ List of Safety Committee members current		
Walking, Working Surfaces ☐ Walkway markings through plant in good condition ☐ Walkways unobstructed; clear of equipment & materials ☐ Walkways clear on oil, grease, loose material and other slipping hazards ☐ Stair treads & handrails in good condition ☐ Walkway & stair illuminating light fixtures at proper levels ☐ Nothing stored underneath stairs		

Ladders ☐ Rungs & side rails securely fastened & free from visible damage ☐ Non-skid feet fully intact and swivel freely ☐ Ladders in use are used appropriately o No one standing on top rungs or platform o Tools/equipment not left on platform o Step ladders not used as straight ladders o People climbing ladders have "3 point contact"		
Machinery, equipment and power tools ☐ All guards in place and fully operational ☐ Safety placards in place and legible ☐ Lock-Out/Tag-Out kits in place and complete ☐ Wiring insulation intact – no cuts or breaks ☐ Operator's area free from debris and scrap		
Vehicles ☐ All lights, horns, signaling devices (including back-up alarms) fully functional. ☐ Seat belts show evidence of being in use during operation ☐ Fire extinguisher & first aid kit (on road vehicles) in place ☐ Tires in good condition; sufficient tread ☐ ROPS structure on forklifts checked for structural integrity ☐ Area where forklifts operate checked for damage that would indicate operator error		

Personal Protective Equipment ☐ All eye protection worn in plant marked as meeting ANSI Z-87 ☐ Eye protection has clear vision; no excessive scratches or pits on lenses ☐ All grinders have face shields available ☐ All workers in designated areas wear safety footwear ☐ Hearing protection worn while working with tools/machines listed in Hearing Conservation Plan		
Sanitation ☐ Bathrooms and employee break room are clean and free from litter ☐ All electrical outlets are GFCI protected ☐ Sufficient soap and paper towels are available ☐ Refrigerator has been cleaned out recently; no odor of spoiled food		

Hazardous Chemicals ☐ All solvents, cleaning supplies, lubricants, etc that have warning labels also have MSDS on file ☐ Ventilation fans tested for proper air movement in areas where solvents are used		
☐ List checked against previous two months to detect recurrent hazards/conditions		

Appendix C

PROJECT SAFETY ANALYSIS SOP
EHS.04

Purpose

To ensure that a Project Safety Analysis (PSA) is conducted before field activities are initiated so that the following can be achieved:

- Likely hazards associated with the work are identified.
- Consensus is reached as to how the hazards will be eliminated or mitigated.
- Work is performed safely in compliance with applicable EHS regulations.

ROLES AND RESPONSIBILITIES

Project Director

- Ensures during the bidding process that PSAs are funded adequately
- Verifies that a PSA is conducted for all projects
- Ensures that a Plan of Action Discussion (POAD) is held prior to the PSA Meeting
- Ensures that PSA recommendations are documented and implemented as agreed to by the PSA Team
- If applicable, ensures that a High-Risk Analysis (HRA) alert is initiated on the EHS SharePoint site

Project Manager

- Schedules and participates in the PSA, including the POAD and PSA Meeting
- Assembles a PSA Team that includes key project personnel as listed in the Key Terms section of this SOP
- Ensures that the completed Hazards Checklist is retained in the project file

PSA Leader

- Leads the POAD and review of the Hazards Checklists
- Verifies that the information generated during the PSA Meeting is documented adequately

Health and Safety Resource

- Participates in the POAD and PSA, serving as a resource to ensure the adequacy of the hazard identification and mitigation process
- Ensures that approved controls are in place to address a HRA

Scribe

- Takes thorough notes and completes the Hazard Checklists

PSA Team

- Understands the scope of work
- Participates in the PSA Meeting
- Agrees to the hazard mitigation techniques discussed

PROCEDURE METHODOLOGY

PSAs must be conducted for all field projects regardless of project complexity, duration, or scope of work and must be initiated during project development after the scope of work has been determined. *NOTE: Although PSAs are not required for general services that do not involve fieldwork (e.g., plumbing for an office restroom, snow removal, light bulb or outlet replacements), the likely hazards associated with these activities must be addressed via EHS.05, Job Safety Analysis, Work Permit, and Tailgate Briefing SOP.*

Accomplishing the PSA is a multiple step process that involves scheduling and holding the POAD, scheduling the PSA Meeting and gathering the PSA Team, holding the PSA Meeting, filing the PSA Form, and updating the Hazard Checklists, as described below.

Scheduling and Holding the POAD

1. The Project Manager, in communication with the Project Director, determines the appropriate timing for the POAD based on the project life cycle. S/He schedules the POAD any time after the contract is awarded, allowing for sufficient time to address any items that require further research or follow-up.
2. The PSA Leader leads the POAD using the Pre-project Implementation Checklist (see Attachment A) and the Hazard Checklists (see Attachment B) as guides.
    a. The implementation of specific tasks is discussed so that the hazards associated with the tasks can be identified. The contractor's Job Safety Analysis for the identified tasks and hazards should be discussed at this meeting if applicable.
    b. The anticipated hazards are reviewed, and control measures are discussed.
    c. The most significant hazards associated with the work, which may or may not be HRAs, are identified.
3. If HRAs are identified, a control plan must be agreed upon.
    a. The Scribe documents the control plan in the Background Information section on the Hazards Checklists (see Attachment B)

Scheduling the PSA Meeting and Gathering the PSA Team

1. The Project Manager, in communication with the Project Director, determines the appropriate timing for the PSA based on the project life cycle and schedules the PSA Meeting at least one week prior to field mobilization.
    a. Approximately two hours should be allotted for this meeting.
    b. Based on the project and the thoroughness of the POAD, PSA Meetings may take more time or less time as appropriate.
4. The Project Manager assembles a PSA Team that must include the following key personnel: the Project Manager, a Health and Safety Resource, the CSR or field supervisor responsible for field operations, and at least one contractor representative (preferably the contractor field team and safety representative or manager). If these participants are not available, the PSA must be postponed.
    a. The Project Director must be invited to the PSA Meeting, but is not required to attend.
    b. Optional attendees can include individuals not working on the project with relevant expertise.

Holding the PSA Meeting

Although the Hazard Checklists are completed as part of the POAD, a discussion of the hazards is an important part of the PSA Meeting. The PSA Team should not simply read the checklists or skip this discussion.

1. At the beginning of the PSA Meeting, the PSA Leader reviews the scope of work, the major hazards identified during the POAD, and HRAs identified. If feasible, photographs of key hazards should be included to facilitate the discussion.
2. The PSA Team discusses the outcomes of the POAD, including the hazards identified and control measures anticipated to be implemented.

a. The PSA Team discusses "what if" scenarios. The duration of the discussion for potential hazards should be commensurate to the potential severity or frequency of the hazard posed (i.e., a worker injury in the "south forty," what is the worst thing that could happen while doing this work?)
b. This discussion should be an open exchange of information and ideas.

3. The PSA Leader reviews the Hazard Checklists that were initially completed during the POAD.
   a. The Hazards Checklists in Attachment B were developed to stimulate thought. Not all of the hazards listed in the checklists may apply, and some hazards may apply that are not included on the checklists. It is expected that those hazards posing the greatest risk will generate the most discussion and planning. The identification of hazards is intended to be an interactive process (i.e., a dialogue, not a monologue).
   b. Hazards previously discussed should be passed over in favor of items that have not already been addressed.
4. The PSA Team identifies a specific hazard and determines a means of controlling or eliminating the hazard. To the extent feasible, a hierarchy of controls approach should be used (listed in order of preference): Elimination/Substitution, Engineering Controls, Administrative Controls, and Personal Protective Equipment.
5. The Scribe captures the discussion of the hazards and the associated control measures within the Hazard Checklists. Accurate notes are critical.
6. If a HRA is identified during the meeting, the Health and Safety Resource ensures that approved controls are in place to address the HRA.
7. The Health and Safety Resource documents the presence or absence of HRAs on the EHS SharePoint site.
8. If additional research is necessary for a hazard or control measure, the PSA Team identifies one of its members to follow up on the item and provide the information for inclusion into the draft Hazards Checklists.

Filing the Hazards Checklists

The final Hazards Checklists must be filed (electronically or hard copy) with the project files.

Updating the PSA Form

For ongoing projects or projects that are periodic in nature (e.g., semi-annual groundwater monitoring), the project team must review and update the completed Hazards Checklists as necessary to reflect changing conditions (i.e., seasonal differences). This review and any changes must be documented, and the updated Hazards Checklists must be filed. A new POAD/PSA call may be required depending on the scope of changes and risk level of the work. The Project Director will determine if scheduling a call is necessary or if updating existing documentation is adequate.

TRAINING

All personnel must be trained on this procedure. Refresher training must follow the initial training by no more than three years.

Key Terms

Key Term	Definition
Hazards Checklists	A series of checklists to assist in identifying physical, chemical, and other hazards that may be encountered during field activities.
High-Risk Activity (HRA)	An activity that, if not anticipated or controlled, has the potential to cause serious injury or death.
Plan of Action Discussion (POAD)	A discussion held in advance of the PSA Meeting involving the Project Manager, a Health and Safety Resource, and the contractor performing the work in which the following is addressed: proposed scope of work, methods, tools, roles and responsibilities of the field team, and the major hazards and controls associated with the work.
Pre-project Implementation Checklists	A planning tool designed to help determine the roles and responsibilities of project team members, identify required field documents (e.g., Health and Safety Plan, Waste Management Plan), understand site access requirements, and outline other premobilization planning steps.
Project Safety Analysis (PSA)	A process designed to identify the (1) field-related safety and health hazards that may be known or anticipated and (2) associated control measures to be implemented. This two- step process includes the POAD and PSA Meeting.
PSA Meeting	A meeting held with the larger project team and Site Representative (if applicable) in which the POAD documentation is reviewed and the proposed control measures are discussed and agreed upon.
PSA Team	A group of people who are directly involved with the project or have expertise in a given area that is unique to the project. The PSA Team must include the Project Manager, a Health and Safety Resource, the CSR or field supervisor responsible for field operations, a plant representative (if applicable), and at least one contractor representative (preferably the contractor field team and safety representative or manager).

ATTACHMENT A
PREPROJECT IMPLEMENTATION CHECKLIST

Instructions: The following checklists are to be completed by the Project Manager working with the project team during the POAD. Information must be recorded in the space provided

Scope of Work	Complete test pits to identify presence of USTs.
Project Tasks	Saw cut pavement Excavate to find USTs Backfill and pave Potentially collect soil samples from excavator bucket
Contractor's Approach	Monday – prep site and begin excavations Tuesday – complete excavations and backfill/prep for pavement Wednesday – repave damaged areas
Fieldwork Start Date	5/17/21
Roles and Responsibilities	Joel Hecker – PM Kevin Gallagher – SSO Kim Seeley – Client (Coastline Law) Tony Bahnick – DH Enviro PM Jacob Briere – DH Enviro Super

Are there any short service employees (SSEs) who will be working on this project? A SSE is a contractor with less than six months of experience in the same job type with his/her present employer. If so, list the names of SSEs below	No
Who is serving as the field mentor for those individuals? (List names below.)	

FIELD DOCUMENTS (HASP, WMP)	
Is there a current HASP or HASP addendum for the scope of work? Provide date and title of HASP or addendum.	Sunset Auburn HASP REV1 – 052021
Has a copy of the pertinent document(s) been made available to the project team?	Yes
Is the WMP current for activities? If yes, list date and title of WMP.	N/A
Has the WMP been reviewed by a member of the Waste Management Network and the field team? If yes, list the names of the individuals	N/A

VARIANCE
Supply justification below for **not** completing geophysical survey for underground obstructions. Justification: Public utility access can locate entire site. No fencing/barriers. Previous excavations and borings completed throughout the site.
Project Manager Signature:
Date: Click here to enter a date.

SITE ACCESS REQUIREMENTS	
Are there any special security requirements for work at the site (i.e., Homeland Security)?	No
Is Maritime Security Act training required?	No
Are security background checks required for site entry?	No
Is substance abuse testing required?	No
PM / CSR REVIEW	
Review project goals and objectives with CSR and how current scope fits in with overall project	
Permit requirements related to the work (e.g. federal, state, local, E&S, plant, internal)	
Technical Specifications/Drawings/Work Plan	
Contract-type (lump sum, unit price, or T&M) and how they relate to field management responsibilities	
Contract administration (responsibility as a "Receiver" in the Buy/Release, Receive, Tracking, Progress Meetings, Meeting Minutes, etc. Pay process, Cost	
Fieldwork Documentation Requirements	
Communication	1. Describe lines of communication within project team (e.g., site, contractor, subcontractors) 2. Describe how to address community issues, visits, and/or questions. 3. Describe how to address regulatory visits and/or questions.

ATTACHMENT B
HAZARDS CHECKLISTS

HAZARDS CHECKLIST

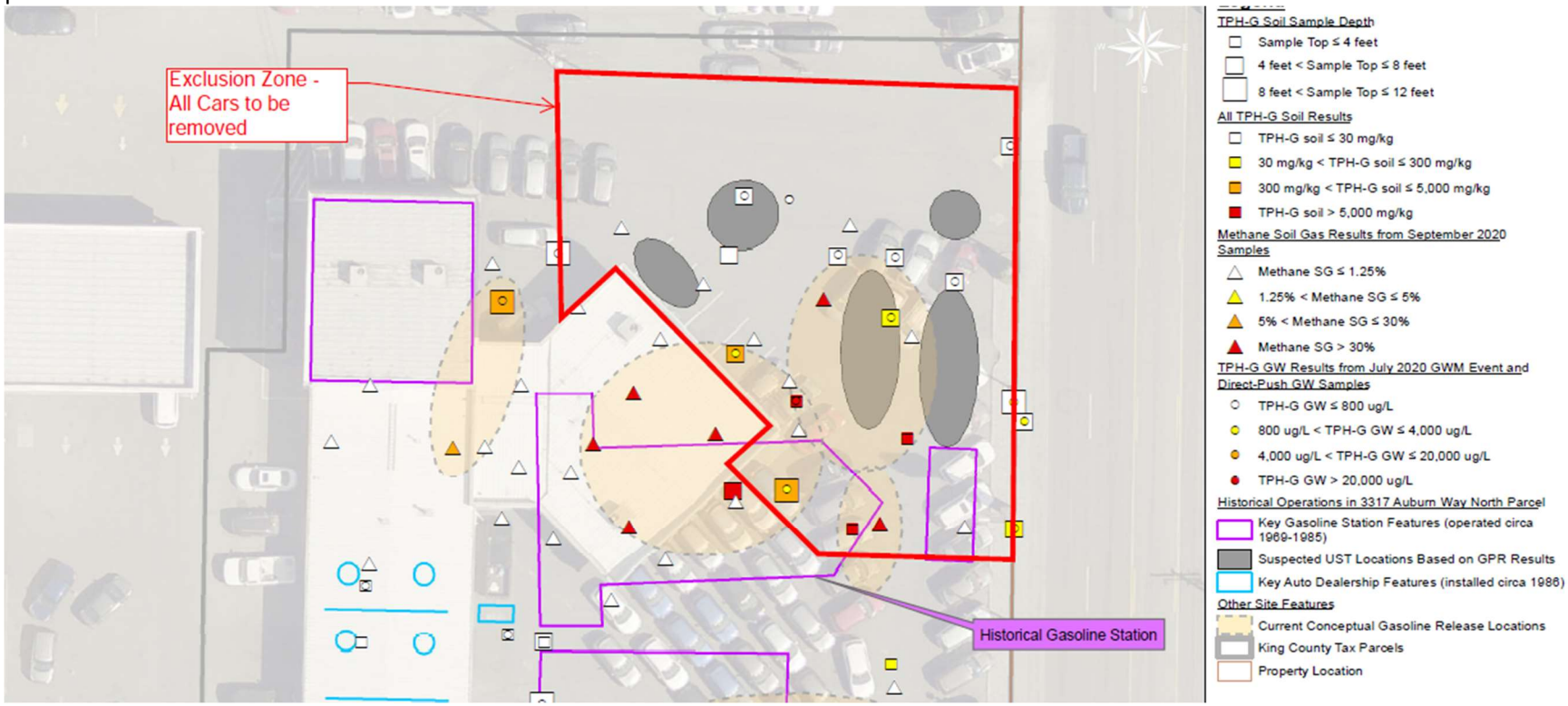
BACKGROUND INFORMATION	
PSA Date:	5/12/2021
Site Name:	Sunset Auburn
Project Name:	Sunset Auburn UST Investigation
List names below of those present at PSA meeting	
Name	**Organization**
Joel Hecker	PTC Field Lead
Troy Bussey	PTC PM
Jacob Briere	DH Enviro Super
Tony Bahnick	DH Enviro PM
Kevin Gallagher	PTC H&S Manager

HAZARDS CHECKLIST

Background Information

Brief Summary of the Scope of Work

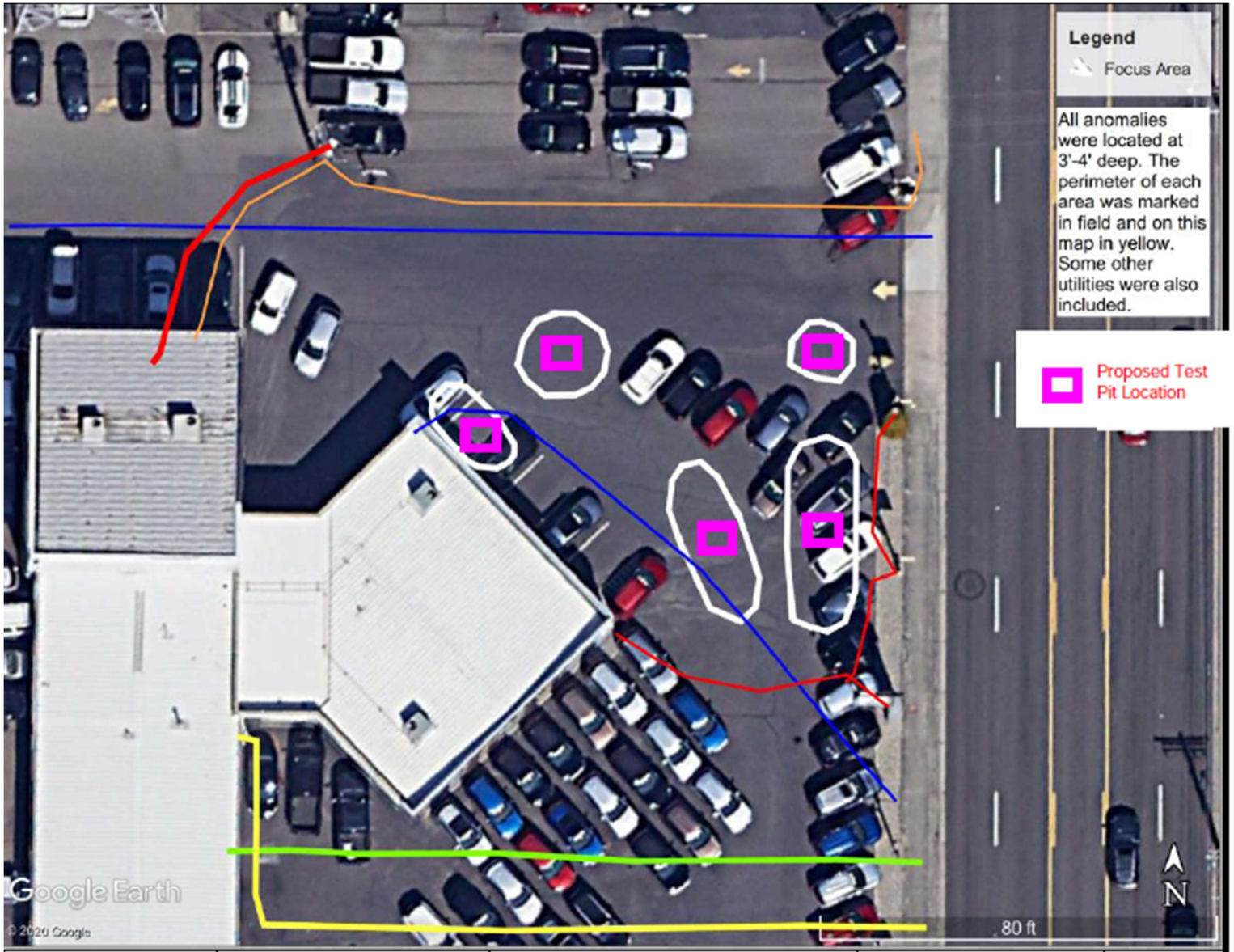
The scope of work associated with this investigation includes advancing five test pits in the location of suspected USTs. If identified, the USTs will be left in place, soil returned to the excavations, and pavement repaired. Excavations will extend to a maximum depth of five feet below grade. Up to four soil and two GW samples will be collected if obvious evidence of impact is observed. An excavator will be used to complete the test pits.



HAZARDS CHECKLIST

130 size excavator

HAZARDS CHECKLIST



Prepared for: Pioneer Tech. Prepared By: Jesse Moorhouse Date of Scanning: 7/1/2020	**Terms and Conditions** GPRS does not provide land survey or civil engineering data collection or documentation. This is provided as a reference map of the field markings and is not survey-grade.	**LEGEND** ELECTRIC / SANITARY WATER / STORM COMM / UNKNOWN GAS / WHITE Tanks/Backfill	Kia Dealership Site address: 3317 Auburn Way N., Auburn, WA	Prepared by: GPRS

HAZARDS CHECKLIST

Background Information

What does the project team believe to be the most significant hazard(s)? Note: These hazards may or may not be HRAs as identified in Checklist A.

1. Hazard: Moving/working equipment (excavators, etc.) and truck traffic onsite and the potential for being struck.
Control Measures: Maintaining safe distance from equipment during operation; demarcate exclusion zone using delineators. Back up alarms on all equipment. Safety vests, hard hat, etc. No cell phone use around active equipment. Notify others of cell phone "dead zone."
Utilize spotters, certified equipment operators only. Workers will keep aware of their position relative to heavy equipment operation. Do not approach equipment while in operation. When working in an area where mechanical equipment is being used, communicate directly with operators so that they are aware of your presence and the types of activities you are performing. Do not assume that they know that you are there and what you are going to do. Means of communication will be discussed during the morning tailgate. Honking Horn prior to starting equipment. Machines have kill switches. Wear safety glasses/eye protection.

2. Hazard: Explosion hazard from methane
Control Measures: Screening air with GEM200 and 4-gas meter. Pavement will be removed at each UST in the beginning to allow methane to vent and reduce potential buildup. Wetting concrete/asphalt before cutting to prevent sparks. Using ventilation and fan in excavations to prevent buildup of methane. Stopping work if methane detected >1% by volume on the GEM2000 (20% of the LEL) or vapors are detected at >2,800 ppm on the PID (20% of LEL for gasoline). All heavy equipment will be equipped with a fire extinguisher, which will be readily available when using equipment. All equipment, hoses, and fire extinguishers will be inspected prior to use. No smoking allowed on-site. Additional mitigation measures during excavation activities will include 1) using a smooth bucket rather than a toothed bucket when practical, 2) directing force downward and curling the bucket rather than scraping motions when practical, 3) saw-cutting the edges of the asphalt parking lot after excavation rather than before (methane will have vented and not be built up in the subsurface just below the pavement). PIONEER will also alert the Auburn Fire Department of the upcoming excavation work and the potential explosion hazards several days prior to starting work. Tank excavations will be completed methodically and slowly while checking methane levels. After each scoop, methane concentrations will be taken from the excavation. Excavator may work at multiple test pits at one time to allow air to clear out before next scoop.

3. Potential for inhalation exposure to volatile contamination (VOCs)
Control measures: sampling team wearing respirator if any evidence of contamination in ambient air, using PID to screen soil, ambient air surroundings, positioning bodies upwind of contaminant source. Stop work and wait for volatiles to drop if exceeding 0.6 ppm in breathing zone. Respirator required if PID >0.6 ppm in breathing zone (not expected).

HAZARDS CHECKLIST

Checklist A
High-Risk Activities

In the process of accomplishing the agreed upon scope of work, is it anticipated that there may be exposure to any of the following HRAs? The definition of these HRAs can be found in the corresponding standard.

1. Working with potential for electrical shock/arc (S31G)
2. Working at elevation or from heights (S5H)
3. Using high pressure water (Pressures greater than 3,626 psig) (S43G)
4. Performing hot work (S31F)
5. Operating powered industrial trucks (S32G)
6. Working on or near suspended loads (S30G, S33G)
7. Working with potential for body entrapment - machine, excavation (S44G, SC12E)
8. Entering confined spaces (S16G)
9. Performing line breaks to hazardous processes or systems (S27G)
10. Working in oxygen deficient atmospheres (S16G, S41G)
11. Working with highly toxic materials (S23A)
12. Unguarded Rotating equipment
13. Working over/near water
14. Underground (high energy) utilities
15. High hazard underground contaminants
16. Unexploded ordnance / reactive materials
17. Line of fire
18. High hazard topography/terrain

If the answer is yes, information about the control measures must be detailed on the significant hazard page.

Are these plans in place: **YES** NO

HAZARDS CHECKLIST

Checklist B Physical Hazards (Note: Asterisk denotes HRA)			
Item	**Subject**	**No**	**Yes (add comments below)**
A	Hazardous Terrain, Topography	X	Lot is entirely flat impermeable surfaces with exception of stormwater detention pond in SW corner.
B	Overhead obstructions	X	None
B1	If yes, has an OHOP been prepared?		N/A
C	Underground obstructions (e.g. electric, water, gas, cable)		Locations cleared by GPR. Water line near UST excavations will be marked and avoided. Test pit will be placed at least four feet from water line.
C1	Will intrusive activities be performed?		Hazard: Excavator used to advance test pits Control: Private and Public Utility Locate has been completed. **811 Ticket #: 21211854**
C2*	Will an intrusive activity be performed within 15 feet of an identified electrical, gas or buried process line	X	Only water line as discussed above.
C3	If yes, review Underground Obstructions SOP and complete flow chart.	X	
C4	If Geophysics will not be accomplished, the Project Director must complete the variance process by signing the variance in Preproject Implementation Checklist.	X	
D*	Is elevated work (over 5 feet) to be performed?	X	
D1	Has a fall protection plan been developed?	X	
D2	Has a rescue plan been developed?	X	
E	Excavation, Trenches		Excavations will be less than 5 ft bgs, and protected with construction fence.
E1*	If yes, will it be necessary to enter an excavation >4' deep?	X	No staff will enter excavations
E2	Who is the competent person?		Jacob Briere of DH Environmental
E3	How will the excavation be sloped/shored/barricaded?		Cones and caution tape. Will be backfilled same day. Sloped as needed.
F	Will heavy equipment be used?		**Hazards:** Excavator and dump truck
F1	Equipment should be inspected under both static and loaded conditions.		**Control:** Initial inspections will be performed, documented, and kept on file. Contractor also performs daily inspections of equipment. Only competent person will operate.
G	Traffic (flow and congestion)		Hazard: Work area is an active car sales and service business.

HAZARDS CHECKLIST

Checklist B Physical Hazards (Note: Asterisk denotes HRA)			
			Control: Cones and fencing will be used to cordon off work areas. High visibility vests and spotters will be used. Workers will not use cell phones while walking.
G1	What requirements will there be for spotters?		Prior to moving equipment/trucks, a spotter will be in place to direct the operator. In no case will the operator attempt to back up the equipment unless a spotter is present. All back up alarms will be tested and operable prior to coming onsite. *Be careful backing up near Admin building as someone may exiting the building.* • Spotters or a "walk-around" will be used when backing up vehicles with limited visibility for the driver. • Spotter to wear a reflective safety vest or brightly colored outer wear (ANSI certified). • Use the spotter and communicate that the vehicle path is clear before moving. Honk the horn before backing up. Larger vehicles must be equipped with backup alarms. • Spotters will stand a minimum of 8 feet from moving vehicles to avoid being run over if they trip and fall. • Driver and spotter should discuss the plan prior to backing up. Drivers will keep their windows down so they can communicate with the spotter. Spotter will use verbal and hand signals to communicate with driver. These signals will be communicated to the driver prior to the start of backup operations to avoid mixed signals. • Spotter will occupy a fixed point along the proposed back-up path to direct the driver, repositioning as necessary to the next fixed point while the driver waits. • Spotter will not have their back to traffic. • Spotter will not walk backwards.
H	Slip, Trip, or Fall Potential		**Hazard:** Work area may contain equipment and supplies plus excavations. **Control:** Keep work area free and clear of obstacles (good housekeeping). Walk with a purpose and avoid multi-tasking (i.e. cell phones, etc.). Demarcate "no go areas" and place construction tape/fencing. Wear appropriate boots based on conditions.
I	Weather (heat, ice and rain)		Potential for rain or sun/heat. Personnel will wear rain gear as needed. Wear sunscreen as needed.
I1	Has heat stress or cold stress been identified?	X	Spring temperatures

HAZARDS CHECKLIST

Checklist B Physical Hazards (Note: Asterisk denotes HRA)			
J*	Rigging, Suspended Loads		Hazard: Suspended loads present in excavator bucket during transport to stockpiles. **Controls:** • Keep all personnel away from lifted load (no personnel should be directly beneath load). • Ensure communication has been established between operators and ground personnel. • Inspect all equipment prior to use and throughout the work. • Hard hat and appropriate PPE should be worn.
J1	If yes, who is the qualified rigger?	X	N/A
K*	Confined Space Activity	X	
K1	If yes, who will develop the CSE entry requirements (e.g., LOTO, air monitoring) and complete the CSE permit?	X	
K2	If yes, has a rescue team been trained and notified?	X	
L	Heat/ignition sources (powered tools, torches, lamps)		**Hazards:** Personal vehicles and fueling heavy equipment may be sources of ignition. **Controls:** All heavy equipment will be equipped with a fire extinguisher. Tools identified as damaged will be tagged and placed out of service. Appropriate GFCI and grounding will be insured. No Smoking or other fires allowed onsite.
L1*	Will it be necessary to perform Hot Work?	x	No hot work.
M	Explosion potential (static, vapor, storage)		**Hazards:** Methane is present in subsurface at elevated concentrations. **Controls:** Screening air with GEM200 or 4-gas meter. Wetting concrete/asphalt before cutting to prevent sparks. Using ventilation and fan in excavations to prevent buildup of methane. Stopping work if methane detected >1% by volume on the GEM2000 (20% of the LEL) or vapors are detected at >2,800 ppm on the PID (20% of LEL for gasoline). No smoking allowed. Tank excavations will be completed methodically and slowly while checking methane levels. After each scoop, methane concentrations in excavation will be taken. Excavator may work at multiple test pits at one time to allow air to clear out before next scoop. The southwesternmost tank will be completed last as it is likely the location with the highest methane concentrations.

HAZARDS CHECKLIST

Checklist B Physical Hazards (Note: Asterisk denotes HRA)			
			All heavy equipment will be equipped with a fire extinguisher. A fire extinguisher will be readily available when using equipment. All equipment, hoses, and fire extinguishers will be inspected prior to use. Additional mitigation measures during excavation activities will include 1) using a smooth bucket rather than a toothed bucket, 2) directing force downward and curling the bucket rather than scraping motions, 3) saw-cutting the edges of the asphalt parking lot after excavation rather than before (methane will have vented and not be built up in the subsurface just below the pavement). PIONEER will also alert the Auburn Fire Department of the upcoming excavation work and the potential explosion hazards several days prior to starting work.
N	Is there a potential for a fire?		**Hazards:** Potential for excavator fire. **Controls:** Excavator will be fueled in the morning or allowed to cool before refueling. The excavator will not be running while being fueled. Re-fuel on paved area using a funnel. All heavy equipment will be equipped with a fire extinguisher. Proper fire extinguisher will be readily available and required in all vehicles.
O	Rotating Equipment/Moving Parts		**Hazard:** Excavator. **Controls:** Maintain a safe distance, never place hands near moving or powered up equipment. Appropriate PPE, hand protection. .
O1*	Will personnel be exposed to unguarded rotating/moving parts?	X	No.
O2	What additional guards can be installed to minimize exposure?	N/A	
P	Pinch Points		**Hazard:** Potential pinch points include tailgates/doors, lids on various vehicles and equipment, moving parts on equipment. **Controls:** Workers will keep aware of their position relative to heavy equipment operation. Employees shall wear gloves and shall position themselves in a way to minimize exposure to pinch points. Emphasize hand safety at morning tailgate meetings. Wear all appropriate PPE for hand safety. With drums be careful opening/closing lids. Think, Analyze, Go" (TAG). THINK about the hazards associated with their task ANALYZE and find safe solutions GO ahead and complete their tasks safely • Use handles to close doors and tailgates, not their edges

HAZARDS CHECKLIST

Checklist B Physical Hazards (Note: Asterisk denotes HRA)			
			• Take time to evaluate work activity and environment to identify pinch points and remove/protect to ensure workers do not contact during task. Consider body positioning prior to start of task to identify potential pinch points and change position to ensure you do not contact during task. Wear appropriate work gloves (right size; Kevlar gloves vs nitrile). • Dispose of gloves that are old, worn, or in poor condition. • Ensure latches/straps are engaged to secure equipment
Q	Drill Rigs	X	
Q1	If a drill rig will be used, does the potential exist to encounter flammable/combustible gases (methane, etc.?)	X	
Q2	If the answer to Q2 is "yes" specify what type of Combustible Gas Indicator will be used, how often and where the monitoring will take place, and the action limit.	X	
R	Will there be work over / adjacent to water?	X	
R1*	Will the work require the use of a boat?	X	
S	Will drum handling be performed?	X	
T	Are there any noise sources?		**Hazard:** All heavy equipment, some tools, and generators are noise sources. **Controls:** Ensure all equipment, tools, generators are in good working condition. Ear protection will always be used around operating equipment. Use 3 ft rule (when talking is difficult to hear within 3 ft) for use. No personnel will be in close proximity to heavy equipment, tools, or generators for long periods of time.
U*	Will there be any use of high pressure water (>3626 PSI) or steam?	X	Bucket rinse and brushes. No high pressure water.
V*	Will there be work performed on electrical systems?	X	
V1	If yes, has a Lock-out/Tag-out procedure been developed?	X	
W	Will it be necessary accomplish a line break?	X	
W2*	If yes, what material is in the pipe or line? Is it defined as a "Hazardous Process"?	X	
X	What hand safety concerns are associated with the scope of work?		**Hazards:** Equipment, doors/gates, and tailgates can cause crushing, laceration, puncture, pinching, or bruising of hands. Contact with TPH-impacted soil.

HAZARDS CHECKLIST

Checklist B Physical Hazards (Note: Asterisk denotes HRA)			
			Controls: Take time to evaluate work activity and environment to identify hand safety issues and to remove hazards. Consider body positioning prior to start of task to identify potential hand safety issues and change position to ensure you do not contact during task. Ensure proper gloves are being used for a specific task.
X1	What hand PPE is required?		Leather gloves will be used when operating machinery, using hand tools, and walking around the Site. Nitrile gloves will be used when there is a potential to contact contaminated soil/water.
X2	Is there special tool(s) to be used to reduce the hand safety hazard?		Use safety J hook-type knives or scissors rather than straight blades/box cutters.
X3	Are additional precautions, techniques, etc. to be used?		Use decontamination techniques if contact with contaminated material. Hand washing facilities are available in Sunset Auburn buildings. Emergency eye wash brought by PIONEER.
Y	What ergonomic concerns are associated with the scope of work (i.e., lifting, repetitive motion, materials handling)?		**Hazard:** Lifting miscellaneous materials, bending, stooping, and kneeling, vibrating equipment. **Controls:** Ensure all employees practice safe lifting techniques. Lifting loads will be restricted to 55 lbs for a one-person lift, and to 80 lbs for a 2-person lift. Proper use of rakes and shovels will be observed. Employ and encourage stretching prior to lifting. Ergonomic practices will be required primarily for back and hand safety. • Bend the knees and lift with your legs not your back. Keep your back straight and use core stomach muscles. • Use knee pads or a kneeling pad when kneeling on the ground. • Proactively assist others attempting to lift or move likely heavy objects. • Use machinery as much as possible to move equipment
Z	What hand or power tools will be used?		Shovels, prod bar, wrenches, sampling trowels.
Z1	Who will perform initial inspection of hand tools?		Joel Hecker (PIONEER).
Z2	Who will perform initial inspection of power cords and GFCIs?		Joel Hecker (PIONEER).
ZZ	What is the audit requirement for this project based on project duration (< or > 2 weeks)? Note: A minimum of one audit is required for EVERY project regardless of project length.		• Self Audit • Scheduled Audits
ZZ1	Who will develop the required audit schedule?		Joel Hecker will perform one field audit.

HAZARDS CHECKLIST

<table>
<tr><th colspan="4">Checklist C
Chemical Hazards</th></tr>
<tr><th>Item</th><th>Subject</th><th>No</th><th>Yes (add comments below)</th></tr>
<tr><td>A</td><td>Are contaminants present (most recent data)?</td><td></td><td>Soil and groundwater contain BTEX and TPH-G at concentrations exceeding MTCA SLs.</td></tr>
<tr><td>B</td><td>What are the concentration levels?</td><td></td><td>Concentrations are shown below:
<table>
<tr><th>COI</th><th>Max Concentration in Soil (mg/kg)</th><th>Max Concentration in GW (ug/L)</th></tr>
<tr><td>TPH-G</td><td>10,200</td><td>27,600</td></tr>
<tr><td>Benzene</td><td>13</td><td>543</td></tr>
<tr><td>Toluene</td><td>52</td><td>No exceedance</td></tr>
<tr><td>Ethylbenzene</td><td>202</td><td>1,180</td></tr>
<tr><td>Xylenes</td><td>972</td><td>5,370</td></tr>
<tr><td>Naphthalene</td><td>86</td><td>177</td></tr>
</table>
Toxicity information for potential contaminants that may be present (e.g. TPH, VOCs) are provided in the HASP.

Methane has been recorded in subsurface soil vapor at concentrations >95% by volume.</td></tr>
<tr><td>C</td><td>Do routes of exposure include inhalation, ingestion, and dermal absorption?</td><td></td><td>Inhalation, ingestion, and dermal absorption associated with handling of soil and potential for dust generation. Particulates unexpected due to moist soils. Silica dust during cutting through asphalt/concrete – wetting prior to cutting will limit dust.</td></tr>
<tr><td>D</td><td>Are there PPE requirements or is PPE required for a specific task to be conducted (e.g., mixing materials that could cause exposure to dust or a splash hazard)? If yes, what are the levels of protection? (Specify Levels A, B, C, D, or modified D.)</td><td></td><td>Level D for all employees: Hard hats, steel-toed boots, safety glasses, reflective vests, ear protection, hand protection for all work activities with the potential for contacting soil/water, operating machinery, and/or equipment. Dust mask for saw cutting.</td></tr>
<tr><td>E</td><td>Are there air monitoring requirements?</td><td></td><td>A PID will be used during excavation to screen soils and verify VOCs in ambient air are not detected. If VOC levels in ambient air are detected at concentration >0.6 ppm, personnel will stop work and exit the area until levels clear. Should levels remain above the threshold, the project team will assess the situation. Dust generation is expected to be minimal based on the shallow groundwater and moist soils. Personnel should stay upwind of excavations.
Screening air with GEM200 or 4-gas meter for methane. Using ventilation and fan in excavations to prevent buildup of methane. Work will stop if methane detected at >20% LEL (1% by volume). Allow levels to drop before continuing.</td></tr>
</table>

HAZARDS CHECKLIST

Checklist C Chemical Hazards			
F	Is there a potential that respirator use will be required to complete this work?		If VOC levels exceed the action level and/or PELs (i.e. >0.6 ppm), personnel will stand down and check after 5 minutes. Not expected due to ambient air exchange rate (i.e., wind). Workers will don full-face respirators with organic vapor cartridges if sustained concentrations in ambient air exceed PELs. This represents a management of change.
F1	If so, list the names of the individuals who will wear respirators and be prepared to provide documentation of fit tests and medical clearances.		Joel Hecker is medically cleared and fit tested.
G	Are there hazardous products to be used in the execution of the work?		• Gasoline • Diesel • Grease • Alconox – decontamination • Grout
G1	Are Safety Data Sheets available and have they been reviewed?		Yes
G2	Will chemical addition or treatment be performed?	X	
G3	Will the use of any products or materials result in heat generation or off-gassing?	X	
H	Will sample preservatives be prepared in the field?	X	
I	Will mixtures (e.g., grout, chemical addition) be prepared in the field?	X	
J	Is there proximity to Site Chemical Operations? If yes, specify the hazards if exposed to these operations.	X	
K	Are plant area orientations required?		Site orientation will be conducted as part of the safety kick-off meeting on the first day of work.
L	Are additional permits/notifications required?		Daily Safety Tailgate form will be completed during the daily tailgate meeting

HAZARDS CHECKLIST

Checklist D Other Hazards or Concerns				
Category	**Item**	**Subject**	**No**	**Yes (add comments below)**
Biological Hazards	**A**	Are there biological hazards present (e.g., poisonous plants, vectors, wild animals, snakes, ticks, bees)?	X	Although unlikely due to the nature of the site, there could be the potential for bee/wasp stings, insect bites, and ticks. All workers should let others know of any allergies. Keep eye out for needles. People who are allergic to bee or wasp stings should have an Epi-pen available. Only the person prescribed an Epi-pen should administer it. If an Epi-Pen is used, a 911 call must be initiated as the Epi-pen is not a life saving measure. Complete form (emergency contact information and allergies, etc.). In Addition, Anyone with Other Health Issues (Such as Diabetes, Asthma, Etc.) Is Requested to Inform Team Members What the Signs of Distress Are and What to Do to Mitigate or Manage the Issue Until Qualified Personnel Can Be Reached to Administer Appropriate Medical Assistance.
Communications	**B**	Have adequate means of communication been established (cell phones, plant radios, etc.)?		Verbal. Hand signals will be established between operators and other personnel.
	B1	Means of communication with facility?		
	B2	Means of communication between field team members?		Verbal and visual: Hand signals, particular when using hearing protection.
	B3	Have cell phone numbers been exchanged as appropriate?		Yes
	B4	Is there an emergency communications plan in the event of a UO with injury? How will help be notified? Who will be notified?		CALL 911 (based on severity). Immediate notification of Joel Hecker via cell phone. Initiate UO reporting chain.
	B5	How will site on-site and/or outside emergency responders know where you are located in the field?		Site has a known address. In the event of an emergency, Joel Hecker will be directing the emergency responders to the team's location.
	B6	How will you determine if the injured party can be transported by you or if you should wait for emergency responders?		Other than obvious small abrasion or superficial cuts, **911 should be called** and wait for emergency responders. If the victim's injuries are minor (i.e. cuts, abrasions, etc.) and can be stabilized only then will they be transported by onsite personnel to a local clinic. If injury incapacitates the victim, they will only be moved by trained personnel (i.e., EMS). If the victim is able to move under their own power, and do not have life threatening injuries (i.e., excessive internal or external

HAZARDS CHECKLIST

Checklist D Other Hazards or Concerns				
Category	**Item**	**Subject**	**No**	**Yes (add comments below)**
				bleeding, concussion symptoms, etc.) they will be stabilized until EMS personnel arrive.
	B7	Has a copy of a stand-alone emergency contact information sheet been prepared to be placed in each site vehicle?		This will be completed as part of the tailgate meeting prior to the start of fieldwork. Copies of the route to the hospital/urgent care along with directions and contact information will be placed on the dash board of each vehicle. Also have addresses saved in cell phones.
Lone Worker	**C**	If there are circumstances where individuals must work alone?	X	
	C1	Has a buddy system been developed for the work?		Yes
Lone Worker	C2	Have adequate provisions regarding check in and communication been made to assure individual safety?		All employees shall perform tasks as a team, and complete such tasks together in a cooperative manner. All employees will be aware of safety for others and may 'stop work' at any time a situation poses a hazard.
Other Hazards	**D**	Are there any other hazards applicable to the fieldwork being performed?		Current coronavirus situation presents a hazard to workers. Controls: Field work is conducted outdoors. Workers will remain at least six feet apart at all times as practical. COVID19 Infection Prevention Training has also been completed by PIONEER field staff. Personnel will travel to the site separately. Hand sanitizer and masks will be worn.
Management of Change	**E**	Do all parties understand the importance of and the process to identify and/or manage changing field conditions?		If there is a change in field conditions field management shall make an assessment of such, review any potential hazards and adjust work activities, and/or stop work until such hazards can be properly addressed. All employees are encouraged and empowered to stop work if something feels unsafe. Management of change includes: • Unsafe working conditions that cannot be mitigated • Change in scope of work and/or change in equipment required to complete scope not covered by this PSA • Property damage • Project work interruption • Environmental deviations/work quality • Permit violation • Call 911 for medical emergencies

HAZARDS CHECKLIST

Checklist D Other Hazards or Concerns				
Category	**Item**	**Subject**	**No**	**Yes (add comments below)**
				ALL FIELD STAFF ARE AUTHORIZED AND ENCOURAGED TO STOP WORK IF SAFETY PROTOCOLS ARE NOT BEING FOLLOWED, THEY SEE AN UNSAFE CONDITION, OR BELIEVE AN UNSAFE CONDITION POTENTIALLY EXISTS. The site is located at 3317 Auburn Way North.
Unexpected Occurrences	**F**	Do all parties understand the definition of an Unexpected Occurrence and are they familiar with the expected reporting and investigation process?		The definition of an Unexpected Occurrence and the procedures for reporting and investigating Unexpected Occurrences will be discussed as part of the safety kick-off meeting on the first day of work. REPORT ANY AND ALL INJURIES.

Appendix D

PIONEER IIPP APP

Text, Tables, and Figures Only

(Appendices available upon request)

Injury & Illness Prevention Plan & Accident Prevention Plan

Health and Safety Plan

Prepared by:

PIONEER TECHNOLOGIES CORPORATION

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July 2018

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Table of Contents

Appendices

Figures

List of Acronyms

Acronym	Explanation
APP	Accident Prevention Plan
CCR	California Code of Regulation
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
H&S	Health and Safety
IIPP	Injury & Illness Prevention Plan
JSA	Job Safety Analysis
L & I	Labor and Industries
Near-Miss	An accident that did not, but could have, resulted in a serious injury to an employee
OSHA	Occupational Safety & Health Administration
PIONEER	PIONEER Technologies Corporation
PM	Project Manager
PPE	Personal Protective Equipment
PSA	Project Safety Analysis
SHE	Safety, Health, and Environmental
SOP	Standard Operating Procedure
SSO	Site Safety Officer
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act

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SECTION 1: INTRODUCTION

1.1 Purpose

The PIONEER Technologies Corporation (PIONEER) Injury and Illness Prevention Plan/Accident Prevention Plan (IIPP/APP) is a part of the PIONEER Health and Safety (H&S) Program. The purpose of this IIPP/APP is to document the PIONEER corporate plans for preventing accidents, illnesses, and injuries. The IIPP/APP was developed to meet the requirements of an Injury and Illness Prevention Plan (California) and Accident Prevention Plan (Washington) in compliance with the following regulations:

- California Occupational Safety and Health Act mandated by Title 8 of the California Code of Regulations (CCR) Section 3203; and
- Washington Industrial Safety and Health Act (WISHA) regulations Washington Administrative Code (WAC) 296-800-140.

The H&S program for field work is regulated in Washington State under the following:

- WAC 296-155 Safety Standards for Construction Work
- WAC 296-800-160 Personal Protective Equipment
- WAC 296-842 Respirators
- WAC 296-843 Hazardous Waste Operations

The H&S program for office work is regulated in Washington under WAC 296-800 Core Rules and includes the following principles:

- Provide a workplace free from recognized hazards.
- Provide and apply the tools for a safe workplace.
- Prohibit employees from entering or working in an unsafe workplace.
- Construct a safe workplace.
- Prohibit alcohol and narcotics from the workplace.
- Prohibit employees from using tools and equipment that are not safe.
- Establish, supervise, and enforce rules effective in practice that lead to a safe and healthy work environment.
- Control chemical agents.
- Protect employees from biological agents.
- Discuss employee participation in any WISHA related practices.
- Acknowledge employee refusal options to perform dangerous tasks without fear of discrimination (e.g., dismissal, demotion, loss of seniority, denial of a promotion, harassment). See WAC 296-360, Discrimination pursuant to RCW 49.17.160, for a complete description of discrimination and the responsibility to protect employees.

1.2 PIONEER Corporate Commitment to Safety

PIONEER values employee safety and developed this program as a tool for injury, illness, and accident prevention. Safety is a core value at PIONEER. This is demonstrated by a commitment to ensure employee safety through training, planning, and continually evaluating and improving safety procedures. In addition, PIONEER focuses on safety for all projects regardless of the size or scope of the

work and prioritizes safety over production and schedule. PIONEER will continually strive to engage management and employees in identifying and eliminating hazards that may develop during work activities.

PIONEER is committed to employee safety and injury/accident prevention. All employees must comply with the PIONEER corporate safety, health, and environmental (SHE) policies, which are provided in Appendix A and are summarized in the following table.

Policy Name	Summary	Applicability		
		PIONEER Office	Field Work	Travel
PTC-SHE-1: Disciplinary Policy	Outline basic safety rules and provide appropriate consequences for failure to follow safety rules.	X	X	X
PTC-SHE-2: Electrical Safety Awareness, Ground Fault Protection, and Lockout/Tagout Policy	Identifies the procedures for electrical safety awareness, ground fault protection, and lockout/tagout.	X	X	
PTC-SHE-3: Fatigue Management Policy	Identifies the procedures intended to reduce the risk of fatigue-related incidents in the workplace.	X	X	X
PTC-SHE-4: Fire Protection and Extinguishers Policy	Identifies how PIONEER manages fire risks during work activities.	X	X	X
PTC-SHE-5: First Aid Policy	Identifies the rules and guidelines for providing quick and effective first aid to employees.	X	X	X
PTC-SHE-6: Fit for Duty Policy	Identifies PIONEER's Fitness-For-Duty requirements.	X	X	X
PTC-SHE-7: Waste Management Policy	Establishes systems for managing and documenting all wastes generated during field activities at jobsites where PIONEER is responsible for waste management.		X	
PTC-SHE-8 Hand and Power Tools Policy	Identifies the practices and requirements for the safe operation and maintenance of hand and portable tools.	X	X	
PTC-SHE-9 Hazard Communication Policy	Ensures that employees are aware of the dangers posed by the use of hazardous chemicals that may be encountered during investigations and/or remediation activities.		X	
PTC-SHE-10 Hazardous Waste Operations and Emergency Response Policy	Establishes work place policies, practices and procedures that employees must follow while working at hazardous waste sites.		X	
PTC-SHE-11 Ladder Safety Policy	Provides the minimum safety requirements for protecting employees from potential injuries associated with the use of portable and fixed ladders.	X	X	
PTC-SHE-12 Noise Exposure and Hearing Conservation Policy	Provides the minimum safety requirements for protecting employees from the potential effects of excessive noise exposure, and complies with WISHA Hearing Loss Prevention Rule WAC 296-817.	X	X	
PTC-SHE-13 Personal Protective Equipment Policy	Establishes policies to protect employees from exposure to work place hazards through the use of personal protective equipment (PPE) during field work activities at PIONEER jobsites.		X	
PTC-SHE-14 Bloodborne Pathogens Policy	Outlines the control measures used to prevent bloodborne infections and diseases by eliminating or minimizing employee exposures.	X	X	X

Policy Name	Summary	Applicability		
		PIONEER Office	Field Work	Travel
PTC-SHE-15 Spill Prevention/Emergency Response Policy	Identifies the practices and requirements associated with spill prevention and emergency response.		X	
PTC-SHE-16 Subcontractor Management Policy	Establishes the systems and methods by which PIONEER will assure the production of quality deliverables and services from each of its subcontractors.		X	
PTC-SHE-17 Trenching/Shoring/Excavations Policy	Identifies the requirements and safe practices necessary to ensure the safety of PIONEER employees who work around trenching and excavation activities.		X	
PTC-SHE-18 Drug and Alcohol Testing Policy	Identifies prohibited substances, requirements and procedures, safeguards, and disciplinary action.	X	X	X
PTC-SHE-19 Lone Workers Policy	Identifies the practices and requirements for employees working alone during field activities.		X	X
PTC-SHE-20 Driving and Travel Management Safety Policy	Specifies the licensing, driver training, and vehicle collision data collection requirements for PIONEER employees who drive motor vehicles for company business.		X	X
PTC-SHE-21 Behavioral Based Safety Policy	Identifies behavioral based safety practices and requirements to increase safety awareness and encourage people to focus their attentions and actions on safety in order to avoid hazards.	X	X	X
PTC-SHE-22 Confined Space Entry Policy	Provides requirements and guidance to protect employees from hazards associated with Confined Space and Permit-Required Confined Space entry.		X	
PTC-SHE-23 Fall Protection Policy	Provides guidance and requirements for protecting employees from falls and fall-related hazards when working at heights.	X	X	
PTC-SHE-24 DOT HAZMAT Awareness Policy	Provides guidance and requirements to protect human health and the environment from hazards associated with shipping Hazardous Materials.		X	
PTC-SHE-25 Manual Lifting Techniques Policy	Provides guidance and requirements to protect employees from the hazards of improper lifting techniques and overexertion during manual material handling.	X	X	

1.3 Health and Safety Goals

PIONEER is committed to achieving zero injuries and strives for safety, health, and environmental excellence. The following are H&S goals for 2018:

- Each employee will complete 100% of required training.
- A safety topic will be presented during every monthly safety meeting.

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SECTION 2: ROLES, RESPONSIBILITIES, AND PROGRAM IMPLEMENTATION

2.1 Roles and Responsibilities

The following safety guidelines apply to all PIONEER work activities:

- Never perform a task that may endanger your own safety and health; the safety and health of coworkers, subcontractors, or the public; or damage the environment.
- Management and employees are expected to work together as a team to keep the workplace safe and healthy.
- Tasks should not be performed which violate safety rules or risk injury/illness to complete a job.
- Employees are required to comply with company safety rules and participate in safe workplace accommodations.
- Management will devote the necessary resources to develop a system for identifying and correcting hazards.
- Employees are subject to random drug and alcohol testing in accordance with the PIONEER Drug and Alcohol Testing Policy (PTC-SHE-18; see Appendix A).
- Management will plan for any foreseeable emergencies and provide initial and ongoing employee training.
- Management will acknowledge employees that identify safety hazards, stop work to address a changed condition, add value to the safety program, or contribute to safety audits. Acknowledgements may include rewards given to employees to communicate management's commitment to employee safety, reinforce H&S importance, and provide incentives for active employee participation in H&S.

2.1.1 Administrator

Kevin Gallagher is the IIPP/APP Administrator and has the authority and responsibility to implement the provisions of this program.

2.1.2 Management

Managers, supervisors, and lead personnel must implement and maintain the IIPP/APP in the work area and answer any questions that employees may have about the H&S Program. Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all employees.

Other management H&S responsibilities include:

- Ensuring sufficient employee time and funding for safety equipment, training, and safety program implementation.
- Informing employees of the IIPP/APP provisions during the Health and Safety Plan (HASP) review.
- Evaluating employee safety performance.
- Recognizing and acknowledging safe and healthful employee work practices.

- Ensuring incident or near-miss investigation and corrective action to prevent reoccurrence of hazardous conditions or behaviors.
- Providing injury and illness record maintenance and post incidents.
- Following established safety rules and attend required training.
- Ensuring H&S program audits are conducted to verify H&S effectiveness.
- Answering worker questions about the IIPP/APP.
- Enforcing safety rules fairly and uniformly.

2.1.3 *Employee*

All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Employee H&S responsibilities include:

- Taking personal responsibility for individual and co-worker health and safety.
- Participating, developing, and reviewing fieldwork HASPs and Project Safety Analyses (PSAs).
- Stopping work and evaluating unplanned events and changed conditions such as:
  - Introduction of new substances, processes, procedures, or equipment that present potential new hazards in the workplace.
  - Recognition of new or previously unidentified hazards.
  - Occurrence of occupational injuries and illnesses.
  - Evaluation of hazards, processes, operations, or tasks not previously conducted by permanent or intermittent employees.
- Following program safety rules and documenting safety training.
- Reporting unsafe conditions or actions to management promptly.
- Reporting all injuries to management promptly regardless of level of seriousness.
- Reporting all near-miss incidents to management promptly.
- Maintaining PPE in good working condition.
- Encouraging co-workers by words and examples to use safe work practices on the job.
- Suggesting to management any changes for employee safety improvements.

2.1.4 *Site Safety Officer*

Site Safety Officers (SSOs) are responsible for overseeing the safety of daily field operations and implementing IIPP/APP provisions in the field. SSOs are qualified individuals designated by management and approved by the IIPP/APP Administrator. All SSOs must have Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120(e)(4) 8-hour supervisor training and be first aid and CPR certified. All SSOs must be knowledgeable in general industry and construction standards and have a fundamental understanding of project-specific HASPs and this IIPP/APP.

2.2 Fit for Duty

PIONEER is committed to providing a drug-free, healthy, and safe workplace. To achieve this goal, employees are required to report to work fit to perform their jobs in a satisfactory manner.

2.3 Health and Safety Implementation and Compliance

The IIPP/APP is intended to improve workplace health and safety by encouraging good management and employee involvement. Managers and lead personnel are expected to enforce safety rules fairly and uniformly. Employees are responsible for safe work practices, directive, policy and procedure implementation, and safe work environment maintenance. The following system is in place to ensure employee compliance and maintain a safe work environment:

- Inform employees of the IIPP/APP provisions and read and sign the IIPP/APP Form 1-Compliance Agreement (see Appendix B).
- Evaluate employee safety performance.
- Recognize employee performance of safe and healthful work practices.
- Discipline employee non-compliance of safe and healthful work practices.
- Conduct and assess field audits of workplace compliance.

The PIONEER Administrator or SSO is responsible for implementing the IIPP/APP provisions in the office and in the field. Managers and personnel are responsible for maintaining the IIPP/APP in personal work areas and field work sites to ensure safe work practices and maintain a safe work environment. PIONEER will provide employees with the proper safety and health policies and procedures to ensure a safe work environment. The Standard Operating Procedures (SOPs) for fieldwork are implemented on a site-specific basis.

2.4 Health and Safety Committee

PIONEER management and personnel meet monthly to discuss health and safety topics. PIONEER management and employees collaborate to identify safety problems and develop solutions using the following guidelines:

- Discuss identified safety issues.
- Encourage safe work practices among co-workers.
- Conduct regularly scheduled monthly safety meetings.

A safety topic is selected by each employee and presented during monthly safety meetings. This ensures active participation of all PIONEER employees.

The PIONEER Safety Committee meets quarterly to discuss the H&S Program effectiveness and improvements. The 2018 PIONEER Safety Committee consists of the following people:

- Corporate Management Representative - Brad Grimsted
- Corporate Management Representative - Chris Waldron
- Corporate H&S Manager and IIPP/APP Administrator – Kevin Gallagher
- Project Management Representative – Troy Bussey
- Employee Representative – Angela Noyen
- Employee Representative – Heather McPherson
- Employee Representative – Kendra Johnson

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SECTION 3: SAFETY COMMUNICATIONS

The PIONEER approach to safety-related communication is intended to facilitate a continuous flow of health and safety information between all affected personnel. The following communication system is designed to facilitate two-way communication between management and employees:

- New worker safety orientation to include site-specific H&S policies and procedures.
- HASP review and task-specific PSA for every project.
- Monthly safety awareness meetings.
- Investigational review of accidents, injuries, and exposures to hazardous substances.
- Stop work authority is issued to all employees in the event of changed conditions, injury, illness, or safety protocol violations.
- SSO daily site walks to ensure effectiveness.
- Daily tailgate meetings to discuss specific health and safety procedures.
- Non-English speaking site workers will be provided an effective translation of communication of H&S concerns between workers and supervisors.
- Site workers with workplace hazard concerns are encouraged to contact Kevin Gallagher via phone (360.570.1700) or email (gallagherk@uspioneer.com).

Employees must follow these basic safety rules:

- Never do anything unsafe in order to get the job done. If a job is unsafe, stop working and report it to the SSO.
- Use the appropriate PPE when required.
- Obey all safety warning signs.
- Clean up spills immediately to prevent accidents.
- Use evacuation map route to exit the workplace in an emergency.
- Know designated emergency assembly location outside of the building.
- Know the location of fire extinguishers, first aid kit, and emergency phone numbers.
- Follow earthquake emergency guidelines to drop, cover, and hold.

The IIPP/APP Administrator will provide or coordinate safety orientations for all employees. In the event of field work, a PSA leader will provide or coordinate job-specific safety orientations for all employees.

3.1 Reporting Injuries and Unsafe Conditions

All personal injuries that occur on the job must be reported as soon as possible to the IIPP/APP Administrator and Project Manager (PM). The SSO will provide employees with the location of the first aid kit. Emergency contact information is located in the site-specific HASP. Report an unsafe working condition and/or practice to the SSO in the field, immediately.

Any unsafe acts or conditions that are observed must be reported to the IIPP/APP Administrator and SSO, who will make efforts to correct the situation. The PM will be notified of the situation and will assist in the response and implementation of additional corrective actions, as needed.

3.2 Safety Meetings

Safety awareness is discussed at least once a month during office staff meetings and daily during field work. Topics include H&S issues and practices to maintain a safe work environment. Meeting minutes and a list of participants will be recorded to document that the meetings occurred (see Appendix C). The PIONEER Safety Committee meets quarterly to discuss the H&S Program effectiveness and improvements (see Section 2.4).

SECTION 4: HAZARD ASSESSMENT & CONTROL

4.1 Hazard Assessment

A hazard is any condition in the workplace that can potentially cause occupational injury, death, or disease. PIONEER is committed to identifying hazards, assessing risks, and eliminating/controlling exposures. Therefore, each field project will include the following:

- A comprehensive HASP that describes PIONEER policies and procedures for identifying and eliminating exposure to hazards. Each HASP will meet the requirements of OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard, 29 CFR 1910.120.
- A comprehensive written assessment of task-specific and process-specific hazards (henceforth referred to as hazard assessment) will be completed prior to the start of work. Hazard assessment will typically be accomplished through the completion of a PSA and may be replaced and/or supplemented through the addition of Job Safety Analyses (JSAs; also known as job hazard analyses) at the discretion of the IIPP/APP Administrator. The PSA will serve as a vehicle to identify, discuss, and propose controls for potential hazards (see Appendix C). Key personnel involved in the project will be required to participate in the PSA in an attempt to comprehensively identify and control hazards. At a minimum, all individuals involved in a field effort, including subcontractors, will be required to review the PSA prior to the start of work.

The hazard assessment process (i.e., PSA and/or JSA) will also fulfill the WAC requirement to identify hazards and determine if PPE is necessary on the job (WAC 296-800-16005). Additional hazard assessments will be completed when new substances, processes, procedures, personnel, or equipment are introduced into the workplace.

4.2 Hazard Prevention Control

Site hazards and risks are controlled using one or more of the control measures listed below (in order of preference):

1. Elimination involves physically removing a hazard. It is the most effective method of control.
2. Substitution involves replacing something that causes a hazard with something that does not.
3. Engineering Controls involve isolating workers from hazards. It does not eliminate a hazard.
4. Administrative Controls involve changes to work practices (e.g., employee training).
5. PPE involves workers wearing protective equipment. PPE is the least effective method of hazard control because if the equipment fails workers are exposed to the hazard.

4.2.1 Identify and Control Workplace Hazards

PIONEER is committed to eliminating or controlling workplace hazards that could cause injury or illness to our employees. Potential hazards to PIONEER employees would primarily be encountered during work at hazardous waste sites; however, employees may experience ergonomic-related injuries of improperly appointed computer workstations. An initial workstation ergonomic assessment and overview of good working positions will be provided during new employee orientation (upon request). Employees are encouraged to communicate ergonomic concerns to management.

A project-specific HASP will be developed that identifies all potential hazards and control procedures to be implemented during work at hazardous waste sites. The HASP will include work procedures that effectively prevent employee exposure to a hazard when eliminating the hazard (which is the preferred procedure) or engineering controls are not possible. Where work procedures alone are not fully effective, employees will be required to use PPE (e.g., safety glasses, hearing protection, and foot protection). PIONEER employees will be required to read and sign the HASP before performing any site work.

Daily safety tailgate meetings will be conducted during site work and PIONEER employee attendance will be required. Employees arriving late will be briefed on the contents of the meeting before beginning work. Facilities and equipment will be designed to eliminate employee exposure to hazards.

PIONEER will evaluate employee computer workstations and provide the necessary equipment (e.g., chair, foot rest, wrist support) to prevent ergonomic-related injuries. Employees will be encouraged to report any work station related discomfort to management or safety committee member to remedy a possible work-related injury.

4.2.2 Basic Safety Rules

The following basic safety rules have been established to make PIONEER a safe and efficient workplace. Failure to comply with these rules will result in disciplinary action. The basic safety rules are in addition to hazardous waste site safety rules and include the following:

- Never do anything that is unsafe in order to get the job done. If a job is unsafe, report it to management or a safety committee representative. We will find a safer way to do the job.
- Never operate a piece of equipment unless trained and authorized to do so.
- Use PPE whenever it is required.
- Never work under the influence of alcohol or illegal drugs as using them at work is prohibited.
- Do not bring firearms, explosives, or weapons onto company property.
- Smoking is only permitted outside the building away from any entry or ventilation intake.
- Good housekeeping helps prevent injuries.

4.2.3 Identify and Manage Field Changes

A field change is a change to the project scope of work, schedule, workforce, control measures, and/or work activities (including tools and equipment) identified during pre-project planning. When a project is being implemented and the site is full of activity, it may be difficult to notice field changes.

Good observation techniques are based on looking at things from every perspective, and comparing what you see with what you expect to see. The 20-20-20 Rule is an important observation technique that is designed to help employee's notice field changes by reminding them to focus on safety:

- Every 20 minutes,
- Take 20 seconds, and
- Look 20 feet around you in every direction.

When a field change is identified, immediate action must be taken to stop work and report the changed condition to the IIPP/APP Administrator and SSO. See Section 3 of the IIPP/APP for information on stop work authority and reporting unsafe conditions.

4.2.4 Personal Protective Equipment

Some tasks require an employee to use PPE to protect against injury. The project-specific HASP will outline the PPE requirements and the directions for proper use and maintenance.

PIONEER employees may occasionally participate in work at sites where the use of respirators is required. This is expected to be an infrequent occurrence; however, all employees who are required to use a respirator at any time must be familiar with and comply with the provisions of the PIONEER Respiratory Protection Program (see Appendix E). Where respirator use is required, PIONEER will provide the proper respirator(s), training, fit testing, and medical monitoring at no cost to the employee.

Working in extreme hot or cold temperatures for a long period of time can cause severe health damage, such as heat exhaustion and hypothermia.

4.2.5 Heat and Cold Stress Management

4.2.5.1 Heat Stress

Employees working in extreme hot temperatures or with semipermeable or impermeable protective clothing for long periods of time may be at risk of heat stress, which can result in occupational illnesses and injuries such as heat exhaustion. Heat exhaustion is a condition that results from the body being less able to cool itself efficiently. Symptoms of heat exhaustion may include dizziness, nausea, headache, muscle cramps, and cool/moist skin. If left untreated, heat exhaustion can lead to heat stroke, which is the most serious heat related condition and occurs when the body's temperature regulation fails and body temperature rises to critical levels. Symptoms of heat stroke may include, confusion, irritability, fainting, and red and dry skin. Untreated heatstroke can quickly damage the brain, heart, kidneys and muscles.

Best Practices for Preventing Heat Stress

- Stay hydrated by regularly drinking plenty of cold fluids.
- Follow a work/rest regimen that includes an available shelter to cool off as needed.
- Wear appropriate protective clothing made up of materials that are lightweight or wick sweat.
- Keep skin covered as much as possible and apply sunscreen of SPF 30 or greater.
- Use cooling vests or headbands.

4.2.5.2 Cold Stress

Employees working in cold or windy environments for long periods of time may be at risk of cold stress, which can result in occupational illnesses and injuries such as hypothermia. Hypothermia is a condition that occurs when the body is no longer able to produce heat and body temperature falls to critical levels. Symptoms of hypothermia may include shivering, fatigue, confusion, and blue skin. Prolonged exposure to cold may also result in frostbite. Frostbite is an injury to the body that is caused by freezing,

and most often affects the nose, ears, cheeks, chin, fingers, or toes. Symptoms of frostbite may include tingling, numbness, and bluish or pale skin.

When this prolonged exposure is combined with a wet environment, employees may also be at risk of trench foot. Trench foot, also known as immersion foot, is an injury that occurs when the feet are wet for long periods of time, and results in the death of surface tissue. Symptoms of trench foot may include reddened skin, numbness, swelling, tingling, and blisters.

Best Practices for Preventing Cold Stress

- Minimize activities that reduce circulation for prolonged periods of time (e.g. sitting or standing).
- Stay hydrated by regularly drinking plenty of warm fluids.
- Follow a work/rest regimen that includes an available shelter to warm up as needed.
- Wear appropriate protective clothing with a minimum of three layers to assist in retaining body heat and adapting to changes in weather and level of physical exertion.
    - An outer layer to break the wind and allow some ventilation (e.g., nylon or Gore-Tex).
    - A middle layer to absorb sweat and retain insulating properties when wet (e.g., wool or synthetic pile).
    - An inner layer to allow ventilation and escape of perspiration
- Protect exposed skin and body parts such as ears, face, hands, and feet (e.g. hats, gloves, and insulated boots).

4.2.6 Lone Workers

Field personnel will implement the use of the buddy system or have a means of communication (i.e., cell phones, two-way radios, satellite phones) available to maintain contact with other personnel for emergency purposes. Working alone at field sites will be minimized to the extent feasible. If working alone is necessary, an alternate method of maintaining contact with others must be used. If working alone is necessary, the following applies:

Arrangements will be stated in written plan (i.e., this HASP, PSA).

- The degree of contact required with a lone worker is directly proportional to the degree of hazard to which the worker is exposed.
- Points of contact may include contractors, security, or other reliable individuals. Contact will occur at intervals agreed upon prior to the field activity.
- Employees selected for potential lone worker assignments will be competent to carry out tasks independently. The SSO will involve the PM in decisions regarding whether it is believed that the employees selected have sufficient training for and familiarity with the assignment to be able to work with minimal guidance or oversight.

4.2.7 Safety Inspection Procedures

PIONEER is committed to identifying hazardous conditions and practices likely to result in employee injury or illness. Prompt action will be taken to eliminate potential hazards. In addition to reviewing injury records and incident investigation causes, management and the safety committee will regularly check work place hazards. In addition, hazardous waste site work audits will be conducted at least once

during site work lasting for more than one week in duration. A walk through safety audit of the worksite will occur. The auditor will complete IIPP/APP Form 5 – Safety Audit Form to document and verify work is conducted in accordance with the site-specific HASP (see Appendix B). The audit results will be used to eliminate or control obvious hazards.

4.3 Record Keeping and Review

Employees are required to report any injury or work related illness to their immediate supervisor regardless of how serious. The employee must use IIPP/APP-Form 2 – Employee Injury or Illness Report Form. All incident and accident forms pertaining to personal injury and illness are presented in Appendix B.

The Safety Committee will:

- Investigate a serious injury or illness using procedures in Section 4.2 - Serious Incidents.
- Complete an IIPP/APP Form 3 – Accident Investigation Report (see Appendix B).
- Submit the Injury/Illness/Near-Miss Report and the Incident Investigation Report to management.

Management will:

- Determine from the employee's report, Incident Investigation Report, and any workmen's compensation claim form associated with the incident, whether the incident must be recorded on the OSHA Injury and Illness Log and Summary (OSHA Form 300A; see Appendix F).
- Enter a recordable incident within six days of company awareness.
- Enter non-recorded OSHA incidents into a separate incident log, used to record non-OSHA recordable injuries and near-misses.

Management will post a signed OSHA Form 300A for the previous year on the safety bulletin board each February 1 through April 30. The log will be kept on file for at least five years. Upon request, an employee can view an OSHA log any time during the year.

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SECTION 5: ACCIDENT & EXPOSURE INVESTIGATIONS

5.1 Accident or Exposure Investigations

Investigation of workplace accidents, hazardous substance exposures, and near-accidents will be completed by the IIPP/APP Administrator, SSO, and/or PSA leader. The investigation procedure will include a site visit, an interview of affected workers and witnesses, an examination of workplace factors associated with the accident/exposure/near-accident, and corrective actions to eliminate reoccurrence and improve overall business operations. This process will provide the critical information to prevent and control hazards and potential accidents in the workplace. Accident and exposure investigations will be documented on IIPP/APP Form 3 – Accident Investigation Report. Near-miss incidents will be documented on IIPP/APP Form 4 – Unexpected Occurrence and Near-Miss Report (see Appendix B).[1,2]

5.2 Serious Incidents

An incident is considered serious if an employee dies while working or is not expected to survive, or if any employee is in-patient hospitalized as a result of a work-related incident. In the event of a serious incident in Washington State, management will contact the Department of Labor and Industries (L&I) within 8 hours after becoming aware of the incident. The toll-free notification number is (800) 423-7233. Fax and answering machine notifications are not acceptable. Management will report the employer name, incident location and time, number of involved employees, a brief incident description, and the name and phone number of a contact person.

When a serious incident occurs, an investigation will be conducted by an investigation team consisting of management, a safety committee member, and any other person whose expertise would help the investigation.

The investigation team will take written statements from witnesses, and photograph the incident scene and equipment involved. As soon as possible after the incident, the team will document the condition of equipment and any relevant information in the work area. The team will provide a written "Incident Investigation Report" of the findings. The report will include sequential events prior to the incident, conclusions about the incident and any recommendations to prevent future incidents. The report will be reviewed by the safety committee at the next regularly scheduled meeting.

5.3 Non-Serious Incidents and Near-Miss Incidents

When management becomes aware of an employee incident not serious enough to warrant a team investigation as described above, management will complete IIPP/APP Form 3 – Accident Investigation

[1] The DuPont CRG SHE-0-11 Unexpected Occurrence Reporting procedure will also be completed if an accident or unexpected occurrence takes place at a DuPont site.

[2] The Chemours EHS.03 Unexpected Occurrence Reporting SOP will also be completed if an accident or unexpected occurrence takes place at a Chemours site.

Report. The employee will complete IIPP/APP Form 2 – Employee Injury or Illness Report (see Appendix B). Both reports will be placed in the PIONEER Corporate Health and Safety files.

An incident that did not, but could have, resulted in a serious injury to an employee (a near-miss) will be investigated by management or the safety committee depending on the seriousness of the injury that would have occurred. The investigation findings will be summarized in the IIPP/APP Form 4 – Unexpected Occurrence or Near-Miss Report (see Appendix B). The report will be forwarded to the IIPP/APP Administrator for review.

SECTION 6: EMERGENCY PLAN

An evacuation map for the PIONEER office building is posted on the corporate H&S information board in the kitchen and presented in Figure 1. The map shows the exit locations, fire extinguishers, first aid kits, and the emergency employee gathering area outside the building. Project-specific emergency plans for work at field locations are provided in project-specific HASPs.

6.1 In Case of Fire

All employees will receive fire extinguisher use training in the initial orientation. A fire evacuation drill will be conducted once a year during the first week of April. If a fire occurs, follow the guidelines below:

- Tell all adjacent employees immediately.
- Extinguish a small fire (e.g., waste basket fire with minimal smoke) with a fire extinguisher.
- Do not continue to fight the fire if the fire grows or has thick smoke. Call 911.
- Tell other employees in the area to evacuate.
- Meet in the designated gathering area (e.g., designated walkway by mail boxes) outside the building in the center of the parking lot.
- Account for all employees. If an employee is missing, do not re-enter the building! Notify the responding fire personnel that an employee is missing and may be in the building.

6.2 In Case of Earthquake

Follow the guidelines below if an earthquake occurs while in the building:

- Drop under a desk or table, cover head and hold on. Stay away from windows, heavy cabinets, bookcases or glass dividers.
- Check for damage and available evacuation routes, then evacuate to the employee gathering area when the shaking stops.
- Evacuate quickly before aftershocks occur.
- Account for all employees.
- Administer first aid and help evacuate injured employees. Do not attempt to move seriously injured persons unless potential immediate danger could cause further injury.
- Do not re-enter the building once evacuation is complete.
- Do not approach or touch downed power lines or objects touched by downed power lines.
- Do not use the phone except for emergency use.
- Turn on a radio and listen for public safety instructions.
- When outside during an earthquake, employees must move away from the buildings, trees, telephone lines, and electric lines to keep safe.

If on the road during an earthquake, drive away from underpasses/overpasses, stop in a safe area, and stay in the vehicle.

6.3 If an Injury Occurs

Only certified employees shall provide first aid/CPR assistance to injured persons. Current first aid and CPR certified employees are listed on the safety bulletin board, located in the PIONEER office kitchen. Follow the rules and guidelines for providing quick and effective first aid in the PIONEER First Aid Policy (PTC-SHE-5; see Appendix A).

Should an injury occur:

- Do not move injured person unless absolutely necessary.
- Transport the injured person to the nearest health care facility as identified in the project-specific HASP, in the event of a minor injury.
- Call 911, in the event of a major injury.
- Promptly report the incident to management.

It should be assumed that all blood is infectious; refer to the PIONEER Bloodborne Pathogens Policy for more information on bloodborne diseases (PTC-SHE-14; see Appendix A).

Should a bleeding injury occur:

- Wear gloves to prevent exposure to blood or other potentially infectious materials. Gloves are available in the first aid kits.
- Have the injured person help (if able) by applying pressure to the wound.
- Wash immediately with soap and water and report the incident to a supervisor, if exposed to blood while giving first aid.
- Follow the appropriate follow-up procedures initiated by management, including a medical evaluation, counseling, Hepatitis B vaccine, and possible blood testing of the source person. For further information, refer to Washington Administrative Code (WAC) 296-62-08001(6).

In the event that the eyes or body of any person is exposed to corrosive materials, utilize eyewash facilities to quickly drench or flush the eyes and/or body.

SECTION 7: HEALTH AND SAFETY TRAINING

PIONEER acknowledges the importance of H&S training. All employees will benefit from H&S training through fewer work-related injuries and illnesses, increased productivity, lower costs, and a more cohesive and dependable workforce. All workers will receive training on general and job-specific health and safety practices. Training will occur for all new workers and prior to new job assignments. Training will be performed by the IIPP/APP Administrator or SSO, and will include an explanation of the IIPP/APP, emergency action plans and procedures, project-specific PSA, and PPE requirements.

7.1 Safety Training

Training is essential to ensuring a safe work place at PIONEER. All training records will be maintained in the PIONEER H&S files. The following training courses will ensure proper employee training requirements before beginning work tasks:

Training	Frequency	Who Must Attend
Basic Orientation, including review of IIPP/APP and SHE Policies	Initial/Annual	All Employees
40-hour HAZWOPER	Initial	Employees who will work at hazardous waste sites
8-hour HAZWOPER Refresher	Annual	Employees who will work at hazardous waste sites
8-hour HAZWOPER Supervisor	Initial	Employees who will serve as supervisors at hazardous waste sites
3 days of documented field experience under a qualified supervisor	Initial	Employees who will work at hazardous waste sites
Fire Extinguisher Safety	Initial/Annual	All Employees
Respirator training including annual fit test	Annual	Employees required to use respirators at hazardous waste sites
First Aid/CPR	Biennial	Employees who will serve as SSOs or work at hazardous waste sites
SHE Policy-Specific Training		
Electrical Awareness (PTC-SHE-2)	As necessary	Employees that perform tasks involving electrical work
Fatigue Management (PTC-SHE-3)	Initial/Annual	All Employees
Fire Evaluation Drill (PTC-SHE-4)	Annual	Employees who will work at the PIONEER office
DOT HAZMAT (PTC-SHE-7/PTC-SHE-24)	Every 3 years	Employees who work at hazardous waste sites
Specific training for assigned tasks (PTC-SHE-6)	As necessary	All Employees
Additional on-the-job training (PTC-SHE-8)	As necessary	Employees that are not thoroughly familiar with the equipment and/or written procedures at hazardous waste sites
HazCom training and orientation (PTC-SHE-9)	Initial	Employees who will work at hazardous waste sites
General Lead Awareness Training (PTC-SHE-9)	Initial/Annual	Employees who will work at hazardous waste sites
General Asbestos Awareness Training (PTC-SHE-9)	Initial/Annual	Employees who will work at hazardous waste sites
General Benzene Awareness Training (PTC-SHE-9)	Initial/Annual	Employees who will work at hazardous waste sites
Ladder Safety (PTC-SHE-11)	Annual	All Employees
Noise Exposure Hazard Awareness (PTC-SHE-12)	Annual	All Employees

Training	Frequency	Who Must Attend
Non-Typical PPE (PTC-SHE-13)	As necessary	Employees who will work at hazardous waste sites
Bloodborne Pathogens Policy (PTC-SHE-14)	Annual	All Employees
Site-Specific Emergency Response Plans (PTC-SHE-15)	Initial	Employees who will work at hazardous waste sites
Behavioral Based Safety (PTC-SHE-21)	Annual	All Employees
Fall Protection (PTC-SHE-23)	As necessary, biennial	Employees who may be exposed to fall hazards
Manual Lifting Techniques Policy (PTC-SHE-25)	As necessary	All Employees

7.2 Medical Monitoring

Washington (WAC 296-843-210) and California (Title 8 CCR Section 5192) require medical monitoring for individuals who:

- Are exposed to hazardous substances at concentrations exceeding a permissible exposure limit for more than 30 days per year;
- Wear an approved respirator for 30 or more days per year;
- Become injured, ill, or develop signs or symptoms from likely overexposure to hazardous substances; or
- Is a member of a HAZMAT team.

PIONEER does not have a medical monitoring program for employees working at hazardous waste sites because employees have never met any of these criteria. If any of these situations occur, PIONEER will implement an appropriate program and this IIPP/APP will be amended to reflect the change.

7.3 Respiratory Protection Program

A Respiratory Protection Program is required in California (Title 8 CCR Section 5144) and Washington State (WAC 296-842-120) when employees are required to wear respirators. All employees who must wear respirators must review, sign, and follow the procedures in the Respiratory Protection Plan (see Appendix E).

7.4 Disciplinary Policy

Employees are expected to use good judgment and follow established safety rules when working. PIONEER has a disciplinary policy to motivate employees to make corrections to unacceptable behavior, and provide appropriate consequences for the failure to follow safety rules (PTC-SHE-1; see Appendix A). The following consequences apply to the violation of the same rule or the same unacceptable behavior:

- First Instance – verbal warning, notation in employee file, and instruction on proper actions
- Second Instance – one week suspension, written reprimand, and instruction on proper actions or termination of employment
- Third Instance – termination of employment

An employee may be subject to immediate termination when a safety violation places the employee or co-workers at risk of permanent disability or death.

Discipline for drug and alcohol use will be implemented according to the PIONEER Drug and Alcohol Testing Policy (PTC-SHE-18; see Appendix A).

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SECTION 8: RECORDKEEPING & DOCUMENTATION REQUIREMENTS

PIONEER is a company with ten or more employees and will implement and maintain the IIPP/APP. Records of scheduled and periodic inspections including the person conducting the inspection, the workplace hazards, and the actions to correct the identified unsafe conditions and work practices will be recorded on IIPP/APP Form 5 - Safety Audit Form (see Appendix B). The inspection forms will be maintained for at least one year.

Documentation of safety and health training for each worker, including the worker's name, training dates, types of training, and training providers will be maintained for at least one year.

Other recordkeeping and documentation provisions will be performed according to task-specific and project-specific plans (e.g., HASPs, PIONEER Respiratory Protection Plan, etc.).

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Figures

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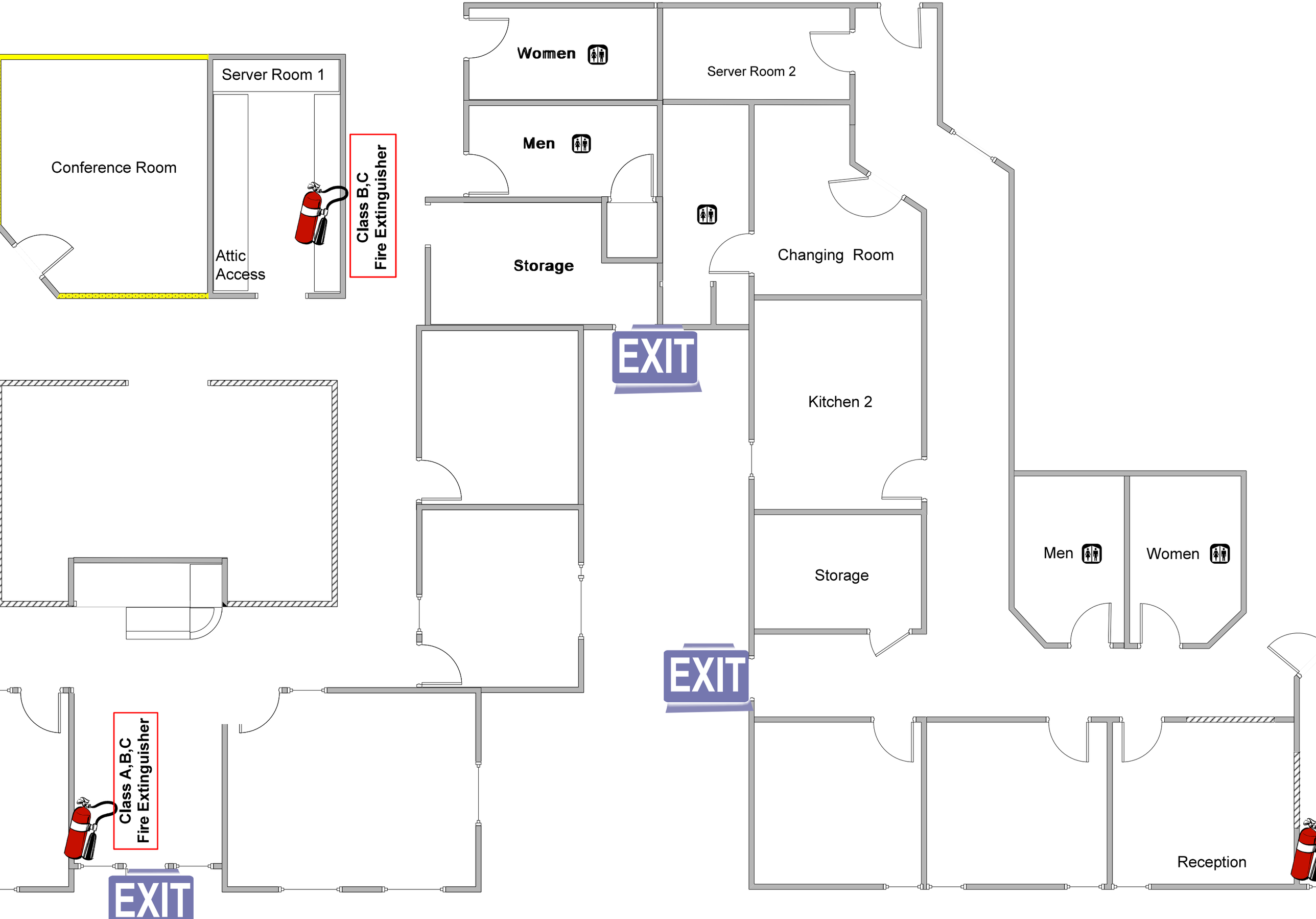
Server Room 1
Conference Room
Attic Access
Class B,C Fire Extinguisher
Women
Men
Server Room 2
Storage
Changing Room
EXIT
Kitchen 2
Storage
Men
Women
EXIT
Class A,B,C Fire Extinguisher
EXIT
Reception

Appendix E

DRILLING SAFETY HANDBOOK

1.0 PRE-FIELD WORK

It is very difficult to predict all problems that may occur during drilling fieldwork activities. However, if pre-fieldwork preparations are completed thoroughly, the job will likely proceed more safely and smoothly (i.e., with less down time). This section lists some important safety items that should be performed/considered prior to initiation of actual fieldwork. The Project's Project Manager (PM) should review the following list and determine if other pre-fieldwork activities are necessary. At a minimum the following should be completed:

- Ensure that all items are completed on the Pre-fieldwork Checklist.
- Create and have available a map showing underground equipment, lines, and/or hazards.
- Check with utility one-call service before excavating or drilling.
- Visually inspect each location in the field for underground utilities.
- Site maps should be checked for utilities not found in the field.
- Review a site map with a person familiar with layout of underground hazards.
- Determine if surveying is needed to locate underground hazards.
- Markers, flags, or painted lines, etc., should be used to identify excavation boundaries and locations, or hazards beyond which excavation must not exceed.
- All dimensions, elevations, and coordinates should be viewed as approximate locations of buried equipment, lines, etc. Elevations may change due to erosion or the addition of fill. Buried cables have been found three to five feet on either side of buried protective boards and markers.
- If buried equipment, lines, etc., exist within 10 feet on either side of the excavation, these should be considered in the excavation area.
- A conscious decision should be made on whether or not to de-energize underground cables within 10 feet (overhead cables within 20 feet) of the excavation prior to excavation.
- If the location of a utility line is unclear, the local utility company should be contacted for clarification of line location.
- If the location of a utility line is unclear, probing or hand augering to a depth of five feet is recommended. Probing and hand augering should be performed such that the area to be excavated is within the radius of the investigation.
- Excavating around process lines requires extreme caution. If any unusual odors or other signs indicating leakage are observed, the job should be shut down immediately and area supervision notified. Air quality checks must be performed to ensure adequate personnel protection is provided. Whenever possible, process lines should be depressurized before excavating.

2.0 MOBILIZATION

The following are safe guidelines related to on- and off-road movement of drilling equipment. Prior to mobilizing or demobilizing drilling equipment, responsible individuals should consider the following:

- Inspect the rig, using the Drilling Equipment Checklist.
- Before moving any equipment, first walk the route of travel with driller, inspecting for depressions, slumps, gullies, ruts, and similar obstacles. The drill site also should be inspected for debris, plant, and animal hazards. It also should be determined if the ground is suitable for heavy equipment travel.
- Make sure bystanders and passengers are clear of equipment.
- After equipment has been moved to a new drilling site, set all brakes and/or locks. When grades are steep, block the wheels.
- Use caution when traveling on steep grades. Conservatively evaluate side-hill capability of equipment movement. Arbitrary addition of drilling tools may raise the center of mass. When possible, travel directly uphill or downhill.
- When moving up a steep grade or slope, anchor a winch line from the vehicle to a suitable object at the top of the slope.
- Attempt to cross obstacles such as small logs and small erosion channel or ditches squarely, not at an angle.
- Use the assistance of someone on the ground as a guide when lateral or overhead clearance is restricted, or when setting the drill rig on location.
- Never travel with the mast (derrick) of the drill rig in the raised or partially raised position.
- Do not raise the mast or operate the drill rig if this distance to overhead powerlines is less than 20 feet. In general, distance between the overhead power line and boom should be no less than the height of the boom. Remember to “Look Up and Live.”
- Keep in mind that both hoist lines and overhead powerlines can be moved toward each other by the wind. If strong winds are present, consider having the utility company (or plant) cover the overhead power lines.
- Prior to drilling, adequate site cleaning and leveling should be performed to accommodate the drilling rig and equipment. This provides a safe, obstacle-free working area. Drilling should not commence when tree limbs, protruding objects, unstable ground, site obstructions, or debris may cause unsafe work conditions and/or limited, awkward work spaces. An area clear of obstructions or debris should be maintained around the drilling or support activities at all times.
- Never leave equipment idling and unattended, especially on any incline or on loose material; the vibration may put the machine in motion.

3.0 EQUIPMENT DECONTAMINATION

Due to the presence of water, heat, pressure, and heavy equipment, decontamination activities can be very dangerous. The following are safety items to be considered during equipment decontamination:

- Follow equipment decontamination procedures outlined in the Health and Safety Plan (HASP) or Project Work Plan.
- Chock wheels of equipment/supply trailer prior to beginning work.
- Use face shield, *Tyvek*®, and gloves, boots, etc., to prevent physical contact with potential contaminants and debris.
- Check hose for possible weakness or potential break points prior to use.
- Do not point wand toward body when in use.
- Use anti-freeze (windshield washer type) in cold weather to prevent water from freezing inside equipment.
- Regarding access/egress, safe footing, lifting hazards, slipping on plastic should be considered as potential hazards, especially inside the decontamination area.
- Beware of burrs and sharp edges when moving augers and drilling equipment.
- Practice good housekeeping at all times.
- Be aware of heat and hot water from steam cleaner.

4.0 SET-UP AND START-UP

4.1 Set-up

This information should be reviewed prior to set-up activities at each drilling location:

- If required, a barricade should be set up after defining the exclusion zone.
- When drilling near suspected underground electrical hazards, the rig should be grounded with a ground wire attached to a ground rod.
- All brakes must be set before drilling begins. If the rig is positioned on a steep grade and leveling of ground is impossible or impractical, the wheel of the transport vehicle should be blocked and other means employed to prevent the rig from moving or tipping over (e.g., level jacks on rig).
- Use sufficient blocking under rig jacks to prevent sinking.
- Inspect pulley sheaves for wear and cable/rope positioning.
- Work to be done above three feet on the mast requires the use of a safety harness, or the mast must be lowered.
- Before lifting a relatively heavy object, approach the object by bending at the knees, keeping your back vertical and unarched while obtaining a firm footing. Grasp the object firmly with both hands and stand slowly and squarely while keeping your back vertical and unarched. In other words, perform lifting with muscles in your legs, not muscles in your lower back. If the object is in excess of 50 pounds, request assistance.

4.2 Start-up

After drill set-up, the following safety items should be observed:

- All personnel should know location and use of kill switch.
- Identify potential pinch points and hazards which could injure fingers and toes.
- All drilling rig personnel and visitors should be instructed to “stand clear” of the drilling rig immediately prior to and during starting of an engine.
- Make sure all gear boxes are in neutral, all hoist levers are disengaged, all hydraulic levers are in the correct non-actuating positions, and the cathead rope is not on the cathead before starting a drilling rig engine.
- Raise the derrick a few inches in order to check the brakes and always check for overhead power lines.
- Secure and/or lock the mast in upright position if required, according to the drilling manufacturer's recommendations.
- Place the fire extinguisher in an easily accessible location away from the drilling rig.

5.0 DRILLING

This section concerns rotating equipment, catheads, wire ropes, and hoists (the part of the drilling rig which may cause serious injuries), and drilling techniques most commonly used during auger and rotary drilling:

- Only personnel necessary to achieve drilling objectives should remain within the exclusion zone. All others should remain outside the exclusion zone.
- Drilling personnel should not wear clothing that may be awkward or loose and get caught in rotating equipment.
- Wear protective gloves when handling augers, cable, rods, or any sharp or splintery materials.
- Proper gloves (see HASP) should always be worn when handling materials which can irritate or contaminate skin.
- When appropriate, noise protection must be worn by employees who are working when drilling equipment is operating.
- Effective communication (hand signals, etc.), especially under high noise conditions, is essential to safety. Clarify use of hand signals.
- Use tools only for the job for which they were intended.
- Do not perform maintenance or refueling while equipment is running.
- Stay clear of cables while lifting equipment or while drilling rig is under heavy strain.
- Do not operate the drilling rig in an electrical (lightening) storm. If drilling when a storm approaches, stop drilling and lower the mast, if possible. Do not stay near drilling rig if the mast cannot be lowered.
- When removing drilling string from borehole, the rod string should not exceed 1.5 times the height of the mast.
- Do not ride on hook, ropes, or other traveling lines of the rig.
- Do not climb the rig mast while equipment is running. Shut down equipment and use safety harness if climbing mast, is necessary.
- When moving or hoisting stabilizers or drill collars, tag lines should always be used. A helper should not use his hands to hold or control heavy equipment. Instead, he should loop a rope around it and hold onto both ends of the rope.
- The operator of a drilling rig should only operate the rig from the position of the controls. The operator should shut down the drilling engine before leaving the vicinity of the drilling rig.
- All hydraulic lines should be inspected periodically for integrity, and replaced as needed.
- Drilling should always proceed cautiously, especially at depths less than ten feet.
- Operation of drilling equipment should be limited to qualified personnel.

5.1 Auger Drilling

Auger drilling uses direct power to rotate (screw) flighted augers into the ground. Be aware of the following hazards which may be unique to this type of drilling:

- Only use the manufacturer's recommended method of securing the auger to the drill drive coupling. Do not touch the coupling or the auger with your hands, a wrench, or any other tools during rotation.
- Whenever possible, use tool hoists to handle auger sections.

- Never place hands or fingers under the bottom of an auger section when hoisting the auger over the top of the auger section in the ground, or over other hard surfaces such as the drilling rig platform.
- Never allow feet to get under the auger section that is being hoisted.
- When rotating augers, stay clear of the rotating augers and other rotating components of the drilling rig. Never reach behind or around a rotating auger for any reason whatsoever.
- Never place your hands between the drill rig and an auger, even when attempting to free damaged or bound sampling equipment from the auger.
- Never use your hands or feet to move cuttings away from the auger.
- Augers should be cleaned only when the drill rig is in neutral and the augers have stopped rotating.
- Care should be taken to ensure augers are properly stored and secured when not in use and during transport.

5.2 Rotary Drilling

Mud rotary is direct rotary drilling using mud slurry circulation to remove cuttings and keep the borehole wall stabilized. Be aware of the following hazards which may be unique to this type of drilling:

- Lifting heavy equipment (i.e., drill rods, etc.);
- Rotating equipment/parts; and
- Slippery or dangerous work areas caused by messy mud pits or troughs (could fall in); keep area clear.

Air rotary is direct rotary drilling using high pressure air circulation to remove cuttings and keep the bit cool. Be aware of the following hazards which may be unique to this type of drilling:

- Rotating/lifting equipment;
- High pressure air lines;
- Air discharge of cuttings at high velocity; use a cover to control discharge of cuttings;
- Heavy drill rods being lifted;
- Very loud; wear hearing protection;
- Large drill rig and support vehicle (space limitations); and
- Dust generation in dry formations; move upwind and use a cover for dust control.

Listed below are general rotary (air and mud) drilling hazards:

- Drill rods should not be braked during lowering into the hole with drill rod chuck jaws.
- Drill rods should not be held or lowered into the hole with pipe wrenches.
- If a string of drill rods is accidentally or inadvertently released into the hole, do not attempt to grab the falling rods with your hands or a wrench.
- In the event of a plugged bit or other circulation blockage, high pressure in the piping and hose between the pump and the obstruction should be relieved or bled down before breaking the first tool joint.
- When drill rods are hoisted from the hole, they should be cleaned for safe handling with a rubber or other suitable rod wiper. Do not use your unprotected hands to clean drilling fluids from drill rods.

- If work must progress over a portable drilling fluids (mud) pit, do not attempt to stand on narrow sides or cross members. The mud pit should be equipped with a rough surface and/or cover panels of adequate strength to hold drilling rig personnel.
- Drill rods should not be lifted and leaned unsecured against the mast. Provide some method of securing the upper ends of the drill rod sections for safe vertical storage or lay down the rods.

5.3 Cathead

Listed below are guidelines regarding cathead operation:

- Only drilling personnel familiar with cathead operation should be allowed to operate equipment. Keep the cathead clean and free of rust and oil and/or grease. The cathead should be cleaned with a wire brush if it becomes rusty.
- The cathead operator must operate the cathead while standing on a level surface with good, firm footing conditions, without distraction or disturbance.
- Always use a clean, dry, sound rope. A wet or oily rope may "grab" the cathead and cause drill tools or other items to be rapidly hoisted to the top of the mast. Do not operate the cathead in rain.
- Never wrap the rope from the cathead (or any other rope, wire rope, or cable on the drilling rig) around a hand, wrist, arm, foot, ankle, leg, or any other part of your body.
- Always maintain a minimum of 18 inches (driving spoon length) clearance between the operating hand and the cathead drum when driving samplers, casing, or other tools with the cathead.
- Do not use a rope that is longer than necessary. A rope that is too long can form a ground loop or otherwise become entangled with the operator's legs.
- Do not use more rope wraps than are required to hoist a load.
- Do not leave a cathead unattended with the rope wrapped on the drum.
- Position all other hoist lines to prevent contact with the operating cathead rope.
- When using the cathead and rope for driving or back-driving, make sure that all threaded pipe connections are tight and stay as far as possible from the hammer impact point.
- When stuck tools or similar loads cannot be raised with a hoist, disconnect the hoist line and connect the stuck tools directly to the feed mechanism of the drill. Do not use hydraulic leveling jacks for added pull to the hoist line or the feed mechanism of the drill.
- Should the rope "grab" the cathead or otherwise become tangled in the drum, do not attempt to release the rope. Instead, sound an appropriate alarm for all personnel to rapidly back away and stay clear. The operator should also back away and stay clear. If the rope "grabs" the cathead, and tools are hoisted to the sheaves at the top of the most, the rope often will break, releasing the tools. If the rope does not break, stay clear of the drilling rig until the operator cautiously returns to turn off the drilling rig engine and appropriate action is taken to release the tools. The operator should keep careful watch on the suspended tools and should quickly back away after turning off the engine.

5.4 Wire Ropes and Hoists

Listed below are guidelines regarding wire ropes and hoists:

- Replace damaged safety latches on safety hooks before using.
- Always wear the appropriate gloves when handling wire ropes.
- Minimize shock loading on wire rope; apply loads smoothly and steadily.
- Protect wire rope from sharp corners or edges.
- Do not guide wire ropes onto cable drum with your hands.
- Never leave a load suspended in the air when the hoist is unattended.
- Keep your hands away from hoist, wire rope, hoisting hooks, sheaves, and pinch points as slack is being taken up and when the load is being hoisted.
- Never hoist the load over the head, body, or feet of any person.

6.0 WELL CONSTRUCTION AND GENERAL HOUSEKEEPING

This section presents safety items around well construction, and general housekeeping. The following safety items should be observed:

- Before lifting a relatively heavy object, approach the object by bending at the knees, keeping your back vertical and unarched while obtaining a firm footing. Grasp the object firmly with both hands and stand slowly and squarely while keeping your back vertical and unarched. In other words, perform lifting with muscles in your legs, not muscles in your lower back. If the object is in excess of 50 pounds, request assistance.
- Wastewater and drilling fluids must be properly contained and labeled. Refer to the project Waste Management Plan.
- Suitable storage locations should be provided for all tools, materials, and supplies so that they can be conveniently and safely handled without falling on a member of the drill crew or a visitor, without creating tripping hazards, and without protruding at eye or head level.
- Avoid storing or transporting tools, materials, or supplies within or on the mast (derrick) of the drill rig.
- Pipe, drill rods, bit casings, augers, and similar drilling tools should be stacked in an orderly manner on racks or sills to prevent spreading, rolling, or sliding and should be secured prior to moving equipment.
- Work areas, platforms, walkways, scaffolding, and other accesses should be kept free of materials, obstructions, and substances such as ice, water, mud, excess grease, or oil that could cause a surface to become slick or otherwise hazardous. The use of additional footing safeguards (mats) should be evaluated on a case-by-case basis.
- Keep all controls, control linkages, warning, and operation lights and lenses free of oil, grease, or other substances which would decrease safe handling.
- Do not store gasoline in any portable container other than that specifically designed for the intended purpose.
- Welding gas cylinders should be stored in an upright and secured position. Protective caps should be in place when the cylinders are not in use.
- All unattended boreholes must be adequately covered or otherwise protected to prevent personnel, site visitors, or animals from falling into the hole. All open boreholes should be covered, protected, or back filled adequately and according to local and state regulations upon completion of the drilling project.
- Do not tolerate unprofessional conduct ("horse play") on the job site.

WELL DRILLING EQUIPMENT CHECKLIST*

Contractor: _____

Company Name: _____

Equipment Identification Number: _____

ITEMS	CONDITION	REMARKS
1. Backup Alarms		
2. Brakes		
3. Clutch		
4. Control Buttons & Levers Labeled		
5. Fuel, Fluid, & Hyd. Sys. (No leaks)		
6. Guards		
7. Horn		
8. Lights/turn signals		
9. Muffler & Exhaust Pipe		
10. Muffler Guards		
11. Leveling Jacks		
12. Parking Brakes		
13. Platform Decking (stability)		
14. Rear and Side View Mirror		
15. Seat Belts		
16. Tracks, Tires, Wheels		
17. Engine Gauges		
18. Lifting Cables		
19. Cable Clamps		
20. Cable Safety Latches		
21. Lockouts		
22. PPE (including respirators)		
23. Safety Harness		
24. First Aid Kit		
25. Fire Extinguishers		
26. Safety Shutdowns Tested & Working		
27.		

_____Auditor

_____Others

_____Others

Worker safety is paramount. This Drill Rig Inspection Checklist is provided to all contracted drilling firms as guidance regarding equipment expectations. All equipment should be inspected and found to be in safe working order **prior to** mobilization. Once onsite, this checklist will be reviewed with the Project Manager or his/her representative. Contractor is responsible for its equipment (rented or owned). The PM has the authority to halt work if unsafe conditions or equipment are observed.

Appendix F

COVID-19 Exposure Control, Mitigation, and Recovery Plan

COMPANY NAME: **PIONEER Technologies Corporation**
PLACE OF BUSINESS: **Lacey, WA**
PLAN LEAD NAME AND CONTACT INFORMATION: **Kevin Gallagher, MS, ASP 360.570.1700**
DATE ISSUED: **06/08/2020**

In response to the novel coronavirus disease (COVID-19) pandemic, PIONEER Technologies Corporation (the Company) has developed a COVID-19 Exposure Control, Mitigation, and Recovery Plan (Plan).

This Plan relies on a common understanding of a "multiple barrier approach" to reduce exposure and transmission of the COVID-19 virus.

Barriers include:

- Personal health – be aware & stay home if you are sick
- Hand washing – effective and frequent
- Masking – face masks as recommended by CDC
- Social distancing – aware of yourself and others, maintain 6-foot separation
- Cleaning of workspace – effective and frequent
- Work planning – to maximize social distancing
- Workplace health screening – a collective commitment to others in the workplace
- Personal Protective Equipment (PPE) – as appropriate
- Workplace policies & procedures – to support & encourage implementation of multiple barriers.

We are currently training all workers and others who visit our business on the "multiple barrier approach." We will be actively updating and managing the plan and our response as we receive new information or updated guidelines.

PURPOSE OF PLAN

The purpose of this plan is to identify and communicate the Company's COVID-19 Plan for protecting the health of all workers and anyone who visits the job site. This plan is effective immediately in response to the current COVID-19 pandemic. This plan will be updated as new information is received.

The Company will train workers on physical distancing, hygiene, cleaning, recognizing symptoms, screening process, and use of personal protective equipment.

RESPONSIBILITY OF MANAGERS AND SUPERVISORS

All managers and supervisors must be familiar with this Plan and be ready to answer questions from workers. Managers and supervisors must set a good example by following this Plan at all times. This involves practicing good personal hygiene and jobsite safety practices to prevent the spread of the virus. Managers and supervisors must encourage this same behavior from all workers.

COVID-19 Exposure Control, Mitigation, and Recovery Plan

COMPANY NAME: **PIONEER Technologies Corporation**
PLACE OF BUSINESS: **Lacey, WA**
PLAN LEAD NAME AND CONTACT INFORMATION: **Kevin Gallagher, MS, ASP 360.570.1700**
DATE ISSUED: **06/08/2020**

The Company has designated Kevin Gallagher, M.S. as the Plan Lead and will designate a site-specific COVID-19 supervisor for each work site location. The designated supervisor will monitor the health of workers and enforce the COVID-19 job site safety plan.

Location	Designated Site-Specific Supervisor
Lacey, WA	Kevin Gallagher (Plan Lead)
Lacey, WA	Chris Waldron
Lacey, WA	Brad Grimsted
External Job-Sites	Per the Site-Specific HASP

COMMUNICATION

This Plan will be available to all workers and visitors in the: ***lounge.*** A notice will be posted for visitors at the front entrance regarding access to the facility.

The Plan Lead (or others as designated) will direct all communications regarding COVID-19 and the Company's responses, both within the Company and externally. Internal communications will be provided via: ***email and/or during our weekly meetings.***

Educational resources about COVID-19 illness and preparedness measures to control exposure and spreading of the illness will be provided via: ***email and/or during our weekly meetings.***

The Plan Lead will coordinate communication with others provided via: ***email and/or during our weekly meetings.*** They will communicate all information, updates, and alerts from the Company.

The Plan Lead or designee will provide notification to workers of any operational changes and will provide frequent updates throughout the course of the COVID-19 pandemic. They will monitor the public health department updates and issue advisories and alerts as conditions change.

Project Managers will provide notification to contractors, subcontractors, suppliers, and others visiting the business of any operational changes and will provide frequent updates throughout the course of the COVID-19 pandemic. Project Managers will also notify all affected parties when the outbreak impacts our ability to perform services, and will provide updates when the Company's operations resume.

COVID-19 Exposure Control, Mitigation, and Recovery Plan

COMPANY NAME: **PIONEER Technologies Corporation**
PLACE OF BUSINESS: **Lacey, WA**
PLAN LEAD NAME AND CONTACT INFORMATION: **Kevin Gallagher, MS, ASP 360.570.1700**
DATE ISSUED: **06/08/2020**

RESPONSIBILITY OF WORKERS

Please be responsible for your own health and ensure you participate in our "multiple barrier" prevention efforts while at work. To minimize the spread of COVID-19 at our jobsites, everyone must play their part. We are instituting various housekeeping, physical distancing, and other best practices at our jobsites to prevent the spread of COVID-19. All workers must follow these practices. Specific question about this Plan or COVID-19, should be directed to your manager or supervisor.

You are expected to report to your managers or site-specific COVID-19 supervisors, if you are experiencing signs or symptoms of COVID-19, as described below.

People with these symptoms or a combination of symptoms may have COVID-19:

- Cough;
- Shortness of breath or difficulty breathing;

Or at least two of these symptoms:

- Fever;
- Chills;
- Repeated shaking with chills;
- Muscle pain;
- Headache;
- Sore throat;
- New loss of taste or smell.

If you have any of these symptom or a combination of these symptoms you must stay home. Do not come to work until you are free of symptoms for at least 72 hours, without the use of medicine, as recommended by the CDC.

Best practices for control and prevention, regardless of exposure risk are:

- Frequently wash your hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand sanitizer with at least 60% alcohol.
- Avoid touching your eyes, nose, or mouth.
- Cover your mouth and nose with a tissue when you cough or sneeze. If you don't have a tissue, cough or sneezed into your elbow, not your hands.
- Avoid close contact with people who are sick.
- Wear a facemask in areas or situations where other social distancing barriers are difficult to maintain (e.g., collaborating around a work station), as appropriate.
- Disinfect all communal surfaces/high touch surfaces (e.g., door knobs, coffee machine buttons, refrigerator handles) using disinfectant wipes or other sanitizer after you touch them.

COVID-19 Exposure Control, Mitigation, and Recovery Plan

COMPANY NAME: **PIONEER Technologies Corporation**
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JOB SITE PROTECTIVE MEASURES

GENERAL SAFETY POLICIES AND PROCEDURES

- Any worker/contractor/visitor showing symptoms of COVID-19 will be asked to leave the jobsite and return home.

- Occupancy will be restricted to 50% of maximum building occupancy. The maximum building occupancy of 75 and will be restricted to less than 37 in accordance with this Plan.

- Physical Distancing Policy:

  All workers, contractors, subcontractors, and others who visit a job site location must maintain at least six feet of physical distance from each other, when feasible. Breaks and lunches will be staggered to prevent the groupings of workers and require at least six feet be maintained between workers.

  All meetings will be held virtually, unless physical distancing can be maintained in a meeting room. Virtual meetings will be held by phone or video conferencing.

  If shift work is necessary, the Company will require workers to remain on their dedicated shifts. If there is a legitimate reason for a worker to change shifts, this may or may not be accommodated to ensure the safety of all workers.

  In the office:

  Where workstations cannot be separated, barriers to create an effective separation will be provided.

  Work schedules will be staggered so workers don't crowd when they arrive and leave work.

  In the field:

  Areas on the job site where workers typically congregate will be controlled to ensure physical distancing is always maintained, including shared drinking water coolers.

  All job sites will be controlled to limit interactions between pick up and deliveries of equipment or materials to maintain the physical distance of 6feet between all workers. To the extent practical, only one trade/subcontractor will be allowed on a jobsite at one time and maintain 6foot physical distancing for each member of that trade. If more than

one trade/subcontractor must be on the job to complete the job, then at a minimum all trades and subcontractors must maintain physical distancing policies in accordance with this guidance.

Work that requires more than one person in close proximity may still need to be conducted for safety reasons. The following procedures will be put in place to protect these workers:

- Work crews will be as small as possible for the job necessary.
- Limit close interactions and activities to less than 10 minutes, if possible.
- Wear a face covering for the duration of the activity (see PPE and Engineering Controls below).

- Tools and equipment sharing should be limited to the extent possible. If tools and equipment are shared the Company will provide alcohol-based wipes to clean tools before and after use.

- Worker Hygiene Policy

  - The Company is providing hand washing stations and hand sanitizer in the***: restrooms and kitchen areas***. Hand sanitizer will also be provided at the ***main entrance***. These facilities will be monitored: ***daily***. If you find supplies are running low or not available, contact the site-specific COVID-19 supervisor.

    Wash your hands frequently with warm, soapy water for 20 seconds upon entering the job-site, before and after eating or smoking, after visiting a public area, after touching high-use equipment (such as copier), after blowing your nose, and prior to leaving the job-site. If soap is not available, use hand sanitizer with at least 60% alcohol.

  - Use of kitchen areas will be limited to 1 person at a time. Kitchen areas should not be used for eating until further notice.
  - Workers are encouraged to bring their own food and snacks to the office. All unwrapped, shared snacks (e.g. nuts, pretzels) have been removed until further notice. Workers are recommended to wash their hands prior to taking any office provided wrapped snacks (e.g. candy bars) or drinks.
  - Cover your coughs and sneeze with tissues, or cough and sneeze into your elbow shirt sleeve. Tissues are provided in the***: restrooms and kitchen areas***. If you find supplies are running low or not available, contact the site-specific COVID-19 supervisor.

- No-touch trash cans are available in ***restrooms and kitchen areas***.
- Workers are encouraged to avoid handshaking and use other noncontact methods of greeting.

Visitors to the Work Place

- Visitors to the any job-site will be limited to only those necessary for the work being conducted.
- Entrances to the job site will be controlled and monitored. Visitors will be screened for COVID-19 symptoms and required to maintain physical distancing from all workers.
- Deliveries of construction material and equipment should be controlled and the delivery drivers should stay in their vehicles, unless unloading requires the driver to exit the vehicle. If the delivery driver must leave the vehicle they must be screened for COVID-19 symptoms.

Personal Protective Equipment and Engineering Controls

- The Company will provide and train workers on the use of personal protective equipment (PPE) such as gloves, goggles, face shields and face masks as appropriate, or required, for the activity being performed per the hazard to the worker.
- The Company recommends all workers wear a cloth face covering when you cannot maintain six feet of distance from others unless additional PPE is required based on the hazard to the worker.
- The Company will provide physical barriers or markings to indicate physical distance of 6feet in areas where lines or gathering may occur.
- The frequency of HVAC system filter changeouts will be increased from 12 months to every 6 months.

Worker Health Screenings

The Company will screen all workers, contractors, subcontractors, and other visitors to the job site. Workers are encouraged to take their temperature at home prior to arrival at the job site. Workers and visitors must use the main entrance (or other designated site) and check in with front desk. Screening will consist of the following:

YES or NO, since your last day of work, or since your last visit to this facility, have you had any of the following:

- A new fever (100.4°F or higher), or a sense of having a fever?
- A new cough you cannot attribute to another health condition?

- New shortness of breath you cannot attribute to another health condition?
- A new sore throat you cannot attribute to another health condition?
- New muscle aches (myalgia) you cannot attribute to another health condition, or may have been caused by a specific activity (such as physical exercise)?
- New loss of taste or smell?
- Have you been near anyone diagnosed with COVID-19?

If a worker or visitor answers YES to any of the screening questions, the Plan Lead/or Supervisor/Manager will be contacted immediately. The Plan Lead/or Supervisor/Manager will:

- Review the screening results.
- Recommend removal of the worker from work site, if appropriate.
- Recommend medical follow-up, if appropriate.

JOB SITE CLEANING AND DISINFECTION

The Company has instituted regular housekeeping, including cleaning and disinfecting frequently used shared equipment and tools. Workers should regularly do the same in their assigned work area.

- Jobsite shared areas such breakrooms, lunchrooms, restrooms, trailers and conference rooms will be cleaned at least: ***once per week.***
- Employees should ride in separate vehicles at all times.
- Cleaning supplies are available for workers throughout the job site in the: ***supply room.***
- High-touch surfaces, such as handrails, doorknobs, keyboards, mice, telephones, elevator buttons, shared equipment and tools, pens, and clipboards should be cleaned using disinfectants provided.
  - Common EPA-registered household disinfectant;
  - Alcohol solution with at least 60% alcohol; or
  - Diluted household beach solutions (if appropriate for the surface).
- Portable jobsite toilets will be cleaned by the leasing company ***per the schedule negotiated with the vendor.*** The Company will ensure hand sanitizer is available and the frequently touched items such as door pulls and toilet seats will be disinfected.
- Shared vehicles and heavy equipment will be disinfected at the beginning and end of each shift and between operators. Commonly touched areas to be cleaned include:
  - Outside door handles;
  - Inside door handles and surrounding surfaces;

- Instrument controls, gear shifts, control knobs;
- Steering wheel;
- Cup holders;
- Seat belts;
- Center console
- Keys and key fobs; and
- Seat adjustment controls.

JOBSITE EXPOSURE PLAN

Recognizing COVID-19 Symptoms

COVID-19 symptoms include a fever, persistent cough, and shortness of breath, but may also include headache, sore throat, chills, or loss of taste or smell. If you think you have these symptoms, contact the Plan Lead (or other designee) and go home, self-isolate, and contact your health care provider. If you think someone in your work place has these symptoms, contact the Plan Lead (or other designee) on follow-up procedures.

Response Protocol for a confirmed COVID-19 Case

In the event a worker or visitor to the site tests positive for COVID-19, the Company will perform cleaning and disinfection of areas and buildings used by this individual in accordance with CDC guidelines prior to the beginning of the next work day. The Company will contact others who may have come into contact with this individual as part of their work activities and will implement cleaning and disinfection activities as outlined above.

Except for circumstances in which the Company is legally required to report workplace occurrences of a communicable disease, the confidentiality of all medical conditions will be maintained in accordance with applicable law and to the extent practical under the circumstances. Informing other workers that a co-worker has tested positive for COVID-19 will be kept to a minimum, unless as needed to comply with reporting requirements or to limit the potential for transmission to others. We reserve the right to inform other workers if the Company is aware that one of their co-workers has been diagnosed with COVID-19, as needed, in order for them to be able to take appropriate measures to protect their own health. We also reserve the right to inform sub-contractors, vendors, suppliers or visitors that an unnamed worker has been diagnosed with COVID-19 if they might have been exposed to the disease so those individuals may take measures to protect their own health.

Appendix G

Basic Employee Training on Covid-19 Infection Prevention

Training Record Form

Blazer Environmental

Facility Name: _____

Description of Training Received: _Basic Employee Training on COVID-19 Infection Prevention_____

Materials Used: _Coronavirus Employee Training PowerPoint from the Washington State Department of Labor and Industries, June 2020. http://wisha-training.lni.wa.gov/training/presentations/CoronavirusEmployeeTraining.pptx

My signature below certifies that I have reviewed and/or participated in the training as indicated above.

Trainee Name and Signature	Company	Job Title	Date Completed

Site Safety Officer or CSR SIGNATURE:_____ DATE:_____

Washington State Department of
Labor & Industries

Basic employee training on Covid-19 infection prevention

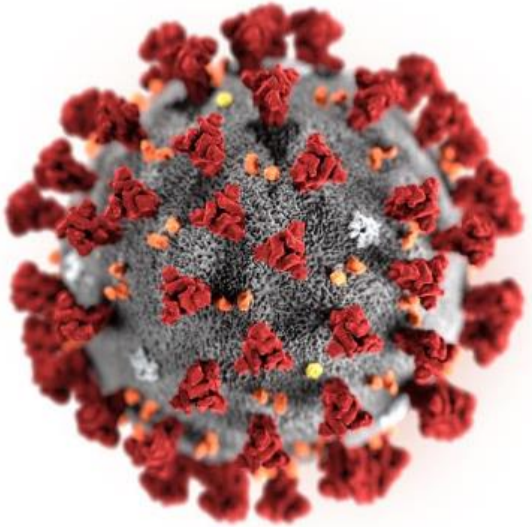
June, 2020

What is the coronavirus (Covid-19) virus?

It is a virus related to other coronaviruses that cause the common cold, but can cause much more serious health effects.

It is highly contagious, spreading from person to person.

In just a few months, it has infected millions of people worldwide.



What are the symptoms of infection?

COVID-19 typically causes mild respiratory illness, but can cause severe disease, including pneumonia-like illness.

Typical symptoms include fever, cough, and shortness of breath.

Other symptoms are chills, muscle aches, sore throat, loss of sense of taste or smell.

Symptoms begin 2-14 days after exposure.

<u>Some people have no symptoms.</u>

How is Covid-19 spread?

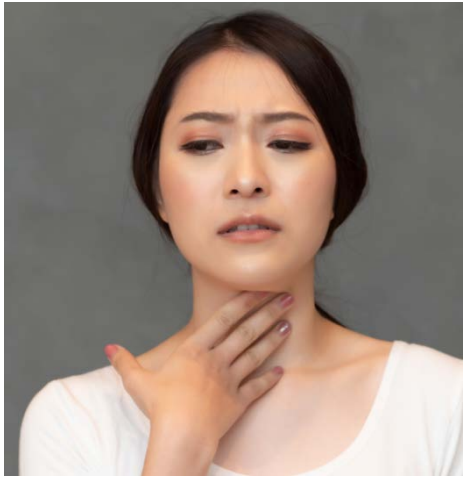
It is spread from person to person mainly through respiratory droplets from someone who is infected.

It can spread to others from coughing, sneezing, singing and even talking.

It also can spread from contact with contaminated surfaces or objects.

<u>Infected people without symptoms can spread the virus.</u>

What to do if you feel sick



If you believe you may the coronavirus, stay home and call your healthcare provider.

If you have been infected, you likely had no symptoms for several days, and you may have passed the infection onto coworkers.

Inform your employer, so they can determine who you may have been in contact with at work.

Who is at risk at work?

High risk:

Healthcare workers treating or caring for coronavirus infected patients.

EMT/ambulance employees transporting infected persons.

Mortuary workers performing or assisting with autopsies of infected persons.

Courtesy of ABC Radio National - Australia

Who is at risk (continued)

Medium Risk:

Any job requiring frequent and close contact with the public or co-workers such as in:

grocery stores, crop harvesting, restaurants, public transit, hair salons, meat packing, food processing and, many others with frequent close contact.

Who is at risk (continued)

Low Risk:

Jobs that do not require contact with people known or suspected of being infected with Covid-19 nor frequent close contact (within 6 feet) of the general public or co-workers.

Workers in this category have minimal occupational contact with the public and other co-workers.

How to protect yourself and others

Keep physical distance of at least 6 feet.

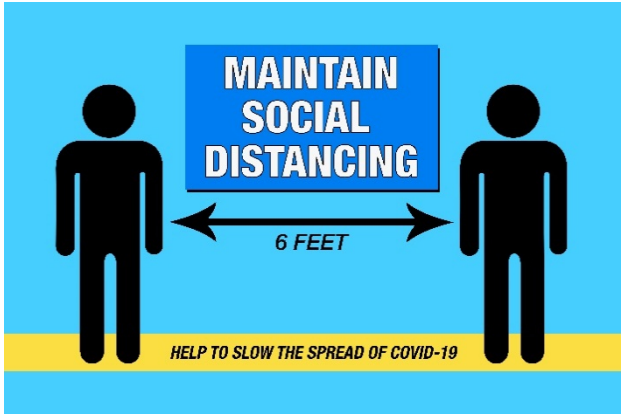
Practice frequent hand washing for 20 seconds and/or use hand sanitizer if soap and water are not available.

Frequently sanitize work surfaces and tools.

Cover coughs and sneezes and wear a face mask.

Avoid touching the eyes, nose, or mouth with unwashed hands.

Stay home if you are sick and avoid co-workers who appear sick.



The case for facemasks

Facemasks help people who are infected but have no symptoms, to not spread the virus to others.

The Center for Disease Control (CDC) estimates that 40% of infections come from people with no symptoms.

Wearing facemasks is required if social distancing of 6 feet or more can't be maintained.

A N-95 respirator or equivalent <u>is required</u> if your job involves contact with people known or suspected to be infected with coronavirus.

Face coverings, facemasks and respirators–what's the difference?

Homemade cloth face coverings

Purchased facemasks
(many types)

Surgical masks

All the facemasks above can reduce the spread of coronavirus to others.

N-95 respirator – protects the user from getting infected from a person with Covid-19 infection.

What your employer must do to protect you

Provide hand-washing and sanitizing supplies.

Set up physical distancing and control customer flow.

Install barriers between workers where feasible.

Send home any worker who appears infected.

Provide personal protective equipment (PPE) as needed for the activity being done.

Train you on specific protective measures required at your workplace.

Specific Covid-19 protective measures at your worksite

Your employer is required to have specific procedures for protection against COVID-19 infection. You must be trained on those procedures.

Your employer can add additional slides to cover those specific procedures, or use other training methods.

Worker rights

You have the right to:

Raise a safety or health concern with your employer or L & I - DOSH, request personal protective equipment, or report a work-related hazard, including COVID-19.

Receive information and training on job hazards in your workplace.

Submitting a safety hazard concern to L & I -DOSH

Or call 1-800-423-7233

Washington State Department of Labor & Industries

Specific guidelines for various workplaces

Coronavirus Prevention – summary of general workplace requirements

Coronavirus Prevention in Agriculture & Related Industries

Food Processing-Warehouse Coronavirus Fact sheet

Coronavirus (Covid-19) Protecting Grocery Store Workers

Covid-19 Transmission Risks and facemasks or respirators choices

Safety & Health Consultation Services

Your employer can request help from L & I -DOSH

Safety or Industrial Hygiene consultants provide assistance with building your employer's safety program, training, identifying and controlling hazards, and following applicable safety rules. No fines or penalties will result from issues uncovered during a consultation. However, consultants will ask your employer to correct any serious issues and offer assistance.

Request an onsite consultation

1-800-547-8367 or email DOSHConsultation@Lni.wa.gov

Appendix H

B-5.1
Excavations

1.0 Scope

This procedure describes the safety precautions and protective systems that help protect workers from excavation hazards.

2.0 Definitions

Bell-bottom Pier Hole – A type of shaft or footing excavation in which the bottom is made larger than the cross section above to form a belled shape.

Benching – A system that protects employees from excavation cave-ins by cutting the sides of an excavation to form horizontal levels or steps, with vertical or nearly vertical surfaces between the levels.

Competent Person – For the purposes of this procedure, one who has specific training in soil analysis and the use of protective systems; knows the requirements of OSHA 29 CFR 1926, Subpart P; can identify and predict hazards or working conditions that are unsanitary, hazardous, or dangerous to employees; and is authorized to take prompt corrective measures to eliminate them.

Concrete Breaking – Work performed with hand tools such as jackhammers or mechanical equipment to break or chip concrete floors or walls. This work requires an excavation permit.

Drilling – Work performed above grade with small tools in order to make holes on any "blind" surface above grade.

Excavation – Any manmade cut, cavity, trench, or depression in an earth surface that is formed by earth removal. Work below grade or enclosed line within a floor or wall that could possibly cause contact with piping, conduit, or other obstructions resulting in injury or equipment damage. This work requires an excavation permit.

Hazardous Atmosphere – An atmosphere that is explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful and may cause death, illness, or injury.

Protective System – For the purposes of this procedure, a method of protecting employees from excavation cave-ins, material that could fall or roll from an excavation face or into an excavation, or the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp – An inclined walking or working surface made from earth or structural materials such as steel or wood.

Registered Professional Engineer – A person who is registered as a professional engineer in the state where the work is to be performed. For the purposes of this procedure, a professional engineer registered in any state is considered a "registered professional engineer" when approving either designs for manufactured protective systems or tabulated data for interstate commerce.

Shielding – A system that protects employees from excavation cave-ins by erecting a structure that can withstand the forces imposed on it during a cave-in. Shields can be either permanent structures or portable structures that are moved as the work progresses. They can be either premanufactured or job-built in accordance with OSHA 29 CFR 1926.652, Section (c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

Shoring – A metal hydraulic, mechanical, or timber structure that supports the sides of an excavation and is designed to prevent cave-ins.

Sloping – A system that protects employees from excavation cave-ins by forming sides of an excavation that are inclined at an angle away from center. The angle of the incline required to prevent a cave-in varies with differences in soil type, environmental conditions of exposure, and the application of additional weight on the walls from external sources, such as stored excavated materials, operating equipment, or traffic.

Soil Classification – A method of classifying soil and rock deposits as stable rock, Type A, Type B, or Type C (in decreasing order of stability). Categories are based on the properties and performance characteristics of the deposits and on environmental exposure conditions.

Structural Ramp – A ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

Tabulated Data – Tables and charts from OSHA 29 CFR 1926, Subpart P and Appendices A through E, or tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench – A narrow excavation (in relation to its length) made below the surface of the ground. The width of a trench is less than 15 feet (4.6 meters), and the depth is generally greater than its width.

3.0 General

Many excavation accidents are the direct result of inadequate initial planning. The construction engineer is responsible for planning the job. He or she must involve the site's competent person in planning and in all phases of the work. Every effort should be made during the design stage of the excavation to ensure safety by providing the necessary soil classifications and protective systems.

Some state OSHA programs require that the competent person be physically located at the work location when personnel are in an excavation. The construction engineer at each site should be aware of specific requirements in that site's jurisdiction.

3.1 Planning

3.1.1 Site Conditions – Before an excavation begins, the construction engineer must consider specific site conditions such as the following:

- presence of a competent person
- traffic
- vibrations in the vicinity of the worksite
- proximity of structures and their conditions
- soil
- surface water and groundwater
- chemical contamination of soil or water
- water table
- overhead and underground utilities
- weather

If desired, the construction engineer can use the attached sample safety checklist (see Attachment B-5.1-1) to help plan excavation safety.

3.1.2 Minimum Precautions – Before beginning the job, the construction engineer or a designee must initiate an excavation permit. (For a sample permit, see Attachment B-5.1-2.) The permit must be signed by a competent person. Its purpose is to ensure that all interferences that might be encountered during underground digging are identified and located before the work begins. The use of detection equipment is the preferred method for locating underground interferences. One company that provides this service, using the Soft Dig® method, is Underground Services, Inc. (For the company's address and phone number, see section 4.3.)

Where underground electrical interferences are anticipated and all means of positive locating and de-energization have been exhausted, consider additional precautions such as the following:

- Use a fiberglass-handled, round-point shovel for hand digging. The person digging should have adequately rated and currently inspected lineman's gloves and/or must stand on a rubber blanket.
- Provide a Nomex® suit with a hood for the person digging.
- Equip powered tools or equipment (e.g., backhoes or jackhammers) with a ground installed by a qualified electrician.
- Use an additional ground person ("spotter") to watch for and signal the backhoe operator.

3.1.3 Minimum Precautions – Before beginning an excavation, the construction engineer or designee must take the following additional minimal precautions:

- Provide warning vests for employees exposed to vehicular traffic.
- Remove or stabilize all surface encumbrances that create hazards to employees such as trees, spoil dirt, or boulders.
- Erect either warning barricades or rigid, protective barricades to avoid leaving an excavation hazard

unprotected. If warning barricades are used, place them a minimum of 5 feet (1.5 meters) from the excavation edge. A spoil pile at least 3 feet (1 meter) high can be used as a barricade on one side of the excavation. Barricades must be marked with battery-powered flashing warning lights if they are in or near walkways or roadways.

- Provide warning systems such as barricades, hand or mechanical signals, or stop logs to alert operators of mobile equipment that they are approaching the edge of excavations.
- Keep spoil dirt and any material or equipment that may fall into an excavation at least 3 feet (1 meter) from the edge.
- Remove loose rock or soil that could fall from the face of an excavation.
- Protect, support, or remove underground installations (e.g., electrical duct banks, water lines, sewer lines, or fire lines) as necessary to protect employees and the environment.
- Prohibit employees from working or passing under the loads of lifting or digging equipment.
- Provide support systems such as shoring, bracing, or underpinning to ensure the stability of adjoining buildings, walls, or other structures endangered by excavation operations.
- Ensure that a competent person performs inspections of excavations, adjacent areas, and protective systems for evidence of a situation that could result in possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions. These inspections must be performed at least daily, and more frequently if conditions warrant. For a sample daily inspection report form, see Attachment B-5.1-3.

3.2 Protective Systems (Sloping, Benching, Shoring, and Shielding)

3.2.1 Choosing Appropriate Protective Systems – For soil depths up to 20 feet (6 meters), soil classification determines the sloping, shoring, and shielding requirements, as explained in sections 3.2.2 and 3.2.3. Soil classification must be performed by a competent person.

Protective systems for excavations deeper than 20 feet (6 meters) must be designed by a registered professional engineer.

Protective systems are not required in the following situations:

- when an excavation is made entirely in stable rock
- when an excavation is less than 5 feet (1.5 meters) deep, and a competent person has examined the ground and found no potential for a cave-in

The competent person must document, on the excavation permit, the basis for any decision not to provide a protective system (see Attachment B-5.1-2, part 6).

3.2.2 Sloping and Benching – When excavating in an area where the soil has been classified, sloping is based on the following three types of soil classification:

- Type A soil includes cohesive soils with unconfined compressive strength of 1.5 tons per square foot (126 kilograms per square meter) or greater (unless the soil is fissured subject to vibration, or has been previously disturbed or subject to other factors that would require it to be classified as a less stable material). When excavating in Type A soil, the maximum allowable slope is 3/4 horizontal to 1 vertical (53°).
- Type B soil includes cohesive soil with an unconfined compressive strength greater than 0.5 tons per square foot (42 kilograms per square meter) but less than 1.5 tons per square foot (126 kilograms per square meter). When excavating in Type B soil, the maximum allowable slope is 1 horizontal to 1 vertical (45°).
- Type C soil includes cohesive soil with an unconfined compressive strength of 0.5 tons or less per square foot (42 kilograms per square meter). When excavating in Type C soil, the maximum allowable slope is 1-1/2 horizontal to 1 vertical (34°).

When sloping and benching protective systems are not based on the soil classifications for Type A, B, or C soils, they must be designed by a registered professional engineer or sloped at an angle no steeper than 1-1/2 horizontal to 1 vertical.

Designs of sloping or benching systems using tabulated data must be in written form, must be approved by a registered professional engineer, and must be maintained at the job site during construction of the protective system.

3.2.3 Shoring and Shielding – For information on timber shoring, refer to OSHA 29 CFR 1926.650. When using hydraulic shoring, trench jacks, air shores, and shields, follow all of the manufacturer specifications, recommendations, and limitations.

All tabulated data must be maintained at the job site during the construction of protective systems. The design of support systems, shield systems, or protective systems (other than a manufacturer's design) must be approved by a registered professional engineer.

When shoring and shielding systems are not based on the soil classifications for Type A, B, or C soils, they must be designed by a registered professional engineer.

3.3 Ensuring the Stability of Adjacent Structures

When the stability of adjoining buildings, walls, sidewalks and pavements, or other structures is endangered by excavation operations, use support systems or other protective measures such as shoring, bracing, or underpinning to ensure their stability and to protect employees.

Do not excavate below the level of the base or footing of any foundation or retaining wall unless the excavation is in stable rock, or unless one of the following precautions has been taken:

- A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure.
- A registered professional engineer has determined that the structure is far enough away from the excavation so as not to be affected by the excavation activity.
- A registered professional engineer has determined that such excavation work will not pose a hazard to employees.

3.4 Installing and Removing Protective Systems

Install protective support systems from the top down, and securely connect all components of the support system.

When temporary removal of individual members is necessary, install other structural members to carry loads imposed on the support system.

As soon as the work is completed, dismantle the protective systems, working slowly from the bottom up. Backfilling and removal of support systems must progress together.

NOTE: ***Do not use plywood as a structural member.*** *Use it only for the prevention of local raveling (sloughing of trench faces) between shores.*

3.5 Materials and Equipment

To minimize employee exposure to hazards, follow the manufacturer's recommendations for using and maintaining manufactured materials and equipment.

A competent person must examine all materials and equipment to ensure that they are adequately maintained, free from defects, and suitable for continued use.

3.6 Water Accumulation

Do not work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.

The competent person must inspect excavations subject to run-offs from heavy rains and monitor for proper use of water-removal equipment.

Use diversion ditches, dikes, or other suitable means to prevent surface water from entering an excavation and provide adequate drainage of adjacent areas.

3.7 Hazardous Atmospheres

Hazards associated with confined space entry apply to many excavations. For more information on confined space entry, see FCSM B-24.1.

A qualified person must test the atmosphere in excavations deeper than 4 feet (1.2 meters) where oxygen deficiency or a hazardous atmosphere could be expected to exist, such as a landfill area or areas where hazardous substances are stored or manufactured, or when the work could create a hazardous atmosphere.

Consider the appropriateness of using respiratory protection, ventilation, and emergency rescue equipment. For more information about respiratory protection, see FCSM E-8.1.

Each employee working in bell-bottom pier holes or

similar deep and confined footing excavations must wear a full-body harness with a securely attached lifeline, and must be attended at all times by a standby who can carry out rescue if necessary. A method of communication must be ensured, and in most cases a mechanical lifting device must be used.

3.8 Access and Egress

Provide safe access and egress for all excavations.

For excavations 4 feet (1.2 meters) deep or more, ladders, steps, or ramps for safe access and egress must be provided within 25 feet (7.6 meters) of lateral travel.

Structural ramps used only for the access or egress of people must be designed by a competent person. Structural ramps for the access or egress of equipment must be designed by a competent person qualified in structural design and must be constructed according to the design. (The competent person mentioned in this paragraph may not necessarily be the excavation competent person.)

When employees or equipment are required or permitted to cross over excavations, walkways or bridges with standard guardrails must be provided. For more information on standard guardrails, see FCSM B-6.1.

3.9 Cathodic Protection Systems

These systems are used to prevent corrosion of certain underground piping. Special cathodes and/or anodes are used to circumvent corrosive damage to the pipeline by use of electrical currents. If these systems are in the vicinity of an excavation, they must be de-energized.

4.0 References

4.1 FCSM B-6.1, *Perimeter and Opening Protection – Floors, Walls, and Roof Edges*

FCSM B-24.1, *Vessel and Confined Space Entry*

FCSM E-8.1, *Respiratory Protection*

4.2 OSHA 29 CFR 1926.650, Subpart P, *Excavations*

4.3 Underground Services, Inc.
P.O. Box 39
West Chester, PA 19381
(215) 696-9220

5.0 For Further Information

5.1 *Construction Standards for Excavations*, The Associated General Contractors of America

ATTACHMENT B-5.1-1

Excavation Safety Checklist

Job Site

	YES	NO	N/A
Prior to starting the job, were utilities notified and underground services located?	☐	☐	☐
Were overhead transmission lines noted and precautions taken to ensure that equipment does not come in contact with them?	☐	☐	☐
Have adequate signs been posted and barricades provided?	☐	☐	☐
Are the workers wearing reflective vests if necessary?	☐	☐	☐
Are vehicles, equipment, and spoil piles correctly placed to allow for the safe passage of traffic and the progress of construction?	☐	☐	☐
Has traffic control (fire departments, etc.) been notified?	☐	☐	☐
Is the appropriate safety gear on site?	☐	☐	☐

Excavation, Concrete Breaking, Drilling

	YES	NO	N/A
Have the supervisors and workers been trained in excavation safety laws and procedures?	☐	☐	☐
Have buildings, utility poles, trees, and any other surface encumbrances or destabilizing forces been taken into consideration?	☐	☐	☐
Has soil classification been done?	☐	☐	☐
Has the appropriate means of safeguarding the excavation by OSHA requirements been determined?	☐	☐	☐
For excavations 4 feet (1.2 meters) deep or more, are ladders, steps, or ramps available within 25 feet (7.6 meters) of lateral travel?	☐	☐	☐
Are spoil piles at least three feet (one meter) from the edge of the excavation and properly sloped?	☐	☐	☐
Have confined-space atmospheric hazards been considered? (For more information on confined-space entry, see FCSM B-24.1.)	☐	☐	☐
Have undermined structures been shored, braced, or underpinned, or has a registered professional engineer determined that such measures are not necessary?	☐	☐	☐
Do bridges and walkways have standard guardrails?	☐	☐	☐
Are utilities crossing the excavation supported from above, and does protection from falling material exist?	☐	☐	☐
Have means been provided to remove water from the excavation?	☐	☐	☐
Are all open pits or shafts either covered or barricaded?	☐	☐	☐
Is a competent person available to make at least daily inspections?	☐	☐	☐

NOTE: *Shoring and shielding must be removed in a manner that ensures the safety of workers, and excavations must be backfilled as soon as work is completed.*

Excavation Permit

Part 1: Initiator completes this section.

Work Performed By: _____ Reference Drawing: _____

Location of Excavation: _____
(Use coordinates outside buildings or column lines inside buildings)

Reason for Excavation: _____

Start Date: _____ Permit Expiration Date: _____

Initiator Name: _____ Date: _____ Phone: _____

Part 2: Construction engineer completes this section.

Utilities	Present in Excavation Area	Comments
Power Service Lines:		
– Water	☐	
– Sewer	☐	
– Gas	☐	
Electrical Lines	☐	
Fire Lines	☐	
Process Lines	☐	
Equipment	☐	

Reference Drawing: _____

Special Precautions and Safety Requirements (check those required on the excavation site):

☐ Electrical Observer	☐ Barricades	☐ Grounding of Tools
☐ Explosion Testing	☐ Testing for Fume or Gas	☐ Special Clothing
☐ Standby Person	☐ Competent Person (See Reverse Side)	☐ Other (Specify)

Comments: _____

_____

_____

Part 3: Construction engineer is responsible for obtaining the relevant approval signatures in this section.

_____ Site Engineering	_____ Construction Maintenance
_____ Operating Supervision	_____ Construction Engineer
_____ Power Services Supervision	_____ Contractor Superintendent
_____ Electrical Supervision	_____ Pipe Superintendent
_____ Fire Protection Supervision	_____ Electrical Superintendent
_____	_____ Excavation Competent Person

Continued on back

Part 4: Competent person completes this section before excavation.

Soil Classification (check one): ☐ Stable Rock ☐ Type A ☐ Type B ☐ Type C

	YES	NO	N/A
Have all FCSM B-5.1 requirements been met and the required data documented?	☐	☐	☐
Is the excavation close to utilities, buildings, footings, pilings, or sources of vibration?	☐	☐	☐
Have the owners of utility, service, and transmission piping been contacted?	☐	☐	☐
Has detection equipment been used to locate all underground and/or above ground interferences?	☐	☐	☐
Has a check been made for previously disturbed ground?	☐	☐	☐
Has the adequacy and availability of all equipment been checked, including personal protective equipment, shoring material, signs, barricades, and machinery?	☐	☐	☐
Has a check been made for other obstructions (e.g., footing concrete encasements)?	☐	☐	☐

If other obstructions have been found, list them. _____

_____

Allowable slope: _____

Comments: _____

_____

Part 5: Competent person completes this section during excavation.

Size of Excavation: depth _____ width _____ length _____

	YES	NO	N/A
Have changing ground conditions been checked, particularly after rainfall?	☐	☐	☐
Has monitoring been performed to check for possible oxygen deficiency or gaseous conditions?	☐	☐	☐
Has the adequacy of shoring and/or sloping been checked as work progresses?	☐	☐	☐
Do vehicular and machinery operation patterns need to be changed?	☐	☐	☐
Are water removal operations or equipment needed?	☐	☐	☐
Has the adequacy of portable trench boxes or trench shields been checked?	☐	☐	☐

Entrance and exit facilities: ☐ stairway ☐ ladders ☐ ramp

If the depth of the excavation is 5 feet (1.5 meters) or more, check the applicable OSHA appendix below:

- ☐ B - Sloping and Benching
- ☐ C - Timber Shoring for Trenches
- ☐ D - Aluminum Hydraulic Shoring for Trenching
- ☐ E - Alternatives to Timber Shoring
- ☐ F - Selection of Protective Systems

NOTE: *Sloping or benching for excavations deeper than 20 feet (6 meters) deep must be designed by a registered professional engineer.*

Part 6: Competent person completes this section if no protective system is needed.

The excavation requires no protective systems for the following reasons (list): _____

_____

_____

Competent Person: _____ Date: _____

ATTACHMENT B-5.1-3

Daily Excavation Inspection Report

Site _____

Location of Excavation _____

Depth _____

Soil Type _____

ITEMS	CONDITION good	rejected	n/a	REMARKS
Slope Ratio				
Shoring				
Shielding				
Barricades				
Water Removal				
Traffic Control				
Spoil Pile				

Atmosphere	O_2	Time	Explosimeter
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%
	_____%	_____	_____%

Competent Person: _____

Date: _____ Time: _____

C-5.2
Earth-Moving Equipment

1.0 Scope

This procedure provides minimum requirements for inspecting and operating earth-moving equipment. This procedure covers equipment such as dump trucks, front-end loaders, bulldozers, graders, backhoes, mixers and compactors.

2.0 Definitions

Earth-Moving Equipment – All rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, motor graders, with or without attachments, mixers and graders that are used in construction work.

Engineer – The person who requests the work and is responsible for the safety, quality, and timing of the work requested.

Qualified Inspector – An experienced craftsperson or engineer (Chemours or contractor) who has demonstrated his or her ability or competency to inspect equipment to the site manager and/or the Chemours Fleet Operations designee.

Qualified Operator – An experienced craftsperson who has received training and demonstrated competency to operate a specific piece of equipment.

Site Engineering Manager – The highest level Engineering employee responsible for work conducted on the site.

3.0 General

Equipment must be used that is appropriate for the job. Choices between equipment types that may be applicable must be made by those able to judge the difference in safety, cost, and efficiency between types using their experience and knowledge. Job site conditions will greatly influence equipment choices. Chemours Fleet Operations can assist if necessary.

3.1 Inspection of Earth-Moving Equipment

A qualified inspector must inspect all contractor-owned or company-owned earth-moving equipment before its use and at least quarterly thereafter. (Rental equipment is considered contractor-owned.) The inspector should use an Earth-Moving Equipment Inspection form (Attachment C-5.2-1) or equivalent. The designated operator should perform a before-shift safety and operational check and deficiencies must be resolved before operations commence.

3.2 Qualification of Operators

Only qualified operators may operate earth-moving equipment.

Before an operator uses earth-moving equipment, the operator's employer must furnish to the site manager a description of how the operator has been qualified. In addition, the operator's employer must submit an Equipment Operator Qualification form (Attachment C-5.2-2) or equivalent to the site manager and/or designee.

3.3 Equipment Maintenance

Equipment must be maintained per the manufacturer’s published maintenance specifications using parts and fluids that meet equivalent requirements. Maintenance frequency must meet manufacturer's recommendations.

3.4 Operation

- Operate earth-moving equipment according to posted safe speed limit.
- Equipment operated on public roadways must meet requirements of the local governing body.
- Earth-moving equipment may carry only as many people as there are factory-installed seat belts. If equipment is not equipped with factory-installed seat belts, and local, state, or

government regulations allow this equipment to be operated without seat belts, then only the operator should be allowed to ride the equipment depending on site rules and regulations.

- During refueling of this equipment the engine must be shut off and a fire extinguisher must be present.
- Any earth-moving equipment operated after dark and/or under limited lighting must be equipped with factory-installed lighting or equivalent lighting subject to the qualified inspector's or site manager's approval.
- Flammable and explosive environmental classifications must be considered before using earth-moving equipment in any operating area. For more information on classifications, contact the site safety office.
- Personnel must not occupy excavators or loader buckets during the operation of the equipment.
- When using continuous-tracked equipment, place protection on paved road surfaces to prevent damage.

3.5 Hydraulic Lines

Even "minor" hydraulic leaks are considered serious and must be handled according to site, local, state, and governmental regulations. Hydraulic lines must be maintained to prevent leakage. If catastrophic failure of a hydraulic system occurs, the site Environmental Officer must be notified immediately, and the spill cleaned up according to site, local, state, and governmental regulations. Sites have written procedures to respond to this type of spill. A damp spot on a hose or fitting is not considered a leak, however a drip to the ground is. Dampness on hoses or fittings should be considered a potential leak and drips must be repaired immediately.

3.6 Backhoes

"Walking" and/or straddling a backhoe across an open trench should be avoided. If walking or straddling is necessary, the engineer must plan the job.

Backhoes must not be used for any operations exceeding the manufacturer's recommendations or the capability of the equipment (e.g., unloading a truck with a backhoe boom instead of a crane). If the manufacturer permits the use of a backhoe as a "crane," rigging must be according to the site standards and must be attached to the bucket according to the manufacturer's recommendations. Load charts showing load and radius capacities must be in the backhoe. Operation of a backhoe as a crane must comply with all requirements of PH84.

3.7 Trucks with Dumping Beds

If the cab of a dump truck is equipped with vertical and horizontal protection (designed to withstand the impact of the material being loaded), personnel may remain in the cab of the dump truck during the loading of the dump bed with materials less than 3 inches (7.5 centimeters) in diameter. If the cab has insufficient protection and/or the materials are larger than 3 inches (7.5 centimeters) in diameter, then personnel must leave the truck during loading and must wear all required site-specific safety equipment (i.e., hard hats and safety glasses) when they are outside the vehicle.

Personnel must not be transported in the bed of any dump truck.

When dumping a load, follow the manufacturer's recommendation on ground conditions. These recommendations give the "acceptable" slope of the terrain when operating the dump bed.

Dumping operations must be performed on stable, compacted areas. When dumping loads on the elevated edges of "new fill" areas, the engineer should develop a plan to prevent the dump truck from entering the area of unstable material.

Before and during the operation of a dump truck with the bed in the "up" position, the operator must verify and check the overhead clearances during forward and backward movements. The engineer must be sure that the dumping operation does not conflict with the requirements of CCSM B-1.18 and CCSM C-10.1.

Use a positive bed lock when any work is required under the dumping bed when the bed is in the "up" position.

3.8 Rollover Protection Systems

All earth-moving equipment except dump trucks and hydraulic excavators requires rollover protection. All backhoes require rollover protection except a backhoe attachment mounted on a tractor of less than 20 horsepower.

3.9 Equipment Modification

Do not modify equipment unless the manufacturer agrees in writing to the proposed change and until the agreement is received at the site. A copy of the manufacturer's written consent shall be kept on file for review. Any modifications must first be approved by the Site Manager, the Site Safety Office, and Chemours Fleet Operations in writing and kept on file with the equipment.

4.0 References

CCSM B-1.18, *Use of Mobile Equipment Near Exposed Electric Lines*

CCSM C-10.1, *Mobile Equipment Work Near Hazardous/Critical Pipe Lines*

Attachment C-5.2-1

Earth-Moving Equipment Inspection

Check equipment to be inspected: Dump Truck _____ Front-End Loader _____
Backhoe _____ Bulldozer _____ Motor Grader _____ Other _____
Equipment identification number _____

ITEMS	CONDITION			REMARKS
	Good	Rejected	N/A	
1. Access & Egress*				
2. Backup Alarms*				
3. Body				
4 Excess slack in boom*				
5. Boom Pins*				
6. Brakes*				
7. Bulk Head Partition*				
8. Clutch*				
9. Cotter Pins/Hardened Pins*				
10. Cover				
11. Fire Extinguisher				
12. Frame				
13. Fuel Systems*				
14. Glass*				
15. Guards*				
16. Horn*				
17. Hydraulic System* (no leaks)				
18. Operator Controls Labeled				
19. Lights				
20. Lugs				
21. Muffler & Exhaust Pipe*				
22. Muffler Guards*				
23. Outriggers*				
24. Parking Brakes*				
25. Platform Decking				
26. Positive Dump Bed Latch*				
27. Rear View Mirror				
28. Rollover Protection*				
29. Seat Belts*				
30. Side Mirrors (Both)*				
31. Steering Mechanism*				
32. Tracks, Tires, Wheels*				
33. Turn Signals				
34. Windshield Wipers				
35. Steps and Grabs				

* If any of these are rejected, the equipment shall not be used.

_____ _____
Inspected by Date

Equipment Operator Qualification

Check off appropriate equipment:

Backhoe _____

Bulldozer _____

Dump Truck _____

Front-end Loader _____

Grader _____

Hydraulic Excavator _____

Other _____

_____ employed by

(Operator's Name)

_____ is authorized to

(Employee's Name)

operate this equipment_____

(Equipment Make/Model)

and for the specific equipment to be operated:

- Has the required physical and mental abilities required to operate it.
- Has read the manufacturer's operating manual.
- Has received and successfully completed specific written and/or oral training and instructions.
- Has demonstrated proficiency in the safe operation of it.

Verified by _____ _____

(Employer Representative) Date

_____ _____

Employee's Signature Date

UNDERGROUND OBSTRUCTION EVALUATION SOP
EHS.07

PURPOSE

To ensure that individuals performing subsurface work for or on behalf of the CRG evaluate the need to accomplish a subsurface utility investigation (geophysics).

ROLES AND RESPONSIBILITIES

Project Director

- » Ensures that underground obstructions are considered during work plan and health and safety plan (HASP) development
- » Verifies that appropriate methods for identifying underground utilities are used
- » If a geophysical investigation is not necessary based on Decision Flow Chart results (see Attachment A), signs the variance on the Project Safety Analysis (PSA) Form to document the decision
- » Signs the Subsurface Clearance Evaluation Checklist (see Attachment B) prior to initiating work

Project Manager

- » Ensures that an underground obstruction evaluation is included in the project budget and implemented as agreed upon
- » If an underground obstruction evaluation is not necessary, obtains a variance from the Project Director
- » Signs the Subsurface Clearance Evaluation Checklist (see Attachment B) prior to initiating work

Chemours Site Representative (CSR)

- » Ensures that an underground obstruction evaluation is completed per this SOP
- » Audits the underground obstruction evaluation to determine whether site conditions match the assumptions used in the evaluation
- » Coordinates with the Field Team to review a site map and physically walks the areas of concern with the plant contact, the excavation permit issuer, and the person and/or team performing the survey
- » Signs the Subsurface Clearance Evaluation Checklist (see Attachment B) prior to initiating work

Field Team

- » Before the geophysical investigation, provides a map of the areas of concern and physically walks the areas with the plant contact, permit issuer, and survey worker(s)
- » Reviews the geophysical investigation data with the plant contact or permit writer and, based on these discussions, determines if subsurface work can proceed or if additional evaluation is necessary
- » When subsurface work can proceed, requests a permit for the work and begins field activities

PROCEDURE METHODOLOGY

Personnel working for or on behalf of the CRG must evaluate underground obstructions and obtain an Excavation Permit prior to all subsurface work. A decision flow chart (see Attachment A) and Subsurface Clearance Evaluation Checklist (see Attachment B) must be used prior to initiating subsurface work.

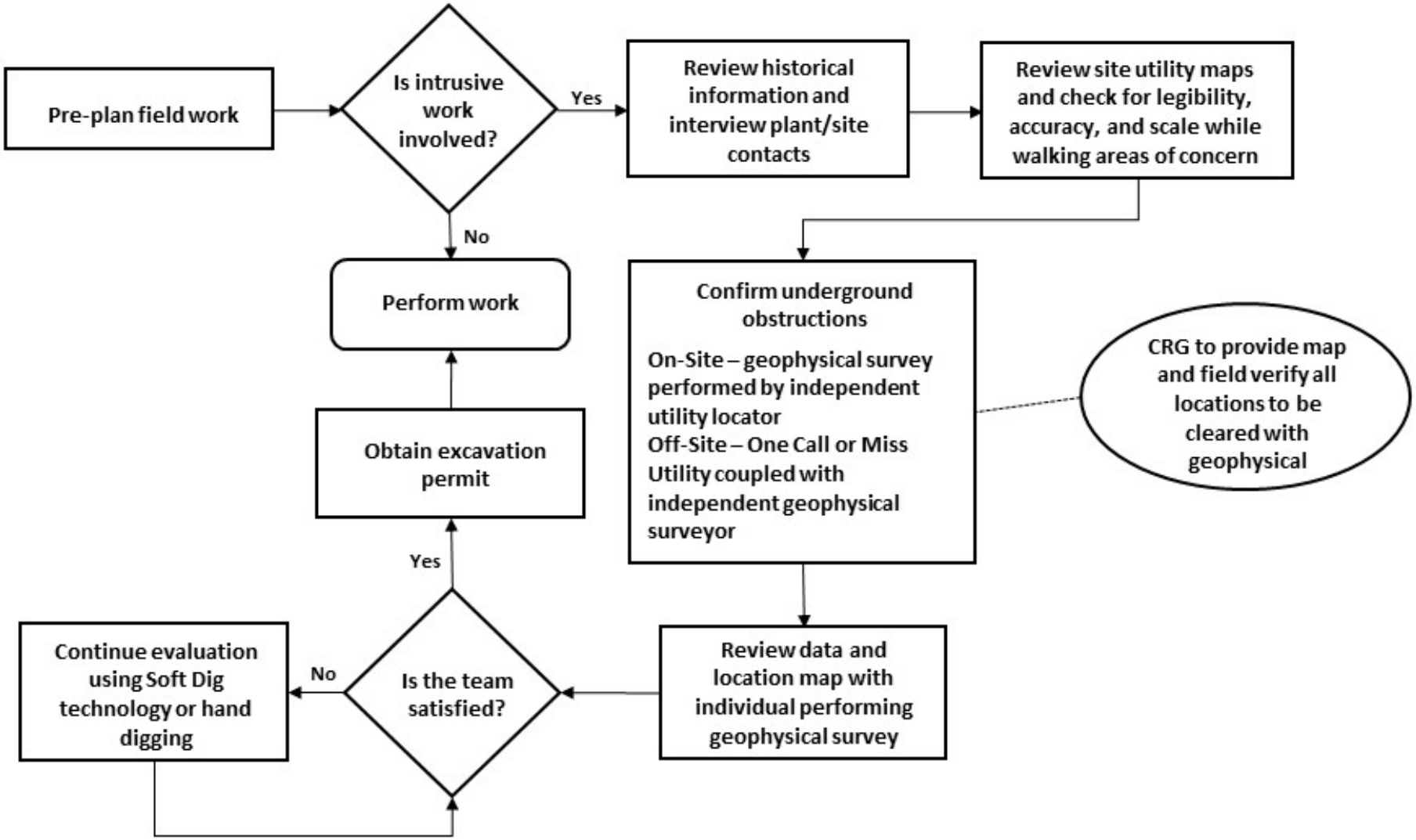
1. When a project authorization is submitted, the Project Director determines if subsurface work will be involved.
2. If subsurface work is involved, the Project Manager (working with the project team) must use Attachment A to determine if a geophysical investigation is necessary.
3. After reviewing Attachment A, if the Project Director does not believe it is necessary to perform a geophysical investigation, s/he must sign the variance section on the Hazards Checklists to document the decision.
4. If a geophysical investigation is deemed necessary, the Field Team must complete the checklist provided in Attachment B.
5. The survey is initiated; a plant utility group can perform the work if their capabilities include a full geophysical investigation (vs. strictly electrical lines under current).
6. Three of the following approaches must be included as part of the survey to ensure the accurate location and type of subsurface utilities:
    - » Review of site drawings, figures, utility maps and diagrams provided by the local utility or municipality
    - » Subsurface clearance using nondestructive above grade location methods (e.g., ground penetrating radar, magnetic imaging)
    - » Interviews with staff who are knowledgeable about previous site activities and utilities
    - » Visual survey and inspection for indications of subsurface utilities (e.g., soil disturbance, transformers, manholes, scarred asphalt, utility meters)
7. Upon completion of the survey, the Field Team requests an Excavation Permit for the work and begins field activities.
8. If additional evaluation is necessary, Soft Dig technology or hand digging is used to identify underground obstructions.

KEY TERMS

Key Term	Definition
Excavation Permit	Written authorization to perform subsurface work.
Geophysical Survey	A survey using any number of tools that use techniques such as magnetic fields and radio transmitters/receivers to locate underground obstructions.
Heavy Equipment	Large construction equipment (e.g., drill rigs, excavators, cone penetrometers, geoprobes) used to perform subsurface work.
Project Safety Analysis (PSA)	A review of the project with project participants (including contractors when appropriate) designed to identify key safety hazards and develop a control plan before field work begins.
Soft Dig	A soil removal technique that uses high pressure air to loosen soil combined with a vacuum to remove soil without damaging underground obstructions.
Underground Utilities	Lines (e.g., electric, communication, pipe, sewer) that are buried below the surface.

ATTACHMENT A
UNDERGROUND OBSTRUCTION EVALUATION DECISION FLOW CHART

Underground Obstruction Evaluation
Decision Flow Chart



ATTACHMENT B
SUBSURFACE CLEARANCE CHECKLIST

Subsurface Clearance Checklist

Background Information

Site Name:			
Job Number:			
Site Phone No.:			
Site Address:			
County:			
Project Manager Name:			
Project Manager Phone:			
Site Manager Contacted By and Date:			
Site Drawings (circle one):	Yes (attach)	No	N/A
Third Party Construction/ Redevelopment Plans (circle one):	Yes (attach figure w/proposed boring locations)	No	N/A
Subcontractor Company Name:			
Subcontractor Contact Name:			
Subcontractor Contact Phone No.:			
Meeting Start Date:			
Meeting Time:			

Utility Protection Services (e.g., One Call, Miss Utility)

Date and Time Called:		
Person Who Called:		
Reference No.:		
Proposed Excavation/Drilling Locations Premarked for Locating Service (circle one):	Yes	No
Locating Service Performed (circle one):	Yes	No
Date and Time Called:		
Person Who Called:		
Locating Service Company Name:		
Locating Service Contact Phone No.:		

Subsurface Clearance Checklist

Type of Sensing Equipment Used:		
Proposed Excavation/Drilling Locations Premarked (circle one):	Yes	No

Site Walk

Site Walk Performed with Site Representative (circle one):	Yes	No
Site Representative Name:		
Cleared (circle one):	Yes	No
Building Utility Service Line Connections Identified (circle one):	Yes (hand sketch on map w/proposed boring locations)	No

Subsurface Clearance Checklist

Utility Inventory

Utility Type	Name	Depth (feet) (if available)	Marked?	
Electric			Y	N
			Y	N
Telephone			Y	N
			Y	N
Cable			Y	N
			Y	N
Gas			Y	N
			Y	N
Water			Y	N
			Y	N
UST System			Y	N
			Y	N
Storm			Y	N
			Y	N
Sanitary			Y	N
			Y	N
Steam			Y	N
			Y	N
Other			Y	N
			Y	N

Subsurface Clearance Checklist

Approval

Excavation/Drilling Locations Approved by Project Manager (circle one):	Yes	No

Signatures

Excavation/Drilling Contractor Site Manager Name (please print)	Excavation/Drilling Contractor Site Manager Signature
CSR Name (please print)	CSR Signature
Project Manager Name (please print)	Project Manager Signature
Project Director Name (please print)	Project Director Signature

Appendix M

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Former Coastal / Roempke Enterprises Site Location: 3317, 3319, and 3401 Auburn Way North, Auburn WA

Project Lead/Organization: Sunset Auburn, LLC County: King County

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Cristi Acuna	Name:	Troy Bussey
Organization:	Sunset Auburn, LLC	Organization:	PIONEER Technologies
Phone:	(253)826-6997	Phone:	(360)810-0640
Email:	Cacuna@sunsetchev.com	Email:	BusseyT@uspioneer.com

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	N/A	Name:	N/A
Program:		Program:	
Phone:		Phone:	
Email:		Email:	

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Snoqualmie Indian tribe	Tribe:	Muckleshoot Indian Tribe
Name:	Aaron Webster	Name:	Melissa Calvert
Title:	Staff Archaeologist	Title:	General Services Director
Phone:	(425)466-0263	Phone:	(253)876-3233
Email:	aaron@snoqualmietribe.us	Email:	Melissa.Calvert@Muckleshoot.nsn.us
Tribe:	Suquamish Tribe	Tribe:	Tulalip Tribes
Name:	Stephanie Trudel	Name:	Richard Young
Title:	Tribal Historic Preservation Officer	Title:	Cultural Resources
Phone:	360-394-8533	Phone:	(360)716-2652
Email:	strudel@suquamish.nsn.us	Email:	ryoung@tualiptribes-nsn.gov

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:		Agency:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: King County Medical Examiner (206)-731-3232
   - Local Law Enforcement main name and phone: Auburn Police Department (253)931-3080
   - Local Non-Emergency phone number (911 if without a non-emergency number): Auburn Police Department Non Emergency (253)-288-2121
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information)

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

Squaxin Island Tribe

Shaun Dinubilo
Archaeologist
(360)870-6324
sdinubilo@squaxin.us

Puyallup Tribe of Indians:

Jefferey Thomas
TFW Cultural Resources
(253)573-7986
Jefferey.Thomas@puyalluptribe-nsn.gov

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.

Stone artifacts from Oregon.

Stone artifacts from Washington.

Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.

Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*

Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.

Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.

Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*

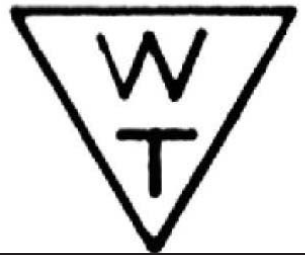
Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.

Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*



Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).

Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.

Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

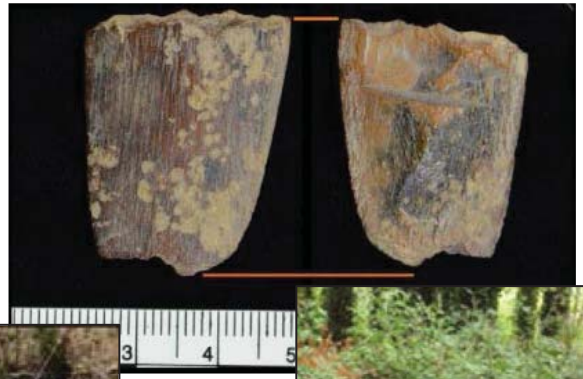
Potential human remains.

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.



Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*