COMMUNITY HEALTH AND SAFETY PLAN
PHASE 1: Sediment and Upland Cleanup

Lower Duwamish Waterway Superfund Site
Terminal 117 Early Action Area

May 4, 2015
Revision 1
Revision Notes

Revision 1 – 5/4/2015
This revision was completed by AECOM and Occupational Resources Inc to document EPA approved changes made to the CHASP during construction. This revision serves as a record for the means and methods employed during CHASP implementation from May 2013 through December 2014.
COMMUNITY HEALTH AND SAFETY PLAN
PHASE 1: Sediment and Upland Cleanup

_Lower Duwamish Waterway Superfund Site_
Terminal 117 Early Action Area

May 11, 2015
_Revision 1_

PREPARED BY:

CRETE CONSULTING, INC.

REVISED BY:

AECOM

EnviroIssues

Occupational Safety Resources, Inc.
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Acronyms and Abbreviations

ACGIH  American Conference of Governmental Industrial Hygienists
ASIL   Acceptable Source Impact Level
ATSDR  Agency for Toxic Substances and Disease Registry
BMPs   Best Management Practices
CFR    Code of Federal Regulations
CHASP  Community Health and Safety Plan
CIH    Certified Industrial Hygienist
CIP    Community Involvement Plan
City   City of Seattle
COC    contaminant of concern
Contractor cleanup Contractor or subcontractors to cleanup Contractor
dB(A)  decibel, measured using A-weighting
DOSH   Division of Occupational Safety and Health
DRCC   Duwamish River Cleanup Coalition
dw     dry weight
EAA    Early Action Area
Ecology Washington State Department of Ecology
EPA    Environmental Protection Agency
FAQ    frequently asked question
GC/MS  gas chromatography/mass spectrometry
GSR    Green and Sustainable Remediation
HASP   Health and Safety Plan
HAZWOP Hazardous Waste Operations
H₂S    hydrogen sulfide
LDW    Lower Duwamish Waterway
MLLW   mean lower low water
MRL    Minimal Risk Level
µg/m³  micrograms per cubic meter of air
NAAQS  National Ambient Air Quality Standards
NIOSH  National Institute of Occupational Safety and Health
NTCRA  non-time-critical removal action
OSHA   Occupational Safety and Health Administration
PCB    polychlorinated biphenyl
Phase 1 Sediment and Upland Areas
Phase 2 Adjacent Streets and Residential Yards Area
PID    photoionization detector
PM₂.₅  particulate matter of 2.5 micrometers in diameter or less
PM₁₀  particulate matter of 10 micrometers in diameter or less
Port   Port of Seattle
ppm  parts per million  
PSCAA  Puget Sound Clean Air Agency  
PUF  polyurethane foam  
RAWP  Removal Action Work Plan  
RE  Resident Engineer  
Settlement Agreement  Administrative Settlement Agreement and Order on Consent  
SMC  Seattle Municipal Code  
T-117  Terminal 117  
TCRA  time-critical removal action  
TLV  Threshold Limit Value  
TPH  total petroleum hydrocarbons  
TWA  time-weighted average  
USACE  United States Army Corps of Engineers  
USCG  United States Coast Guard  
VOC  volatile organic compound
# 1 Introduction

The Terminal 117 (T-117) project site is an Early Action Area (EAA) within the 440-acre Lower Duwamish Waterway (LDW) Superfund Site in Seattle and Tukwila, WA. The Port of Seattle (Port) plans to conduct a non-time-critical removal action (NTCRA) to address contaminants of concern (COCs) in soil and sediment. This action addresses the Sediment and Upland Areas of T-117 (Phase 1) and is planned for implementation between the summer of 2013 and the spring of 2014. Preparation of a Community Health and Safety Plan (CHASP) is one of the required design elements under the Administrative Settlement Agreement and Order on Consent (Settlement Agreement; EPA 2011) for the NTCRA at T-117.

## 1.1 Purpose

Phase 1 of the T-117 NTCRA is a complex cleanup project that will take about 10 months to complete and includes in-water and upland construction activities. As with any construction project, the array of heavy equipment, trucks, and work boats can generate noise, light, dust, odors, and traffic that may be temporary inconveniences to normal quality of life near the work areas. Because of the nature of the work involved, this project also presents a potential for injury and property damage. With this in mind, the activities described in this CHASP are designed to keep the community safe, and communicate to the community that this project will not harm them, while completing this vital work to clean up an EAA of the LDW.

This CHASP is written for the U.S. Environmental Protection Agency (EPA) and the T-117 Phase 1 design and construction management teams to document the approaches to protect community health, to maintain community quality of life, and to prevent/respond to accidents involving the community. A Community Resource Guide will communicate these activities to members of the community and will also provide them information on project schedule and communication tools (e.g., how the community can communicate with the construction team). In addition, this CHASP will be reviewed by the community, and community comments will be used to finalize the CHASP and to inform development of the Community Resource Guide.

In light of the potential hazards and impacts to local quality of life, the purpose of this CHASP is to demonstrate how the project is designed to reduce the likelihood of project-related accidents and impacts that could affect the local community.

Specific elements of the CHASP include:

- Identifying potential impacts to the community
- Developing controls to minimize the potential for these impacts to occur
- Implementing a monitoring program to verify that the community is not impacted
• Providing a protocol for communicating potential impacts to the community and for receiving feedback from the community
• Providing a protocol for documenting community feedback and communicating project modifications to the community
• Reviewing and assessing any incidents to prevent their reoccurrence.

Overall, the cleanup project is required to follow federal, state, and local regulations. These regulations include control of fugitive dust through the Puget Sound Clean Air Agency (PSCAA) and protection of worker health and safety through the federal Occupational Safety and Health Administration (OSHA) and the Division of Occupational Safety and Health (DOSH). Worker safety is addressed under a separate Health and Safety Plan (HASP). The only applicable regulations directly aimed at preventing community disruption are the noise and light limits provided under the Seattle Municipal Code (SMC). This project will also adhere to all regulatory notification requirements in the unforeseen event of spills and emergencies.

This CHASP goes beyond regulations and addresses potential project-related quality of life impacts, injuries, and property damage to community members, including residents of the South Park neighborhood and LDW users. Performance standards used in the CHASP are equal to, or more protective than, those cited in the regulations.

1.2 Brief Site Description/Roles

The T-117 EAA includes the following subareas: Sediment Area, Upland Area, and Adjacent Streets and Residential Yards Area. The cleanup will be conducted in two separate but coordinated phases: the Sediment and Upland Areas cleanup (Phase 1; Figure 1-1) and the Adjacent Streets and Residential Yards Area cleanup (Phase 2). The Port is managing the Phase 1 cleanup, while the City of Seattle (City) is managing Phase 2 cleanup. This CHASP is applicable to Phase 1 only. However, community protection measures and outreach activities are being coordinated between the Port and City; further the City will be developing a separate CHASP for its Phase 2 activities.

Additionally, cleanup design and implementation for each of the Phase 1 and 2 cleanups is being coordinated to ensure that the project is completed as efficiently as possible, with the least potential impact to surrounding residents and businesses.

The cleanup Contractor and subcontractors (Contractor) are responsible for adhering to the Site-specific Construction HASP and to this CHASP. The Contractor is also responsible for conducting inspections and for maintaining Best Management Practices (BMPs) that protect the community, such as controlling dust from stockpiles and decontaminating trucks leaving the Upland Area. The design documents, including the Specifications, describe the specific requirements and performance standards that the Contractor must meet.
The EPA is providing regulatory oversight to both project phases. The U.S. Army Corps of Engineers (USACE) is also overseeing this work and reviewing design documents. Site visits by the EPA and USACE will also ensure that activities are following established plans.

The Port project team will include the following personnel:

- Project Coordinator (Roy Kuroiwa) - the primary point of contact with EPA
- Project Manager (Ticson Mach) - responsible for internal Port coordination of contracting and construction management
- Resident Engineer (RE; Stacy Heilgeist) - the primary means of contact with the Contractor and will manage construction QA activities and associated deliverables
- Environmental Compliance and Community Liaison (Dave Jenkins) – tracks compliance with bid document environmental requirements and manages CHASP-related performance issues with Contractor
- Community Involvement Coordinator (Sally del Fierro) - responsible for community involvement coordination between T-117 activities and other Port efforts
- Technical Lead (Kym Takasaki) - responsible for coordinating with RE and design team on design issues and providing direction on construction QA and reporting activities
- Resource Agency Consultation Lead (Jon Sloan) - the primary point of contact with resources agencies (National Marine Fisheries Service and U.S. Fish and Wildlife Service), Tribes, and USACE.

The Port will also use subconsultants to support construction inspection activities, including: sediment and soil confirmation sampling, community health and safety monitoring, construction oversight, laboratory analysis, and preparation of project completion reports.

### 1.3 Related Documents

This CHASP is just one document of several documents in the T-117 Phase 1 design package and Contractor submittal package. The following is a brief description of other project documents that describe construction elements that relate to this CHASP.

#### 1.3.1 Community Resource Guide

The Community Resource Guide will be a brief full-color publication distributed to the community at least 3 days before any Phase 1 construction begins. Based primarily on an approved CHASP, it will describe the construction activities, schedule, and measures the Port will take to protect the community during construction. Content will focus on issues that have been identified as a primary concern for the community (such as noise, air quality, lighting, haul routes, traffic safety, site security, and public safety). It will also provide important contact information, including a toll free hotline, for the community to
voice concerns and ask questions. The Community Resource Guide will be developed after the specific elements of this CHASP are approved by EPA.

1.3.2 Community Involvement Plan

The Community Involvement Plan (CIP) describes outreach and information dissemination to the South Park neighborhood. Although the CIP is more broad-sweeping than this CHASP (which focuses on health and safety issues), many aspects of the CIP are included in Section 7 of this CHASP. The Port’s Public Affairs Office and the Community Involvement Coordinator work cooperatively with EPA and City outreach staff to apply the principles of the CIP throughout the project, to make sure the community is kept apprised of project progress, and to respond to community feedback/questions. Additionally, the Duwamish River Cleanup Coalition (DRCC)/Technical Advisory Group, the Community Advisory Group for the Lower Duwamish Waterway Superfund Site, provides technical support, public education, and outreach and involvement services to the DRCC member organizations, the communities affected by the Superfund site, other Duwamish River stakeholders, and the general public.

1.3.3 Site-specific Construction Health and Safety Plan

The Construction HASP is a Contractor-provided component of the Removal Action Work Plan (RAWP). The selected Contractor or subcontractors hired by the Contractor will complete dredging and excavation; trucking of soil and debris; barge/tug boat operation; water quality, soil, and sediment sampling; and other activities. The primary Contractor will prepare a Site-specific HASP and will confirm that any subcontractors prepare an individual HASP or follow sections of the Site-specific HASP relevant to their specific work activities. The HASP will lay out specific requirements for training, methods of performing work activities safely, the manner of setting up and keeping the site safe for the community, response to emergencies, and procedures for documenting such activities.

Hard copies of these HASPs will be kept onsite, and electronic copies will accompany all relevant project documentation. Any aspects of the Contractor’s work affecting the community will be communicated to the project team, and this CHASP will be revised, as needed.

1.3.4 Removal Action Work Plan

The RAWP will describe the work to be completed and will lay out that work in such a way that it is efficient and protective of site workers, ecological receptors, and the community. The RAWP will also describe structures (e.g., fencing, buoys, and signage) and activities (e.g., visitor check-in process, communication with LDW users) that will be used to restrict access to the Upland Area, soil stockpile areas, the water treatment system, and the Sediment Area. It will describe site access controls both during and outside hours of operation, to protect community health and to prevent equipment damage.
1.3.5 Water Quality Monitoring Plan

Water quality monitoring for turbidity, dissolved oxygen, pH, temperature, polychlorinated biphenyls (PCBs), and arsenic will accompany any construction activities that have the potential to impact LDW water quality, such as dredging and pile removal. The draft water quality monitoring plan, written by the Phase 1 design team, describes a procedure for assessing LDW water quality impacts and for adjusting work activities in response to observations. It will be finalized by the selected Contractor when the RAWP is written, incorporating any specific dredging plans or Contractor plans for other in-water activities. The plan’s objectives are in accordance with those in this CHASP that address waterway users. EPA will prepare a Clean Water Act Water Quality Certification that will also describe the specific requirements for monitoring LDW water quality including frequency, locations, analytes, performance standards, and corrective actions if standards are exceeded.

1.3.6 Construction Quality Assurance Plan

The draft Construction Quality Assurance Plan, written by the Phase 1 design team, includes a description of the process for confirming completion of dredging and soil excavation. It defines particular sampling locations, analytes, and criteria for determining when a clean excavation bottom is reached. It will be finalized by the Port when the Contractor’s RAWP is written by incorporating Contractor specific excavation and dredging plans. This plan aims to protect community health over the long term by ensuring that the dredging and soil excavation activities adequately address LDW sediment and watershed contamination.

1.3.7 Air, Noise, and Light Monitoring Plan

The Air, Noise, and Light Monitoring Plan is a part of this CHASP (Attachment A). It describes the objectives, methods, and performance standards related to site-related air quality, light, and noise. The plan describes sampling locations, frequency, methods, and instrumentation to be used. It also provide performance standards for noise, light, dust, odor and other air quality monitoring at the site perimeter and near the nearest residence. The plan is written for the field staff who will implement the plan (install and maintain the monitoring equipment, download data from the equipment, deliver samples to the laboratory, and report results to the construction management team). The performance standards and monitoring frequencies are also discussed in this CHASP in Section 5.

1.3.8 Pollution Prevention Plan

The Pollution Prevention Plan is a Contractor-provided component of the RAWP that will describe prevention and mitigation of spills. It will discuss prevention of and procedures to follow in the event of an in-water or an upland spill. Spill prevention and response includes properly maintaining equipment to prevent leaks, properly storing any fuels/oils needed for equipment, and having spill absorbent material/supplies on hand.
1.3.9 Vessel Management Plan

The dredging contractor will prepare a plan that describes protocols for verifying seaworthiness of vessels used onsite. It will also describe an inspection program, structural requirements, and spill prevention for these vessels. If this plan is not followed, the LDW community, including human users and wildlife, could be adversely impacted through collisions or impacted water quality. Further, the methods for restricting impacts to and congestion with LDW vessel traffic will be included in this plan.

1.3.10 Traffic Control Plan

The Contractor-provided traffic control plan will be a component of the RAWP. It will describe the Contractor’s plan for addressing any traffic control issues on nearby rights-of-way (e.g., if temporary lane closures or flaggers are needed for trucks entering and leaving the site) and traffic and pedestrian control measures, including coordination of haul routes on Boeing’s South Park facility and at intersections on 14th Avenue S. The Port is in the process of preparing a Traffic Study that will be completed in June 2012. This Traffic Study will be used to develop specific requirements, such as the use of flaggers or traffic light re-timing, that will be included in the project specifications and required as part of the traffic control plan.

1.3.11 Green and Sustainable Remediation Plan

The Contractor will write a Green and Sustainable Remediation (GSR) Plan as part of the RAWP. The GSR Plan will describe all of the GSR elements in the Contractor’s approach whether required by the contract documents or independently proposed by the Contractor, including but not limited to:

- Emission reduction controls and policies; this will protect community health related to air quality from emissions generated onsite and generated by trucks traveling on neighborhood streets.
- Transportation minimization and green transportation evaluation; this will also affect community health through reduced air emissions from vehicles in the neighborhood, and quality of life from parking/traffic congestion and noise.
- Recycling, reuse, and waste minimization
- Use of local materials and facilities
- Metrics and methods to track emission reductions and other GSR elements
- Justification for any proposed approach that does not meet the minimum GSR requirements and/or preferences included in the contract documents.

1.3.12 Settlement Monitoring Point Installation Plan

Soil excavation will occur along the northern property boundary, between the Upland Area and the South Park Marina, and along the western property boundary, between the Upland Area and S Dallas Avenue. In order to demonstrate that the excavations are completed without damaging adjacent structures and utilities, the Contractor will photo-document
existing conditions, set survey control points, and conduct optical survey monitoring during excavation. The Contractor’s Settlement Monitoring Point Installation Plan will describe the methods, locations, equipment, and schedule for this activity. The design specifications describe action levels and specific actions associated with settlement monitoring.
2 Cleanup Activities

The Removal Design Report provides a thorough description of the design basis and cleanup activities. The RAWP will provide additional detail on the means and methods to be used to perform the work. This section provides a brief description of the cleanup activities with a focus on those activities that are most likely to impact the community.

2.1 Upland and Sediment Area Tasks

Soil, sediment, and debris will be removed from the Sediment and Upland Areas (Figure 1-1). A general overview of the cleanup activities to be performed for each area is provided below. The Design Report provided further details of the activities to be completed. The methods by which these activities are accomplished will largely be designed/determined by the Contractor.

2.1.1 Site Demolition and Deconstruction

The three existing Upland Area buildings and other upland improvements will be removed from the site prior to soil excavation using a combination of deconstruction with reuse and/or recycling, and demolition with disposal at a landfill. The Port has conducted a deconstruction study that identifies a landfill diversion goal that is based on specific parts of each building that can be reused (put to another use in its existing state) or recycled (processed into a raw ingredient, which is then manufactured into a new item). Any hazardous building materials, such as asbestos, lead-based paint, or PCB-containing materials, will be segregated and disposed of properly. The landfill diversion goal and appropriate reporting metric requirements is included in the project specifications.

Surface features on the site, such as concrete and asphalt, will be segregated from soil and recycled, so long as these materials are free of visible soil contamination and meet testing criteria required by the recycling facility. All subsurface materials, other than backfill from a prior soil removal (2006) and from bank repair activities (2008 and 2011), will be disposed of with the soil.

2.1.2 Upland Soil

Portions of Dallas Avenue S and S Donovan Street adjacent to T-117 will be closed and fenced for use by the Contractor for activities such as truck queuing and water treatment. Structures, pavement, and other site features will be demolished and hauled to a construction demolition landfill or recycling facility by truck. Excavated soil will be stockpiled and hauled to a rail transloading facility by truck. Soil with total PCB concentrations exceeding 50 mg/kg dry weight (dw) will be excavated and stockpiled separately from all other excavated soil. It will be hauled to a landfill equipped to accept this soil (Subtitle C). Some soil excavation will extend below the groundwater table, and a dewatering system will pump water from these areas to keep the excavations stable. This water will be treated in the onsite water treatment system. Following excavation, the
Upland Area will be backfilled to an elevation of about +14 feet mean lower low water (MLLW).

2.1.3 Riverbank Sediment

Riverbank soil/sediment in the northern and southern portions of the bank will be excavated during low tide down to an elevation of +2 feet MLLW using land-based long-reach excavators in late summer 2013. Excavated bank soil will be stockpiled and allowed to dewater within a bermed area. This water will be collected and treated onsite before being discharged to the LDW. A shoreline barrier consisting of steel sheet piles will be installed in the mudflat parallel to the middle portion of the riverbank, with perpendicular walls extending back into the Upland Area. The middle portion of the riverbank will be excavated from within the sheet pile wall enclosure. This excavation is not restricted to periods of low tide. Prior to riverbank excavation, debris and piles will be removed and stockpiled on site.

2.1.4 In-water Sediment

Beginning after December 1, 2013, sediment will be dredged from the Sediment Area and placed on barges. The typically-sanctioned salmonid work window in the LDW opens on October 1, and float and pile removal may occur in October/November or later. However, dredging will not begin until December due to an Interlocal Agreement between the Port and the Tribes, to prevent interference with fishing activities. In-water work can occur until February 15, 2014, when the work window closes. The in-water work window protects out-migrating juvenile salmon from in-water construction impacts.

Prior to sediment dredging, a number of treated wood piles will be removed, including a debris deflector. These piles will be transferred to the upland and disposed or recycled, as appropriate. To facilitate vessel positioning at the north end of the Sediment Area, South Park Marina floats (supported by up to 10 piles) may be removed and temporarily stored in-water, outside the active work area. If the floating docks are removed, new steel piles will be installed to support the docks after they are returned to their original configuration. A replacement debris deflector will be installed in the Sediment Area upstream of the South Park Marina. Four new steel piles will be installed to hold a floating horizontal pipe that prevents debris from entering the marina.

2.2 Work Outside the Site Boundaries

Although the cleanup work is confined to the approximately 3 acre Upland Area and the 1.5 acre in-water Sediment Area, many related and supporting activities will occur outside the cleanup boundary. Activities such as truck hauling of soil and debris and worker commuting will occur in the neighborhood. This CHASP includes community protection measures to monitor and report the potential impacts that these and other activities may have on the adjacent community.
2.2.1 Traffic Haul Routes

Approximately 3,500 trucks will enter and leave the site over the project timeframe to remove soil and debris and to deliver aggregate material to restore the site to final grade. The actual daily truck trips each day will ultimately depend on the contractor’s schedule, however the highest frequency, up to about 180 trucks per week (36 round-trip truck trips/day), will occur during July, August, and September 2013 when excavated soil is schedule to be hauled off-site for disposal.

The following haul routes (Figure 2-1) have been identified, pending completion of access agreements, to provide different potential egress points for trucks and vehicles to access the T-117 property:

A. Intersection of 14th Avenue S and S Trenton Street with access to T-117 through the neighboring South Park Boeing Trenton facility  
B. Intersection of 14th Avenue S and S Donovan Street  
C. Intersection of 14th Avenue S and Dallas Avenue S.

Each of the haul routes will pass residential homes and retail and commercial businesses as the trucks travel to and from State Highways 509 and 99. Figure 2-2 illustrates how the aforementioned haul routes would access local arterials and highways. Various haul routes may be used for different project aspects because TSCA-level PCB\(^1\) impacted soil may be shipped to a different facility than soil with lower total PCB concentrations, and recycling of building and construction materials will require transport to other facilities.

Traffic is expected to be routed primarily through the adjacent Boeing property. As shown on Figures 2-1 and 2-2, this route would minimize the use of residential streets. Regardless of route, truck idling on and near the site will be managed throughout the day as trucks wait to load or unload. The Contractor will be required to develop a GSR Plan that will call for idling engines to be turned off following a certain period (such as 5 to 10 minutes) of inactivity.

The Contractor will also wash/decontaminate truck wheels and thoroughly inspect trucks for dust/debris before they leave the site. Street sweeping will be performed on a regular basis to keep street-originated dust (truck wear of streets and shoulders that may cause dust on streets to become airborne) at a minimum.

2.2.2 Transloading of Sediment

It is anticipated that one barge will be filled with dredged sediment every one or two construction days. Sediment will be dewatered on the barge for at least 8 hours, while the barge is located in the Sediment Area. The barge will then be transported to the rail transloading facility. No dewatering fluids will leave the barge as it is traveling from the

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\(^1\) Total PCBs as Aroclors exceed 50 mg/kg dw.
Sediment Area to the transloading facility. After the sediment are removed from the barge at the transloading facility, empty barges will return to the Sediment Area to be re-loaded. Barge traffic will move through the LDW Navigation Channel to and from the transloading facility.

The specific location and operation of the transloading facility will be determined, in conjunction with the selected Contractor, and documented in the RAWP. It is anticipated that the transload facility will be located within the LDW. At the transloading facility, contaminated sediment and debris will be removed from the barge and loaded into lined intermodal containers, which will be placed on rail cars. The transload facility will implement measures to prevent loss of material to the LDW. These controls may include an apron to capture any spillage during sediment transfer to the upland and water collection (stormwater and dredge water) to ensure impacted water does not flow into the LDW.

### 2.2.3 Railroad Transport

Contaminated soil and sediment will be transported from a commercial transloading facility via rail to an appropriate landfill. Material transported by rail is under the responsibility of the landfill operator, and, thus community impacts along rail lines are not addressed by this CHASP. The railroad is operated under its own spill response and pollution prevention plans.
3 Site Control

For this project, site control will be established using a number of barriers to entry, including secure fencing, locked points of entry, equipment lockout/tag out, site design, training requirements, and security clearances for personnel entering the site. Specific site controls by area are described below. The Port is also considering other methods to minimize potential conflicts between members of the community and work activities such as a designated public viewing area and guided tours of the work area. A more detailed description of site control methods and implementation will be provided in the Contractor-provided RAWP.

3.1 Upland and Sediment Areas (T-117 Property and Waterfront)

During construction, the T-117 active construction area will be surrounded by chain link fence to the north, west, and south. Dallas Avenue S will be secured by a chain-link fence at its intersection with 17th Avenue S. Access to residences along the west side of 17th Avenue S will not be blocked (Figure 1-1 shows the streets to be closed and used for clean staging). A fence will also surround the east end of S Donovan Street, east of 17th Avenue S. Dallas Avenue S and the eastern end of S Donovan Street will be used for stockpiling soil, truck loading/queuing, placement of a water treatment system, and various other construction-related activities. The Basin Oil property will remain fenced and secured, and its access from 17th Avenue S will not be blocked.

All gates will be locked when no onsite work is occurring. During work hours, access to the site through these gates will be controlled by either keeping gates locked or manning the open gate with contractor personnel. Only vehicles and equipment necessary for onsite work will be allowed to enter. All other vehicles will park offsite in designated project parking areas, currently anticipated to be on the Boeing property or the property at 1437 S Donovan Street (tentative location, requires access agreement from homeowner).

Site approach from the LDW is possible, but not likely during construction activities, as the site will be occupied by personnel and equipment during work hours, and because in the fall and winter site work will also be occurring in the Sediment Area. All heavy equipment will be turned off, locked, and secured when not in use. Smaller equipment, such as air monitoring equipment and tools, will be locked inside of Contractor trailers when not in use. This will both protect the Contractor from damage to equipment and will protect the community by deterring vandalism-related activities. The Contractor may also use lighting at night as a security precaution. This lighting will be monitored at the nearest receiving property, as described in Section 5.3.

For personnel entering the site, access will be through the gate nearest the job trailer (Contractor Support Area shown on Figure 2-1), the location of which is yet to be determined (likely the Contractor Support Area will be as shown on Figure 2-1 on the
adjacent Boeing property). Only personnel with essential work on the site will be allowed to enter the site. Visitors to the site will be cleared for access by the Site Health and Safety Coordinator. All site entrants will sign in and out of the site with every visit.

The Sediment Area is adjacent to a federally-authorized navigation channel and is in the Muckleshoot Tribe Usual and Accustomed fishing area. Vessel traffic in the LDW in the vicinity of T-117 includes tour boats, fishing vessels, sail boats, yachts, and small recreational vessels (including kayaks and canoes). Further, other sediment remediation projects will be occurring concurrently with the T-117 dredging activities. Barges and dredging equipment associated with these projects will be in the LDW in the vicinity of the T-117 Sediment Area. Vessel traffic control around the T-117 Sediment Area may be achieved through the use of navigational buoys. Vessel traffic will be diverted away from T-117 construction activities, as will be discussed in the RAWP. This CHASP will be updated to reflect the Contractor’s specific approach in the Vessel Management Plan (part of the RAWP).

Within the Upland Area, control will be enhanced by defined work zones. Areas where workers may contact contaminated soil, bank sediment, or contact water (e.g., groundwater pumped from deep excavations, stormwater, or water that drains from stockpiles) will be considered Exclusion Zones. Only workers and equipment directly involved with removing contaminated soil or sediment will be allowed into the Exclusion Zone. Support for site workers and decontamination of workers and equipment will occur in the Contamination Reduction Zone. Only workers trained in Hazardous Waste Operations (HAZWOP 40-hour training with annual 8-hour refresher) will be allowed within the Exclusion and Contamination Reduction Zones. The rest of the site within the fence line will be considered the Support Zone. Work zones will move as excavation progress. Active work zones will be delineated using cones and barrier tape. No workers or equipment will leave the work zones without full decontamination.

The entire Sediment Area will be considered the Exclusion Zone until confirmation sampling has confirmed that dredging is complete. Only vessels specifically associated with site work (dredging, holding dredged sediment, and conducting water quality monitoring) may be in the Sediment Area. During site completion activities (backfilling, sheet pile wall removal, and pile replacement) an Exclusion Zone will not be delineated.

When no onsite work is occurring, all land-side entry points to the Upland Area will be locked and secured. Port Police and the U.S. Coast Guard (USCG) will be made aware of the status of the site and will perform periodic checks. Additionally, even when no construction is going on, it is likely that workers will be onsite in support trailers completing daily logs/paperwork.

If a community member notices trespassers onsite when no work is going on, the community member can call the toll free hotline, discussed in Section 7.
3.2 Roadway Transport of Soil from Site to Rail

All vehicles and containers carrying contaminated material offsite will be thoroughly decontaminated, covered, lined, and secured prior to leaving the site. Trucks will drive through a wheel wash station before leaving the site. Street sweepers will periodically clean neighborhood roads used for truck hauling. This will prevent any community contact with impacted soil leaving the site.

Truck drivers will receive orientation on the Site-specific HASP; no other health and safety training will be required, provided that any activities conducted outside of the truck are restricted to covering of loads, conducting necessary vehicle inspections, and signing manifests. Detailed health and safety training requirements, and details on how the Contractor will comply with OSHA standards, will be included in the Site-specific HASP.

The Contractor’s Traffic Control Plan will document the plan for using speed limits, flaggers, and signals for controlling traffic and ensuring pedestrian safety. The Contractor’s GSR Plan will discuss truck queuing, truck idling, and diesel engine requirements that will protect air quality and reduce noise generated outside of the site.

In event that a community member experiences excessive noise (noise monitoring is discussed in Section 5), sees road damage, or observes unsafe truck driving/conditions, this can be conveyed to the construction management team via the toll free number discussed in Section 7.

Port and local police and Seattle and Highline Fire Departments will be informed of road closures for the project, such as Dallas Avenue S along the Upland Area perimeter.

3.3 Transloading of Sediment from Site to Rail

Barges will travel in the LDW between the Sediment Area and a transloading facility. Other vessel traffic will be encountered along this route. Barges will be conveyed by tugboat, whose operators are accustomed to vessel traffic in the LDW and are capable of quick response. Travel speeds will be restricted to a limit of 3 knots. The barge operator will make every effort to minimize wake in the presence of smaller vessels, such as kayaks and canoes. In addition, the barge operator will make every effort to yield to smaller vessels, especially vessels that are not powered.

The transloading facility may be used by other sediment dredging projects, and operators will be mindful of other barges containing contaminated sediment berthing at the transloading facility’s wharf. Site control at the rail loading facility will be the responsibility of the facility operator, and will be in compliance with state and federal permitting and operational requirements.
3.4 Railroad Transport

Contaminated soil and sediment will be transported via rail to an appropriate landfill. Material transported by rail is under the responsibility of the transload facility, the railroad, and the landfill operator, and, thus community impacts along rail lines are not addressed by this plan.
4 Project Schedule

4.1 Schedule of Activities

Phase I cleanup activities are scheduled to occur between spring 2013 through spring 2014 (Figure 4-1). The anticipated schedule is outlined below:

- **Spring 2013:** Mobilization, placement of temporary facilities and controls, and building demolition/deconstruction
- **Summer 2013:** Upland demolition and removal of bank piles and debris, installation of shoreline barrier, and upland and bank soil excavation
- **Fall 2013:** Removal of Sediment Area piles, debris, debris deflector, and South Park Marina piles and floats, and removal of the shoreline barrier (in fall or winter)
- **Winter 2013/2014:** Dredging and backfilling of the Sediment Area, bank and upland backfill completion, and replacement of South Park Marina piles, floats, and debris deflector.
- **Spring 2014:** Site completion and pre-certification inspections.

The final cleanup schedule will be presented in the RAWP that is scheduled to be finalized in May 2013.

4.2 Daily Schedule

Upland construction activities are scheduled to take place during daytime work hours (7:00 am to 7:00 pm), five days per week. If upland construction is performed on weekends due to schedule constraints, onsite work hours will be between 9:00 am and 7:00 pm, and the community will be notified through the mechanisms described in Section 7. Offsite activities such as truck queuing (with idling restrictions in place) on roads surrounding the site, truck transport of soils, and barge transport of sediment may occur outside of these times. Saturday work and 16-hour work days are expected during in-water activities (e.g., dredging).

The Port will work with local community to determine work hours for the different phases of work. Weekend work and longer shifts may be required, particularly due to the expected limited availability of trucking, limited daytime low-tide periods, and the duration of the in-water work window. All changes to the schedule will be communicated to the community, and community concerns will be considered when implementing schedule changes.
5 Potential Impacts to Community

The CHASP considers six potential health, safety, and quality of life impacts to the neighboring community and the general public that could be caused by this cleanup project. They include:

1. Air quality, including dust and odor
2. Noise
3. Lighting
4. Street traffic and parking
5. Waterway traffic
6. Injury or property damage.

The project has been designed to monitor for unacceptable impacts and to apply appropriate methods to minimize, control, or otherwise mitigate these impacts. In addition, the project is prepared to receive, address, and respond to community feedback or concerns (Section 7, Communications Plan) on potential impacts. The monitoring identified in this section will provide data for comparison with applicable performance standards:

- to document that impacts have not occurred
- to quickly identify unacceptable impacts for mitigation
- to identify when conditions are back in compliance with project performance standards
- to communicate this information to the nearby residents.

Details of the monitoring program are provided in the Air, Noise, and Light Monitoring Plan (Attachment A).

Routine reporting of observations and monitoring data will be prepared weekly for the Port RE and EPA. Any (community or worker) observations or monitoring that require immediate response (e.g., a report of visible dust) will be reported to the Port RE who will communicate with the Contractor. The Contractor will be expected to immediately rectify the situation. Similar to health and safety observations and near misses, the occurrence and associated mitigation measures and results will be discussed at the morning safety meeting with all site workers on the next work day. This feedback system will help prevent repeated occurrences of the same problem. Additionally, the success of the corrective action will be assessed through observation of how and how quickly the situation is corrected. Finally, if a report comes from community, the Port will respond directly or provide an update using the community outreach tools discussed in Section 7. A log of the community observations and Port response actions/follow up actions will be maintained.
5.1 Air Quality

Potential air quality impacts to the community include dust (including PCBs), volatile organic compounds (VOCs), diesel exhaust, and odors. Fugitive dust may be released when dry soil is disturbed during demolition, excavation, stockpiling, or truck hauling on roads. Fugitive dust concerns include impacts to property and inhalation of dust (regardless of contamination levels) and PCBs adhered to dust. VOCs may be present in petroleum products that will be excavated and dredged from T-117. Diesel emissions from heavy equipment and trucks will be generated at T-117 and along truck haul routes. Odor can occur from petroleum-contaminated soil or from hydrogen sulfide (H$_2$S) generated from decaying organic matter present in sediment, buried beneath fill soil, or during removal of the site septic system. PCBs are odorless.

5.1.1 Monitoring

Project-specific performance standards were developed to monitor these potential impacts and verify that they do not occur at unacceptable levels. Performance standards include both qualitative metrics (e.g., visible dust, odors) and quantitative criteria (e.g., analytically measured concentrations of PCBs in air). Both are important for the community and have been used together to create a comprehensive monitoring approach for the project. Qualitative monitoring can be performed by site workers or anyone in the community to identify the need for revised BMPs (Prevention and Mitigation) or for subsequent or additional evaluation; however, it is subjective. Quantitative monitoring, using equipment and laboratory analysis, is based on applicable regulations, is objective, and can be used to clearly demonstrate how this project does not impact the community. Table 5-1 presents the qualitative and quantitative performance standards. Monitoring activities for each of the potential impacts is discussed in the following subsections. The Air, Noise, and Light Monitoring Plan (Attachment A) provides the details of the sampling program, including monitoring devices, analytical laboratory methods, and quality assurance. Monitoring activities include documenting both reported and observed site activities, weather conditions (such as wind direction), and other observations using field logs. These data will provide for better assessment of the collected data.

Performance standards were modified based on recommendations given by the project Certified Industrial Hygienist (CIH) in consultation with EPA (Copeland 2013).

The prevailing winds at T-117 are from the south and northwest. In order to perform quantitative monitoring of potential impacts originating from the project, two air quality monitoring stations will be located on the site perimeter: one on the northern end/northwest corner of the site, and one at the southern end of the site (Figure 5-1). Depending upon wind direction, these stations will provide compliance/down-wind data and/or wind data. Wind direction will be verified by National Oceanic and Atmospheric Association weather station at Boeing Field (available at http://www.crh.noaa.gov/data/obhistory/KBFI.html).
### Table 5-1 Performance Standards for Potential Hazards and Impacts to Quality of Life

<table>
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<th>Hazard or Impact to Quality of Life</th>
<th>Performance Standard</th>
<th>Prevention or Mitigation Examples</th>
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<tr>
<td><strong>Air Quality</strong></td>
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| Fugitive Dust                       | Instantaneous dust level = no visible dust at property perimeter (based on PSCAA Regulation 1, Section 9.15)  
24-hour TWA for PM$_{10}$ = 150 µg/m$^3$  
Action levels of 105 µg/m$^3$ (24-hour TWA) and 210 µg/m$^3$ (instantaneous) | • Cease excavation or dredging until controls are in place and proven effective  
• Reduce the pace of work (to reduce the number of vehicles operating at one time) or limit the number and size of excavations open at one time  
• Use water for dust suppression  
• Reduce vehicle speeds  
• Use wind shields for other enclosures to curtail strong winds  
• Revise traffic haul routes or vessel positioning  
• If airborne hazards are not completely controlled by these mitigation measures, increased mitigation measures will be considered. |
| PCBs                                | 24-hour TWA total PCBs = 0.13 µg/m$^3$ |                                   |
| VOCs                                | Maximum 1-hour TWA = 20 ppm  
Action level of 20 ppm (instantaneous) |                                   |
| Benzene                             | 24-hour TWA of 0.009 ppm, only to be measured if VOCs exceed the performance standard |                                   |
| Diesel Exhaust                      | 24-hour TWA of 3.5 µg/m$^3$ |                                   |
| Hydrogen Sulfide Odor               | 24-hour TWA of 0.07 ppm | • Adjust handling procedures for dredged sediments or excavated soils  
• Use tarps or covers to prevent odors from escaping from dredged sediments of stockpiled soils  
• Cease excavation or dredging until controls are in place. |
<table>
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<tr>
<th>Hazard or Impact to Quality of Life</th>
<th>Performance Standard</th>
<th>Prevention or Mitigation Examples</th>
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| Other                             | Noise to residential receiving properties not to exceed 85 dB(A) between the hours of 7:00 am and 10:00 pm weekday, 9:00 am and 10:00 pm weekends. For night time hours, noise is not to exceed 75 dB(A). For the same time periods, noise received at commercial properties (South Park Marina) may not exceed 90 dB(A) and 80 dB(A), respectively. For certain short-duration construction activities, the Maximum Permissible Sound Levels may be exceeded as follows:  
- 5 dB(A) for 15 minutes in any 1-hour period  
- 10 dB(A) for a 5 minutes in any 1-hour period  
- 15 dB(A) for a 90 seconds in any 1-hour period. |  
- Reduce vehicle speeds  
- Phase work using noise-generating equipment  
- Turn off engines  
- Reduce the pace of work to decrease the number of vehicles/equipment operating. |
| Noise                             | During pile driving, sound measured at the receiving property line or 50 feet from the equipment, whichever is greater, may exceed the performance criteria in any 1-hour period between the hours of 8:00 am and 5:00 pm on weekdays and 9:00 am and 5:00 pm on weekends. But in no event may the sound level exceed:  
- 90 dB(A) continuously  
- 93 dB(A) for 30 minutes  
- 96 dB(A) for 15 minutes  
- 99 dB(A) for 7 1/2 minutes. |  
| Lighting                          | Residential receiving properties = 0.5 foot candles  
Industrial receiving properties = 1.0 foot candle |  
- Reposition lights  
- Install barriers, buffers, or screens  
- Re-sequence work  
- Reposition equipment or barges. |

**Notes:**
ACGIH = American Conference of Governmental Industrial Hygienists; ASIL = Acceptable Source Impact Level (PSCAA); dB(A) = decibels, measured using A-weighting; EPA = Environmental Protection Agency; NAAQS = National Ambient Air Quality Standards; NIOSH = National Institute of Occupational Safety and Health; PCB = polychlorinated biphenyl; PID = photoionization detector; PM$_{10}$ = particulate matter of 10 micrometers in diameter or less; ppm = parts per million; PSCAA = Puget Sound Clean Air Agency; SMC = Seattle Municipal Code; TLV = Threshold Limit Value; TWA = time-weighted average; VOC = volatile organic compound; µg/m$^3$ = micrograms per cubic meter of air.
The equipment will be on moveable platforms so that it can be positioned in appropriate locations between ongoing construction activities and community receptors. The two monitoring station locations shown in Figure 5-1 are general areas because these platforms can be moved accordingly based on wind direction and location of the closest receptor. Additional monitoring locations may be added. The following two subsections discuss quantitative dust monitoring that will occur for respirable dust and PCBs.

Optional baseline monitoring of air quality may be conducted around the site prior to work beginning or on a day when work is not occurring (e.g., a Sunday). Because this work is being conducted in an urban environment, an understanding of the general ambient air quality conditions will aid in the interpretation of data collected during excavation activities, and in the application of appropriate corrective measures, if needed.

5.1.1.1 Dust

During all activities, a qualitative standard of “no visible dust” at the point of generation, including within the neighborhood (i.e., no dust from trucks, either due to a poorly covered load or truck tire disturbances), provides the most comprehensive evaluation method. The Contractor is responsible for ensuring the “no visible dust” standard is achieved throughout the project. EPA, Port, and Contractor representatives will be making continuous observations and reporting them to the Port RE. Community members can also make and report dust observations. There are various ways that observations can be reported, including to the toll free hotline (Section 7) or by contacting a Port representative at the project office. While the presence of dust is a nuisance, it does not necessarily mean that an unacceptable exposure has occurred. Respirable dust and PCB monitoring, described in the following subsections, will quantify the dust impacts, if any, and will demonstrate that BMPs are protective. The Port will follow-up on these observations by discussing BMP expectations with the Contractor, reviewing quantitative data, and reporting back to the community.

It is important to also note that other, non-project related dust impacts, could occur from other sources (e.g., from adjacent sites, other construction projects, or unpaved road shoulders and parcels). The Port’s NTCRA Operation and Maintenance monitoring efforts (AECOM 2011) have documented routine and elevated concentrations of solids on T-117, some of which is likely originating from other non-T-117 sources. Upwind and baseline monitoring (if performed) can provide information about these potential non-T-117 sources.

Respirable Dust

Respirable dust (particles small enough to reach the alveoli in lungs) consists of aerosol particles with a mean aerodynamic diameter of less than 10 micrometers (µm), also known as Particulate Matter 10 (PM10). Dust particles of this size are not visible to the human eye; however, when dust is generated, it contains particles of various sizes, and the
cloud/plume, as a whole, is visible. “No visible dust” is the qualitative metric and a trigger to adjust BMPs or increase the frequency of PM$_{10}$ readings (the sizes small enough to respirable). Real-time, continuous quantitative monitoring of respirable dust will be conducted, using a DataRAM 1580 particulate analyzer, each work day when upland heavy equipment and excavation activities are performed (approximately June through August 2013). After August 2013, monitoring will be performed one day each month, or whenever dust-generating activities are identified.

Instrumentation provides instantaneous readings that are stored by the data logger for download or can be read immediately by site personnel. The real-time identification of PM$_{10}$ levels will be used to evaluate daily dust levels and will allow for immediate responsiveness. Real-time identification will be provided by an audible alarm from the instrument when the two times the performance standard is exceeded. An audible tone will be set to signal when a reading exceeds 210 micrograms per cubic meter of air ($\mu$g/m$^3$). Additionally, an email and text alert will be sent to the project CIH and the AECOM site technician. This does not indicate that the performance standard will be exceeded (because it’s based on a daily average), but can be used as an indicator that higher readings, that influence the average, were collected. BMPs can be adjusted based on this feedback.

Respirable dust is an airborne contaminant of concern because of its potential to adsorb or absorb PCBs, petroleum hydrocarbons, and other potentially toxic substances. Dust emissions will be evaluated using two quantitative performance standards: one for dust generation over the duration of a workday and one for instantaneous dust generation. Potential chemical contaminants that may adhere to the dust are measured separately, using different methods.

The PSCAA regulates emissions of fugitive dust (Regulation 1, Section 9.15; PSCAA 2004) and makes it unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize the emissions. A qualitative standard of “no visible” dust at the site perimeter will be used to identify the need for increased/revised BMPs (discussed in Section 5.1.2 – Prevention and Mitigation).

The National Ambient Air Quality Standard (NAAQS) for PM$_{10}$ averaged over 24 hours is 150 $\mu$g/m$^3$. The performance standard for this project is a daily time-weighted average (TWA) of 150 $\mu$g/m$^3$ measured as a 24-hour TWA at the site perimeter during site activities. An action level of 105 $\mu$g/m$^3$, also measured as a 24-hour TWA, is being used, along with an additional action level of 210 $\mu$g/m$^3$, based on two times the 24-hour action level and to be measured on an instantaneous basis. Respirable dust data will be logged by the instrument. These data will be downloaded daily, at the end of each day. The readings will be averaged, using measured background levels to represent periods when no work is occurring at T-117, and that average (TWA) will be compared to the performance standard to assess potential impacts.
Polychlorinated Biphenyls
The respirable dust measurements will be used as an indicator to assess the potential for airborne PCBs migrating offsite. If respirable dust concentrations exceed the performance standard, it is assumed that there is a greater potential for release of PCBs in dust above the PCB performance standard. This assumption will be refined when co-located respirable dust (averaged over one day) and laboratory-analyzed PCB data (collected on filter over one day and sent to laboratory for analysis) are available.

PCBs attached to soil and sediment may be released to the air during excavation, stockpiling, and truck loading and hauling. The performance standard for total PCBs in air is a daily TWA of 0.13 µg/m³ based on EPA Region 9 Preliminary Remediation Goals (EPA 2006), now called Recommended Screening Levels (Aroclor 1260, effective 2012). This standard is an update of that which was used during the 2006 time-critical removal action (TCRA), and was never exceeded during the 2-month period of performance (October and November 2006).

Air monitoring for PCBs will be performed once weekly from June through August 2013 to coincide with the most active period of construction. PCB monitoring will be performed at least once monthly before June and after August through October. All PCB monitoring will occur at the stations shown in Figure 5-1, allowing for co-located data to be compared and evaluated (e.g., dust vs. PCBs). PCB samples will be collected on a polyurethane foam (PUF) tube over the course of a work day and will be submitted to a laboratory for analysis by EPA Method TO-4AX.

5.1.1.2 Volatile Organic Compounds
Based on the types of petroleum hydrocarbons present at T-117, VOCs are not anticipated to be a concern. However, due to the variable nature of the petroleum hydrocarbons and the potential for odor concerns, vapor monitoring will be performed for VOCs.

Total petroleum hydrocarbons (TPH) can be detected by smell at very low concentrations, which provides an excellent warning property. The odor threshold for diesel fuel is between 0.4 and 0.11 parts per million (ppm). The performance standard, based on producing an unacceptable odor, is 20 ppm as a maximum 1-hour TWA, as measured by a portable photoionization detector (PID) at the site air monitoring stations, with an action level of 20 ppm (instantaneous) at the site perimeter. A PID is a very reliable and easy-to-use screening tool that provides instantaneous results. Readings may also be taken in response to an odor concern in other discretionary locations on or offsite (e.g., pocket neighborhood). In addition, an instantaneous sample will be collected for benzene, should the VOC level at the site perimeter reach the performance standard of 20 ppm as a 1-hour TWA. This sample will be analyzed by gas chromatography/mass spectrometry (GC/MS). The performance standard for benzene is 0.009 ppm, as a 24-hour TWA, based on the
Agency for Toxic Substances and Disease Registry (ATSDR) acute-duration inhalation minimal risk level (MRL), effective March 3, 2011.

5.1.1.3 Diesel Exhaust

The primary diesel exhaust source will be heavy equipment and trucks. The performance standard for diesel exhaust is a 24-hour TWA as particulate matter of 2.5 micrometers in diameter or less (PM$_{2.5}$) black carbon particulate, based on the 98th percentile of the 24-hour average ambient PM$_{2.5}$ black carbon particulate data reported by PSCAA during 2012 and 2013 (through May) in the Duwamish Valley.

Real-time, continuous quantitative monitoring of PM$_{2.5}$ black carbon particulate will be conducted, using an Aethlabs microaethalometer, each work day when upland heavy equipment and excavation activities are performed (approximately June through August 2013). After August 2013, monitoring will be performed one day each month. Best efforts will be taken for monitoring to be completed on a dust-generating activities day when identified. PM$_{2.5}$ black carbon particulate data will be logged by the instrument. These data will be downloaded daily, at the end of each day. The readings will be averaged, using measured background levels to represent periods when no work is occurring at T-117, and that average (TWA) will be compared to the performance standard to assess potential impacts.

Truck traffic will also generate diesel exhaust. Based on observations by site workers or community members, monitoring may also be conducted along haul routes in the neighborhood.

5.1.1.4 Odors

Likely odor during site cleanup would come from H$_2$S released by decaying plants and other organic material found in sediment and from petroleum hydrocarbons in soil. H$_2$S odors could also result from uncovering buried organic matter in upland soil and removal of the site septic system. Odors are easily and reliably detected using the human nose; however, the relative intensity (i.e., the quantitative measurement or concentrations) is dependent upon the sensitivity of the person exposed to the odor. VOCs are also an odor concern and were discussed above.

The American Conference of Governmental Industrial Hygienists (ACGIH) odor threshold for H$_2$S ranges from 0.01 to 0.3 µg/m$^3$. The performance standard for this project is 0.07 ppm, as a 24-hour TWA, based on the ATSDR acute-duration inhalation MRL, effective March 3, 2011. It is effective at the location of a complainant, in the event of an odor concern.

Real-time, continuous quantitative monitoring of hydrogen sulfide will be conducted each work day at the site perimeter, using a RAE Systems MultiRAE Plus 4 gas detection monitor,
when upland heavy equipment and excavation activities are performed (approximately June through August 2013). After August 2013, monitoring will be performed one day each month, or whenever dust-generating activities are identified. Hydrogen sulfide data will be logged by the instrument. These data will be downloaded daily, at the end of each day. The readings will be averaged, using measured background levels to represent periods when no work is occurring at T-117, and that average (TWA) will be compared to the performance standard to assess potential impacts.

Additionally, odor monitoring will be conducted if an odor complaint is received or workers detect an uncomfortable project-related odor. If the odor is identified as H$_2$S, monitoring for H$_2$S will be conducted at locations upwind and downwind of the suspected odor source. H$_2$S levels will be measured via direct readings using a hand-held meter. The MultiRAE Plus 4 will also monitor VOCs continuously during upland excavation activities, and that information will be available in the event of an odor concern that may be related to petroleum hydrocarbons.

5.1.2 Prevention and Mitigation

Prevention is the proactive effort (e.g., designed into the project) to avoid and control air impacts before they can affect the community. Prevention is designed into the project by considering the type of work anticipated for the project (e.g., truck hauling, heavy equipment excavating, and building demolition). This evaluation can be refined after a Contractor is selected and the Contractor’s RAWP is written. That plan will document specific methods, equipment, and sequencing for completing the work. Prevention can then specifically focus on revisions to means and methods to do the work and on applicable performance requirements.

For example, a means and method requirement includes covering stockpiles with plastic sheeting to prevent dust when the stockpile is not being actively loaded or unloaded. A performance requirement includes all the criteria listed in Table 5-1, including a “no visible dust” standard. Mitigation is a response to an exceedance of either a qualitative or quantitative performance criterion. The methods of prevention and mitigation of air quality impacts are the same. The methods can be adjusted as the project unfolds, and “lessons learned” about what specifically works well at T-117 are documented and paired with data.

There are many approaches to mitigating air quality impacts, some are means and methods or BMPs and some are housekeeping or performance changes. The following are just some examples, many of which are required per the specifications, available to the project to prevent or mitigate air quality impacts:

- Worksite controls such as ceasing excavation during high winds or limiting the number and size of excavations open at one time
- Dust suppression using water
- Wind shields or other enclosures to curtail high winds
• Roadways and parking areas will be covered with asphalt, concrete, or gravel (and will be located away from residences)
• No truck idling in the neighborhood
• Reduced vehicle speeds
• Cleaning of vehicles leaving the site to remove dirt or dust from wheel treads and exterior
• Sweep or revise traffic haul routes or vessel positioning
• Cover truck loads to prevent the escape of dust-bearing materials
• Cover stockpiled soil with plastic sheeting if uncomfortable odors are encountered prior to transportation off site
• Transport soils emitting odors offsite as soon as possible
• If the source of the odor is an open excavation, covering exposed soils with plastic sheeting while not subject to active excavation.

5.2 Noise

General construction noise will occur throughout the project due to the use of heavy equipment and pile installation/driving. The source of the loudest noise is anticipated to be piling driving activities. These activities will occur over short durations at the beginning (sheet pile wall installation) and the end (debris deflector re-build and potential South Park Marina float re-installation) of the project.

5.2.1 Monitoring

The noise performance standards are established to minimize the effects of project-related noise on the quality of life in the surrounding community; therefore it is much lower than that which would adversely impact human health.

Noise performance standards (Table 5-1) use SMC Chapter 25.08 which sets limits on construction site noise from an industrial source (excavation on lands zoned as industrial) to residential receiving properties (South Park neighborhood residences and the marina). Specifically, the maximum permissible sound level is based on SMC 25.08.410, which sets a 60 decibel (dB[A]) limit for industrial to residential noise generation. SMC 25.08.425 allows a 25 dB(A) addition for construction activities, making the maximum permissible sound level at the receiving property 85 dB(A) between the hours of 7:00 am and 10:00 pm (City of Seattle 2013). The project work hours are 7:00 am to 7:00 pm. For comparison, a person standing 4 feet away from a blender would experience 80 dB(A) of noise, 90 dB(A) of noise 4 feet from a vacuum, or 100 dB(A) 4 feet from a jackhammer (Asphalt Pavement Alliance 2012).

The SMC also sets instantaneous or short-duration noise limits for activities like pile driving. Table 5-1 lists these limits.
During the 2006 TCRA noise monitoring was performed near residences along Dallas Avenue S near the North Building. Each measurement lasted at least one hour, and the sound data were collected at 1-second increments. Despite the noise from the overhead aircraft, measured sound levels were below the SMC construction noise limit. Therefore, it is anticipated that this project will be in compliance with noise requirements.

Continuous noise monitoring will be conducted during work hours at two site perimeter locations: on the fence line along Dallas Avenue S, closest to the nearest residence, and along the shoreline near the South Park Marina (within the north monitoring station area on Figure 5-1). Additional monitoring stations may be added, as needed, based on feedback from the community. Monitoring will be conducted using a 3M Quest SoundPro SE/DL Integrating Sound Level Meter in a protective weather resistant case. Instantaneous noise levels will be checked with a hand-held noise dosimeter, as needed. During loud activities, or during complaints, the hand-held meter will be used and checked continuously by staff. For a complete description of noise monitoring, see the Air, Noise, and Light Monitoring Plan (Attachment A).

5.2.2 Prevention and Mitigation

Since pile driving will be the most significant noise source, pile driving noise will be largely controlled by using a vibratory hammer rather than an impact hammer. Pile driving will occur during installation of the shoreline barrier between about mid-June and mid-July 2013 and during replacement of the debris deflector (and during re-installation of South Park Marina floats, if the Contractor moves them for vessel maneuverability) in February 2014. An impact hammer will only be used if debris that cannot be pulled out is encountered and if final proofing of the piles is needed.

All construction vehicles and equipment on the project operating between 10:00 p.m. and 7:00 a.m. shall be equipped with an ambient noise sensing variable volume backup alarm system. The system shall be in compliance with Washington Administrative Code 296-155-615. These systems are meant to amplify backup warning alarms only as loud as needed, relative to ambient noise, to warn onsite personnel of moving equipment, without creating excessive noise.

Noise monitoring data from the permanent stations and from the hand-held sound level meter will allow site workers to react immediately to excessive noise. If the performance standard is exceeded, immediate steps will be taken to reduce overall noise levels. Workers may perform actions such as turning off excavator and truck engines or phasing the use of noise-generating equipment.

The Contractor will have specific requirements to develop reduction controls and policies related to the use of newer diesel engines which will both be quieter than and will have fewer emissions than older engines. This will be documented in the Contractor’s GSR Plan, a required component of the RAWP.
Should noise performance standards be exceeded, noise mitigation measures will be implemented and may include:

- Reducing vehicle speeds
- Reducing the number of vehicles or equipment operating
- Adjusting work hours

5.3 Lighting

Artificial light will be needed at times to substitute for and supplement natural light, particularly during winter months. For example, during winter months lighting will likely be needed at the upland site in the morning and at the end of the day. Further, lighting will be needed on project vessels to ensure their safe passage during night or early morning transport of materials and during long work days necessary to complete work within the in-water work window. Artificial light may be necessary to illuminate work areas in order to provide safe work conditions for both the contractor and environmental sampling and compliance workers. If may also be necessary at night for security. However, depending on how it is applied, artificial light may present a nuisance to surrounding residences.

5.3.1 Monitoring

Lighting is measured in foot candles using a hand-held brightness meter. Based on the SMC (Chapter 23.50.046; City of Seattle 2012), the Performance Standards (Table 5-1) for acceptable light emissions to receiving properties are:

- For urban residential areas: 0.5 foot candles
- For commercial/industrial areas: 1.0 foot candle.

In addition to the light standards, the SMC requires that exterior lighting originating from an industrial property be shielded and directed away from adjacent residential zones.

Evaluation of lighting levels will be conducted at the following times:

- Prior to the start of site activities to evaluate light levels on and around T-117
- At the time of installation of each lighting configuration to support construction and transport
- When there is community feedback noting bright light levels.

5.3.2 Prevention and Mitigation

The methods to prevent quality-of-life impacts from lighting will include the selection of equipment that complies with the performance standards and the use of shielding and directionality.
If light levels do create a disturbance to residences or LDW users, the following actions will be taken to identify the nuisance and mitigate the problem. Specific actions will be selected on a case-by-case basis and will only be used to the extent that they do not impede safe operations. These actions can include:

- Repositioning of lights
- Installation of buffers, barriers, or screens between specific light sources and receptors
- Re-sequencing of work
- Repositioning of equipment, such as material barges or trucks, relative to the lighting source.

5.4 Traffic and Parking

5.4.1 Monitoring

Trucks and worker vehicles will be used to move materials, equipment, and workers during construction activities. These vehicles will temporarily, but unavoidably, add to traffic on local streets and highways and will increase demand for parking in the area. The types and purposes of project vehicles that will be visible within the neighborhood include:

- Trucks, flatbeds, and other large vehicles to transport construction materials, heavy equipment, excavated soil, backfill, and debris
- Small trucks and cars to transport construction workers, sampling teams, regulatory oversight personnel, authorized visitors, and others needed to perform the work.

The project requires efficient and timely movement of materials, equipment, and labor. At this stage of the project, three haul routes are being considered in the design documents, and are assumed to be moving forward to implementation. However, one of these three routes will be selected for the work, and it is anticipated that that route will be the private Boeing haul route.

5.4.2 Prevention and Mitigation

The three haul routes were selected based on reducing the amount of traffic on local streets and using intersections which are lighted (e.g., Trenton Ave S at 14th) to make left hand turns or do not currently have two-way traffic (e.g., 14th at Dallas Ave S with the bridge closed for construction). The Port is in the process of preparing a Traffic Study that will address additional mitigation needs such as traffic flaggers, if needed. In addition, the Port is arranging for employee parking at Boeing and 1437 S Donovan Street to minimize traffic and parking impacts. The Contractor is required to prepare a Traffic Control Plan with the RAWP that meets the project specification. This Plan will be finalized by about May 2013.
Other means of minimizing impacts to quality of life from traffic and parking involves the following design and staging considerations:

- Trucks traveling to and from the site will use dedicated entrances and designated truck routes.
- Project vehicles and/or drivers will be equipped with communications systems (radios, phones).
- Trucks and project vehicles will comply with local speed limits (or lower limits set by the Contractor’s Traffic Control Plan), traffic laws, and regulations regarding maintenance, placards, securing/covering loads, and other safety measures.
- The Contractor’s Traffic Control Plan will describe the use of flaggers, signals, pedestrian signage/crossings, and other measures to ensure the safe passage of project vehicles along the haul route.
- Drivers must obey all Washington State traffic laws.
- Trucks will refrain from idling on local streets and on the project site.
- Workers will be encouraged to carpool to the site to reduce the strain on parking and traffic.
- Streets will be swept and potholes will be filled to keep dust/asphalt debris to a minimum.

### 5.5 Waterway Vessel Traffic

The cleanup project will include using barges and other project related vessels that may impact marina vessel traffic and Tribal fishing practices on the LDW. Other impacts, including coordination with other in water projects are discussed in the Removal Design Report and managed through the Vessel Management Plan that will be provided in the RAWP.

The LDW is part of the Tribal Usual and Accustomed fishing areas, and is a location for Tribal commercial, ceremonial, and subsistence fishing for salmon. Although dredging will not begin until December 1, 2013, in accordance with the agreement between the Port and Tribes to not dredge during net fishing activities, other activities (sheet pile wall installation, debris removal, and bank excavation) will begin earlier to use day time low tides and to complete the work on schedule. All activities are designed to prevent water quality impacts by coordinating activities with low tides. Monitoring water quality during in water work will be conducted to ensure water quality protection (see WQMP).

Curiosity seekers may specifically travel within close proximity of in-water work activities to watch, potentially becoming less attentive to the operation of their vessels. Marina boaters may travel within close proximity to gain access to moorage. Additionally, collisions or other accidents may occur as a result of operator fatigue or distraction, avoidance of another non-project or project vessel, loss of control, or other conditions. Operation of vessels will occur after daylight hours (en route to the transloading facility) and visibility of project vessels will be essential.
5.5.1 Monitoring

Every vessel must at all times maintain a look-out by sight and by hearing and by other available means in compliance with USCG and 33 Code of Federal Regulations (CFR) Parts 81 through 89, as indicated in the specifications.

5.5.2 Prevention and Mitigation

The Contractor’s Vessel Management Plan, included in the RAWP, will cover safe practices in the LDW, which include verification of sea-worthiness of vessels and manners of operating vessels. All navigation activities will comply with USCG and 33CFR81 through 89, as indicated in the specifications. All project vessels will travel at a safe speed to allow non-project vessels adequate time to see and react to them. Signage will be placed to warn non-project vessels to maintain a safe passing distance from project vessels or activities. The safe passing distances will vary with the situation, including the activity being performed and the width of the LDW in the area of the activity.

Work areas will be clearly marked by signage, demarcation, or float lines near fixed project features (e.g., sheet pile wall) to encourage non-project vessels to keep a safe distance. Any floating signage, other demarcation buoys, lines, and lighting, will comply with regulations.

During non-daylight operations, all project vessels and equipment will be lit in compliance with navigation requirements. This lighting will be checked regularly for proper operation, both to ensure visibility and to ensure that the project lighting performance standard is not exceeded.

Only trained and experienced vessel operators will be used. The operator of each project vessel must complete a USCG boating safety training course prior to conducting work in the LDW. Each operator/skipper must demonstrate proficiency in the following subject areas: proper operation of a boat; boat and safety equipment inspections; content and frequency of equipment safety inspections; and proper use of on-board safety equipment. All project vessels will have USCG-mandated safety devices on board and will render rescue assistance as appropriate.

Barges will be securely anchored or held in position by a tugboat during loading. They will also be anchored at the transloading facility. However, it is possible that a barge or other project vessel may break away from its mooring or lose power when moving, presenting a potential hazard to other mariners. Anchoring or otherwise securing a project vessel in shallow nearshore water will be coordinated with tides to ensure no grounding of vessels occurs.

Waterway logistics may be changed if needed to address concerns from the surrounding community, depending upon the concern. For example, if buoys and signage are not
effective in keeping non-project vessels out of the Sediment Area, other means may be necessary (e.g., amplified verbal warning).

### 5.6 Personal Harm or Property Damage

Site control will be established using a number of barriers to entry, including secure fencing, locked points of entry, equipment lockout/tag out, site design, training requirements, and security clearances for personnel entering the site. However, trespass into the secured project work areas may occur during the project, by curious individuals or unintentionally by those who fail to notice work area postings and/or signage (in-water; unintentional access to the Upland can’t occur because the site will be fenced). Unauthorized access or entry into the project site can pose a safety risk to the unassuming trespasser. In addition, it is possible that accidental property damage could occur to vehicles, vessels, or buildings in and in the vicinity of the project area.

#### 5.6.1 Monitoring

Routine inspection is part of a feedback mechanism that ensures the construction activities are safe for both site workers and the community. Inspection programs include a review of items such as vehicle and equipment maintenance, documentation, and sampling data.

Project safety briefings will be held regularly and will include instructing project personnel to be alert for the potential presence of trespassers.

#### 5.6.2 Prevention and Mitigation

Work areas will be clearly marked and secured. Signage will be regularly inspected for visibility and relevance to current work areas/activities. In addition, vessels and equipment will be well-lit, and lighting will be checked regularly for proper operation.

Only trained vehicle and vessel operators will be used to maneuver heavy equipment and vessels. Should trespasser(s) be discovered on project equipment or in work areas, security and local authorities will be notified. The project team will provide amplified verbal warnings or other alerts. Work activities will be halted as necessary to prevent injury, until the trespass situation is corrected. If trespassing occurs, the Port may increase security patrols or increase signage and buoys. If a community member notices a trespasser, for his safety, he should not approach the trespasser but should call the toll free hotline to alert the Port.

Accidents, which could cause property damage or injury, are discussed in Section 6, Emergency Response. If property damage occurs, complaints and responses will be handled following the Communications Plan described in Section 7.
6 Emergency Response

Emergency response entails the preparation for and response to most possible or anticipated project-related situations, including emergencies related to release of hazardous materials, vehicle or vessel accidents, and injuries to community members. This section covers emergency preparedness, response, and reporting specific to each of these types of emergency. This section addresses foreseeable potential emergencies. Not all emergencies can be anticipated, but this provides the framework for response, regardless of the type or severity of the emergency. Section 6.4 This CHASP also describes measures taken with local police and fire departments to prepare for or even avoid certain public safety issues (Section 6.4 - Public Safety Preparedness).

6.1 Responsibilities

As described in the specifications on Pollution Prevention Planning and Execution and on Safety Management, the Contractor will be responsible for managing responses to emergencies and will:

- Immediately coordinate the response with other parties such as EPA, Washington State Department of Ecology (Ecology), Port and City Police, fire departments, the Coast Guard, and community contacts
- Conduct emergency response in accordance with the site-specific HASP and this CHASP
- Retain an emergency response contractor (or have onsite staff trained) to be available immediately in the event of a spill or other emergency
- Confirm that safety equipment is available and functioning properly
- Inform appropriate authorities and response agencies in the event of an accidental spill that potentially poses a hazard to the public
- Train staff to respond to emergencies in accordance with the requirements outlined in the specifications
- Prepare a Pollution Prevention Plan in accordance with the requirements outlined in the specifications.

The Port will operate a toll free hotline for community members to report concerns and emergencies. Additionally, Port Police will conduct up to three patrols of T-117 daily.

Two weeks prior to initiating field activities at the site, the following emergency responders will be notified in writing:

- Port Police Department
- City Police and Fire Departments (911)
- USCG
- Sea Mar Clinic
- EPA (spill response)
- Ecology.
Port and local police and Seattle and Highline Fire Departments will be informed of road closures for the project, such as Dallas Avenue S along the Upland Area perimeter. This information will assist emergency responders in reacting appropriately in the event of an emergency in the neighborhood, regardless of whether it is T-117 related.

A complete list of emergency contact agencies and phone numbers will be provided in the final Contractor site-specific HASP and this Community HASP. A site-specific Construction HASP will be developed by the Contractor and will cover health, safety, and emergency response for site workers. Although it will cover similar topics, and similar BMPs will be used to accomplish the goals of both HASPs, this CHASP focuses on the health, safety, and quality of life of community members.

In the event of an emergency that could impact the community, communications will be conducted by means of the tools described in Section 7. In the event of an emergency, maps and directions to the closest hospital emergency room and the closest walk-in clinic are provided as Figures 6-1 and 6-2, respectively.

### 6.2 Emergency Equipment and Planning

The following emergency equipment, at a minimum, will be maintained by the Contractor in the Upland Area and in the job trailer:

- Fire extinguisher
- Eye wash station
- First-aid kit
- Sound-producing device (air horn)
- Spill kit
- Hard copy of all appropriate HASPs.

For water vessels, the following safety and emergency response equipment, at a minimum, will be maintained:

- Personal floatation devices
- Life buoy
- Visual distress signals (flares)
- Navigational lighting
- Fire extinguisher
- Sound-producing device (air horn)
- Eye wash station
- First-aid kit
- Spill kit
- Hard copy of the all appropriate HASPs.
6.3 Emergency Scenarios

This section discusses a number of events that may occur at the project site, which may also impact the surrounding community. This section is intended to describe emergencies that may occur on this project due to the types of equipment used and activities performed. The anticipated emergency scenarios for T-117 that are discussed herein include:

- Collision or accident with light vehicle (workers or visitors cars), heavy equipment, or water vessel. Additional details and procedures for safe operation of project vehicles and vessels is discussed in Section 5.
- Fire or explosion on T-117
- Accidental spill or release at the Upland, in-water, or offsite location

The Site Health and Safety Supervisor, the Port RE, a CIH, and EPA will determine whether, and at what levels, if any, community exposure actually occurred, the cause of such exposure, and the means to be taken to prevent similar incidents from occurring in the future. The Site Health and Safety Supervisor will also direct notification, response, and follow-up actions with the concurrence of the Port RE. Contact with any outside response personnel (e.g., ambulance, fire department, USCG, etc.) other than the EPA and Ecology will be made at the direction of the Site Health and Safety Supervisor. The T-117 liaison will be responsible for communications to the community.

In the event of an accident the personnel involved will immediately notify emergency personnel, by calling 911. Following the 911 call, the same personnel will notify the Contractor’s Site Health and Safety Supervisor and the Port RE. In addition, appropriate emergency measures will immediately be taken by site personnel to assist those who have been injured and to protect others from hazards. These measures may include contacting the relevant authorities (depending on the nature of the emergency) and/or health care facilities and moving those involved to a secure location, as appropriate.

6.3.1 Response to Fire or Explosion

An onsite fire could potentially impact the community. The potential for a fire or explosion is unlikely because excavated soils and dredged sediments contain insignificant levels of volatile compounds and the sediments will be wet. Additionally, heavy equipment and larger vessels operate on diesel fuel, which is not explosive under normal operating conditions.

As will be described in the Site-specific Construction HASP, smoking will be prohibited within the site, including on any project vessels. The Contractor will designate a smoking area that is not in close proximity to any residences, and smoking may only occur in this area. Further, workers leaving the site at the end of the day will not be allowed to smoke near residences, even when they are “off the clock”.
A “hot work” permit will be required when activities require a spark-emitting tool or welding to occur. Open containers of flammable or explosive materials will not be transported on project equipment or vessels.

Fire extinguishers will be located in each haul truck, on each vessel, and on each piece of heavy equipment. Additional fire extinguishers will be stationed on the site (e.g., in the Contaminant Reduction Zone) and in/near the Contractor’s trailer. Per USCG regulations, all project vessels will have approved portable or semi-portable fire extinguishers (33 CFR 145 [fire-fighting equipment]) to suppress a fire.

If fires or explosions occur, the Port will re-evaluate current preventive measures, particularly project fire-fighting capability. The Port will work with the USCG and local emergency responders to ensure that the proper fire prevention controls are in place.

When the fire cannot be controlled with an extinguisher, the site (or vessel) will be evacuated immediately. The Site Health and Safety Supervisor or Port RE (or anybody else that feels there is imminent danger or health/safety issues related to the event) will determine the time to contact fire department response personnel.

**6.3.2 Emergency Spill Response**

In an accidental release, contaminated soil, sediment, or water could be released to residential streets, properties, or the waterway. It is possible that a spill or release of a petroleum product occurs because of a failure in equipment (e.g., broken fuel line, ruptured hydraulic line) or because of damage to a project vessel as a result of an incident. Such a spill or release could impact the community. The response approach will vary depending on the location and nature of release. The general steps taken to address a release include:

- Assess the location and nature of release
- Make appropriate notifications (e.g., Contractor, Port RE, emergency services)
- Isolate the release area from the general public
- Contain the release
- Stop the source of the release
- Evaluate and implement cleanup of the release.

The Contractor’s Pollution Prevention Plan will provide a more detailed listing of prevention and mitigation for spills on the project.

Prior to mobilizing equipment to work areas, the Contractor will prepare a Vessel Management Plan. That plan may include a provision stating that an independent third-party inspection will verify that each vessel is seaworthy and fully functional. The inspection will also include a check of the integrity of equipment components most likely to fail and cause a spill or release (e.g., hydraulic lines, fuel lines). In the development of the
GSR Plan, the Contractor will consider the use of biodegradable hydraulic oil in equipment used in-water and used for bank excavation, where feasible. Biodegradable oil may not be suitable for all marine equipment, and its use will only be considered where the integrity of equipment handling is not compromised.

If spills or releases of fuel occur because of equipment failure, the Contractor may consider:

- Purchase of new or different equipment
- Modification in equipment maintenance procedures
- Re-evaluation and potential modification of refueling activities.

The Site Health and Safety Supervisor will notify the Port of any spills that occur. Upon the occurrence of any event during the performance of the work which requires reporting to the National Response Center, such reporting will be made, as well as the additional oral notifications and reports to EPA and Ecology.

### 6.3.3 Response to Natural Disaster

In the event of a natural disaster such as an earthquake, flood, or dangerous weather conditions, the Contractor Superintendent will cease all site activities and will call the Port and EPA. All onsite personnel will be accounted for and sent home. The site will be secured, so that no preventable impact comes to the community from spills or from equipment that is not locked out/secured. All gates will be locked to prevent unauthorized entry.

### 6.4 Public Safety Preparedness

The Port Police will patrol T-117 (Upland Area and neighborhood) at least 3 times per day during active cleanup and construction activities. Any events or updates relevant to the site security and safety of the Project and/or pocket neighborhood will be provided through the communication outlets described in Section 7 and, incorporated into public safety updates made by local Port and City police precincts.

Prior to work beginning, the City and County Fire Departments will be notified of the activities and construction schedule. They will also be notified of any road closures for the work and haul routes that will have considerable truck traffic because this affects the responders’ ability to travel to/from the location of an emergency. The fire departments will also be asked to check the functionality of all fire hydrants in the pocket neighborhood prior to Upland Area construction activities beginning.
7 Communications Plan

A critical part of a CHASP is a comprehensive public outreach and involvement strategy, which creates a process for meaningful engagement and communication between the community and project team. A CIP has been developed for the T-117 Phase 1 Sediment and Upland Areas (available on the T-117 website at www.t117.com). The activities described below are consistent with those in the CIP, and support the overarching goals of public involvement.

The focus of the CIP is reflected in the established response mechanisms and public activities, all giving the team the opportunity to learn from the community as well as provide swift responses to emerging issues.

During cleanup construction activities, the community will have a way to easily interact with the project team. Because people have differing preferences for communicating, this CHASP establishes various methods of communicating with the project team. During construction, the team will be flexible and responsive to mid-course corrections, especially at the request and needs of the community. For example, if work hours need to be extended to complete construction activities within the schedule (the in-water work window), the community will be consulted. Similarly, construction activities/logistics may be adjusted to maintain quality-of-life for the community, when appropriate.

7.1 Key Milestones

Key milestones and updates that will be communicated to the community may include, but are not limited to:

- Selection of a haul route(s) and anticipated traffic flow
- Work hours and days
- Selection of a Contractor
- Construction schedule, including groundbreaking and completion, and when major activities begin
- “How are we doing” updates:
  - Periodic results of air quality, light, and noise monitoring and a running tally of the number of accident-, injury-, and incident-free days
  - A running tally of number of trucks or tons of soil removed, or some other metric tracking progress.

7.2 Methods of Outreach

A suite of tools and activities will be used during construction, to communicate with the nearby community and broader public. To ensure widespread access of concise, timely, relevant, and readable materials to neighbors, the following documents and materials (and others as the need arises) will be translated into Spanish and Vietnamese:

- Community Resource Guide
• Important construction updates
• Project milestone announcements
• Upcoming meeting notices
• Executive summaries
• Other documents, if the need arises.

The project team will also determine whether translation to other languages would serve the community.

All incoming communications, whether they occur by phone, email, comment form, or in person, will be put through the response protocol, described in Section 7.3 and shown in Figure 7-1.

7.2.1 Community Resource Guide

The Community Resource Guide will be a full-color publication distributed to the community shortly before Phase 1 construction begins. It will describe the construction activities, schedule, and measures the Port will take to protect the community during construction. Content will focus on issues that have been identified as a primary concern for the community (such as noise). It will also provide important contact information, including a toll free hotline, for the community to voice concerns and ask questions. The Community Resource Guide will be developed after the specific elements of this CHASP are approved by EPA.

7.2.2 Weekly Construction Updates

Construction updates will be issued weekly and will include information pertaining to, but not limited to:

• Current work activities
• Future work activities
• Upcoming public activities
• Opportunities to comment/give input.
• Community input received and follow-up.

Construction updates will be distributed by:

• Posting at the project board and to the project website
• Posting fliers in neighborhood locations (e.g., South Park Library and South Park Community Center) and at the South Park Information Center (this will also be a repository for construction information)
• Posting to the South Park LISTSERV, the South Park news blog (thesouthparknews.com), the South Park Neighborhood Facebook page, and any other neighborhood information sharing websites suggested by the community
• Emailing the T-117 contact list including key stakeholders and community members.
7.2.3 Comment Form

Community members will be encouraged to complete and submit comment forms, which will be made available at all events, through the project website, and at community drop box locations. Comment forms are available in English, Spanish, and Vietnamese, and can be submitted by email, mail, or in comment drop boxes.

Comment forms will be treated as incoming communications and will be handled with the same protocol as described below for incoming calls to the construction hotline.

7.2.4 Project Website

The T117.com website will act as the primary outgoing information repository, providing access to:

- Technical documents
- Progress reports
- Construction updates
- Frequently asked questions (FAQs)
- Upcoming event information.

Community members needing to communicate with the project team will be able to find team contact information (email and phone) on the website, as well as the option to fill out a comment form.

The website will be updated regularly so that information is current.

7.2.5 Construction Hotline

A toll free construction hotline will provide the public with access to a T-117 liaison (a Port of Seattle representative) from 8:00 am to 5:00 pm, Monday through Friday. Hotline voicemail will be available for calls placed outside of these times. Emergency calls after 5:00 pm should be go to 911. The hotline’s primary purpose is to offer the community an easy way to talk directly with a team member, request information, or voice a concern. The hotline phone number will be displayed prominently on all construction materials, the website, and project team emails.

The communication response protocol for all incoming communications is in Figure 7-1.

7.2.6 South Park LISTSERV/Email List and Blog

The South Park LISTSERV is a well-established community-based bulletin board that is highly viewed by the public. A powerful communication tool, the list serve is a reliable and quick way to distribute information to a large number of people.
A T-117 specific email list will also be created and continuously updated. The opportunity to join the email list will be available at all events and on the project website.

A South Park-specific blog has also been established at SPNews.com, and the same information in the emails will be provided to the blog editor.

The LISTSERV and blog will primarily be used to distribute the following types of information:

- Upcoming opportunities for public input and consultation
- Project milestones
- Project events
- Schedules.

### 7.2.7 Communicating with Navigation Authorities/Mariners

Most in-water work will occur in the T-117 Sediment Area. However there will also be barge traffic between a sediment transloading facility and the Sediment Area (both transporting dredged sediment from T-117 to the facility ultimately for disposal and transporting clean backfill to T-117). Planned activities and any potential disruptions will be communicated to the South Park Marina, Harbor Island Marina, Alki Kayak Tours, Tribes, industry advocacy groups, marine organizations, the USACE, and the USCG. Alki Kayak Tours conducts group tours of the LDW and will be informed of activities that will affect those tours. The construction hotline number will be posted at the Harbor Island Marina, the South Park Marina, the Muckleshoot Tribe fishing wharf, and other key locations so that mariners can ask questions or lodge comments or complaints while traversing the LDW. Sediment dredging is specifically planned to not begin until December 1, 2013 to avoid disruptions to Tribal netfishing activities.

### 7.2.8 Community Meetings/Neighborhood Briefings

Community meetings will provide opportunities for local residents, businesses, and the broader community to learn about and provide input on the cleanup at several key construction milestones. The project team is committed to keeping the community well-informed, which will help the project run smoothly, and help shape the best possible end result. Community meetings provide valuable opportunities for interaction among all interested parties. Interpreters will be available as the need dictates.

Community meeting notification will be distributed through:

- South Park LISTSERV
- Email list
- South Park news blog (thesouthparknews.com)
- South Park Neighborhood Facebook page (www.facebook.com/southparkseattle)
- Posters in businesses and at the South Park Information Center
• Fliers to residents (door-to-door canvassing)
• Project website
• Local organizations.

On a regular basis the project team will request to be included on the agenda for neighborhood meetings, taking a few minutes to give a brief update about the construction status at T-117, and especially notifying neighbors of occurring and upcoming activities. Briefings will be offered to cultural organizations and Tribes, as well as neighborhood associations. The project team will make available helpful materials focusing on topics related to the construction activities. If needed, interpreters will also be present at community briefings.

7.2.9 Fairs and Festivals

Fairs and festivals are a fun and informative way to relay information to the public in an informal environment. Posters, hand-outs, and interactive activities are effective tools for information dissemination. Events for T-117 involvement will be focused towards well-established events that draw a large number of South Park residents. Such events include, but are not limited to:

• Duwamish Alive
• Earth Day
• Duwamish River Festival
• Marra Farms outreach events.

7.2.10 Fliers/Canvassing

Fliering homes and businesses is a quick and efficient way to inform the community about construction activities and updates. Fliers will also be posted at key South Park locations, such as:

• Sea Mar
• South Park Neighborhood Association
• South Park Information and Resource Center
• South Park Community Center
• South Park Library
• 14th Avenue South businesses such as Napoli Pizza, Loretta’s Northwesterner, Video Mar and Via Vadi Cafe.

Fliers may also be posted at sandwich boards located along 14th Avenue S. The project team will continuously assess the need to translate these materials.
7.2.11 Traditional Media

The project’s media relations team in tandem with the EPA, Port, and City Public Information Officers will provide coordinated and consistent responses to media inquiries and will distribute news releases related to key milestones to the media.

Media outlets may include television, radio, and print, as well as ethnic and cultural media.

7.3 Incoming Communications

Community members will be able to submit a communication to the project team in several ways, including:

- Construction hotline
- Email
- Verbal communication
- Project website (submitting a comment form).

Regardless of communication method, the communication will be put through the response protocol, beginning with recording the name and contact information of the community member and the time, date, and nature of the concern, as well as the requested response mechanism (i.e., does the community member request a call back?). Recording these incoming communications will create a “communications log”, giving the project team the ability to track and review comments. All incoming communications will be assigned a status (open or closed). “Open” communications will be flagged for follow up, while “closed” communications have been sufficiently addressed (Figure 7-1).

All communications will be acknowledged by a Port representative within 24 hours. If the request or concern of the caller cannot be resolved with the initial communication, the T-117 liaison will describe the steps being taken to address the issue, as well as an expected response time. Ongoing follow up will occur until the communication is sufficiently resolved and recorded as “closed.”

7.3.1 Emergency vs. Non-emergency

Should a call to the hotline be deemed an emergency, the caller will be directed to 911 immediately. The T-117 liaison will then place a call to the project team and onsite team to notify them of the emergency call.

7.3.2 Requests for Information

Requests for information not requiring immediate action will be responded to within a few days. Detailed requests may be handled by EPA, and therefore may have a longer response time. The community member requesting the information will be notified of the expected duration for a response and will be asked for the best method and time to deliver that response (e.g., call home after 5:00 pm).
7.3.3 Concerns

Concerns and complaints will be taken seriously and will follow the same 24-hour response commitment as other incoming communications. However, an effort to respond as soon as possible will be made, as complaints often are regarding disruptions to neighborhood quality of life. The project team recognizes that neighbors living near/in T-117 will be impacted by construction, and quick responses to issues of comfort are necessary.

Incoming concerns will be logged and communicated to the Port RE, Project Coordinator, and Project Manager who will immediately begin to gather information regarding the caller’s concern. Depending on the nature of the concern, Port representatives will discuss the concern with the onsite team and look for ways to mitigate the issue. If the issue cannot be addressed, the T-117 liaison will explain the nature of the issue and its expected duration to the community member.

The goal is to keep the public as well-informed as possible, remaining transparent about issues concerning construction. The other goal is to respond to unanticipated issues and complaints as quickly as possible so that the project has as minimal impact on the community and LDW users as possible.

7.4 Communication of Key Public Issues to Onsite Workers

Site workers will be briefed often regarding issues of particular concern to the community. Every work day will begin with a team/tail gate meeting, where any issues regarding public involvement will be covered.
8 References


Figures
SITE OVERVIEW

COMMUNITY HEALTH AND SAFETY PLAN
T-117 EARLY ACTION AREA

DATE: 09/30/2012

DRWN: bts

FILE: G:\Clients\CRETE\T-117-Community Health & Safety Plan\Figure 1-1 Site Overview
COMMUNITY HEALTH AND SAFETY PLAN
T-117 EARLY ACTION AREA

POTENTIAL HAUL ROUTES AND SUPPORT AND STAGING AREAS

DATE: 08/17/12
DRAWN: bts

FIGURE 2-1
## Figure 4-1 - Removal Action Timeline
### T-117 Early Action Area

<table>
<thead>
<tr>
<th>Bid/Contracting</th>
<th>EPA Approval of Final Removal Design</th>
<th>Prepare Bid Set</th>
<th>Bid Period</th>
<th>Bid Review/Notice of Intent to Award</th>
<th>Contracting/Contract Award</th>
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### Removal Action Work Plan
- Draft RAWP
- EPA Review
- Final RAWP
- EPA Review
- EPA Approval

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<th>Removal Action</th>
<th>Notification for Removal Action Start</th>
<th>Notice to Proceed</th>
<th>Implement Removal Action</th>
<th>Mobilization</th>
<th>Decontaminate</th>
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<td>Pre-Final Inspection/Meeting</td>
<td>Pre-Final Inspection Letter/Report</td>
<td>Final Construction Inspection</td>
<td>Pre-Final Inspection/Meeting</td>
<td>Pre-Final Inspection Letter/Report</td>
</tr>
<tr>
<td>Non-TSCA Soil Excavation/Backfill</td>
<td>Pre-Final Inspection/Meeting</td>
<td>Pre-Final Inspection Letter/Report</td>
<td>Final Construction Inspection</td>
<td>Pre-Final Inspection/Meeting</td>
<td>Pre-Final Inspection Letter/Report</td>
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<td>Bank Removal</td>
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<td>Barrier Wall Installation</td>
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<td>Dredge/Backfill</td>
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<td>Demobilization</td>
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</table>

### EPA Construction Inspection
- TSCA Soil Excavation
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection
- Pre-Final Inspection/Meeting
- Pre-Final Inspection Letter/Report
- Final Construction Inspection

### Construction Completion
- Pre-Certification Inspection
- Draft RA Construction Report
- EPA Review
- Final RA Construction Report
- EPA Review
- EPA Approval

### Notes:
- Design Team Activity
- EPA Review
- Design Team/EPA Meeting

---

[Image of the timetable and activities]
PROPOSED MONITORING STATIONS

FIGURE 5-1

Note: Monitoring equipment will be on a movable platform which can be positioned anywhere within these general areas such that the downwind station is between construction activities and the nearest receptor. The exact location of the equipment will change depending upon weather conditions and Contractor activities.
Total Travel Estimate: 7.41 miles—about 14 minutes
Total Travel Estimate: 0.31 miles—about 1 minute

1. Start out going WEST on DALLAS AVE S toward 16TH AVE S.
   Miles Per
   Go 0.1 Mi
   0.1 mi
2. Take the 2nd LEFT onto 14TH AVE S.
   If you reach S SULLIVAN ST you've gone a little too far
   Go 0.2 Mi
   0.3 mi
3. 8720 14TH AVE S is on the LEFT.
   Your destination is just past S DONOVAN ST
   If you reach S TRENTON ST you've gone a little too far
   0.3 mi

8700 Dallas Ave S
Seattle, WA 98108-4855

8720 14th Ave S
Seattle, WA 98108-4807
CALL TO CONSTRUCTION HOTLINE; T-117 LIASON RECEIVES CALL

Call deemed emergency: Depending on description, caller directed to immediately call 911

Interpretation used as needed

OTHER METHOD OF INCOMING COMMUNICATION (WEBSITE, IN-PERSON, VISIT TO SITE, ETC.)

Interpretation used as needed

Communication summarized by recipient and forwarded to community involvement team

MEDIA INQUIRY (EMAIL, PHONE CALL, ETC.)

Request summarized by recipient and forwarded to Port of Seattle’s media relations team for follow up

Communication logged as “open”

EMAIL TO PROJECT TEAM; T-117 LIASON RECEIVES EMAIL

Question/concern requires project team input; coordinate with Port and project team to develop response

Response to media provided to community involvement team for tracking

Question/concern does not require project team input; response provided

Communication is “closed” on communications log

Call: T-117 liaison returns call to respond to initial question/concern

Email: T-117 liaison sends email to respond to initial question/concern

COMMUNICATION RESPONSE PROTOCOL

COMMUNITY HEALTH AND SAFETY PLAN
T-117 EARLY ACTION AREA

FILED 14/11/2011

FIGURE 7-1
Attachment A

Air, Noise, and Light Monitoring Plan
AIR, NOISE, AND LIGHT MONITORING PLAN
PHASE 1: Sediment and Upland Cleanup

Lower Duwamish Waterway Superfund Site
Terminal 117 Early Action Area

May 11, 2015
Revision 1
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<th>Description</th>
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<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
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<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>ATSDR</td>
<td>Agency for Toxic Substances and Disease Registry</td>
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<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
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<td>CHASP</td>
<td>Community Health and Safety Plan</td>
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<td>CIH</td>
<td>Certified Industrial Hygienist</td>
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<tr>
<td>COC</td>
<td>contaminant of concern</td>
</tr>
<tr>
<td>dB(A)</td>
<td>decibels, measured using A-weighting</td>
</tr>
<tr>
<td>DOSH</td>
<td>Washington State Division of Occupational Safety and Health</td>
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<td>DQO</td>
<td>Data Quality Objective</td>
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<td>EAA</td>
<td>Early Action Area</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>eV</td>
<td>electron volts</td>
</tr>
<tr>
<td>GC/MD</td>
<td>Gas Chromatographic/Multi-Detector Detection</td>
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<tr>
<td>GC/MS</td>
<td>gas chromatography/mass spectrometry</td>
</tr>
<tr>
<td>H₂S</td>
<td>hydrogen sulfide</td>
</tr>
<tr>
<td>LDW</td>
<td>Lower Duwamish Waterway</td>
</tr>
<tr>
<td>Leq</td>
<td>equivalent continuous sound level</td>
</tr>
<tr>
<td>lpm</td>
<td>liters per minute</td>
</tr>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter of air</td>
</tr>
<tr>
<td>MDL</td>
<td>method detection limit</td>
</tr>
<tr>
<td>mg/m³</td>
<td>milligrams per cubic meter of air</td>
</tr>
<tr>
<td>MRL</td>
<td>Minimal Risk Level</td>
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<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
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<td>NTCRA</td>
<td>non-time-critical removal action</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute of Occupational Safety and Health</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>PCBs</td>
<td>polychlorinated biphenyls</td>
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<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<tr>
<td>Phase 1</td>
<td>Sediment and Upland Areas</td>
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<td>Phase 2</td>
<td>Adjacent Streets and Residential Yards Area</td>
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<tr>
<td>PID</td>
<td>photoionization detector</td>
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<td>Plan</td>
<td>Air, Noise, and Light Monitoring Plan</td>
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<tr>
<td>PM₂.₅</td>
<td>particulate matter in air of 2.5 micrometers in diameter or less</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter in air of 10 micrometers in diameter or less</td>
</tr>
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<td>Port</td>
<td>Port of Seattle</td>
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<td>ppm</td>
<td>parts per million</td>
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<tr>
<td>PRG</td>
<td>Preliminary Remediation Goal</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
<td>--------------------------------------------------</td>
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<tr>
<td>PSCAA</td>
<td>Puget Sound Clean Air Agency</td>
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<td>PUF</td>
<td>polyurethane foam</td>
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<td>QA/QC</td>
<td>Quality Assurance/Quality Control</td>
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<td>RPD</td>
<td>relative percent difference</td>
</tr>
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<td>SMC</td>
<td>Seattle Municipal Code</td>
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<tr>
<td>SLM</td>
<td>sound level meter</td>
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<td>T-117</td>
<td>Terminal 117</td>
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<tr>
<td>TCRA</td>
<td>time-critical removal action</td>
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<td>TPH</td>
<td>total petroleum hydrocarbons</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
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<tr>
<td>TWA</td>
<td>time-weighted average</td>
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<td>VOC</td>
<td>volatile organic compound</td>
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1 Introduction

The Terminal 117 (T-117) project site is an Early Action Area (EAA) within the 440-acre Lower Duwamish Waterway (LDW) Superfund Site in Seattle and Tukwila, Washington. The Port of Seattle (Port) plans to conduct a non-time-critical removal action (NTCRA) to address contaminants of concern in soil and sediments. This action addresses the Sediment and Upland Areas of T-117 (Phase 1). The Phase 1 area is surrounded by the South Park residential and commercial community to the west and south, and by the LDW and South Park Marina to the north and east. Construction activities are planned for implementation between the summer of 2013 and the spring of 2014.

This Air, Noise, and Light Monitoring Plan (Plan) provides the means and methods for conducting field monitoring using meters and equipment analyses to evaluate and control impacts to the surrounding community during construction activities. It outlines monitoring frequency and locations, prescribed equipment, laboratory methods, and quality control measures to meet project objectives. This plan is an appendix to the Community Health and Safety Plan (CHASP). The CHASP recognizes the potential project impacts to the community and identifies a communication plan to document questions/complaints, provide responses and identify best management practices (BMPs) to control potentially negative project impacts in a timely manner. These two plans together are designed to provide the recognition, evaluation, and control of potential impacts to the surrounding community. This Plan documents the means and methods to demonstrate compliance with the CHASP.

1.1 Purpose

These plans cover Phase 1 of the T-117 NTCRA, which will take about 12 months to complete. They cover community health and safety related to construction activities both in-water and upland. This project will disturb contaminated soil, sediment, and groundwater on site, with a potential for migration of contaminated media offsite and into the adjacent residential and commercial neighborhood. As with any construction project, a number of workers, an array of heavy equipment, trucks, and workboats may generate dust, noise, light, and odors that could impact normal quality of life near the work areas.

This Plan provides the methods and procedures for monitoring of air quality (including odors), noise, and light during the cleanup construction period. Baseline monitoring of air quality is also discussed. Specific goals of the Plan are to:

- Identify performance standards for air quality, noise, and light to protect the surrounding community from the potential impacts identified in the CHASP
- Outline monitoring protocols (methods, location, and frequency) that will be used to evaluate compliance with performance standards
- Identify laboratory methods or equipment performance specifications for field measurements
- Provide quality control measures to validate the monitoring data
• Produce and report data that demonstrate compliance with the established performance standards and the CHASP for the duration of the project.

The cleanup project is required to follow federal, state, and local regulations. This Plan meets or exceeds those regulations and addresses potential project-related quality-of-life impacts associated with air quality, noise, and light to the community, including residents of the South Park neighborhood, the retail corridor along 14th Avenue, and LDW users.

1.2 Project Scope

The T-117 EAA includes the following subareas: Sediment Area, Upland Area, Adjacent Streets, and Residential Yards Area. The cleanup will be conducted in two separate but coordinated phases: the Sediment and Upland Areas cleanup (Phase 1) and the Adjacent Streets and Residential Yards Area cleanup (Phase 2).

This Plan covers Phase 1 activities, which include:

• Regulated building material abatement
• Building (three buildings) and other site features demolition
• Driving and placement of a shoreline barrier
• Excavation, handling, and stockpiling of TSCA and non-TSCA upland and riverbank soil
• Loading and offsite hauling of soil
• Dredging and barge export to a transloading facility of LDW sediment
• Hauling to the site and handling and compaction of clean backfill material
• Treatment of contaminated contact water either in a temporary onsite facility or by transport to an offsite treatment facility.

This Plan is written to evaluate and control potential impacts to the surrounding community at the site boundary. It is acknowledged that some project activities may have impacts that extend into the community, past the site perimeter. Specifically, the truck haul routes used through the South Park neighborhood will cause neighborhood inconvenience, and a potential for air and noise impacts. The need for monitoring of impacts (e.g., dust from roadways, diesel emissions, noise) within the community will be evaluated on a case-by-case basis in response to community feedback or other observations. Truck wheel wash, inspection of trucks leaving the Upland Area, street sweeping, appropriate truck queuing locations, idling times, and diesel engine requirements are discussed in the CHASP, specifications, and other design documents. These BMPs are expected to eliminate impacts within the community, and monitoring described in the Plan at the site perimeter will help ensure that the community is protected and that BMPs are working.
2 Potential Hazards and Monitoring Scope

This section describes potential hazards and impacts to the surrounding community, including air quality, noise, and light originating from the project. It also defines the proposed location of monitoring stations, monitoring frequency, and performance standards. Table 2-1 provides a summary of the types of monitoring, frequency, and locations. Figure 2-1 illustrates potential monitoring station locations. Table 2-2 summarizes the performance standards for each potential hazard/impact.

2.1 Potential Hazards and Impacts to Quality of Life

2.1.1 Impacts to Air Quality

The airborne contaminants of concerns (COCs) are fugitive and visible dust, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), diesel particulate matter from heavy equipment, and hydrogen sulfide (H\textsubscript{2}S) odors. The COCs will be evaluated by the means and methods specified in this Plan for compliance with project performance standards. When measured air parameters exceed project performance standards as specified in Section 2-2, mitigation measures will be deployed to control community impacts.

Fugitive odors during construction present a potential quality of life issue. It is unlikely that the generation of odors on site will indicate a health hazard, but unusual odors can cause a nuisance, stress, and an impact to quality of life. Odors can also be indicators of compromised air quality, and this Plan describes air quality monitoring. Odors may be generated from dredged sediments that contain decaying organic matter (H\textsubscript{2}S), during excavation of petroleum-contaminated soil, from diesel emissions, or from pulling creosoted piles (VOCs). Therefore, H\textsubscript{2}S and VOCs will be monitored if there are odor complaints or if onsite staff smell odors. The human sense of smell will allow for recognition of the odor; this will be followed by quantitative measurements with field instruments and a comparison of the concentrations with performance standards. Mitigation measures will then be deployed until odors are controlled to regain compliance with performance standards as discussed in Section 5.1 of the CHASP.

2.1.2 Impacts from Noise

Construction activities use heavy equipment to excavate soil, dredge sediment, install piles, and move materials on and around the site. These activities will generate noise above the levels typically experienced in the project setting. The site is in an area with other significant background noise sources, such as airplane traffic from King County Airport, Boeing operations, and Independent Metals Company. The typical background noise levels were determined during the 2006 time-critical removal action monitoring (Section 2).
Although it is unlikely that noise from the project site would be loud enough to cause hearing damage, unusual noise can cause annoyance, stress, and disturb sleep. Noise levels will be monitored to identify noise-generating activities and to modify site activities, if needed. Noise levels will be continuously evaluated for compliance with the Seattle Municipal Code (SMC) for construction sites and the project performance standards (see Table 2-2). Mitigation measures will then be deployed until noise is controlled to regain compliance with performance standards as discussed in Section 5.2 of the CHASP.

### 2.1.3 Impacts from Light

Artificial light may be necessary to illuminate work areas during active construction to provide worker and community safety, but may present a nuisance to surrounding residences. Lighting may be needed during the following activities:

- For general lighting at the beginning and end of each work day during fall and winter months, as even typical work hours will be outside of the fall/winter daylight periods
- For project vessels to ensure their safe passage during nighttime or early morning transport of materials
- For any extended work hours (e.g., 18- or 24-hour work days) for specific tasks, such as bank excavation, that may be necessary to meet the schedule.

When work is conducted during darkness, light levels will be measured each time a new light source is installed or in response to community feedback, for compliance with the SMC for light from construction sites. Mitigation measures will then be deployed until light levels are controlled to regain compliance with performance standards as discussed in Section 5.3 of the CHASP.

### 2.2 Baseline Monitoring

The Port may conduct optional baseline air quality and noise condition monitoring if there is reason to believe that compliance data are influenced by activities not related this removal action. Baseline air quality monitoring, which requires an 8-hour average for total PCBs, dust, and diesel emissions, can be conducted on a day when work is not occurring, e.g., a Sunday. Baseline noise readings can be taken any time that the removal action is not generating any noise.

Weather data from the National Oceanic and Atmospheric Administration (NOAA 2012) Boeing Field weather station can also be used to evaluate weather patterns and provide information about ambient air quality contributions to T-117. During baseline sampling, staff will also document activities in the area that could impact monitoring results, such as regular on-going activities and other construction occurring in the vicinity. Existing data sources will also be considered in compiling baseline conditions for the site. Specifically,
the data collected during the 2006 time-critical removal action (TCRA) will provide information related to previous site excavations (RETEC 2007).

In 2006, three designated locations were used to monitor airborne concentrations of particular matter (PM$_{10}$) and PCBs using DataRAM meters and TE-1000 polyurethane foam (PUF) cartridge samplers, respectively. The data were significantly below the most stringent preliminary remediation goal for chronic inhalation exposure (0.11 µg/m$^3$).

Noise monitoring conducted during the 2006 TCRA did not identify any noise standard exceedances, even with noise generation from air traffic using the nearby King County Municipal Airport. In 2006, noise monitoring was performed near the residences across from the North Building along Dallas Avenue S on September 26 and September 28, 2006. Each measurement lasted at least one hour, and the sound data were collected at 1-second increments. Despite the noise from the overhead aircraft, measured sound levels were below the SMC construction noise limit (RETEC 2007) which was the same as the limit presented in Section 2.5. The maximum instantaneous noise level measured on each day was 83 and 86 dB(A) and 64 dB(A) was exceeded about 25 percent of the monitoring period. Therefore, it is anticipated that this NTCRA will be in compliance with noise requirements. Project noise monitoring will be conducted to verify compliance with the SMC.

2.3 Monitoring Stations

Background/upwind and performance air quality monitoring will be conducted at two stations during construction activities. Figure 2-1 illustrates the proposed area where monitoring stations will be set up. The stations are shown as a general area because the equipment will be affixed to moveable platform that can be stationed along the site perimeter nearest to ongoing activity, between that activity and offsite receptors (primarily neighborhood residences).

- The North Monitoring Station will be at the north end of the site across the street from residences.
- The South Monitoring Station will be near the south end of the site.
- The predominant wind direction will be tracked daily with a weather station mounted on the roof of the Contractor’s site construction trailer/office.

Data from the NOAA Boeing Field weather station will be reviewed to determine wind direction each day (i.e., which station is downwind and which is upwind). Monitoring station locations may be adjusted based on changing weather conditions or movement of construction activities around the site. The Port Environmental Compliance and Community Liaison will be onsite to determine monitoring locations, which can be adjusted throughout the day depending on activity/wind direction.
Monitoring may also be conducted at additional stations around the site (or offsite), as needed or requested. Continuous noise monitors will be located on the site perimeter along Dallas Avenue S nearest noise generating activities.

2.4 Monitoring Frequency

Qualitative monitoring will be conducted continuously for the duration of construction activities by project staff and the community. Qualitative monitoring will rely on the observations of workers and the community to identify issues with air quality, noise, and light. This type of monitoring relies on human senses, such as visual, olfactory, and auditory signals. When issues are identified by the community, they can be reported through any of the incoming communication mechanisms in the CHASP. Qualitative monitoring can initiate or increase quantitative monitoring.

The standard schedule for quantitative monitoring is:

- During active construction with a high potential to generate dust in June, July, and August, real-time dust monitoring will be performed every day. During other periods, monitoring will be performed one day per month. Data will be collected over a construction shift, and the daily average will be calculated with the inclusion of measured background levels to represent periods when work is not occurring at T-117, and the calculated 24-hour average will be compared to the performance standard (Table 2-2). A DataRAM 1580 real-time continuous particulate monitor will be used.
- During active construction in June, July, and August, ambient air monitoring for PCBs for a full 24-hour period will occur at both monitoring stations at least once weekly. During other periods monitoring will be performed one day per month. Air is pumped through a filter in the monitoring equipment over the course of one day (for each day of monitoring), and the filter is sent to the laboratory for analysis.
- During active construction with a high potential to generate diesel exhaust due to the presence of trucks and site equipment in June, July, and August, real-time diesel exhaust monitoring (as PM$_{2.5}$ black carbon particulate) will be performed every day. During other periods, monitoring will be performed one day per month. Data will be collected over a construction shift, and the daily average will be calculated with the inclusion of measured background levels to represent periods when work is not occurring at T-117, and the calculated 24-hour average will be compared to the performance standard (Table 2-2). An Aethlabs Microaethalometer will be used.
- Monitoring for total VOCs will be conducted continuously at the two monitoring stations on the site perimeter, and otherwise whenever petroleum or chemical odors are detected on-site or reported off-site. If odors are detected, monitoring will be conducted at receiving property boundary or point of concern, as
appropriate. VOC monitoring will be real-time with a MultiRAE Plus 4 multiple gas monitor.

- Noise monitoring will be performed during all work days at both perimeter monitoring stations while heavy equipment operations and soil/sediment disturbance is underway. A 3M Quest SoundPro SE/DL Integrating Sound Level Meter will be used.
- Monitoring for H₂S will be conducted continuously at the two monitoring stations on the site perimeter, and otherwise whenever chemical odors are detected on-site or reported off-site. If odors are detected, monitoring will be conducted at the receiving property boundary or point of concern, as appropriate. H₂S monitoring will be real-time with MultiRAE Plus 4 multiple gas monitor.
- Light monitoring will be conducted using a hand-held meter during artificial lighting use. With the installation of artificial light onsite or a change in lighting configuration (e.g., additional of more lights, change in direction lights are pointed), measurements will be collected at the site boundary and at adjacent receiving property boundaries. Additional light monitoring will occur if complaints are received and while implementing light controls on and around the site.

## 2.5 Performance Standards

Performance standards protect the community from hazards and impacts to quality of life. It is expected that these standards will be met through the duration of the project because the design documents and specifications require comprehensive best management practices. It is expected that these standards will be used as a benchmark to demonstrate successful project execution that does not compromise neighborhood health, safety, or quality of life.

If performance standards are exceeded, response options would become more protective as the exceedance factor increases. Ultimately, the performance standards could require activities to be stopped until steps can be taken to reduce conditions to comply with project performance standards. The basis for performance standard selection is described in Table 2-2. Some standards are daily time-weighted averages (TWAs), which means readings taken over the course of one day are averaged, or that air is pumped through equipment into a filter over the course of one day. That filter is then delivered to a laboratory for analysis. A COC concentration in air is calculated as a mass of contaminants on the filter divided by the volume of air pumped through the equipment.

Project performance standards were modified based on recommendations given by the project Certified Industrial Hygienist (CIH) in consultation with the U.S. Environmental Protection Agency (EPA) (Copeland 2013).
2.5.1 Air Quality

The performance standards for potential airborne hazards are listed in Table 2-2:

- Fugitive Dust

  Qualitative criterion of “no visible dust” at the property perimeter to conform to Puget Sound Clean Air Agency (PSCAA) Regulation I, Section 9.15 (PSCAA 2004).

  Quantitative criterion based on the National Ambient Air Quality Standard (NAAQS) for PM$_{10}$ of 150 µg/m$^3$. Because the potential receptors are neighborhood residents, an action level based on 70 percent of the NAAQS is being used in addition to the performance standard, to add an extra level of conservatism. The performance standard for this project is a daily TWA of 150 µg/m$^3$ measured as a 24-hour TWA at the site perimeter during site activities. An action level of 105 µg/m$^3$, also measured as a 24-hour TWA, is being used, along with an additional action level of 210 µg/m$^3$, based on two times the 24-hour action level and to be measured on an instantaneous basis. This TWA is calculated from the data downloaded at the end of the work shift from the equipment, using measured background levels to represent the period when there is no work activity. Dust data as measured by the DataRAM 1580 will be available at the end of every monitoring session or construction shift.

- Total PCBs

  The daily TWA is 0.13 µg/m$^3$, based on the most stringent recommended screening level (previously called the preliminary remediation goal) for chronic inhalation exposure (cancer effects for Aroclor 1260), published by EPA Region 9 (EPA 2006). The inhalation Preliminary Remediation Goal (PRG) cancer slope factor (based on carcinogenic effects over a lifetime of exposure) was used and the exposure scenario modified to the exposure conditions of this short-term project by assuming a 6-month duration of exposure, rather than a lifetime exposure duration, and 10 m$^3$/day respiration rate for the most sensitive receptor (a 15-kg child) and 24 hr/day exposure. The perimeter sampling total PCB concentrations will be available about 10 business days after they are collected. This standard is considered conservative and is based on its use during previous cleanup activities on this site (Geomatrix 2006).

  Urban contributions of airborne PCBs in the vicinity of the site are likely, and this action level may be adjusted upward based on baseline (pre-construction) data. King County has conducted passive air deposition sampling in the South Park neighborhood, among other areas around the Duwamish Valley. Their studies have identified detectable levels of PCB Aroclors, PAHs, and phthalates in wet and dry deposition (dust; King County 2008).
• VOCs
  VOCs will be measured at the site perimeter continuously using a portable RAE Systems MultiRAE Plus 4 multi-gas meter with photoionization detector (PID). The performance standard for VOCs using a PID is 20 parts per million (ppm) as a maximum 1-hour TWA, with an instantaneous action level of 20 ppm. This standard is based on VOCs present at petroleum-contaminated sites. When VOCs associated with petroleum hydrocarbons are detected above 20 ppm, odors are considered strong and mitigation measures will be deployed.

  In addition, an instantaneous sample will be collected for benzene, should the VOC level reach the performance standard of 20 ppm as a 1-hour TWA. This sample will be analyzed by gas chromatography/mass spectrometry (GC/MS). The performance standard for benzene will be 0.009 ppm, as a 24-hour TWA, based on the Agency for Toxic Substances and Disease Registry (ATSDR) acute-duration inhalation minimal risk level (MRL), effective March 3, 2011.

  The most likely project source of VOCs is petroleum hydrocarbons. The petroleum hydrocarbons odor threshold is very low, providing an excellent warning property: between 0.06 and 0.15 ppm for gasoline and between 0.4 and 0.11 ppm for diesel. The Washington State Division of Occupational Safety and Health (DOSH) Permissible Exposure Limit (PEL) for gasoline is 300 ppm; there is currently no DOSH PEL for diesel fuel. Health-based community exposure limits are not available for the general class of mixed VOCs associated with petroleum hydrocarbons. The magnitude of the PELs relative to the odor threshold indicates that the VOCs may be detected by human sense of smell at very low concentrations, but adverse health effects are not documented at those levels.

• Diesel Particulate Matter
  The performance standard for this project will be a 24-hour TWA as PM$_{2.5}$ black carbon particulate, based on the 98th percentile of the 24-hour average ambient PM$_{2.5}$ black carbon particulate data reported by PSCAA during 2012 and 2013 (through May) in the Duwamish Valley at the site perimeter. An Aethlabs Microaethalometer will be used.

• Odor:
  The potential sources of odor for this project are H$_2$S and VOCs from petroleum-contaminated soils, diesel exhaust, and creosoted piles. VOC monitoring is discussed above. H$_2$S odors can be detected at very low levels. The ATSDR cites studies that demonstrate an odor threshold for H$_2$S as low as 0.0005 ppm (ACGIH 2006). The performance standard for H$_2$S for this project is 0.07 ppm, as a 24-hour TWA, based on the ATSDR inhalation MRL, effective March 3, 2011. The portable RAE Systems MultiRAE Plus 4 multi-gas meter will be used.
2.5.2 Noise

Noise performance standards are based on SMC Chapter 25.08. The SMC sets maximum permissible sound levels for construction site noise from an industrial source (excavation on lands zoned as industrial) to residential receiving properties (South Park neighborhood residences):

- At 85 dB(A) between the hours of 7:00 am and 10:00 pm on weekdays
- At 85 dB(A) between the hours of 9:00 am and 10:00 pm on weekends
- Between the hours of 10:00 pm and 7:00 am during weekdays, and between the hours of 10:00 pm and 9:00 am on weekends, sound level limits are reduced by 10 dB(A) where the receiving property is zoned residential; therefore they are 75 dB(A) during these times.

This text simply states the noise standards in the SMC, and is not meant to imply that construction will be ongoing 24 hours a day, every day. However, if night work is needed, such as to keep low-tide bank excavation and dredging on schedule, these noise standards must be met.

For the South Park Marina and the LDW, the receiving properties are commercial, so the performance criterion will be 90 dB(A) between the hours of 7:00 am and 10:00 pm. There is no further noise reduction requirement for commercial receiving properties for the hours between 10:00 pm and 7:00 am on weekdays or weekends.

For certain short-duration construction activities occurring between 7:00 am and 10:00 pm on weekdays or 9:00 am to 10:00 pm on weekends, the Maximum Permissible Sound Levels may be exceeded in accordance with the provisions of SMC. For any source of sound that is of short duration, the levels established by this Plan are increased by:

- 5 dB(A) for a fifteen minutes in any one-hour period
- 10 dB(A) for five minutes in any one-hour period
- 15 dB(A) for one and one-half minutes in any one-hour period.

During pile driving, sound measured at the receiving property line or 50 feet from the equipment, whichever is greater, may exceed the performance criteria in any one-hour period between the hours of 8:00 am and 5:00 pm on weekdays and 9:00 am and 5:00 pm on weekends, but in no event may the sound level exceed the following:

- 90 dB(A) continuously
- 93 dB(A) for 30 minutes
- 96 dB(A) for 15 minutes
- 99 dB(A) for 7 1/2 minutes.
Finally, the SMC makes an exclusion for noises generated by “Warning Devices,” which include any device intended to provide public warning of potentially hazardous activities, including vehicle backup signals. Vehicle backup signals and other safety warning devices may exceed the project performance standards. However, the specifications, and Port requirements on construction sites, call for the use of an ambient noise sensing variable volume backup alarm system on all construction vehicles and equipment operating between 10:00 p.m. and 7:00 a.m. The system shall be in compliance with Washington Administrative Code (WAC) 296-155-615. Noise will be measured daily at each of the two monitoring stations using a 3M Quest SoundPro SE/DL Integrating Sound Level Meter.

2.5.3 Lighting

Lighting is measured in foot-candles using a hand-held brightness meter. Based on the SMC (Chapter 23.50.046), the Performance Standards for acceptable light emissions to receiving properties are:

- For urban residential areas: 0.5 foot-candles
- For commercial/industrial areas: 1.0 foot-candles.

In addition to the light standards, the SMC requires that exterior lighting originating from an industrial property be shielded and directed away from adjacent residential zones.
### Table 2-1 Monitoring Method, Locations, and Frequency

<table>
<thead>
<tr>
<th>Type of Monitoring</th>
<th>Frequency during Active Construction</th>
<th>Locations (Figure 2-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Quality</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Fugitive Dust      | During June, July, and August full-shift fugitive dust monitoring will be conducted and recorded during all workdays while heavy equipment operations and soil/sediment disturbance are underway. During other periods, monitoring will be performed one day per month. | • Qualitative dust monitoring will be conducted by continuous visual inspection at the perimeter and in surrounding areas by site personnel and the community, as specified in the CHASP.  
• The quantitative monitoring stations will be in the general area along the site perimeter shown in Figure 2-1. Depending upon the wind direction, one will be the downwind compliance station and the other will be the upwind background station.  
The North Monitoring Station will be near the north end of the site across the street from residences.  
The South Monitoring Station will be near the south end of the site. Receptors in this direction can include employees that the adjacent Boeing property. Contractor trailers may also be located south of the Upland Area.  |
| PCBs               | During June, July, and August, full-shift ambient air monitoring for PCBs will occur at least once weekly while heavy equipment operations and soil/sediment disturbance are underway. During other periods, monitoring will be performed one day per month. PCB levels in air, if detectable, are expected to be highest during the initial period of soil excavation when soil with Toxics Substances Control Act (TSCA)-level PCBs (>50 mg/kg) are removed. TSCA-level soil has been delineated separately from the rest of the soil to be excavated, and the Contractor should excavate and transport offsite this soil early in the project. Therefore, the highest potential for PCB-related air quality impacts is in the early stages of the work. |                        |
| VOCs               | Whenever a chemical or petroleum odor is detected on-site or at site perimeter. |                        |
| Diesel Exhaust     | During June, July, and August, full-shift ambient air monitoring for diesel exhaust will occur at both monitoring stations at least once weekly while heavy equipment operations and soil/sediment disturbance are underway. During other periods, monitoring will be performed one day |                        |
### Air, Noise, and Light Monitoring Plan

<table>
<thead>
<tr>
<th>Type of Monitoring</th>
<th>Frequency during Active Construction</th>
<th>Locations (Figure 2-1)</th>
</tr>
</thead>
</table>
| **Hydrogen Sulfide (H₂S)**  | Whenever a sulfur odor is detected on-site or reported off-site. | • Qualitative odor monitoring will be conducted by continuous assessment at the perimeter and in surrounding areas by site personnel and the community, as specified in the CHASP.  
• The H₂S meter will be used at receiving property boundaries, based on complaints or to verify compliance with this monitoring plan. |
| **Other**                   |                                                            |                                                                                        |
| Noise                       | Continuously.                                              | • Noise monitors will be located in two locations on the site perimeter, nearest noise generating activities, within the North Monitoring Station Area to monitor noise to the nearest residential receiving property and noise to the South Park Marina (as a receiving property).  
• Noise monitors may also be used to measure noise levels at receiving property boundaries, as requested or to verify compliance with the SMC. |
| Light                       | Continuously during activities requiring artificial lighting. | • Light meters will be used to measure light levels at receiving property boundaries, as requested or to verify compliance with the SMC. |
Table 2-2  Performance Standards for Potential Hazards and Impacts to Quality of Life

<table>
<thead>
<tr>
<th>Hazard or Impact to Quality of Life</th>
<th>Performance Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Quality</strong></td>
<td></td>
</tr>
<tr>
<td>Fugitive Dust</td>
<td>Qualitative Standard</td>
</tr>
<tr>
<td></td>
<td>Instantaneous dust level = no visible dust at the site perimeter based on PSCAA Regulation I, Section 9.0</td>
</tr>
<tr>
<td></td>
<td>Quantitative Standard</td>
</tr>
<tr>
<td></td>
<td>24-hour TWA for PM$<em>{10}$ = 150 µg/m$^3$ based on the PM$</em>{10}$ NAAQS, with a 24-hour action level of 105 µg/m$^3$ based on 70% of PM$_{10}$ NAAQS and an additional instantaneous action level of 210 µg/m$^3$, based on two times the 24-hour action level (measured using a DataRAM 1580 particulate monitor)</td>
</tr>
<tr>
<td>Total PCBs</td>
<td>TWA = 0.13 µg/m$^3$ derived from EPA Region 9 Regional Screening Levels</td>
</tr>
<tr>
<td></td>
<td>(sample collected using a TE-1000 PUF Sampler and analyzed by EPA Method TO-4AX [EPA 1999])</td>
</tr>
<tr>
<td>VOCs</td>
<td>Qualitative Standard</td>
</tr>
<tr>
<td></td>
<td>Odor detected and reported by site worker or community</td>
</tr>
<tr>
<td></td>
<td>Quantitative Standard</td>
</tr>
<tr>
<td></td>
<td>A measurement of 20 ppm sustained for 1 hour, with an instantaneous action level of 20 ppm (measured using a MultiRAE Plus 4 with PID)</td>
</tr>
<tr>
<td>Benzene</td>
<td>Quantitative Standard</td>
</tr>
<tr>
<td></td>
<td>24-hour TWA = 0.009 ppm, only to be measured if VOCs exceed the performance standard</td>
</tr>
<tr>
<td></td>
<td>(sample collected using an evacuated chamber and analyzed by NIOSH Method 1501)</td>
</tr>
<tr>
<td>Diesel Exhaust</td>
<td>24-hour TWA = 3.5 µg/m$^3$ PM$_{2.5}$ black carbon particulate</td>
</tr>
<tr>
<td></td>
<td>(measured using an Aethlabs Microaethalometer)</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>Qualitative Standard</td>
</tr>
<tr>
<td></td>
<td>Odor detected and reported by site worker or community</td>
</tr>
<tr>
<td></td>
<td>Quantitative Standards</td>
</tr>
<tr>
<td></td>
<td>24-hour TWA = 0.07 ppm based on the ATSDR acute-duration inhalation MRL, effective March 3, 2011 (measured using a MultiRAE Plus 4)</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>Noise from an industrial source (excavation on lands zoned as industrial) to residential receiving properties (South Park neighborhood residences) not to exceed 85 dB(A) between the hours of 7:00 am and 10:00 pm weekday, 9:00 am and 10:00 pm</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Hazard or Impact to Quality of Life</th>
<th>Performance Standard</th>
</tr>
</thead>
</table>
| pm weekends. For night time hours, noise is not to exceed 75 dB(A). These limits are set in accordance with SMC Chapter 25.08. For the same time periods, noise received at commercial properties (South Park Marina) may not exceed 90 dB(A) and 80 dB(A), respectively. *(measured using a 3M Quest SoundPro SE/DL Integrating Sound Level Meter)*  
For certain short-duration construction activities, the Maximum Permissible Sound Levels may be exceeded as follows:  
- 5 dB(A) for 15 minutes in any 1-hour period  
- 10 dB(A) for a 5 minutes in any 1-hour period  
- 15 dB(A) for a 90 seconds in any 1-hour period.  
During pile driving, sound measured at the receiving property line or 50 feet from the equipment, whichever is greater, may exceed the performance criteria in any 1-hour period between the hours of 8:00 am and 5:00 pm on weekdays and 9:00 am and 5:00 pm on weekends. But in no event may the sound level exceed:  
- 90 dB(A) continuously  
- 93 dB(A) for 30 minutes  
- 96 dB(A) for 15 minutes  
- 99 dB(A) for 7 1/2 minutes. *(measured using a 3M Quest SoundPro SE/DL Integrating Sound Level Meter)* |
| Light | Based on the SMC (Chapter 23.50.046), the Performance Standards for acceptable light emissions to receiving properties are:  
- For urban residential areas: 0.5 foot candles  
- For commercial/industrial areas: 1.0 foot candle.  
In addition to the light standards, the SMC requires that exterior lighting originating from an industrial property be shielded and directed away from adjacent residential zones. *(measured using an Extech light meter)* |

**Notes:**  
ACGIH = American Conference of Governmental Industrial Hygienists; dB(A) = decibels, measured using A-weighting; EPA = Environmental Protection Agency; NAAQS = National Ambient Air Quality Standards; NIOSH = National Institute of Occupational Safety and Health; PCB = polychlorinated biphenyl; PID = photoionization detector; PM10 = particulate matter of 10 micrometers in diameter or less; ppm = parts per million; PRG = Preliminary Remediation Goals; PSCAA = Puget Sound Clean Air Agency; SMC = Seattle Municipal Code; VOC = volatile organic compound; µg/m³ = micrograms per cubic meter of air
3 Monitoring Methods

3.1 Air Monitoring

3.1.1 Fugitive Dust

Qualitative dust monitoring will be conducted continuously for the duration of construction activities by project staff and the community. During active construction in June, July, and August, real-time quantitative continuous dust monitoring will be performed during all work days. During other periods, monitoring will be performed one day per month.

The monitoring program will utilize two Thermo Electron DataRAM 1580 Air Monitors located at the monitoring stations. The monitors will be placed in the predominant downwind direction relative to construction and remediation activities and based on current weather conditions. Air monitoring equipment will be placed on secure platforms at the sampling locations to position the sampler inlet locations four to five feet above ground surface on the site perimeter.

Thermo Electron DataRAM 1580 Air Monitor

The DataRAM 1580 is a high sensitivity, two-wavelength Nephelometric monitor whose light scattering sensing configuration has been optimized for the measurement of fine particles of airborne dust in ambient environments. The instrument automatically checks its own optical background during the zeroing sequence and indicates any significant deviations requiring maintenance.

The instruments will be equipped with a size-selective inlet head calibrated to PM$_{10}$ particles. Additionally, an omni-directional sampling inlet compensates for interference from wind flow. The instruments have a detection limit of 0.0001 milligrams per cubic meter of air (mg/m$^3$) and an accuracy of plus or minus 2 percent. DataRAM flow rate is between 1 and 3 liters/minute. The monitors are powered by rechargeable batteries.

The monitors will be programmed to provide minute averages, maximum, and minimum PM$_{10}$ concentrations. The units will have an internal data logger and data will be downloaded following completion of the workday.

The DataRAM 1580 Instruction Manual will be printed and maintained in a binder for user guidance in the field (Thermo Scientific 2003).

3.1.2 Polychlorinated Biphenyls

The primary COC at the T-117 is PCBs. These compounds are relatively non-volatile and are not expected to create an airborne hazard for the surrounding community. Airborne total PCB concentrations will be measured at the two monitoring stations at least once per week during active construction (e.g., excavation) in June, July, and August. During other periods, monitoring will be performed one day per month.
Assessment of airborne total PCB concentrations at the site perimeter will be conducted by collection of air samples for submittal to the project laboratory for analysis. Samples will be collected and analyzed in accordance with EPA Method TO-4A: Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume PUF Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD). TE-1000 PUF high volume samplers will be used to collect PCBs on PUF tubes for high-volume sampling. It should be noted that data will not be available for assessment or validation for a period of at least 10 days following sample collection.

**TE-1000 PUF Sampler**

In accordance with EPA Method TO-4a, the TE-1000 PUF high flow sampler will be used to collect samples for PCBs during this project. The TE-1000PUF samplers used for this application will be programmed with a target flow rate of up to 280 liters per minute (lpm).

The project laboratory will procure PUF filter media for the project. The samplers will operate for a given duration exposing the filters and when finished the filter media will be removed from the sampler and shipped back to the project laboratory for analysis. The analytical method for determination of PCBs in ambient air involves analyzing the particulate filter and PUF cartridge as a single sample train.

New filter media will be installed prior to each sampler run. The pre-filter for particulates will also be changed following each PUF filter exchange. Start time, stop time, and flow rates will be recorded in the daily field notes for each sampler.

A full copy of EPA Method TO-4a and TE-1000 operations manual will be printed and maintained in a binder for user guidance in the field. A copy of the TE-1000 PUF high flow sampler user manual will be printed and maintained in a binder for user guidance in the field (Tisch Environmental ND).

### 3.1.3 Volatile Organic Compounds

VOCs from petroleum hydrocarbon vapors may be released during excavation and dredging. Based on the levels of total petroleum hydrocarbons (TPH) in site soils, off-site vapor migration is not anticipated to be of concern. The community will be notified that petroleum odors may be noticeable even at levels that do not indicate a health hazard. These would be considered nuisance odors.

Air monitoring for VOCs will be conducted using a RAE MultiRAE Plus 4 with PID.

**RAE MultiRAE Plus 4 Photoionization Detector**

The MultiRAE Plus 4 portable PID is a compact monitor designed as a broadband VOC gas monitor and data logger for work in environments that may contain VOCs. It monitors VOCs using a PID with a 10.6 electron volt (eV) gas discharge lamp. The instrument will
provide up to 10 hours of continuous monitoring with a rechargeable battery pack. The instrument is equipped with alarms that can be set for project-specific action levels. An audio buzzer and flashing LED display are activated when the limits are exceeded. The instrument can data log for downloading to a PC, if needed.

The instrument will be calibrated using a 100 ppm isobutylene standard. Using isobutylene, the instrument range is from 0.1 ppm to 2,000 ppm. The measurement accuracy is 0.1 ppm at 0 to 99 ppm isobutylene.

The MultiRAE Plus 4 Operation and Maintenance Manual will be printed and maintained in a binder for user guidance in the field (RAE Systems 2005).

3.1.4 Diesel Particulate Matter

Diesel exhaust (diesel particulate matter) is considered a contaminant of concern due to the large number of machines with diesel engines that will be operating on site for the duration of the project. Diesel particulate matter was listed as a potential human carcinogen by the EPA in 2002. In the open-air, dilute environment of the current job site, the potential for any significant exposure to diesel exhaust by the community is extremely low. To verify and document diesel particulate concentrations, air monitoring will be conducted for diesel particulate matter once weekly at both monitoring stations during active construction in June, July, and August. During other periods, monitoring will be performed one day per month.

**Diesel Particulate Matter (as PM$_{2.5}$ black carbon particulate)**

Assessment of diesel exhaust (elemental carbon) concentrations will be conducted using an Aethlabs Microaethalometer for PM$_{2.5}$ black carbon particulate.

The Aethlabs Microaethalometer Operation and Maintenance Manual will be printed and maintained in a binder for user guidance in the field.

3.1.5 Odor (Hydrogen Sulfide) Monitoring

The most likely odor during dredging and sediment processing activities will be from H$_2$S released by decaying plants and other organic material found in sediment. Odor monitoring will be conducted continuously at each of the site perimeter monitoring stations using a RAE MultiRAE Plus 4 multi gas meter.

The MultiRAE Plus 4 Operation and Maintenance Manual will be printed and maintained in a binder for user guidance in the field.
3.2 Noise Monitoring

Continuous noise monitoring will be conducted at two monitoring stations during construction activities. Monitoring stations may be reduced or added as needed based on measured sound levels or community concerns. Monitoring will be conducted using two SoundPro Sound Level Meters (SLM) in protective weather resistant cases.

**3M Quest SoundPro SE/DL Integrating Sound Level Meter**

The 3M Quest SoundPro SE/DL Integrating Sound Level Meter meets the requirements of the American National Standards Institute (ANSI) S1.4 for Type 1 accuracy. The SLM uses a standard microphone which allows measurements between 30 and 140 dB(A) in one range.

The SLM can record and report continuous equivalent sound level (Leq) with duration ranging from 1 second to 99 hours. It measures FAST, SLOW, Unweighted PEAK, Weighted PEAK, Impulse, Leq, Dose, and TWA.

Noise monitoring will be conducted continuously through the work shift. The real-time noise monitoring results will be saved internally in the instrument and manually downloaded at the end of each workday or at a minimum, weekly.

A copy of the 3M Quest SoundPro SE/DL Integrating Sound Level Meter Technical Reference Manual will be printed and maintained in a binder for user guidance in the field.

3.3 Light Monitoring

Based on the proposed work schedule, during fall and winter months artificial lighting will likely be needed at the site in the morning and at the end of the day. Artificial light may be necessary to illuminate work areas and protect worker and community safety, but may present a nuisance to surrounding residences. In addition, lighting will be needed on project vessels to ensure their safe passage during nighttime or early morning transport of materials and during long workdays to accommodate the in-water work window.

If intensity or configuration of artificial lights change (such as if more lighting is needed when dusk turns to full dark), new readings are taken. The methods to minimize quality-of-life impacts from lighting will include the selection of equipment that complies with the performance standards and the use of shielding and directionality, if possible. Light monitoring will be conducted, as needed, using a hand-held Extech Light Meter, Model HD-450.

**Extech Light Meter**

The Extech light meter is a hand-held instrument in a durable casing that can read light in a wide range up to 40,000 Foot Candles. The instrument utilizes a precision silicon photo diode and spectral response filter. It has a backlight for readings in low light levels. The
data logging instrument that can automatically store up to 16,000 readings for later download to a PC.

A copy of the Extech Light Meter User’s Guide (Extech Instruments 2010) will be printed and maintained in a binder for user reference in the field.
4 Quality Assurance/Quality Control

A program of quality assurance and quality control (QA/QC) will be followed during implementation of this Plan to ensure consistent data collection and analysis procedures and to ensure that the data are representative of site conditions. The monitoring described in this Plan will be implemented by the Port and its consultants. Those parties will have responsibility for quality control efforts to maintain communications, working equipment, complete documentation, and valid data.

4.1 Communications

Monitoring results will be reported weekly to the Quality Assurance Officer, unless there is an exceedance of any performance standard. In that case, results will be reported immediately to the Port Resident Engineer (immediately) and to EPA (within 1 hour). These results will be included in the weekly construction reports to EPA.

The Port Resident Engineer will be responsible for communicating with the Contractor and for directing and observing the implementation of mitigation actions. The Port Resident Engineer and QA Officer will work between the on-site monitoring staff and the Contractor until all performance criteria are met. The on-site monitoring staff will not direct the work of the Contractor.

4.2 Documentation

A project logbook will be used to record daily field conditions and to document equipment inspection, calibration checks, and operation. Instrument monitoring frequency, results, and readings will also be recorded. Any exceedances of performance standards and associated control measures will be documented, including the exceedance level, the time of exceedance, a description and implementation time of the control measure, the time the readings met criteria, and when the Port and EPA were notified.

Daily calibration and operational checks, along with any instrument problems such as, but not limited to, battery failures, will be recorded in the project logbook. The logbook will document instrument makes and models, serial numbers, and factory calibration data. The most recent factory calibration date will be compared against manufacturer-recommended criteria to ensure that calibration dates are valid. Any maintenance and repair operations required during the project will also be recorded.

Data will be downloaded from data logging instruments to a personal computer on a daily basis. This will help minimize any potential loss of data from instrument failures, and these daily downloads are necessary for identifying a daily TWA. The monitoring data will then be summarized in the weekly monitoring report.
4.3 Statistical Analyses of Data

Since the data are being collected continuously during project implementation, descriptive statistics, such as range of values, averages, and the number of readings that exceed the performance standards, will be used to communicate the data to EPA and to the community. For data logging equipment, the data will be downloaded into a spreadsheet program and the daily range, exceedances, and average readings will be calculated.

4.4 Sampling Media

This section describes the requirements for the procurement of sampling media. The procurement program is intended to assure that the supplies purchased for this project meet the required quality criteria of this plan.

Field supplies include the following items:
- Sampling media – PUF tubes for EPA Method TO-4A
- Sampling media – 37 millimeter quartz fiber filter in polystyrene cassette for diesel particulate samples.

All sampling media will be obtained from the air monitoring project laboratory. The laboratory will provide the necessary assurances that all filter media meet the quality control requirements for Method TO-4A and National Institute of Occupational Safety and Health (NIOSH) Method 5040 (NIOSH 1999).

Monitoring personnel will ensure proper handling and storage of the sampling media, including attention to temperature and light conditions and verification of shelf life, if appropriate. Collected samples will be maintained under standard Chain-of-Custody protocols, with attention to method holding times and preservation requirements until they are shipped to the project laboratory.

4.5 Equipment Calibration and Maintenance

Field maintenance and calibration will be performed according to manufacturer’s specifications prior to the use of the instruments. Each piece of equipment will be carefully inspected and tested to check for any damage and to ensure proper functioning when it is brought to the site. The operating manuals will specify equipment operating procedures. Calibration and maintenance procedures are summarized below.

4.5.1 Thermo Electron DataRAM 1580 Air Monitor, MultiRAE Plus 4 Multiple Gas Meter, and Aethlabs Microaethalometer

QA/QC procedures including air flow checks and zeroing the DataRAMs, MultiRAEs, and Microaethalometers will be implemented to ensure correct operation of the monitoring/sampling equipment, and to validate the analytical data.
4.5.2  TE-1000 PUF Sampler

Calibration of the high volume sampling system for PCB PUFs will follow the technical specifications of the TO-4A Method and/or manufacturer’s specifications. Sampler calibrations will occur upon installation, after motor maintenance, after 360 sampling hours, and upon conclusion of the project. Additional calibrations are recommended by the manufacturer on three month intervals.

4.5.3  3M Quest SoundPro SE/DL Integrating Sound Level Meter

Because of variation in microphone sensitivities, a sound level meter must be calibrated to a reference sound level for accurate measurements. The sound level meter will be calibrated using an adapter for the accompanying SoundPro calibrator, with output at 114 dB and at a frequency of 1,000 Hz. At this frequency, the relative response for A and C weightings is the same.

Field data including maintenance, sampling irregularities, and repairs will be recorded in a field logbook for the real-time monitoring network. The assessment of the real-time monitoring data to evaluate exceedance on the T-117 site will be a daily process.

4.6  Sample Handling

A chain-of-custody will be prepared for each day’s samples and will include the project number, sample date, sample numbers, sample volume, analyses requested, and the sampler’s signature. Samples and the original chain-of-custody will be shipped to the laboratory for next-day delivery. Copies of the chain-of-custody will be kept with the daily field notes.

4.7  QA/QC Samples

4.7.1  PCB Samples

Method TO-4A provides guidance for performance criteria and quality assurance. The guidance outlines the frequency and conditions process blanks, field blanks, matrix spikes, and solvent process blanks will be used:

- One PUF cartridge from each batch of approximately twenty should be analyzed, without shipment to the field, for the compounds of interest.
- During each sampling episode, at least one PUF cartridge should be shipped to the field and returned, without drawing air through the filter, to serve as a field blank.
- For each sampling episode, one PUF cartridge from each batch of approximately twenty should be spiked with a known amount of standard solution. The spiked plug will remain in a sealed container and will not be used during the sampling period. The matrix spike acts as a quality assurance check to determine matrix spike recoveries and to indicate sample degradation.
• During the analysis of each batch of samples, at least one solvent process blank (all steps conducted but no PUF cartridge included) should be carried through the procedure and analyzed.

4.8 Quality Objectives

The overall data quality objective (DQO) for this project is to develop and implement procedures that will ensure the collection of representative data of known, acceptable, and defensible quality. The parameters used to assess data quality are:

• Precision
• Accuracy
• Representativeness
• Comparability
• Completeness
• Sensitivity.

4.8.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Precision is measured by the relative percent difference (RPD), which is a quantitative measure of the variability of a group of measurements compared to their average value. The overall precision of measurement data is a mixture of sampling and analytical factors. Precision is evaluated through field and laboratory duplicate samples. Because there are no collocated PUF samplers or diesel exhaust samples, duplicate field samples will not be collected.

Laboratory precision will be evaluated through analysis of laboratory duplicates, laboratory control sample duplicates, and matrix spike duplicates as stated in Section 4.7.1. Laboratory precision will be determined by matrix for 1 sample in 20 (5 percent).

4.8.2 Accuracy

Accuracy measures the closeness of an individual measurement or the average of a number of measurements to the true value. Accuracy includes a combination of random and systematic error components that result from sampling and analytical operations. Laboratory accuracy for EPA Method TO-4A will be assessed with the use of process blanks, field blanks, matrix spikes, and solvent process blanks. Matrix spikes will be submitted for no less than 1 sample in 20 (5 percent).

4.8.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent a characteristic population, a process control or an environmental condition. Taking the following steps will ensure representativeness of the data:
Performing sampling procedures as described in this Plan and recording any deviations from these methods in the project logbook
• Using only standard EPA and NIOSH analytical procedures with well-established quality assurance/quality control criteria
• Using an accredited laboratory with a well-established performance record
• Subjecting all data to validation process.

Comparability
Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Sample data should be comparable with other measurement data for similar samples and sample conditions. This goal is achieved through the use of standard techniques to collect and analyze representative samples and the consistent reporting of analytical results in appropriate units.

Completeness
Completeness is defined as the percentage of measurements made that are judged to be valid measurements. Completeness is defined by the equation below:

\[ C\% = \frac{S}{R} \times 100\% \]

Where:
C = Completeness
S = Number of valid analyses
R = Number of requested analyses.

The completeness goal is essentially the same for all data uses; that a sufficient amount of valid data be generated. The completeness goal established for this project is 90 percent.

4.8.4 Sensitivity
Analytical sensitivity is the minimum concentration of an analyte above which a data user can be reasonably confident that the analyte was reliably detected and quantified. The method detection limit (MDL) will be used to determine sensitivity of each measurement process.
5 References


Figures
Note: Monitoring equipment will be on a movable platform which can be positioned anywhere within these general areas such that the downwind station is between construction activities and the nearest receptor. The exact location of the equipment will change depending upon weather conditions and Contractor activities.