Lower Duwamish Waterway Upper Reach Remedial Action

Personnel and Equipment Decontamination Plan Revision 7

November 18, 2024

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Quality information

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Abbreviations

BODR	Basis of Design Report
CRZ	Contamination Reduction Zone
EPA	U.S. Environmental Protection Agency
EZ	Exclusion Zone
HAZWOPER	Hazard Waste Operations and Emergency Reponse
LDW	Lower Duwamish Waterway
OCA	Operations Containment Area
Plan	Personnel and Equipment Decontammination Plan
PPE	personal protective equipment
PPM	Pacific Pile & Marine
Site	Lower Duwamish Waterway Superfund Site
SMA	Sediment Management Area
SZ	Support Zone

1. Introduction

This Personnel and Equipment Decontamination Plan (Plan) for the Lower Duwamish Waterway Upper Reach describes requirements and procedures to be implemented for decontamination activities during remedial construction activities for the upper reach of the Lower Duwamish Waterway (LDW) Superfund Site (Site) in King County, Washington.

1.1 Purpose

The purpose of this Plan is to provide procedures for personnel and equipment decontamination to be followed for the duration of remedial activities that will protect the environment and ensure the health and safety of Site personnel and the community. The following Site documents were used to prepare aspects of this Plan:

- Final (100%) Remedial Design Basis of Design Report (BODR) for Lower Duwamish Waterway Upper Reach (Anchor QEA, 2024);
- Specification Section 01 35 29 (Health and Safety);
- Specification Section 01 35 43 (Environmental Procedures); and
- Specification Section 01 74 23 (Final Cleaning);

Work for the Site will be performed in accordance with the plans, drawings, and specifications or as directed by King County's Project Representative to execute this Plan. If there are inconsistencies between this Plan and named or otherwise applicable specifications sections, the specifications shall control.

2. Decontamination Facilities

Each HAZWOPER controlled active work area will consist of the following zones:

- The Exclusion Zone (EZ) which will have controlled access due to the presence of contaminated material;
- The Contamination Reduction Zone (CRZ) where equipment and personnel decontamination will take place; and
- The Support Zone (SZ) where non-contaminated Site operations will take place.

2.1 Water-Based Decontamination

The typical configuration of the work zones and decontamination facilities for water-based decontamination is shown on **Figure 1**. This configuration will be utilized for both dredging and demolition activities as the equipment is the same for both activities. Water-based equipment will be decontaminated on the barges which will be watertight allowing for the collection of wastewater and sediment generated during decontamination. Dry decontamination will be performed if needed to remove heavy residuals prior to the start of water-based decontamination and will occur within the same area, however water-based decontamination will not be performed in areas not setup to contain impacted waters and residuals. The collected water and sediment will be transported on the contaminated sediment barges with dredged sediments to the Duwamish Reload Facility.

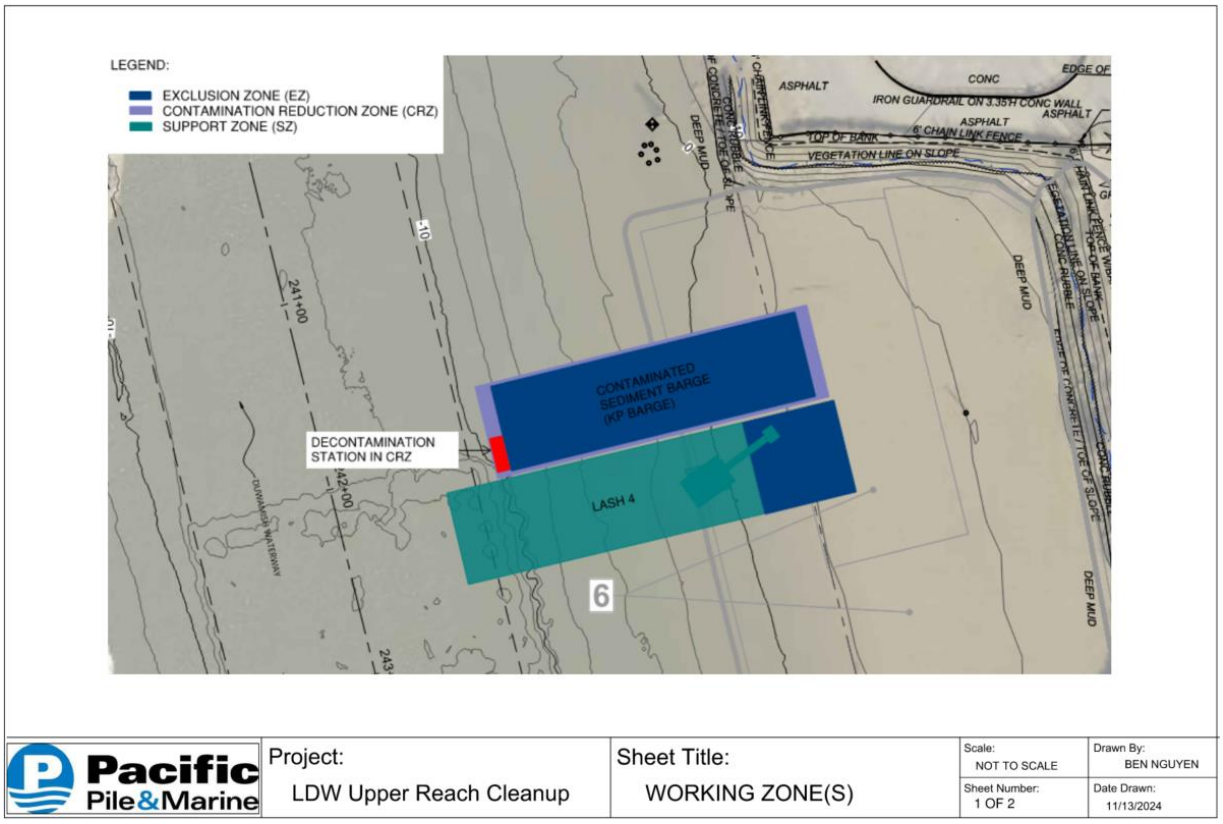

Figure 1- Typical In-Water Personnel and Equipment Decontamination Layout

The CRZ areas depicted on the deck space of the Contaminated Sediment Barge on Figure 1 will be utilized for personnel decontamination.. The excavator buckets will be decontaminated on the contaminated sediment barges prior to transitioning from dredging, transloading, and dewatering activities to material placement activities. The dual-role barges used in SMA 1 will also be decontaminated when

they switch from dredging/demoltiion activities to placement activities. **There will be no dedicated equipment other than the Kumtux and Eglon barge used to haul the clean import materials.**

2.2 Land-Based Decontamination

The land-based decontamination facilities and work zones for SMA-5 are shown on **Figure 2**. Land-based equipment will be decontaminated on a decontamination pad constructed in the CRZ that is capable of collecting wastewater and sediment/soils generated during decontamination. A detail of the decontamination pad is shown on **Figure 3**. Haul trucks will be dry decontaminated and driven through the wheel wash and construction exit ramp prior to entering the SZ, see **Section 3.3.1** for dry decontamination procedures. The wheel wash and construction entrance and exit ramps will be constructed according to Specification Section 01 35 43 (Environmental Procedures) and Section 31 25 00 (Erosion and Sedimentation Control). The decontamination work elements associated with performing SMA5 remain under development and will be submitted at a later date prior to construction.

2.3 Duwamish Reload Facility Decontamination

The Duwamish Reload Facility ensures that decontamination procedures keep equipment within the Operations Containment Area (OCA). Equipment washing is conducted as necessary, with wash water treated through the on-site water pretreatment system. The OCA is designated for operations, including equipment cleaning and maintenance. Land-based decontamination facilities at the Duwamish Reload Facility ensure that vehicle and equipment washing occurs within the OCA, with wash water collected and pumped to the on-site water pretreatment system before being discharged to the municipal sewer system.

Trucks entering the OCA will exit through a wheel wash system, where water is recycled, and particulates and floatable oils are separated. Accumulated solids are routinely removed and properly disposed of. If the system needs to be emptied for maintenance or repairs, the water will either be transferred to the on-site water pretreatment system or hauled off-site to an authorized treatment facility. Any drip-off or drag-out past the wheel wash will be collected in a nearby plugged catch basin and piped to the on-site water pretreatment system. All railcars will be thoroughly inspected prior to release from the OCA. The exterior of each railcar will be checked for residual sediment and potential leaks. If sediment is observed on the railcar body, it will be removed using hand brushes or other appropriate mechanical means before the railcar is cleared for departure. Sediment and any contaminated materials generated during the cleaning process will be placed in the disposal stockpile for transport to the landfill with the next railcar. Railcars exhibiting any signs of leakage will not be permitted to leave the OCA until the issue is fully resolved.. Additional details on the Duwamish Reload Facility are included in the Transloading, Upland Transportation, Waste Characterization, and Disposal Plan in Appendix . K of the RAWP. Please review the DRF HASP for information on personnel safety and decontamination processes for the DRF located in Appendix F of the RAWP.

3. Equipment and Vehicle Decontamination

To protect the environment and ensure the health and safety of Site personnel and the community, equipment and vehicle decontamination will be completed at the following times throughout remedial activities:

- Prior to use for non-contaminated Site operations if the equipment and or attachments were previously used for contaminated Site operations;
    - To further clarify the above bullet: material barges used to move contaminated sediment need to be decontaminated before use for clean materials
        - The Porpoise and Poseidon are currently slated to be dual-role barges: performing contaminated operations as well as clean operations so they will need decontamination prior to clean activity uses
    - The following barges are planned to be dedicated for clean materials:
        - Kumtux
        - Eglon
    - PPM may elect to have other barges become dual-role barges but intends to minimize dual-role barges as much as possible
- At the completion of remedial activities for each construction season equipment, containers, vessels, barges, and other apparatuses will be decontaminated;
- Prior to leaving the Site if the vehicle or equipment is suspected to have come into contact with contaminated materials; and
- Prior to leaving SMA 5, trucks will drive through the wheel wash (see **Section 3.3.3**).

Equipment and vehicle decontamination will be performed on decontamination pads, wheel wash, or on watertight barges as discussed in Section 2 to prevent cross-contamination of non-contaminated areas. PPM will dedicate the Kumtux to clean import hauling and the KPs to contaminated sediment hauling. All other equipment on the project will have mult-use and will not be dedicated to one activity type. The Project Representative will inspect decontaminated equipment and vehicles at their discretion. If requested by the Project Representative, Pacific Pile & Marine (PPM) will perform additional decontamination prior to equipment or vehicles leaving the site or being used for non-contaminated Site operations.

3.1 Decontamination Equipment

Land-based equipment and vehicles leaving the EZ will be considered contaminated. Contaminated sediment barges and water-based equipment or land-based equipment located at the Duwamish Reload Facility that come into contact with suspected and/or known contaminated materials will be considered contaminated. This equipment and vehicles will be properly decontaminated to minimize exposure and off-site migration of contaminated materials.

3.1.1 General Decontamination Tools/Equipment

The equipment required to perform decontamination varies based on Site conditions. The following equipment will be used for equipment decontamination purposes:

- Pressure washer;
- Soft-bristle scrub brushes or long-handled brushes to remove contaminants;
- Hoses, buckets of water, or garden sprayers for rinsing;
- Large plastic/galvanized wash tubs or children's wading pools for washing and rinsing solutions;

- Large plastic garbage cans or similar containers lined with plastic bags for the storage of disposal personal protective equipment (PPE) until they are properly disposed of;
- Temporary storage for wastewater generated during decontamination; and
- Poly or plastic sheeting to contain contaminants and decontamination fluids.

3.1.2 SMA 5 Wheel Wash Decontamination Tools/Equipment

Equipment to be used at the wheel wash located at SMA 5 includes:

- Soft-bristle scrub brushes or long-handled brushes to remove contaminants;
- Pressure washer;
- Hoses, buckets of water, or garden sprayers for rinsing; and
- Temporary storage for wastewater generated during decontamination.

3.1.3 Duwamish Reload Facility Decontamination Tools/Equipment

The Duwamish Reload Facility will utilize the following equipment for equipment decontamination purposes:

- High-Pressure Washers: High-pressure washers or power washers are essential for removing dirt, grime, and contaminants from large surfaces and intricate parts of the equipment.
- Steam Cleaners: Steam cleaners are effective for decontaminating equipment, especially for grease and oil removal, without the need for harsh chemicals.
- Water Reclamation Systems: These systems collect and treat wash water, allowing for the recycling of water and safe disposal of contaminants.
- Wheel Wash Systems: Automated wheel wash systems help clean the tires and undercarriages of trucks and heavy machinery, preventing the spread of contaminants.
- Manual Cleaning Tools: Brushes, scrapers, and other manual tools will be used for detailed cleaning and hard-to-reach areas.
- Environmental Enclosures: Portable enclosures or wash bays can be set up to contain the decontamination process, preventing runoff and containing overspray.
- PPE: Operators will use PPE such as gloves, masks, goggles, and protective suits to ensure their safety while handling cleaning agents and contaminated equipment.

3.2 Personal Protective Equipment

The first step in the equipment decontamination process is for all personnel involved to don PPE. Level D PPE will be required during all Site operations as indicated in the Site-Specific Health and Safety Plan (Appendix F of the Remedial Action Work Plan). Additional Level D PPE is required for personnel performing equipment decontamination to prevent contaminant exposure including:

- Face shield;
- Plain (uncoated) disposable coveralls;
- Chemical-resistant gloves;
- Chemical-resistant safety-toe boots;
- Chemical-resistant disposable outer coveralls; and
- Chemical-resistant outer gloves taped to outer coverall.

3.3 Decontamination Procedures

Decontamination procedures will be performed on equipment and personnel exiting the EZ in the CRZ prior to entering the SZ. Equipment and attachments in contact with impacted materials will be decontaminated prior to handling clean fill and materials. Equipment, containers, vessels, barges, and other apparatuses used during remedial construction activities will also be decontaminated prior to the final demobilization. Dry and wet decontamination procedures will be used as necessary to removal contaminated material and pass inspection.

3.3.1 Dry Decontamination Procedures

Dry decontamination procedures for haul truck during operations at SMA 5 will be performed over a decontamination pad or wheel wash. Dry decontamination will include removing contaminated materials from haul trucks with brooms, brushes, and shovels. Contaminated materials will be collected and disposed of as described in **Section 5**. Equipment will be visually inspected for signs of visible contamination which includes oily sheen, residue or contaminated soils left on the haul truck. Haul trucks with visible signs of contamination (mud, soil, sediments, and/or residuals) will be dry decontaminated until no signs of contamination are visible.

3.3.2 Wet Decontamination Procedures

Wet decontamination will take place over a decontamination pad, wheel wash, or on a watertight barge. Equipment will be pressure washed to remove any remaining contaminated materials. Personnel operating pressure washers will be knowledgeable in the operation of the equipment and follow the manufacturer's operational instructions. Dredge buckets will be pressure washed over the final contaminated sediment barge to ensure decontamination prior to transitioning from dredging to backfilling activities. Detergents or decontamination solutions will not be used unless specifically requested and approved by the EPA. If such products are deemed necessary, detailed product information will be submitted for review and approval before use.

Decontaminated construction equipment will be visually inspected. Signs of visible contamination includes oily sheen, residue or contaminated soils left on the equipment. Equipment will be decontaminated until no signs of contamination are visible. Employees performing equipment decontamination will be required to follow the personnel decontamination procedures outlined in **Section 4**. Contaminated materials will be collected and disposed of as described in **Section 5**.

3.3.3 Wheel Wash

SMA 5 construction is expected to take place between December 2026 and March 2027. Final construction details of the wheel wash setup will be completed at a later date. In general, a wheel wash and construction entrance and exit ramps will be constructed at the Container Properties access adjacent to SMA 5 (see **Figure 2**) in accordance with Specification Section 01 35 43 (Environmental Procedures). Water will be pumped from the Lower Duwamish Waterway for use in the wheel wash. All trucks leaving SMA 5 will drive through the wheel wash while exiting the CRZ prior to entering the SZ. Personnel will hand-spray tires as needed if the wheel wash does not provide adequate cleaning. The wheel wash entrance and exit ramps will be sprayed as necessary to remove sediment and turbid water. Contaminated materials will be collected and disposed of as described in **Section 5**.

3.3.4 Barge Decontamination

At the end of each season or prior to reusing barges for clean import materials, the material barges will be towed to the Waste Management Transloading facility for comprehensive dockside cleaning. All wash water and residual sediment will be collected and disposed of in the same waste stream as the dredge spoils, ensuring consistent waste

handling practices. Sediment removed from the barges will be stockpiled, with final removal transloaded as specified in the Transload, Transportation, and Disposal Plan found in Appendix K of the RAWP.

The final decontamination process will involve using a "hotsie" pressure washer equipped with a detergent/surfactant additive reservoir to thoroughly remove all remaining soils and sediments. The selected detergent, a water and Alconox™ mixture, will ensure effective decontamination. After cleaning, any rinse water will be vacuumed and transported by a vacuum truck to a permitted off-site disposal facility.

Following decontamination, each barge and piece of equipment may be inspected by the Project Representative. If additional decontamination is deemed necessary, the PR reserves the right to request further cleaning at no extra cost before the equipment is removed from the facility or used in clean areas.

4. Personnel Decontamination

Necessary steps will be taken to reduce or minimize contact with chemicals and impacted materials while performing field activities (e.g., avoid sitting or leaning on, walking through, or splashing of known impacted materials), see the Site-Specific Health & Safety Plan (Appendix F of the Remedial Action Work Plan) for more details and job hazard analysis for Site specific tasks. Personnel working in the EZ or performing equipment decontamination will perform decontamination procedures prior to entering the SZ. If detergent or decontamination solutions are used in the equipment or personnel decontamination, a process safety data sheet will be filed onsite, reviewed, and implemented by personnel involved in decontamination with detergent or decontamination solutions.

4.1 Personnel Decontamination Procedures

Personnel decontamination will be conducted in a manner which minimizes the hazardous skin or inhalation exposure and cross-contamination. Decontamination areas will have large washtubs or children's wading pools for decontamination and drums for the disposal of PPE and decontamination waste. Cleaning tubs shall be set up within secondary containment to capture spilled material. To minimize inhalation exposure the decontamination area will be oriented such that personnel are positioned upwind of potential inhalation exposure sources. Personnel decontamination will take place in the CRZ and will be conducted using the following steps:

1. Step into washtubs and remove all visible contamination from boots via wash brush. Absorbent pads and water sprayers or garden hoses will be available at this station to assist in the cleaning;
2. Step from washtub and walk on absorbent pad;
3. Remove outer gloves and disposable PPE and place in waste can;
4. If applicable remove and dispose of inner gloves
5. Wash hands at the hand wash station with soap/surfactant mixed with water; and
6. Exit decontamination line into SZ.

In the event of a Medical Emergency the following decontamination steps will be followed:

- If decontamination can be done:
    1. Wash, rinse and/or cut off PPE.
- If decontamination cannot be done:
    1. Wrap the victim in blankets or plastic sheeting to reduce contamination of other personnel.

2. Alert emergency and offsite medical personnel to potential contamination.
3. Instruct emergency and offsite medical personnel about specific decontamination procedures if necessary.

4.2 Medical Emergencies

See the Site-Specific Health and Safety Plan and the **Emergency Response Plan** (Appendix F of the Remedial Action Work Plan) for procedures to be taken in the event of a Medical Emergency including emergency contact information and route to hospital maps.

5. Management of Decontamination Waste

All solid waste and discarded PPE generated during decontamination will be containerized and managed at the Duwamish Reload Facility with other wastes generated during remedial activities. Wastewater generated from decontamination will be contained and transferred to the Duwamish Reload Facility for final off-site disposal. All decontamination wastewater and material will be managed and disposed of in accordance with applicable federal, state, and local regulations.

Personnel decontamination will occur on the Lash Barge, decontamination waste will be contained within the CRZ during the work day. At the completion of each work day, and at additional times as needed, the decontamination waste will be transferred to the contaminated sediment barge to be transferred to the Duwamish Reload Facility for final off-site disposal.

The decontamination work elements associated with performing SMA5, including the management of the decontamination water, remain under development and will be updated for final approval at later date prior to construction.

6. References

Anchor QEA, 2024. Final (100%) Remedial Design Basis of Design Report for Lower Duwamish Waterway Upper Reach. Anchor QEA. January 2024.

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