

Health and Safety Plan

Revision 11
November 15, 2024



Lower Duwamish Waterway
Upper Reach Remediation Action
Contract KCC001065



Pacific
Pile & Marine

Prepared By:

 integrity safety services

Signature Page

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1.0 BACKGROUND INFORMATION

Contractor

Pacific Pile & Marine
700 S Riverside Dr
Seattle, WA 98108

Project Name/Location

Lower Duwamish Waterway
Upper Reach Remedial Action
Contract KC001065
Duwamish Waterway Park river mile (RM) 3.0 to South 102nd Street bridge at RM 5.0

Project Owner

King County
Department of Natural Resources
Water Treatment Division
Regulatory Project Oversight EPA

Project Site History

The Duwamish Waterway has been and is also currently used for shipping, recreational use, and fishing. Over the course of many decades, contaminants of concern have been discharged into the waterway causing health and environmental hazards. The US EPA has designated the Lower Duwamish Waterway an EPA Superfund site requiring clean-up action.

2.0 STATEMENT OF ENVIRONMENTAL HEALTH & SAFETY POLICY

Introduction

This section outlines the commitment to worker safety and health along with environmental safety on this job. The statements below reflect the commitment of Pacific Pile and Marine to ensure a project free from injuries and harm to the environment. This plan is designed to be used in conjunction with the Pacific Pile & Marine (PPM) Injury Illness & Prevention Plan which is included in Appendix J.

Health & Safety Policy Statement

Pacific Pile and Marine is committed to an injury free workplace both at the corporate level and also at the project level. Each level of supervision from the CEO down to the workers are committed to this endeavor and will strive to achieve this goal each and every day.

Goals and Objectives

The goal and objective are to eliminate injuries on this project. This will be done through daily tailgate and toolbox talks, JHA review and planning and also by using the buddy system to hold each and every person accountable for their actions and those they are working with. JHA and Pre-Task planning sheets are available in Appendix A.

Disciplinary Policy

Employees failing to follow work site rules for safe operations shall be warned and if failure to comply shall be suspended from work until compliance is achieved. Pacific Pile and Marine reserves the right to terminate employees for failure to comply.

Accessibility To Records -

Per WAC Accessibility to Records - WAC 296-843-22005, Pacific Pile & Marine ensures that our written Health and Safety Plan (HASP) and all other required documents are accessible for inspection and copying by:

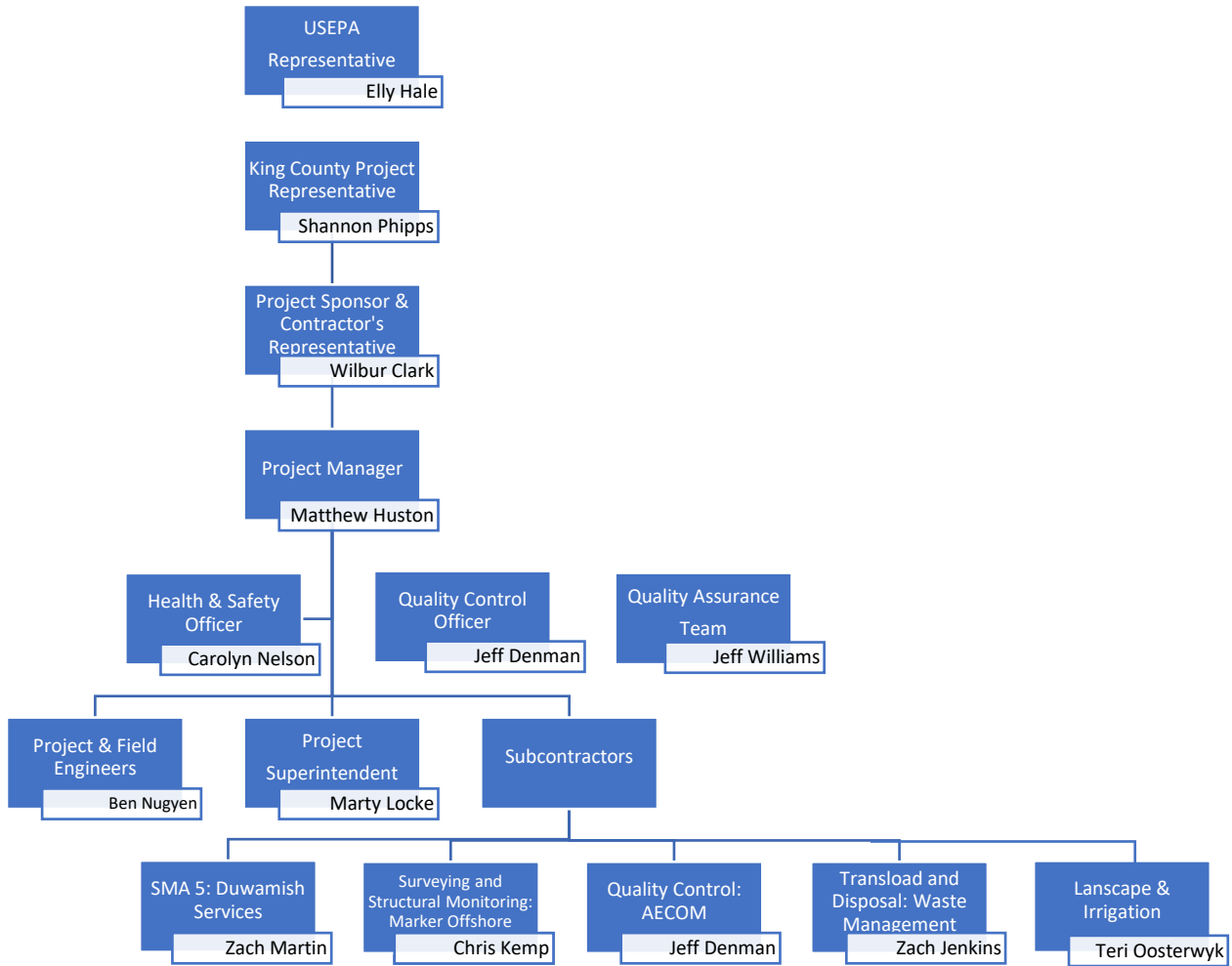
1. Employees or their designated representatives
2. Site contractors or their designated representatives
3. Subcontractors or their designated representatives
4. Personnel from any federal, state, or local agency with regulatory authority over the site

Revisions to the EHASP

Any revisions to this plan will be submitted to King County and the EPA within 7 days of revision.

3.0 RESPONSIBILITIES AND LINES OF AUTHORITY

3.1 Organizational Chart and Communication



3.2 Jobsite Roles and Contact Information

Name	Organization	Role	Phone	Email
Wilbur "JC" Clark	PPM	Contractor's Representative	██████████ O: 206-331-3873	jc@pacificpile.com
Matt Huston	PPM	Project Manager & Emergency Coordinator	██████████ O: 206-331-3873	matth@pacificpile.com
Marty Locke	PPM	Superintendent & Spill Prevention and Response Coordinator	██████████ O: 206-331-3873	martyl@pacificpile.com
Jeff Denman	AECOM	Quality Control Officer	██████████ O: N/A	jeff.denman@aecom.com
Sam DeMers	AECOM	Conditions Inspection Engineer	██████████ O: N/A	Sam.deMers@aecom.com
Carolyn Nelson	PPM	Site Health and Safety Officer	██████████ O: 206-331-3873	carolynn@pacificpile.com
Ben Nguyen	PPM	Field Engineer	██████████ O: 206-331-3873	benn@pacificpile.com

3.3 Proposed Subcontractor Contact Information

Name	Organization	Role	Scope of Work	Phone	Email
Chris Kemp	Marker Offshore	Professional Land Surveyor	Hydrographic and Topographic Surveys	██████████ O: N/A	ckemp@markeroffshore.com
Zach Martin	Duwamish Services	Project Manager	SMA 5 Work	██████████ O: N/A	zachm@duammishservices.com
Zach Jenkins	Waste Management	Transportation and Disposal Coordinator	Transloading, Upland Transportation, and Disposal	██████████ O: N/A	zjenkins@wm.com
Teri Oosterwyk	Out West Landscape & Irrigation	Project Manager	Landscape & Irrigation	██████████ O: 360-863-2797	teri@outwestlandscape.com

3.4 Corporate Sponsor, Safety Director (SD)/Project Safety Professional (PSP)

Project Sponsor & Contractor's Representative

PPM's Project Sponsor and Contractor's Representative on this project is Wilbur "JC" Clark. The Contractor's Representative is responsible for communications with King County and the Project Representative, oversight of PPM and its subcontractors, and ensuring the safety of all project activities. The Contractor's Representative is supported by PPM's Director of Health and Safety, who is responsible

for implementing and monitoring all health and safety protocols, and the Project Manager, who oversees project execution and compliance with safety standards.

Project Manager & Emergency Response Coordinator

PPM's Project Manager (PM) on this project is Matt Huston. The PM reports to the King County Project Representative and is primarily responsible for ensuring the safety of all construction activities while overseeing the completion of the construction work in accordance with the project plans and specifications, design drawings, and the approved CQCP, or approved changes of the same. The PM is supported by PPM's Site Superintendent, QC Officer, and SSHO. The PM has the responsibility and authority to direct all hazardous waste operations. The PM's safety-focused responsibilities include, but are not limited to:

- Coordinating with the King County Project Representative and Project Superintendent to ensure construction is conducted in accordance with the plans and specifications, with a primary focus on safety.
- Communicating with the Project Superintendent and SSHO to ensure that PPM's staff are informed about the approved quality control and health and safety procedures as outlined in the Construction Quality Control Plan in Appendix N of the RAWP and Site-Specific Health and Safety Plan (HASP).
- Ensuring that all construction activities adhere to the highest safety standards and that any potential hazards are promptly addressed.
- Coordinating with the field team and labs to ensure that required tests and inspections are conducted safely, reporting is appropriate, and results are accurate.
- Ensuring that PPM's staff performing the tests and inspections are properly trained in safety protocols.
- Verifying that testing and inspection results meet QC requirements and comply with safety standards.
- Informing the General Superintendent and the Project Representative of any new findings or changed conditions that could impact safety.
- Providing QC documentation to the Superintendent and the Project Representative, ensuring it includes all relevant safety information.
- Submitting as-built conditions to the Project Representative, with a focus on documenting compliance with safety plans and procedures.
- PPM's Project Manager has full authority to execute any and all actions necessary to ensure that the construction work complies with the project plans and specifications, and the HASP, prioritizing the safety of all personnel and activities on-site.

Project Superintendent & Spill Prevention and Response Coordinator

Marty Locke has been designated as PPM's Project Superintendent and Spill Prevention and Response Coordinator. The Project Superintendent will be on-site full-time whenever work is being performed and supports PPM's Project Manager. The Project Superintendent's responsibilities, with a focus on safety, include, but are not limited to:

- Ensuring that all site personnel in the field conduct work in accordance with the plans and specifications, prioritizing safety.
- Ensuring that PPM's staff follow the approved quality control and health and safety procedures as outlined in the Construction Quality Control Plan and Site Specific Health and Safety Plans (HASP).
- Conducting required tests and inspections safely and effectively.

- Recommending and implementing mitigation measures as needed to address water quality, air pollution, odors, noise, or light complaints or criteria exceedances in accordance with the Environmental Mitigation Binder.
- Documenting as-built conditions, ensuring all safety measures and protocols are recorded.
- Inspecting assigned job areas to identify and correct unsafe acts or conditions.
- Ensuring adherence to and enforcement of safety requirements.
- Listening to directions and suggestions from employees and management regarding safe and proper work practices.
- Understanding and applying the hierarchy of controls to eliminate hazards, with PPE as a last line of defense.
- Providing and enforcing the use of proper personal protective equipment (PPE) and suitable tools for the job.
- Setting a good example for the crew in terms of safety practices.
- Maintaining orderliness and good housekeeping on the job site.
- Performing daily Jobsite Hazard Analyses (JHA) for work activities and reviewing them with the crew.
- Reporting near misses and incidents immediately via HCSS, with full reports including Root Cause Analysis and Corrective Action within 72 hours, in line with Pacific Pile & Marine Policy.
- Investigating all accidents in areas under their direction to determine necessary corrective actions.
- Taking corrective action to eliminate or minimize safety hazards promptly.
- Assisting in the completion of accident reports per contract requirements.
- Performing Site Safety Inspections in accordance with Pacific Pile & Marine Policy.
- Identifying and responding to all safety hazards and managing work crews safely.
- Conducting weekly toolbox safety meetings with personnel to discuss unsafe work practices and conditions identified.
- Reviewing accident investigations and corrective actions implemented with the crew on this and other PPM projects.
- Encouraging personnel to make safety suggestions and passing these on to supervision.
- Ensuring that prompt first aid is administered when necessary.

Site Safety and Health Officer

Carolyn Nelson has been designated as PPM's Site Safety & Health Officer (SSHO). She is primarily responsible for implementing and overseeing PPM's Health and Safety Plan (HASP). She is also responsible to oversee subcontractors, the Quality Control team, and the EPA representative. Her responsibilities include, but are not limited to:

- **Developing and Implementing the HASP:** Carolyn will develop the Health and Safety Plan, ensuring it addresses all site-specific hazards. She will implement the HASP and verify compliance throughout the project.
- **Training and Communication:** Providing PPM's staff, QA staff, and the EPA with the HASP that includes site-specific hazards, ensuring that all employees are trained in appropriate safety techniques relevant to the project. She will share responsibility with the Site Supervisors in communicating initial

hazards and controls related to each work plan and lead daily meetings to discuss task and location hazard specifics, which will be noted in the Pre-Task Plan.

- **On-Site Safety Oversight:** Acting as the on-site Shift SSHO, Carolyn Nelson will oversee safety while work is occurring, ensuring that safe work procedures are followed at the job site.
- **Safety Equipment Management:** Ensuring that proper safety equipment is available at the job site, maintaining Health and Safety documentation, and providing such documentation to the King County Project Representative.
- **Compliance Verification:** Continuously verifying compliance with the HASP, conducting regular safety inspections, and addressing any safety concerns promptly.
- **HAZWOPER Qualifications:** Given the nature of the project, which involves the removal and disposal of contaminated soils, Carolyn Nelson holds a HAZWOPER Supervisor card in addition to the HAZWOPER 40-hour training certification.
- **Site Safety and Health Officer (SSHO):** Throughout the duration of this project, Carolyn Nelson will serve as the SSHO responsible for implementing and enforcing the Site-Specific Safety and applicable plans in the Environmental Mitigation Binder. In the event that Carolyn is not immediately available, alternate SSHOs, Marty Locke and Bobby Cossell, will provide consistent coverage.
- **Credentials:** The credentials for Carolyn Nelson, Marty Locke, and Bobby Cossell, as well as the 40-hour HAZWOPER certifications for the crew, can be found in Appendix O.

Contractor Quality Control Officer

The Quality Control Officer (QC Officer) for this project has been designated as Jeff Denman (AECOM). The QC Officer is responsible for ensuring that the construction work meets the requirements in the project plans and specifications, communicates directly with the King County Project Representative on QC matters and PPM's Project Superintendent, and reports to PPM's Project Manager. The QC Officer has the full authority to execute all actions necessary for implementing the QC program to ensure compliance with the project plans and specifications, particularly those related to safety.

The QC Officer's responsibilities include, but are not limited to:

- **Safety Coordination:** Coordination, review, and reporting of all monitoring and mitigation measures according to the plans and specifications, with a focus on safety.
- **Implementing the CQCP:** Implementing the approved Construction Quality Control Plan (CQCP) and ensuring it includes all relevant safety protocols and measures.
- **Ensuring Compliance:** Ensuring adherence to project specifications, drawings, and field changes approved by the King County Project Representative, with a particular emphasis on safety standards.
- **Performing Inspections:** Performing required inspections specified in the CQCP and project plans and specifications, ensuring all safety aspects are thoroughly checked.
- **Testing and Inspection:** Ensuring that testing and inspection results meet QC requirements, and that safety standards are consistently applied and verified.
- **CQCP Revisions:** Revising the CQCP as required and approved by the Project Representative to incorporate any necessary safety updates or improvements.
- **Maintaining Documentation:** Maintaining QC documentation, including records of safety inspections and compliance checks.
- **Providing Documentation:** Providing QC documentation to PPM's Project Manager, ensuring all safety-related findings and actions are included.

- All pertinent issues of appropriate QC documents are available at all locations where operations essential to the effective functioning of the quality system are performed, including safety procedures and protocols.
- All obsolete documents are promptly removed from all points of issue or use to ensure that only current and approved safety standards are in place.

4.0 SUBCONTRACTORS AND SUPPLIERS

4.1 Professional Land Surveyor

The third-party Professional Land Surveyor (PLS) for this project is Chris Kemp (Marker Offshore LLC). Chris Kemp is a Professional Land Surveyor licensed in Washington State. Please refer to Appendix H of the RAWP for additional details regarding the Survey & Positioning Control Plan. The PLS's responsibilities, with a focus on safety, include but are not limited to:

- **Conducting Surveys:** Conduct all bathymetric and topographic surveys in accordance with Section 02 21 00 (Site Surveys and Positioning Control) and the Survey and Positioning Control Plan, ensuring all activities are performed safely.
- **Monitoring Surveyor:** Serve as the Monitoring Surveyor responsible for performing structural monitoring in accordance with Section 31 09 00 (Geotechnical Instrumentation and Condition Inspections) and the Instrumentation and Monitoring Plan, with a priority on safety protocols.
- **Safety Protocols During Surveys:** Ensure all survey activities are conducted with appropriate safety measures, including the use of personal protective equipment (PPE) and adherence to safety guidelines to protect personnel and equipment.
- **Coordination with SSHOs:** Coordinate with the Project Superintendent and SSHO to ensure survey activities do not pose risks to other ongoing construction activities and comply with the Health and Safety Plan (HASP).
- **Reporting Safety Concerns:** Identify and report any safety hazards encountered during survey activities to the SSHO and Project Superintendent. Ensure that corrective actions are taken promptly to mitigate risks.

4.2 Conditions Inspection Engineer

The Conditions Inspection Engineer for this project is Sam DeMers, P.E. (AECOM). The Conditions Inspection Engineer's responsibilities, with a focus on safety, include but are not limited to:

- **Conducting Structural Inspections:** Conduct all structural inspections in accordance with Section 31 09 00 (Geotechnical Instrumentation and Condition Inspections) and the Contractor Quality Control Plan in Appendix N of the RAWP, ensuring all activities are performed safely.
- **Safety Compliance:** Ensure that all inspection activities comply with safety protocols, including the use of appropriate personal protective equipment (PPE) and adherence to the Health and Safety Plan (HASP).
- **Coordination with SSHO:** Coordinate with the Project Superintendent and SSHO to ensure that inspection activities do not interfere with other ongoing construction operations and maintain a safe work environment.
- **Reporting Safety Issues:** Identify and report any safety hazards encountered during inspections to the Health and SSHO and Project Superintendent. Ensure that any identified safety concerns are promptly addressed and mitigated.

- **Documentation and Communication:** Maintain accurate records of all structural inspections, including safety-related findings. Communicate any safety issues or concerns to the King County Project Representative and PPM’s Project Manager.

4.3 Transportation and Disposal Coordinator

The Transportation and Disposal Coordinator for this project is Zach Jenkins (Waste Management). The Transportation and Disposal Coordinator’s responsibilities, with a focus on safety, include but are not limited to:

- **Waste Management Operations:** Overseeing all stages of waste management, including transloading, transportation, and disposal of dredge material, dredge debris, identified debris, and piling in accordance with Section 35 20 23 (Transloading, Upland Transportation, and Disposal) and Appendix K of the RAWP
- **Implementing Safety Plans:** Managing Waste Management’s own safety plan and operations, ensuring that all activities related to waste management are conducted safely and in compliance with relevant safety regulations.
- **Coordination with SSHOs:** Coordinating with the Project Superintendent and SSHO to ensure that waste management activities do not interfere with other construction operations and maintain a safe work environment.
- **Safety Compliance:** Ensuring that all personnel involved in waste management activities are trained in appropriate safety techniques and procedures, and that they adhere to the Health and Safety Plan (HASP).
- **Monitoring and Reporting:** Monitoring waste management activities to identify and address any safety concerns promptly. Reporting any safety incidents or hazards to the SSHO and Project Superintendent.
- **Documentation and Communication:** Maintaining accurate records of all waste management activities, including safety-related documentation. Communicating any safety issues or concerns to the King County Project Representative and PPM’s Project Manager.

4.4 Duwamish Services Project Manager

The Project Manager for Duwamish Services in charge of remediation activities at SMA5 is Zach Martin. The Project Manager’s responsibilities, with a focus on safety, include but are not limited to:

- **Overseeing Remediation Activities:** Managing all remediation activities at SMA5, ensuring that the work is conducted in accordance with the project plans and specifications, and prioritizing safety at every stage.
- **Implementing Safety Plans:** Following the PPM the Site-Specific Health and Safety Plan (HASP) for SMA5, ensuring that all safety protocols are followed rigorously.
- **Coordination with SSHOs:** Working closely with the SSHO and Site Superintendent to ensure that safety procedures are integrated into all remediation activities and that any potential safety hazards are promptly addressed.
- **Safety Compliance:** Ensuring that all personnel involved in remediation activities at SMA5 are trained in appropriate safety techniques and procedures. Regularly reviewing and updating safety training as necessary. All workers will be required to be 40-hour HAZWOPER trained.
- **Monitoring and Reporting:** Monitoring the site for compliance with safety standards. Conducting regular safety inspections and audits to ensure ongoing compliance with the HASP and other relevant safety regulations.
- **Communication:** Maintaining open lines of communication with the King County Project Representative, PPM’s SSHO, and all on-site personnel to address any safety concerns promptly.
- **Documentation:** Keeping detailed records of all remediation activities, including safety inspections, incident reports, and corrective actions taken. Ensuring that all safety documentation is up-to-date and accessible.

- **Emergency Response:** Preparing and implementing emergency response procedures to handle any safety incidents or emergencies that may arise during remediation activities. Conducting regular drills and training sessions to ensure all personnel are prepared.

4.5 Out West Landscape & Irrigation Project Manager

The Project Manager for Out West, the subcontractor responsible for landscaping and irrigation, is Teri Oosterwyk. The Project Manager's responsibilities, with a focus on safety, include but are not limited to:

- **Overseeing Landscaping and Irrigation Activities:** Managing all landscaping and irrigation activities, ensuring that the work is conducted in accordance with the project plans and specifications, and prioritizing safety at every stage.
- **Implementing Safety Plans:** Following Pacific Pile and Marine Site-Specific Health and Safety Plan (HASP) for landscaping and irrigation activities, ensuring that all safety protocols are rigorously followed.
- **Coordination with SSHOs:** Working closely with PPM's SSHO and Site Superintendent to ensure that safety procedures are integrated into all landscaping and irrigation activities and that any potential safety hazards are promptly addressed.
- **Safety Compliance:** Ensuring that all personnel involved in landscaping and irrigation activities are trained in appropriate safety techniques and procedures. Regularly reviewing and updating safety training as necessary.
- **Monitoring and Reporting:** Monitoring the site for compliance with safety standards. Conducting regular safety inspections and audits to ensure ongoing compliance with the HASP and other relevant safety regulations.
- **Communication:** Maintaining open lines of communication with the King County Project Representative, PPM's SSHO, and all on-site personnel to address any safety concerns promptly.
- **Documentation:** Keeping detailed records of all landscaping and irrigation activities, including safety inspections, incident reports, and corrective actions taken. Ensuring that all safety documentation is up-to-date and accessible.
- **Emergency Response:** Preparing and implementing emergency response procedures to handle any safety incidents or emergencies that may arise during landscaping and irrigation activities. Conducting regular drills and training sessions to ensure all personnel are prepared.
- **Training:** General HazCom training required identifying site history. Work performed is above grade of potential hazardous materials.

4.6 Site Personnel

All general site personnel are expected to actively contribute to maintaining a safe work environment. Their safety responsibilities include, but are not limited to:

- **Understanding and Following Safety Plans:** Familiarize themselves with the Site-Specific Health and Safety Plan (HASP) and adhere to all outlined safety protocols and procedures. All site personnel shall sign off on the HASP, stating they have read and understand it.
- **Personal Protective Equipment (PPE):** Always wear the required personal protective equipment (PPE) for their specific tasks, including hard hats, safety glasses, gloves, high-visibility vests, and steel-toed boots.
- **Reporting Hazards:** Immediately report any unsafe conditions, hazards, or incidents to their supervisor or the SSHO. This includes potential environmental hazards, faulty equipment, or unsafe practices observed on site.
- **Participating in Safety Meetings:** Attend all scheduled safety meetings, toolbox talks, and training sessions to stay informed about safety practices, potential hazards, and updates to safety protocols.
- **Job Hazard Analysis (JHA):** Participate in the daily Job Hazard Analysis (JHA) reviews conducted by supervisors to understand the specific hazards associated with their tasks for the day and the controls in place to mitigate those hazards.

- **Safe Work Practices:** Follow all safe work practices as instructed. This includes using tools and equipment properly, adhering to lifting techniques, and maintaining a clean and organized work area to prevent slips, trips, and falls.
- **Emergency Procedures:** Be aware of and understand the site’s emergency response procedures, including the location of first aid kits, AEDs, and fire extinguishers, emergency exits, and assembly points. Know how to respond in case of an emergency, such as a fire or chemical spill.
- **Encouraging a Safety Culture:** Promote a culture of safety by encouraging peers to follow safety protocols and practices. Provide positive reinforcement for safe behavior and practices.
- **Environmental Awareness:** Ensure that work activities do not negatively impact the environment by following the site’s environmental protection measures, such as proper disposal of waste and prevention of pollution.
- **Training Requirements:** All workers who are directly working in areas with known potential contamination shall have 40-hour HAZWOPER training. At least two (2) personnel trained in first aid, as well as CPR and AED usage, will be onsite at all times (all equipment barges shall be equipped with one AED at all times).

5.0 SCOPE OF WORK

The Lower Duwamish Waterway Upper Reach cleanup is a significant environmental remediation project targeting the northernmost section of the Lower Duwamish Waterway (LDW) in Seattle, Washington.

The cleanup is led by the Lower Duwamish Waterway Group (LDWG), a public-private partnership that includes the Boeing Company, the City of Seattle, and King County. The U.S. Environmental Protection Agency (EPA) is the primary regulatory agency overseeing the project, with support from the Washington State Department of Ecology. King County is the agency administering the contract for remediation activities. (Washington State Department of Ecology) (Lower Duwamish Waterway Group).

The cleanup for the Upper Reach is set to begin in October 2024, will take three construction seasons, and will conclude around April 2027. Each construction season is limited to October through February to protect salmon and other fish during their migration periods (Lower Duwamish Waterway Group) (Seattle Gov).

The Upper Reach of the Lower Duwamish Waterway spans from South 102nd Street to the Duwamish Waterway Park. This five-mile stretch has been heavily contaminated by over a century of industrial activities, resulting in pollutants such as PCBs, arsenic, and other harmful chemicals in the riverbed sediments. The cleanup aims to address these contaminated sediments to reduce environmental and health risks (Washington State Department of Ecology) (Seattle Gov).

- Federal Occupational Safety and Health Administration (OSHA) Code of Federal Regulation Title 29, Part 1910 (29 CFR Part 1910), Safety and Health Regulations for General Industry and 29 CFR 1926, Safety and Health Regulations for Construction.
- National Institute for Occupational Safety and Health/Occupational Safety and Hazards Administration/U.S. Coast Guard/U.S. Environmental Protection Agency, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Publication No. 85-115, 1985
- Chapter 296-843 WAC Safety Standards for Hazardous Waste

5.1 Work Plan

Refer to the Remedial Action Work Plan (RAWP) for a detailed project scope of work. For a detailed equipment roster please see Table 5-1 in Appendix O of this Plan

Work Plan Narrative:

- Site preparation activities, including construction and setup of the staging and stockpile area(s), temporary erosion and sediment controls, water collection and treatment management practices, utility disconnection, and clearing/grubbing
- Dredging, excavation, potential contingency re-dredging, barge dewatering, in-water transportation, transloading, upland transportation and disposal of dredge material, dredge debris, identified debris, and piling from the Sediment Management Areas (SMAs)
- Placement of clean imported materials in and around the SMAs
- Removal of pilings, bulkhead strengthening and reinforcement, replacing of piling with steel pipe, and installation of outfall energy dissipation structures; and
- Site restoration, cleanup, and demobilization.

Season 1

Work Activities:

Site preparation activities, including construction and setup of the staging and stockpile area(s), temporary erosion and sediment controls, water collection and treatment management practices, utility disconnection, and clearing/grubbing.

- Mobilization
 - Practice Placement in Yard
 - Preparing barges & excavators
 - Loading out bulkhead wall and outfall materials
- Bulkhead Wall construction
 - Sheet pile installation
 - Rebar placement
 - Forming and placing of tremie grout pour
- Installation of Outfall Energy Dissipation structures at Outfall 2093 and 2073
 - Prep area for gabion baskets
 - Fill gabion baskets w/ aggregate
- Removal of Identified Debris at SMAs 1, 2, 7, 9
 - Pulling out concrete slabs, etc.
- Removal of timber piling at SMAs 6 & 7
 - Pulling pile
- Dredging and material placement at SMAs 1, 2, 3, 4, 6, 7, 8, 9, 11, and 13
 - Dredge contamination
 - Re-dredge if chemical testing results require it
 - Placement of engineered cap of various material types
 - Sand, sand+GAC, quarry spalls, etc.
 - Transloading, Transportation, and Disposal of Dredge Materials

Equipment:

- Hydraulic Excavators
- Cranes
- Tugboats
- Work Skiffs
- Barges
- Dredge Buckets
- Transload Excavator
- Front-End Loaders
- Train Locomotives & Cars

Season 2

Work Activities:

- Dredging and material placement at SMAs 12, 14, 15, and 16
- Dredge contamination
- Re-dredge if chemical testing results require it
- Placement of engineered cap of various material types
- Sand, sand+GAC, quarry spalls, etc.
- Transloading, Transportation, and Disposal of Dredge Materials

Equipment:

- Tugboats
- Hydraulic Excavators
- Barges
- Crane
- Dredge Buckets
- Transload Excavator
- Front-End Loaders
- Train Locomotives & Cars

Season 3

Work Activities:

- Dredging and material placement at SMAs 17 and 18
- Bank excavation and material placement SMA 5
- Transloading, Transportation, and Disposal of Dredge Material

Equipment:

- Hydraulic Excavators
- Tugboats
- Barges
- Dredge Buckets
- Wheel Loaders
- On-road Haul Trucks
- Water Truck
- Powered Street Sweeper
- Transload Excavator
- Front-End Loaders
- Train Locomotives & Cars

6.0 Emergency Procedures

Please see the emergency procedures in the Emergency Response Plan in Appendix B.

7.0 Site Control

7.1 Site control Measures

The site control is or will be using temporary fencing to prevent unauthorized entry into the site. Please refer to Appendix G of the RAWP for additional details regarding Temporary Facilities and Controls.

- Waterway
- PPM Yard

- Waste Management Duwamish Reload Facility
- SMA 5
- The People's Park SMA 13 Caution tape Usage

During active work, areas where vehicle or heavy equipment access, will be surrounded by caution tape, fencing and appropriate control devices such as Jersey barriers, ecology block, and traffic cones. Access will be limited to authorized personnel only. This includes PPM employees, sub-contractors, regulatory officials from the state, King County, and representatives from the EPA. Additional access will be permitted as necessary to complete the work and access control will be at the discretion of the site superintendent. At the end of each workday, the entire site will be secured with chain link fence. For traffic control measures regarding truck traffic at the sites please refer to the Traffic Control Plan in Appenid AE of the RAWP.

Access to the work area will be permitted only to those working directly on the project. All personnel on-site will be required to comply with all sections of this SSHASP, or work under a separate SSHASP, that meets or exceeds the requirements outlined in this SSHASP, prepared for them.

Dust might be present when impacted soils are being removed. The dust control is covered by engineering controls that are defined in the Erosion Control in Appendix W of the RAWP and Transload Plan in Appendix K of the RAWP.

A portion of the shoring, excavation, and backfill work will occur within the footprint of the identified exclusion zone. PP&M will be maintaining clear lines of demarcation to keep unauthorized personnel from entering adjacent occupied workspaces identified in the exclusion zone.

7.2 Site Maps

Dredging Work Areas

In each of the Sediment Management Area's depicted in Figure 1 PPM will have an equipment and material barge present in the water. The main access, egress and staging area for the SMA's (except SMA 5) will be the PPM office and yard at 700 S. Riverside Dr, Seattle WA 98108 shown in Figure 2. Please refer to Appendix J of the RAWP for additional details regarding the Dredging & Excavation work activities.

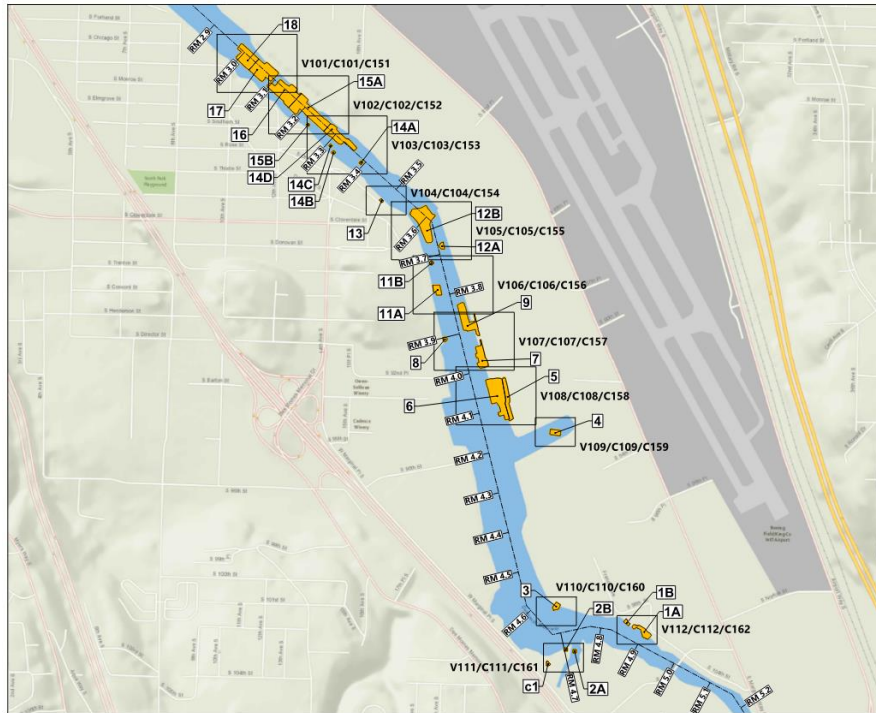


Figure 1- SMA Locations

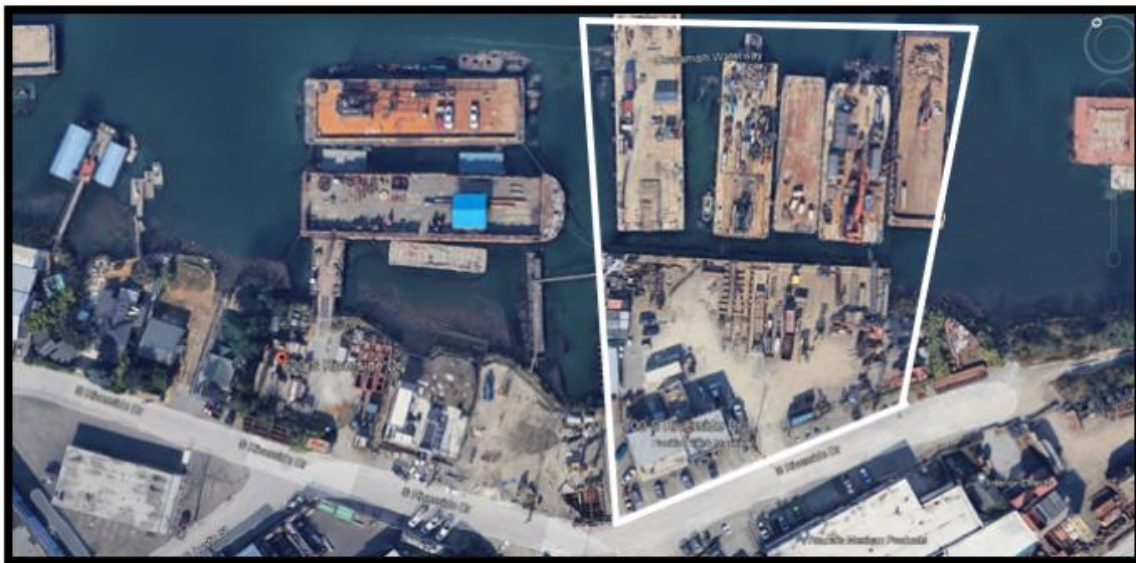


Figure 2- PPM permanent lay-down yard and offices

Once dredging operations commence in a SMA the materials barge will be classified as the Exclusion Zone and access will be restricted by the guidelines outlined in this section. If this changes access or egress it will be noted in the PTP that day and the JHA will be amended to reflect this.

Each SMA in Figure 1 is highlighted in yellow. Previous testing has identified four main chemicals that are present at high enough levels to cause concern to human health. PCB's, cPAH, dioxins/furans, and arsenic are present in the sediment and soils above the action level and require formal training (HAZWOPER) to work with and or around. All areas contacted by the sediment or water from the moon pool will be marked as EZ with correlating CRZ and SZ boundaries and signage. SMA 5 will have its own plan and site up that will be further developed.

In each SMA there will be a primary "Construction or Equipment Barge" and a secondary "Contaminated Sediment Barge". The equipment barge will have the Hitachi excavator, break shacks, tool rooms and miscellaneous materials and equipment needed to progress the project. This barge will be the primary entry and all employees and visitors when arriving will check in and stay on this barge unless the site superintendent or SSHO give verbal permission to access other areas. The equipment barge will be the SZ. Figure 3 depicts the general layout of the dredge barge in the SMA with the different zones. Decontamination plans are contained within Appendix AD of the RAWP.

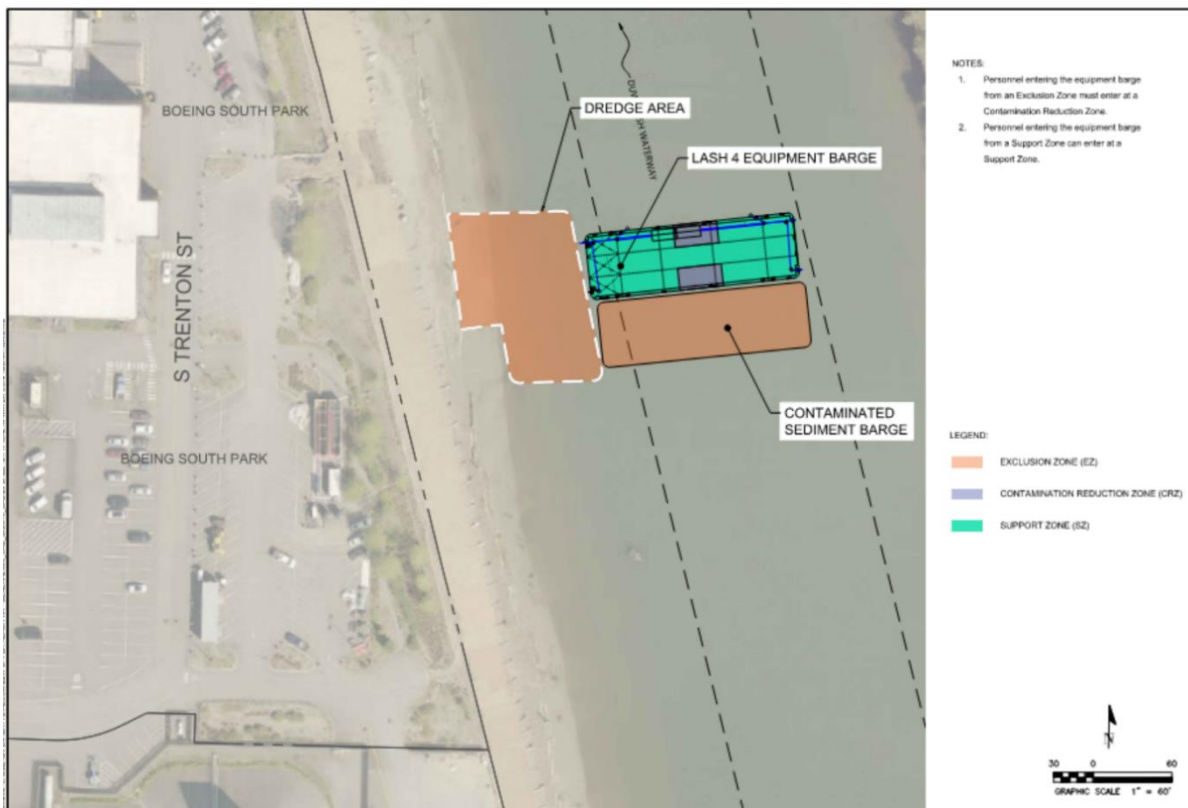


Figure 3- Barge Contamination Zones

The Contaminated Sediment Barge will be designated the Exclusion Zone (EZ) and Contamination Reduction Zone CRZ. Only employees who have been identified as critical to the task at hand and possess HAZWOPER 40, First Aid CPR, and a working knowledge of the site, task hazards, controls and who has signed the THA for the task will be allowed to access EZ and CRZ. The EZ and CRZ will have clear demarcation regarding boundaries and hazards contained therein. At the end of each shift all equipment and break or storage facilities will be locked and secured. The EZ and CRZ and barge entry will be checked for clear and concise signage and replace if needed.

SMA 5 Area

The uplands SMA 5 site is or will be surrounded by temporary fencing to prevent unauthorized entry into the site. Please refer to Appendix G of the RAWP for additional details regarding Temporary Facilities and Controls. During active operations, areas that require vehicle or heavy equipment access will be surrounded by caution tape. Access will be limited to authorized personnel. Additional access will be permitted as necessary to complete the work and access control will be at the discretion of the site superintendent. At the end of each workday, the entire site will be secured with chain link fence. The layout and decontamination areas for SMA 5 are shown in Figure 4.

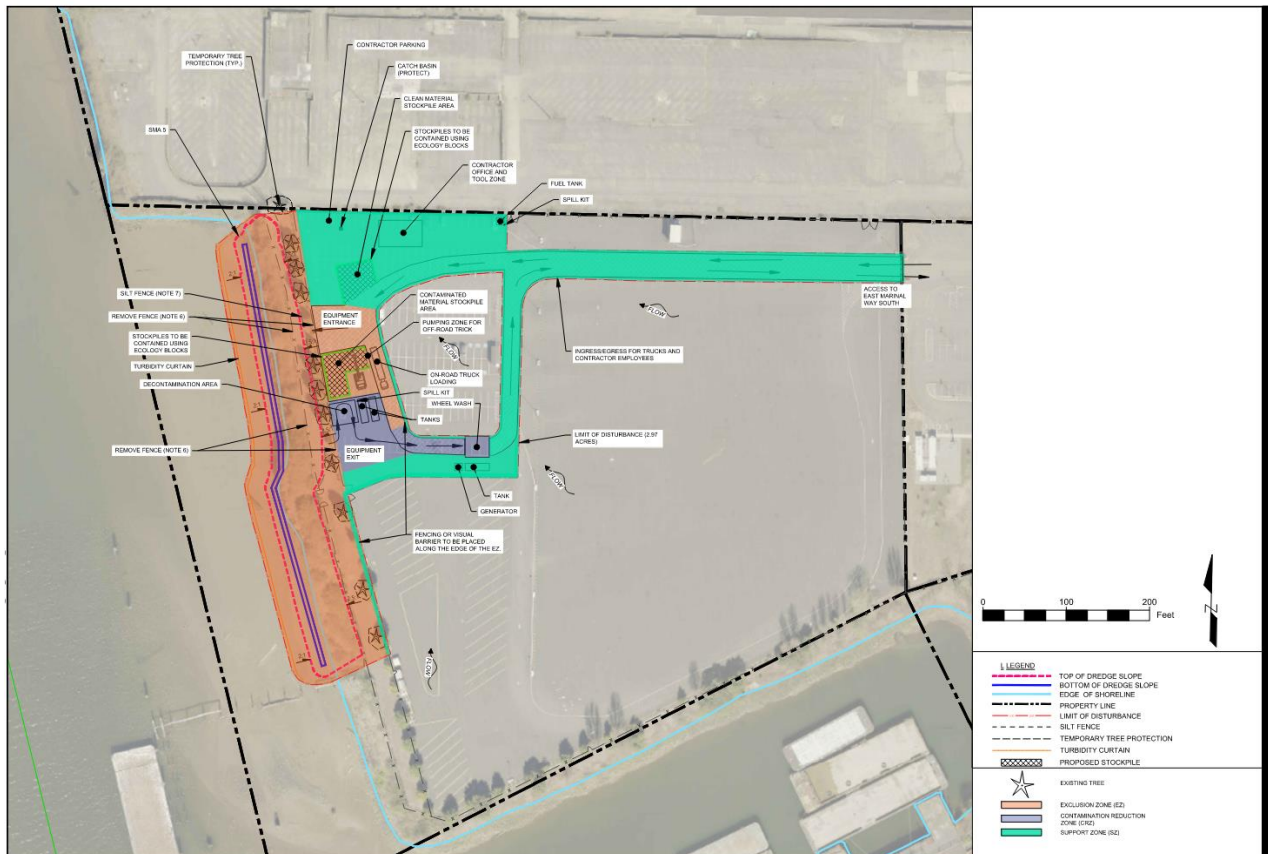


Figure 4- SMA 5 Layout

Waste Management Duwamish Reload Facility

Waste Management National Services, Inc. (WM) operates the Duwamish Reload Facility, also called the 8th Avenue South Reload Facility or 8ASR (Facility). The Facility is a reload facility for contaminated dredge sediment, industrial wastes, and contaminated upland soil from the Duwamish River and other sites in the Pacific Northwest, including Alaska and Canada. Accepted materials arrive at the Facility from commercially operated barges, as well as trucks, and is transferred to rail or trucks for transport offsite. Access to the Facility is shown on Figure 5. The Facility is accessed three ways: by truck, rail, and barge. Truck access is via 8th Avenue South or South Othello Street. The Facility perimeter is completely fenced (landside) to prevent unauthorized vehicle access. Two entrance and exit gates located on 8th Avenue South, and one gate located at the East end of South Othello Street, control access to the Facility. Gates are locked during non-business hours to prevent unauthorized access.

Train operations are handled by the facility. Truck drivers shall follow all Duwamish Reload directions and follow posted procedures. Drivers will stay inside the cab of their trucks unless otherwise directed.

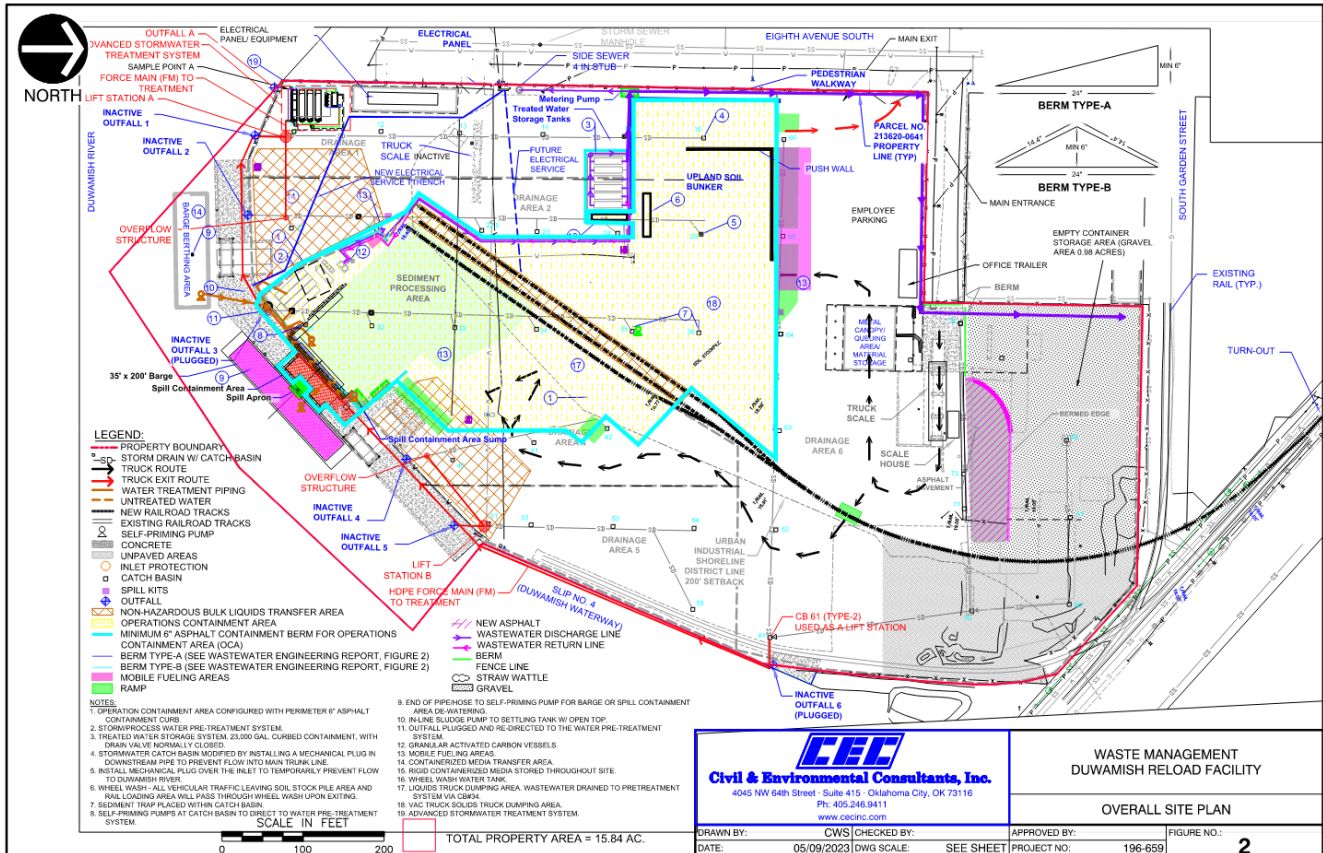


Figure 5- DRF Site Layout

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

Trucks entering the OCA will exit through a wheel wash system, where water is recycled, and particulates and floatable oils are separated. Accumulated solids are routinely removed and properly disposed of. If the system needs to be maintained for repairs, the water will either be transferred to the on-site water pretreatment system or hauled off-site to an authorized treatment facility. Any drip-off or drag-out past the wheel wash will be collected in a nearby plugged catch basin and piped to the on-site water pretreatment system. Additional details on the Duwamish Reload Facility are included in the Transloading, Upland Transportation, Waste Characterization, and Disposal Plan in Appendix K.

8.0 Chemical/Contaminant Hazards

Potential contaminants hazards that may be encountered during site work include exposure to airborne dust. Refer to RAWP Appendix W for the Erosion Control Plan for dust suppression. During dredging and soil removal operations the expected airborne exposure is low to none. Proper use of gloves and handwashing should be sufficient to control the exposure to these contaminants. Exposures will be controlled using engineering methods in the Erosion Control Plan found in Appendix W of the RAWP. Also refer to the Air Pollution Plan in Appendix AA of the RAWP.

Chemical Hazards

Per PPM's Work Plans, e.g., dredging and excavating (Appendix J of RAWP), decon (Appendix AD of RAWP), structural work (Appendix T of RAWP), demo (Appendix O of RAWP) and implementation of the HASP. The risk of employee exposure to the four human health risk drivers PCBs, carcinogenic polycyclic aromatic hydrocarbons (cPAH), dioxins/furans, and arsenic will be minimized using engineering controls to eliminate or decrease the possibility of exposure to levels under the applicable action level for each. The administrative controls of training, JHA's, designated areas, signage, restricted access, and limiting time spent in a hazardous area. This will include the EZ, CRZ, and SZ demarcations and HAZWOPER training.

However, because the excavator bucket/boom will come in contact with contaminated river sediment, personnel on the barge that may come in contact with the bucket/boom will be HAZWOPER trained and wear Level D PPE. Any PPM employees that will be involved in the decon of equipment or other tasks that would put them in the EZ, CRZ or proximity to sediment or an emergency response will be required to wear appropriate PPE for the activity which will be communicated before the task begins by the SSHO. Based on the JHA for the activity, Level D PPE will be worn. Please refer to Appendix AD of the RAWP for additional information regarding the Personnel & Equipment Decontamination Plan.

Additionally, all King County employees, representatives, other agency personnel and visitors that access the equipment or material barges will also be HAZWOPER trained and be a part of the JHA for that day and task.

Personnel shall be restricted from transit in the swing radius of the excavator during any operation. Communications with the operator of the excavator shall be made using VHF radio. No unauthorized personnel shall board either the equipment or the material barges.

Table 1-1: Summary of Hazardous Properties of Chemical and Airborne Hazards

Chemical	Exposure Routes	Symptoms	Target Organs	OEL (STEL)	Odor Threshold (ppm)	LEL (%)	Ionization Potential (eV)
PCBs (Chlorodiphenyls) (42% Cl / 53469-21-9) (54% Cl / 11097-69-1)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, chloracne; liver damage; reproductive effects Potential occupational carcinogen	Skin, eyes, liver, reproductive system	0.001 mg/m ³ TWA _s Skin IDLH / Ca – 5 mg/m ³	N/A	N/A	?
Polycyclic aromatic hydrocarbons (PAHs) – as coal tar pitch volatiles. (Includes benzo(a)pyrene, chrysene, phenanthrene, fluoranthene, pyrene, acenaphthene, methylnaphthalenes, and anthracene)	Skin, eye, inhalation, and ingestion hazard	Direct contact or exposure to the vapors may be irritating to the eyes. Direct contact can be highly irritating to the skin and can cause dermatitis. Exposure to high vapor concentrations may cause headaches, nausea, vomiting, and other symptoms. Includes human carcinogens. Exposure to all routes should be carefully controlled to levels as low as possible. Confirmed animal carcinogen.	Respiratory system, skin, bladder, kidneys	0.2 mg/m ³ TWA _s 0.1 mg/m ³ TWA _s (Cyclohexane-extractable fraction) IDLH / Ca – 80 mg/m ³	Varies	N/A	?
Dioxins/Furans (as 2,3,7,8-Tetrachloro-dibenzo-p-dioxin) - TCDD	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; allergic dermatitis, chloracne; porphyria; gastrointestinal disturbance; possible reproductive, teratogenic effects; In Animals: liver, kidney damage; hemorrhage Potential occupational carcinogen	Eyes, skin, liver, kidneys, reproductive system	Lowest Feasible Concentration (LFC) Proposed OEL of 0.2 ng/m ³ Skin IDLH / Ca - LFC	N/A	?	?
Hydrogen Sulfide (H ₂ S) (7783-06-04) 1 ppm = 1.40 mg/m ³	Inhalation, skin and/or eye contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid: frostbite	Eyes, respiratory system, central nervous system	1 ppm TWA _s (5 ppm) C – 10 ppm (10-min over an 8-hr shift) IDLH - 100 ppm	0.03 ppm	4.0	10.46
Arsenic, and inorganic compounds as (7440-38-2)	Inhalation, skin absorption, skin and/or eye contact, ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin Potential occupational carcinogen	Liver, kidneys, skin, lungs, lymphatic system	Ceiling limit of 0.002 mg/m ³ [15-Minute] IDLH / Ca – 5 mg/m ³	N/A	N/A	N/A
Barium and soluble compounds, as Ba, including Barium chloride (7440-39-3) (10361-37-2)	Inhalation, skin and/or eye contact	Irritation eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse, extrasystoles (heart contractions); hypokalemia (deficiency of potassium in the bloodstream).	Eyes, skin, respiratory system, heart, central nervous system	0.5 mg/m ³ TWA _s IDLH – 50 mg/m ³	N/A	N/A	N/A
Cadmium and compounds, as Cd (7440-43-9)	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest lightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia Potential occupational carcinogen	respiratory system, kidneys, prostate, blood, prostatic & lung cancer	0.005 mg/m ³ TWA _s IDLH / Ca – 9 mg/m ³	N/A	N/A	N/A
Chromium (II) inorganic compounds, as Cr	Inhalation, ingestion, skin and/or eye contact	Irritation eyes; sensitization dermatitis	Eyes, skin	0.5 mg/m ³ TWA _s IDLH – 250 mg/m ³	N/A	N/A	N/A
Chromium (III) inorganic compounds, as Cr (7440-47-3)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes; sensitization dermatitis	Eyes, skin	0.5 mg/m ³ TWA _s (total dust) 0.003 mg/m ³ TWA _s (inhalable fraction) IDLH – 25 mg/m ³	N/A	N/A	N/A

Chemical	Exposure Routes	Symptoms	Target Organs	OEL (STEL)	Odor Threshold (ppm)	LEL (%)	Ionization Potential (eV)
Chromium (VI) inorganic compounds, as Cr (18540-29-9) (1333-82-0 as CrO ₃)	Inhalation, ingestion, skin and/or eye contact	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), eosinophilia; eye injury, conjunctivitis; skin ulcer, sensitization dermatitis Potential occupational carcinogen	Blood, respiratory system, liver, kidneys, eyes, skin, lung cancer	0.0002 mg/m ³ TWA _s IDLH / Ca – 15 mg/m ³	N/A	N/A	N/A
Lead and inorganic compounds, as Pb (7439-92-1)	Inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival (gum) tissue	0.05 mg/m ³ TWA _s IDLH – 100 mg/m ³	N/A	N/A	N/A
Mercury, elemental and inorganic compounds, as Hg (7439-97-6)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis (inflammation of mucous membranes of the mouth), salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria (abnormal quantities of protein in the urine)	Eyes, skin, respiratory system, central nervous system, kidneys	0.025 mg/m ³ TWA _s C – 0.1 mg/m ³ Skin IDLH – 10 mg/m ³	N/A	N/A	N/A
Selenium compounds, as Se (7782-49-2)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	0.2 mg/m ³ TWA _s IDLH – 1 mg/m ³	N/A	N/A	N/A
Silver metal, and soluble compounds, as Ag (7440-22-4)	Inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	0.01 mg/m ³ TWA _s IDLH – 10 mg/m ³	N/A	N/A	N/A

TWA – 8-hour time weighted average
Skin – OEL based primarily on skin exposure hazard
C – Ceiling Limit
Ca – potential or confirmed human carcinogen
IDLH – Immediately Dangerous to Life or Health
LFC – Lowest Feasible Concentration
OEL – Occupational Exposure Limit
STEL – Short Term Exposure Limit
LEL – Lower Explosive Limit

Additional Hazardous Chemicals Used

Access to the construction site will be restricted to PPM and its subcontractors, the Owner, the Owners Representatives, authorized regulatory agency, and visitors approved by the site PM/Superintendent. Access to the exclusion zones (contaminated sediment barge) will be permitted only to those who are currently 40 Hour HAZWOPER trained. All workers working outside of the exclusion zones will have general site awareness and will not be allowed to work in the exclusion zones. All personnel on-site will be required to comply with all sections of this HASP.

Work including excavation, dredging, and backfill work will occur within the footprint of the identified Sediment Management Area (SMA). PP&M will be maintaining clear line of demarcation to keep unauthorized personnel from entering adjacent occupied workspaces. Any areas identified as EZ's shall be clearly marked with CRZ and SZ areas clearly marked adjacent to each other. PPM will bring the following hazardous materials to site and will be stored on each construction barge:

Hazardous Material	Intended Use	Estimated Quantity	Location	Secondary Containment
Gasoline, Unleaded, Ethanol free	Work Skiff, Pumps, Misc. Small Tool Fuel	250 Gallon	Day tank located on barges	Double-walled fuel tank located on barge deck
Diesel #2	Equipment & Vehicle Fuel	5,500 Gallons	Day tank located on barges	Double-walled fuel tank located on barge deck
Biodegradable Hydraulic Fluid	Hydraulic Fluid for Heavy Machinery	55 Gallons	Within on-site tools conex	Collapsible berm or drum containment pallet.
Motor Oil	Motor Oil for Heavy Machinery	25 Gallons	Within on-site tools conex	Collapsible berm or equivalent.
Antifreeze/Engine Coolant	Engine Coolant	25 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily
Gear Oil	Gear Oil for Heavy Machinery	5-10 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily.
Aluminum Grease	Lubricant for Equipment Bearings	5 Gallons	Within on-site tools conex	Collapsible berm or drum containment pallet.
Paints, Solvents, etc.	Miscellaneous	10 Gallons	Within on-site tools conex	Collapsible berm or equivalent.

9.0 MONITORING

Due to the nature of the work performed and the level of contaminants it is not expected that there will be any hazardous exposures to workers onsite. Worker exposure monitoring and biological monitoring shall be done by PPM at the beginning of each season and will comply with Section 20 Medical surveillance to ensure that the work practices put in place to reduce and control exposures are validated through the results of the air and biological monitoring.

PPM will provide air and biological monitoring at the beginning of the dredging operations each season to validate that the worker exposure consistently meets or exceeds federal and state safety standards.

The scope of sampling will involve all workers that may impact dredged materials during the first dredged SMAs on the two different construction barges as well as transload operations at DRF, testing for the hazards listed in Section 8 of this plan.

The Monitoring Strategy will include an initial assessment for baseline air and biological exposures to identify potential exposure sites and levels. PPM will then perform periodic sampling using personnel air monitoring equipment to collect data on employee exposure over time. All monitoring equipment will be calibrated using the manufactures guidelines and frequencies and as required by all applicable regulatory agencies. All biological monitoring shall be done by licensed healthcare professionals. Documentation of the calibration of all personnel air monitoring equipment will become a part of this project file.

PPM will analyze monitoring data to assess trends and determine compliance with established standards. Data will be kept in detailed records of all monitoring data, including dates, times, locations, and conditions during sampling.

PPM will evaluate the effectiveness of the strategy at regular intervals and after any significant changes in work processes or materials. PPM will regularly communicate monitoring results to employees and the Project Representative.

10.0 PHYSICAL HAZARDS

Potential physical hazards associated with this project include heavy equipment operation, trenching and excavation hazards, lifting, slips, trips and falls, electrical hazards, fire and or explosion, temperature stress and noise. Refer to Job Safety Analysis for each work task to identify potential hazards and the recommended controls.

- **Trenching and Excavation:** All trenches and excavations will be inspected daily by the competent person or more often as needed. Personnel will not be allowed to enter any excavation or trench greater than 4 feet that is not benched, shored, or sloped according to soil classification. All spoil piles and other heavy items will be maintained greater than 2 feet from the edge of an excavation. Air monitoring will be conducted prior to entry when there is the potential for an exposure. Trenches and excavations will be barricaded or covered during ideal times to prevent unauthorized entry.
- **Noise Exposure:** Personnel will be provided with protection against the effects of hazardous noise exposure whenever sound-pressure levels exceed 85 dBA steady-state expressed as a time-weighted average (TWA). It will be assumed that this sound pressure level is not exceeded if two people can engage in conversation using normal voices at 3 feet. If sound pressure levels exceed 115 dBA steady-state, personal ear protection equivalent to the combination of earplugs and earmuffs will be required. All equipment shall be equipped with an operational muffler.
- **Slips, Trips, and Falls:** On-site personnel shall have high traction soles on steel toe shoes to improve footing and to prevent slips, trips, and falls. Personnel should take care when walking in areas with

open excavations or when stepping over piping. Good housekeeping can also prevent slips, trips, and falls. Employees will immediately clean up all spills. All tools not in use should be picked up. During material handling activities, a defined path should be cleared prior to moving all objects. Fall protection and/or restraints will be used by all employees when required by the Job Hazard Analysis for the specific task.

- **Overhead Hazards:** When overhead electrical power lines exist at or near a work site, consider all wires to be alive and dangerous. Determine the minimum horizontal distance from any point on equipment to the nearest power line before the arm and bucket are raised. Equipment will be operated at the following distance from over headlines (more in fog or rain):

Minimum Safe Distances from Power Lines

Voltage	Distance (feet)
50 kV or below	10
>50-200 kV	15
>200-350 kV	20
>350-500 kV	25
>500-750 kV	35
>750-1000 kV	45

- **Heavy Equipment:** Heavy equipment will be checked before use each day by the operator. Equipment operators will be knowledgeable about the safe operation of the equipment. Other personnel will stay out of the immediate vicinity while heavy equipment is operating. All moving equipment will be equipped with back-up alarms. All personnel will wear high visibility safety vests while equipment is operating on the site. Before approaching any equipment, site personnel will make eye contact with the operator. The bucket should be on the ground before approaching.
- **Electrical Hazards:** On-site personnel may have a potential for electrical shock if there is improperly grounded equipment. To mitigate the hazards of electrical shock:
 - All electrical wiring and equipment shall be of a type listed by a nationally recognized testing laboratory for the specific application for which it is to be used.
 - All work shall be performed by personnel familiar with code requirements and qualified for the class of work.
 - Whenever possible, all equipment as well as circuits to be worked on shall be de-energized before work is started and personnel protected by clearance procedures and grounding.
 - LockOut/TagOut conditions are addressed in Section 25.0 Site Specific Hazards and Control Measures of this SSHASP, as well as PPM’s I2P2.
 - All circuits shall be protected against overload.
 - A ground shall be provided for non-current carrying metallic parts of equipment such as blowers, compressors, etc.
- **Lifting:** Employees will utilize proper lifting techniques including lifting with their legs instead of their backs. Also, the buddy system will be used when lifting greater than 50 pounds or when carrying awkward items of any weight. When feasible, equipment will be used to move all items.
- **Hand injuries:** Employees will wear gloves when working with their hands. No fixed open blades will be allowed on site. Always cut away from the body and on a fixed surface. Employees should use care when moving items and watch for pinch points.

- **Traffic:** Personnel will be protected from traffic at the site by use of appropriate barricading. Certified flaggers will be utilized when necessary to protect personnel and direct traffic around the work area. Please refer to Appendix AE of the RAWP for additional details regarding traffic control activities.

JHA's are available for review and use in the job trailer. Job Hazard Analysis for the daily tasks will be reviewed prior to performing a task.

11.0 BIOLOGICAL HAZARDS

Biological hazards may be encountered when working on this jobsite. Potential examples along with control measures are listed below:

- Small animals/rodents – Keep clear of small animals and rodents. Many carry diseases such as rabies. If you are bitten by a rodent seek immediate medical attention. Bites can become infected, and vaccines may need to be taken. Report any bites or animal scratches to your supervisor or onsite SSHO immediately.
- Needles – Needles should not be handled at all. Bloodborne diseases as a result of a needlestick can result in a STD, HIV, or other communicable disease exposure. Any needlestick should immediately be reported to your supervisor and the SSHO onsite and medical attention should be received. If needle cleanup is needed, wear proper cut level gloves for puncture protection as well as a retrieval device that is used for retrieving trash. All needles should be disposed of in a proper needle disposal device.
- Human feces – Human feces should be treated like a blood borne hazards, or exposure to contaminated biological fluids. If a need arises that human feces are encountered and will be disposed of, don appropriate PPE of eye protection, rubber gloves, a protective splash apron and rubber boots. Human waste should be disposed of in a plastic bag and disposed of in a proper manner.
- Contaminated biological fluids – Contaminated biological fluids should be treated like an exposure to blood borne hazards. If a need arises that these are encountered and will be disposed of, don appropriate PPE of eye protection, rubber gloves, a protective splash apron and rubber boots. Contaminated biological fluids and cleaning materials should be disposed of in a plastic bag and disposed of in a proper manner.
- Noxious flora and fauna – Many types of plants can be poisonous and can cause allergic reactions when touched. If an allergic reaction or rash occurs after an encounter with flora or vegetation, please notify your supervisor and the SSHO onsite so that appropriate medical attention can be sought if needed.
- Insects – Many insects can cause allergic reactions. When persons who are allergic to certain insects are bitten it can cause a harmful reaction that could prove to be life threatening. All workers who know that they are allergic to bee stings or other bug bites should carry appropriate medication to counter an allergic reaction. In addition, if a person who previously has not had reactions to insect bites experiences an allergic reaction, notify your supervisor and the SSHO immediately. Allergic reactions can be life threatening and should be treated immediately.
- Poisonous spider - All spider bites should be considered poisonous. Even though some might not be immediately life threatening, adverse reactions to the person bitten could be severe. In the case of a spider bite, immediately notify your supervisor and the SSHO and seek medical attention.

Precautions should be taken to avoid direct contact with any animals, irritant plants or insects, needles, or human waste. If a bite, sting, or skin condition should occur, immediate medical attention should be taken.

12.0 PERSONAL PROTECTIVE EQUIPMENT

All personnel within the work area shall be required to follow mandatory guidelines for the use of personal

protective equipment. A daily THA developed to address the specific PPE required for the tasks being performed that day. At a minimum, the following guidelines for the selection and use of PPE shall be followed:

12.1 HAZMAT Operations Specific PPE

Clothing

While working, clothing shall, at a minimum, include long pants and a shirt with at least 4" sleeves. Torn or excessively loose clothing shall not be worn, due to the possibility of catching in machinery. The KC LDW project is being performed during the seasonal in water work window and employees will wear appropriate clothing to prevent excessive weather exposure.

Eye Protection

ANSI Z87.1 or better rated safety glasses are mandatory 100% of the time. ANSI Z87+ rated goggles, face shields or hoods will be worn when:

- Welding
- Chipping concrete.
- Using grinders, table saws, chain saws, jack hammers, chipping guns, powder actuated tools, nail guns, cut-off saws, impact tools (including hammers), scalers, any air powered tools and when cutting and welding or using other tools or equipment that might produce flying debris, liquids, or bright flashes.
- Wind conditions are such that dust and other material are airborne.
- Handling any materials in powder form, such as cement.
- Working with concrete or grout.
- Handling any type of sprayed materials whatsoever.
- Filing, abrading, or buffing anything.
- Working in the presence of anyone whose work requires them to wear eye protection.

During welding operation bystanders without appropriate eye protection will need to relocate to an area without direct line of site to the welding flash. Severe eye injury can occur even when not looking directly at a welding arc. Never allow non-medical personnel to attempt to remove foreign material from your eyes. Always immediately report an incident involving material in your eye to your supervisor for transportation to trained help. Prescription safety glasses are offered by PPM for its employees on a biannual basis; contact your supervisor or the HSE Department for details.

Gloves

Company provided work gloves will be worn when handling any type of treated wood, metal with unfinished edges, wire rope and any other sharp or jagged materials. For routine work employees will be provided White Ox, welding, or cut resistant gloves. Employees in the SZ will not be in proximity to toxic materials. Employees in the EZ and CRZ will wear nitrile gloves with gauntlet style chemical resistant gloves over them and the gauntlet taped to the Tyvek suit.

Hard Hats

All personnel at the jobsite will wear hard hats, of a type approved under ANSI Z89.1 or better. Metal hard hats and "bump hats" will not be approved for use. Only personnel working as Operators when inside the cabs of their machines are exempted from this requirement.

Hearing Protection

In accordance with PPM's hearing conservation program and OSHA 29 CFR 1910.95 occupational noise exposure. Earplugs or other protection will be used when working in the vicinity of any noise above the 85db TWA and over 100db PPM requires specialized or double hearing protection to minimize exposure to noise. This includes common air and electric tools, chain saws, motorized small and large equipment and heavy machinery.

Life Jackets

When working on or near the water, all employees shall be wearing a U.S. Coast Guard approved Personal Flotation Device (PFD). Employees working on bridges, floating equipment, dredges, barges, boats, skiffs, pontoons, floats and on or outside dock or pier bull rails shall wear approved PFDs. Do NOT rip PFD inner lining for storage of files, paint-sticks, or other items. Inspect PFD daily, prior to donning for damage, including hydrostatic cylinders (if applicable), buckles, straps, fabric, etc. If PFD becomes torn or damaged in any way, return it to your foreman for replacement.

Shoes, Boots and Other Foot Gear

All personnel working on the KC LDW project shall wear sturdy, heavy-duty work boots that are ankle supporting, be made of rubber or similar decontamination compatible material, or similar, and be in good working condition. All personnel that access the EZ and CRZ will wear rubber XTRATUF®, or similar, boots.

Respiratory Protection

Due to nature of dredging work and the "wet method" engineering controls, respiratory protection should not be necessary. Employees will not be required to wear respirators in the SZ. For certain tasks in the EZ or CRZ including decon of the excavator bucket and of boom respiratory protection may be required.

Hazardous Materials PPE

The engineering control of "wet methods" will be monitored daily. As long as no airborne dust levels are noted the contaminants remain below the action level and/or PEL, personnel will wear at a minimum Level D PPE. Personnel will wear Tyvek© and gloves whenever skin contact with contaminants is possible. Tyvek coveralls and nitrile gloves are required for workers directly handling or working with contaminated soil. Respiratory protection may be required when air monitoring results are above the prescribed action limits listed above. All PPE should be inspected prior to start of work.

Level D Personal Protective Equipment should be used when:

The atmosphere contains no known hazard. Work functions preclude splashes, immersion, or the potential for unexpected inhalation of, or contact with, hazardous levels of any chemicals.

Level D PPE will include the following:

- Steel toed safety shoes of rubber or similar cleanable material
- High visibility safety vest
- Safety glasses or goggles
- Hard hat
- Gloves as needed, nitrile gloves for workers handling impacted soil
- Ear plugs as needed
- Rain gear, as necessary

Level C Personal Protective Equipment should be used when:

- The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect or be absorbed through any exposed skin.
- The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove the contaminants.
- All criteria for the use of air-purifying respirators are met.

Level C PPE will include the following:

- Air purifying respirator with organic vapor and dust filter (P100/OV), and Tyvek© coveralls.
- All items listed under Level D Personal Protective Equipment

Level D Personal Protective Equipment will include the following:

- Steel toed safety shoes that are made of rubber or similar cleanable material
- High visibility safety vest
- Safety glasses or goggles
- Hard hat
- Gloves as needed, nitrile gloves for workers handling impacted soil
- Ear plugs as needed
- Rain gear, as necessary

Donning PPE will include the following:

- Inspect clothing before donning. No clothing with holes or tears will be worn.
- Adjust hard hat or headpiece to fit user's head.
- Put on work boots.
- Put on safety glasses or goggles.
- Put on hard hat.
- Don gloves- inspect gloves for punctures and holes.

PPM will provide their employees who are assigned work within the restricted work areas with the appropriate personal protective equipment, as required. No changes to the specified personal protective equipment shall be made without the approval of the project manager in concurrence with the project safety manager.

12.2 Personal Protective Equipment Training

Workers will be trained on the specific use of personal protective equipment and its limitations through formal presentations, weekly safety meetings, hands-on trainings, etc. prior to the start of work. Training will include associated hazards, and the type(s) of PPE required, potential problems and hazards caused by PPE, procedures for the use and care of PPE issued to the worker, how to ensure PPE is in good working order, what to do if the worker finds their PPE is defective or damaged, how to dispose of single use PPE, etc.

12.3 Personal Protective Equipment Selection

Personal protective equipment will be selected to match the magnitude and nature of the safety & health hazards associated with the work; as site conditions change or more information becomes available, the required levels and types of PPE may change. Exposure monitoring will be regularly performed to ensure the appropriate level of PPE has been identified and assigned to the correct personnel.

PPE manufacturers are often a good source of information for PPE selection, especially protective clothing like gloves, respiratory protection, and Tyvek® coveralls. PPE selection will additionally meet the requirements of WAC 296-155-200, 29 CFR 1910.120 Appendix B.

12.4 Decontamination and Disposal of PPE

Personnel Decontamination Procedures

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

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

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

1. If decontamination can be done wash, rinse and/or cut off PPE.
 - If decontamination cannot be done:
 1. Wrap the victim in blankets or plastic sheeting to reduce contamination of other personnel.
 2. Alert emergency and offsite medical personnel to potential contamination.
3. Instruct emergency and offsite medical personnel about specific decontamination procedures if necessary.

Management of Decontamination Waste and Disposal of PPE

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

Personnel decontamination will occur on the Construction Barges, decontamination waste will be contained within the CRZ during the workday. At the completion of each workday, and at additional times as needed, the decontamination waste will be transferred to the material barge with the dredged sediment to be transferred to the Duwamish Reload Facility for final off-site disposal.

Decontamination waste collected from the decontamination pad and wheel wash at SMA 5 will be pumped into a Baker tank. The decontamination work elements associated with performing SMA5, including the management of the decontamination water, remain under development and will be submitted at a later date prior to construction. Sediment collected at the bottom of the Baker tank will be removed and placed into a truck for transport to the Duwamish Reload Facility for final off-site disposal. Please refer to Appendix K of the RAWP for additional details regarding the disposal work activities.

12.5 Maintenance and Storage of PPE

All personal protective equipment, when not in use, should be stored properly in a clean, dry place, such as a breakroom, office, or storage area. Reusable PPE should be cleaned on a regular basis and kept in good condition, with the correct replacement parts used by following the manufacturer's replacement schedule(s). If PPE is found to be damaged or defective, it shall be taken out of service immediately.

Some PPE, such as fall protection, etc., shall be inspected before each use by the user and annually by a competent person other than the user. Any equipment deemed unsafe for use shall be removed from service and repaired or destroyed.

12.6 Inspection of PPE

Personal Protective Equipment will be inspected using both visual and tactile means, paying close attention to the following items:

- Glasses
 - Check for cracks, holes, or deformities in the lenses. When fitting, the glasses should be snug and tight to the forehead and cheeks.
- Face shields
 - Look for cracks or breaks and keep the view clean. When fitting, make sure the shield fits snugly and the ratchet is in good working order. It's also required to wear safety glasses or goggles underneath the face shield for additional eye protection.
- Hard hats
 - Check for cracked, torn, frayed, or deteriorated suspension systems, brims, or shells.
- Harnesses
 - Check for missing straps, and examine the fabric for torn or frayed fibers, kinks, or knots. If working at heights, test safety harnesses to ensure the webbing is intact.
- Webbing
 - Check for cuts, cracks, tears, abrasion, scorch marks, burns, or chemical attack.

13.0 SANITATION

Potable water, wash water and flush/chemical toilets will be provided on each working barge. An adequate supply of potable water will be provided, as well as a receptacle for disposal of any used single service cups. Wash water will be provided in a hand washing station or sink, for the purpose of general hand washing and not for the cleaning of tools and equipment. Flushing or chemical toilets will be provided to adequately support the project team(s) based on minimum requirement levels outlined in WAC 296-155-140.

14.0 ILLUMINATION AND LIGHTING

Operations will be conducted during day shift. Lighting will be adequate for all operations. If illumination systems are required, then appropriate quantity and placement should be determined as per site conditions and activities. It is anticipated that during the fall and winter months of work that illumination will need to be provided for early mornings and late afternoons. As a result, the following will guide the needs of lighting when work is performed.

All general work areas, accessways, exits, gangways, stairs, etc. shall be illuminated based on the appropriate Standard (WAC 296-304-06033, 29 CFR 1926.56(a)). When adequate lighting is not available by permanent lighting sources, temporary lighting will be used as supplementation in multiple locations on the barge(s), including light posts, from equipment (crane booms, excavator arms, etc.), portable light plants, etc. Additional information regarding jobsite lighting can be found in the Light Control Plan in Appendix AC of the RAWP.

Minimum Lighting Intensities in Foot-Candles	
Lumens (foot-candles)	Area or operation
3	General areas on vessels and vessel sections such as accessways, exits, gangways, stairs, and walkways.
5	General landside areas such as corridors, exits, stairs, and walkways.
5	All assigned work areas on any vessel or vessel section.
5	Landside tunnels, shafts, vaults, pumping stations, and underground work areas.
10	Landside work areas such as machine shops, electrical equipment rooms, carpenter shops, lofts, tool rooms, warehouses, and outdoor work areas.
10	Changing rooms, showers, sewer toilets, and eating, drinking, and break areas.
30	First-aid stations, infirmaries, and offices.

15.0 HOT WORK

PPM has established a hot work program compliant with all Federal, State, and City of Seattle regulations.

If cutting, torching or welding is required on the project employees will ensure work is performed at minimum of 35 feet away from combustible material. A fire extinguisher will be within 10ft of the hot work during the task. After hot work is completed, employee will inspect work area to ensure all sparks are extinguished. A copy of this plan is in the Appendix F.

16.0 HAZARD COMMUNICATION

The information and training the employees receive will be tailored to the types of hazards and exposures they encounter. The training program is designed for both new and experienced employees, and to provide training when a new chemical is brought into the workplace. Hazard communication training will be provided for employees prior to arriving on site and will be supplemented and reviewed on site. A foreman or supervisor will be designated to identify all chemicals brought on site and have an SDS for each such potentially hazardous chemical. If hazardous substances are brought onto the job site, all employees potentially exposed to the substance will be advised of information in the SDS for the substance.

Each container entering the workplace will be checked for appropriate labeling, if applicable that includes, identity of the hazardous chemical, appropriate hazard warning, name and address of the chemical manufacturer.

Containers into which hazardous chemicals are transferred will be labeled, tagged, or marked with the identity of the hazardous chemical(s) and appropriate hazard warnings. All chemicals and hazardous materials onsite will have proper container labeling per the Hazard Communication Standards to ensure workers are aware of the chemicals they are exposed to. In addition, Safety Data Sheets (SDS) of the onsite materials will be available in our online database, Total SDS, for all employees for review during their work shift (Total SDS QR in Attachment D). The table below lists the anticipated hazardous materials that will be stored onsite:

Hazardous Material	Intended Use	Estimated Quantity	Location	Secondary Containment
Gasoline, Unleaded, Ethanol free	Work Skiff, Pumps, Misc. Small Tool Fuel	250 Gallon	Day tank located on barges	Double-walled fuel tank located on barge deck
Diesel #2	Equipment & Vehicle Fuel	5,500 Gallons	Day tank located on barges	Double-walled fuel tank located on barge deck
Biodegradable Hydraulic Fluid	Hydraulic Fluid for Heavy Machinery	55 Gallons	Within on-site tools conex	Collapsible berm or drum containment pallet.
Motor Oil	Motor Oil for Heavy Machinery	25 Gallons	Within on-site tools conex	Collapsible berm or equivalent.
Antifreeze/ Engine Coolant	Engine Coolant	25 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily
Gear Oil	Gear Oil for Heavy Machinery	5-10 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily.
Aluminum Grease	Lubricant for Equipment Bearings	5 Gallons	Within on-site tools Connex	Collapsible berm or drum containment pallet.
Paints, Solvents, etc.	Miscellaneous	10 Gallons	Within on-site tools Connex	Collapsible berm or equivalent.

All employees working onsite have been trained in current Global Harmonization Standards through New Hire Orientation, Weekly Safety Meetings, and refresher training. PPM complies with the OSHA Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200 and 1926.59, onsite chemicals and hazardous materials and the means and methods of cleanup are available in the Total SDS platform. Employees are encouraged to explore the Total SDS platform to familiarize themselves with the sections of the SDS and everyday chemicals.

Labels and Other Forms of Warning

PPM will ensure that all hazardous chemicals at the yard and in the field will be properly labeled and updated. Labels should list the chemical identity, the appropriate hazard warnings and the name and address of the manufacturer, importer or other responsible party. Foremen are responsible for labels on all containers utilized at jobsites.

Yard, office and field personnel who work with, or may be exposed to, chemicals will receive initial information and training on the Hazard Communication Standard and the safe use of the chemicals, including the following elements per our Hazardous Communication/SDS.

Subcontractors / Other Employers

Employees of other contractors, QA personnel and representatives of the EPA working at the LDW site

where Pacific Pile & Marine is acting as general contractor will be provided access to SDS files maintained by the job foreman, either in a job trailer or in the foreman's vehicle.

The Pacific Pile & Marine job-site foreman is responsible for notifying the responsible subcontractor supervisor or job foreman of any chemical hazards that may be encountered in the normal course of their work on the premises, the labeling system in use, the protective measures to be taken, the safe handling procedures to be used and the location and availability of SDS's. Each contractor bringing chemicals on-site will provide the Pacific Pile & Marine job-site foreman with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken when working with these chemicals.

17.0 SITE COMMUNICATION PLAN

In order to handle emergencies effectively, planning is essential. Personnel will be ready to immediately rescue or respond; equipment will be on hand and in good working condition. This section describes the policies and procedures for responding to site emergencies. This section is a general overview of how to communicate onsite. This plan is to be used in conjunction with the Emergency Response Plan that is found in Appendix B of this plan.

In an emergency situation, the SSHO will serve as the liaison with appropriate government officials. The SSHO will recommend that work be stopped if any operation threatens worker or public health or safety. The SSHO will assume control and make the necessary decisions to ensure safety of all personnel on-site during an on-site emergency. PP&M will have a representative (Project Manager) who will serve to respond to operational problems and/or emergencies on a 24-hour on-call basis.

The SSHO will have a working understanding of the emergency procedures, evacuation routes, and the appropriate telephone numbers and will notify local public emergency officials. The SSHO, with the assistance of the subcontractor supervisor, will account for all personnel during an emergency. On a day-to-day basis, the SSHO will be constantly alert for indicators of potentially hazardous situations and for signs and symptoms that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

After daily work assignments, the SSHO will inspect the work completed and document and discuss with the appropriate personnel any problems observed.

The creation of an evacuation signal is necessary for safe operations. The use of an air horn will be used in the event of an emergency to signal stop work and immediate evacuation to support zones. Workers should be cognizant of the reduction of communication abilities in high-noise areas.

Internal communication will be used to:

- Alert team members to emergencies.
- Pass along safety information.
- Communicate changes in the work to be accomplished.
- Maintain site control.

Verbal communication at the site can be impeded by background noise and the use of personal protective equipment. In an emergency, crucial messages will be conveyed quickly and accurately. For effective communication when wearing respirators, pre-arranged hand signals will be used. These hand signals will be interpreted as follows:

- Thumbs up - all clear
- Grabbing wrist of personnel - evacuate
- Hands on throat - help and/or choking

18.0 EMERGENCY/CONTINGENCY PLANS

No one will attempt emergency response or rescue unless they are trained to do so, and backup personnel are in place. Please follow the emergency response plan in Appendix B of this plan.

19.0 TRAINING

Personnel engaged in activities that involve dredging, excavating, handling, and transporting potentially contaminated soils shall be HAZWOPER trained in accordance with WAC 296-843 and 29 CFR 1910.1200 and shall have current certification of such training or participation in an 8-hour refresher course. The site supervisor and SSHO will have current First Aid/CPR/AED training and both will be present onsite at all times, or alternates will be available in their absence. Additional training requirements can be found in Appendix D.

A pre-work safety conference will be held prior to commencement of field activities and attended by all field personnel. This meeting will be conducted by the SSHO to ensure that all personnel are familiar with requirements and responsibilities for maintaining a safe and healthful work environment.

Daily tailgate health and safety meeting will be held and documented. These meetings will include all anticipated hazards, controls, recent accidents or near misses and other safety and health information. Project personnel will be given briefings by the SSHO on a weekly basis to further assist site personnel in conducting their activities safely. A briefing will be provided when changes in work practices will be implemented due to new information made available or if site environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices when conformances with these practices are not being followed or if deficiencies are identified during safety inspections.

Training Regulatory Knowledge

- A review of 29 CFR 1910.120 and the core elements of an occupational safety and health program.
- The content of a medical surveillance program, as outlined in 29 CFR 1910.120(f).
- The content of an effective site safety and health plan consistent with the requirements of 29 CFR 1910.120(b)(4)(ii).
- Emergency response plan and procedures, as outlined in 29 CFR 1910.38 and 29 CFR 1910.120(l).
- Adequate illumination.
- Sanitation recommendation and equipment.
- Review and explanation of OSHA's hazard communication standard (29 CFR 1910.1200) and lockout/tagout standard (29 CFR 1910.147).
- Review of other applicable standards, including but not limited to those in the construction standards (29 CFR 1926).
- Rights and responsibilities of employers and employees under applicable OSHA and EPA laws.

Training Technical Knowledge

- Type of potential exposures to chemical, biological, and radiological hazards; types of human responses to these hazards and recognition of those responses; principles of toxicology and information about acute and chronic hazards; health and safety considerations of new technology.
- Fundamentals of chemical hazards, including but not limited to vapor pressure, boiling points, flash points, pH, other physical and chemical properties.
- Fire and explosion hazards of chemicals.

- General safety hazards, such as but not limited to electrical hazards, powered equipment hazards, motor vehicle hazards, walking/working surface hazards, excavation hazards, and hazards associated with working in hot and cold temperature extremes.
- Review and knowledge of confined space entry procedures in 29 CFR 1910.146.
- Work practices to minimize employee risk from site hazards.
- Safe use of engineering controls, equipment, and any new relevant safety technology or safety procedures.
- Review and demonstration of competency with air sampling and monitoring equipment to use in a site monitoring program.
- Container sampling procedures and safeguarding; general drum and container handling procedures including special requirement for laboratory waste packs, shock-sensitive wastes, and radioactive wastes.
- The elements of the project Spill Prevention, Control, and Countermeasures Plan found in Appendix C.
- Proper use and limitations of material handling equipment.
- Procedures for safe and healthful preparation of containers for shipping and transport.
- Methods of communication, including those used while wearing respiratory protection.

Training Technical Skills

Selection, use, maintenance, and limitations of personal protective equipment, including the components and procedures for carrying out a respirator program to comply with 29 CFR 1910.134. Instruction in decontamination programs, including personnel, equipment, and hardware; hands-on training including level A, B, and C ensembles and appropriate decontamination lines; field activities, including the donning and doffing of protective equipment to a level commensurate with the employee's anticipated job function and responsibility and to the degree required by potential hazards. Sources for additional hazard information, exercises using relevant manuals and hazard coding systems.

Refresher Training

The 8-hour annual refresher training will be conducted by qualified training providers. Refresher training should include, at a minimum, the following topics and procedures:

- Review of and retraining on relevant topics covered in the 40-hour program, as appropriate, using reports by the students on their work experiences.
- Update on developments with respect to material covered in the 40-hour course.
- Review of changes to pertinent provisions of EPA or OSHA standards or laws.
 - This training will meet the requirements of 29 CFR 1910.120, 29 CFR 1926.65, and WAC 296-843.
- Introduction of additional subject areas, as appropriate.
- Hands-on review of new or altered PPE or decontamination equipment or procedures. Review of new developments in personal protective equipment.
- Review of newly developed air and contaminant monitoring equipment.
- A certificate will be issued following completion of the course.

Supervisor Training

This training will require demonstrated skills from the 40-hour HAZWOPER course as a prerequisite. The topics for the supervisor course will vary depending on audit results and customer feedback.

Field Experience/Training

All HAZWOPER-trained personnel will have three (3) additional days on-the-job field training under an experienced, trained supervisor before being certified as eligible for general assignment to HAZWOPER work.

Site Visitors

All site visitors shall receive a site orientation prior to being able to access the site. All visitors shall be escorted while onsite.

20.0 MEDICAL SURVEILLANCE

Medical surveillance on this project will be driven by employee exposure monitoring and initial biological monitoring for all workers working on the barge or actively handling dredged materials. This monitoring shall be done based on the identified metals identified in the soils using the methodology found in Section 9 Monitoring. This monitoring is based on work activities that are considered to have the greatest possibility of exposure. Because oversight management and visitors to the site are not actively engaged in handling dredged materials, they will not be required to be enrolled in the medical surveillance program.

Per 29 CFR 1912 and WAC 296-62 & 155 monitoring results that exceed the air borne action levels of the contaminants or biological monitoring indicates elevated levels of contaminants in the listed plan this will trigger requirements of Level C PPE.

Medical surveillance shall be based on the specific identified hazard based on the biological and air monitoring results. Exposed employees shall be given the required surveillance from a licensed healthcare professional.

PPM shall supply to the licensed healthcare professional the appropriate regulation for reference of surveillance required. Monitoring shall continue based on this exposure and throughout the course of each season. Based on work activity, PPM may elect to add engineering control measures.

As part of the required PPE, and regardless of whether the air monitoring and biological monitoring results indicate exposures above listed permissible exposure limits, PPM shall rigorously use PPE and decontamination procedures to ensure that there is no hand to mouth or airborne exposures.

All employees shall be required to go through the complete decontamination procedures each time they leave the exclusion zone, to eat, smoke, drink and when they leave at the end of the day. This will be done to ensure that no exposures can occur through ingestion.

Listed below are examples of the known work exposures that require medical surveillance above the known permissible exposure limits as prescribed by the worker safety and health rules at state and federal levels:

- Working with Respiratory protection
- Working with Lead or other heavy metal materials
- Working with hazardous chemicals (Solvents, PCBs, PAH's)
- Heat Illness Exposures
- Exposures to contaminated soils

Medical Surveillance

Each of the identified hazards above have individual requirements for medical surveillance. Based on the contaminant, and the potential severity and length of exposure to the contaminant, differing medical requirements might be required.

To properly assess the medical surveillance requirements of a known contaminant or exposure, PP&M will assess the hazard by doing the following:

- Safety Data Sheets (SDS) will be reviewed for each known contaminant to determine permissible exposure limits for the known contaminant. This information will be reviewed based on work activity and potential exposure while performing the identified task
- Depending on the type of contaminant, exposure monitoring and biological monitoring will be performed to determine the potential exposure to the employee when performing the identified work tasks. If exposure monitoring indicates there is no exposure to the employee when performing this task, no further action is needed.
- If the work procedure changes, or the known contaminant changes, additional monitoring will be required to establish proper medical surveillance for the new identified procedure.
- All exposure and biological monitoring that is required for medical surveillance is based on specific work tasks, methods and know contaminants. This is done to ensure that no employee will be exposed to an injurious exposure.

Permissible Exposure Limit/ Action Level Exceedance

Exposures are calculated on an 8-hour time-weighted average based on task-specific exposure. If monitoring indicates a worker's exposure to a known hazard is above the permissible exposure limit or action level, the specific medical surveillance requirements for that known hazard shall be followed. The levels of the results will drive the requirements of the regulations. Levels of exposure can bring about differing requirements of what will be provided. Each jobsite activity and work task can bring differing results.

Medical Records and Privacy

Medical records for identified hazards will be kept for each individual exposed employee for 30 years plus the employment. Each employee has a right to see their individual exposure monitoring records. Based on the identified hazard, exposure monitoring records are required to be provided to the affected employees within the identified timeframes of the results being reported to the employer. All specific medical records of employees are governed under privacy laws when reporting specific results of medical information of an individual.

21.0 SUBCONTRACTOR MANAGMENT

All Subcontractors will promptly correct any violation of safety protocol within their area of responsibility. The Contractor will notify the Subcontractor if an apparent violation is observed.

- 1) If notified of any non-compliance, the Subcontractor shall take immediate action and make all reasonable efforts to correct the unsafe or unhealthy condition(s) or act(s) within a reasonable time. If the Subcontractor refuses to take corrective action, the Contractor shall initiate one or more of the appropriate actions, in accordance with the subcontract provisions:
 - a) Cease the operation or a portion thereof (particularly in the case of an imminent danger situation).
 - b) Order the permanent or temporary removal of personnel from the project.
 - c) Correct the situation and back charge the Subcontractor.
 - d) Stop or delay payment for the work being performed.

- e) Invoke subcontract penalties and/or terminate the subcontract.
- 2) In the event the Subcontractor fails to comply with the project safety and health regulations and/or fails to correct identified hazards, the Contractor may, without prejudice to any other legal or contractual rights of the Contractor, issue a stop work order and/or the removal of personnel from the project. A start work order to resume work will be issued, at the discretion of the Contractor. The Subcontractor will not file a claim(s) for time-extension or additional compensation by reason of, or in connection with, such action on behalf of the Contractor.
- 3) If safety protocol is violated, the Subcontractor will enforce uniform disciplinary action to the appropriate party. The enforced action will be consistent with the Owner and/or Contractor's safety policy. The Contractor may order the immediate, permanent or temporary, removal of any individual(s) from the project site if they violate safety protocol. The Contractor may order the immediate removal of any individual in a supervisory position, who fails to take prompt, corrective action when notified of non-compliance with safety requirements.

All Subcontractors shall at all times enforce strict discipline and good order among all workers on the project and shall adopt procedures with provisions for disciplinary action or discharge of employees who carelessly or callously disregard these rules or other applicable safety and health regulations.

Alcohol, drugs, and weapons shall not be allowed onsite under any circumstances and shall be cause for immediate removal of the employee.

All Subcontractors shall have a Substance Abuse Prevention Program.

All Subcontractors are responsible for keeping their work areas clean and handling debris generated by the work on" a daily basis.

If the subcontractor's scope of work includes hazards that are not covered by the PPM Health and Safety Plan (HASP), the subcontractor will need to provide PPM with their site-specific HASP and task-specific Job Hazard Analyses (THAs). All subcontractor procedures will at a minimum comply with client and PPM requirements to ensure that hazards associated with the performance of their work activities are properly controlled. Copies of any required safety documentation for a subcontractor's work activities will be provided to PPM for review prior mobilization to the site.

All Subcontractors shall be responsible for the following:

- 1) All personnel are to be properly trained and instructed in all jobs which require specific training and/or competency to meet all applicable OSHA regulations and standards, Local, State, and Federal Laws, and the requirements herein at no cost to the Contractor.
 - a) Where regulations require the designation of "Competent Person" the Subcontractor shall submit the name of those individuals, their qualifications and/or certifications, and the discipline they are deemed competent to the Contractor prior to the performance of any work. These disciplines include but are not limited to welding, fall protection, electrical, scaffolding, cranes, excavations, steel erection, and underground construction.
- 2) Prior to the performance of any work, all Subcontractor employees shall be instructed as to the hazards, rules/requirements that apply to the work they are to perform.
- 3) Supervisory personnel shall require all employees working under their supervision to comply with all applicable safety rules.
- 4) All Subcontractors shall report all incidents, injuries, and near-misses to the Contractor immediately. Preliminary incident, injury, or near-miss information will be provided to the Contractor within 24 hours, in writing this includes near-misses and all injuries, regardless of severity. Full details of the

injury or incident (including root cause and corrective action) will be provided within seven working days of the injury or incident; the Contractor Director of HSE may extend this time if necessary.

- 5) Within 48 hours of a Recordable or Lost Workday Case Injury, incident involving a 3rd party, or property damage incident, the Subcontractor shall meet with the Contractor. The meeting shall discuss the status of the injured employee, the root cause of the incident, corrective action implemented, the Job Hazard Analysis, and retraining of the employee and supervisor.
- 6) Personal Protective Equipment (PPE) shall be provided to employees, used where required, and maintained in proper condition, by the Subcontractor (all tiers).
- 7) All Subcontractors shall train their employees in the proper storage and handling of hazardous materials (i.e.) flammable, combustible, toxic) and hazardous wastes.
- 8) All Subcontractors shall immediately report unsafe acts or conditions observed that are not under their control to the Contractor to ensure abatement.
- 9) All Subcontractors shall notify the Contractor immediately in the event of a site inspection by any regulatory agency to ensure the Contractor’s representation at such meetings or inspections. Copies of any documentation, citations or correspondence received from such agencies concerning the visit shall be forwarded to the Contractor.

Subcontractors for LDW

Waste Management

Scope of Work: Transloading, Transportation, and Disposal of Project Waste		
ASSIGNED TASK(S)	TASK RISK	HASP & THA COVERAGE
Transloading of dredge barges Management of waste stockpile Loading of rail containers Transportation of rail containers to disposal facility Disposal of waste	Medium	WM will operate under their own HASP and Emergency Action Plan (Appendix L) and will complete their own JHAs for their activities.

Boyer Towing

Scope of Work: Towing Services		
ASSIGNED TASK(S)	TASK RISK	HASP & THA COVERAGE
Towing onsite work barges Towing contaminated material barges Towing clean import materials	Low	Boyer will operate under their own Safety Management System (Appendix M) but will fall under PPM’s daily JHAs.

Marker Offshore

Scope of Work: Survey & Monitoring

ASSIGNED TASK(S)	TASK RISK	HASP & THA COVERAGE
Hydrographic Surveys Topographic Surveys Structure Monitoring	Low	Marker will operate under their own HASP and Emergency Action Plan (Appendix N) but will fall under PPM's daily JHAs.

Duwamish Services

Scope of Work: SMA 5 Remediation		
ASSIGNED TASK(S)	TASK RISK	HASP & JHA COVERAGE
Excavation, transloading, and trucking of contaminated soil Transportation and placement of clean engineered import material	High	Duwamish Services will operate under PPM’s HASP but will complete their own JHAs for their activities.

Out West Landscaping

Scope of Work: Landscaping and Temporary Irrigation		
ASSIGNED TASK(S)	TASK RISK	HASP & THA COVERAGE
Installation of permanent landscaping Temporary irrigation of site	Low	Out West will fall under PPM’s HASP and will complete their own JHAs.

22.0 HEALTH AND SAFETY MEETINGS

Pre-Construction Meetings

Conduct a pre-construction safety meeting with PPM project staff, QA team, the EPA, and all subcontractor staff at the beginning of each Construction Season. A list of attendees and minutes of pre-construction safety meeting will be submitted.

Daily Meetings

Conduct daily safety tailgate meetings. During the meeting a daily Pre-Task Plan will be filled out by a different attendee each day, with group input, to address the specific hazards of each day’s work on the LDW project. Submit list of attendees to project representative. Workers that are directly related to the work activities shall be required to participate.

Weekly Meetings

Once a week, the supervisors and crew will have an in depth “tool box” meeting to discuss near misses, incidents, injuries and safety hazards specifically associated with the project or to cover more general safety topics and/pr training.

During the course of the Work, the Project Representative will schedule and host Progress Meetings at least once per week. During the weekly progress meetings, safety will be a key agenda item. The meeting will review any safety incidents, near-misses, and corrective actions from the past week. The SSHO will update on new safety regulations and training initiatives. Attendees will be encouraged to share safety concerns or suggestions. Action items related to safety will be assigned and tracked to ensure timely resolution, reinforcing PPM's commitment to maintaining a safe work environment on the Lower Duwamish Waterway project. All project oversight staff for each subcontractor, QA group and the EPA should attend.

23.0 HEALTH AND SAFETY INSPECTIONS

The SSHO and/or Project Superintendent will conduct a daily site safety inspection and document observations and corrective actions.

Project supervision will conduct, at minimum, one weekly safety inspection and document the inspection on the PPM inspection form. All inspections will be reviewed by the HSE Manager for the project and noted items will be communicated to the crew in the morning safety meeting. All Subcontractors shall perform, at minimum, weekly inspections of their work areas and correct substandard safety conditions and practices. These inspections shall be documented and submitted to the Contractor no less than once per week.

24.0 INCIDENT/ACCIDENT REPORTING AND PROJECT DOCUMENTATION

Reporting

Notify the Project Representative immediately of all near miss incidents and all accidents involving personal injury and property damage. Provide a written report known as the Incident Report within 24 hours of any incident. Report for each incident occurrence shall include the following:

1. Description of the event
2. Names of personnel involved
3. Description of injuries and treatment required (short term and long term)
4. Description of property damage
5. Work Site visits and inspections of other agencies as a result of an incident. Include names of the persons, purpose of the visit, and any other pertinent information.

All injuries no matter how minor, along with any environmental incident, or otherwise shall be reported immediately to the onsite supervisor (SSHO, Foreman, Superintendent) who then shall notify the Pacific Pile & Marine HSE Department @ (206) 331-3873, as soon as practicable.

The Site Supervisor and/or SSHO will respond to the incident access the scene for safety and designate the correct response how the incident necessitates either medical emergency or non-medical (response outline in ERP). This will include agencies to be contacted if needed. After the initial response a Project Incident Notification (PIN) will be generated and sent to project staff (see Preliminary Incident Notification in Attachment C). After the internal notification has been sent the Project Manager or SPOC will disseminate the PIN to applicable external reports. HCSS Incident Reports will be done for investigations and formal reporting procedures on all site incidents.

Any reporting of fatalities, hospitalizations, amputations, losses of an eye(s), etc. to regulatory agencies shall be conducted by a member of the HSE Department or the Senior Leadership team, not the project team.

An immediate report of the incident will be communicated to the Project Representative immediately. Final Investigations may take up to one week and a full report sent to the owner or their representative after that time.

Investigation

All incidents will be thoroughly investigated and documented in HCSS Safety. PPM's designated SSHO/HSE Manager will lead the investigation and utilize all resources including the Safety Stand Down process with all present and or affected parties. Hazard communication and updates are paramount to the continued safety of the project staff, crew, and community as a whole. Root Cause Analysis and Corrective Actions are to be done with the crew and documents in HCSS Safety and Forms. Every incident includes a

sequence of contributing causes, any one of which may be tracked and eliminated by documenting, investigating, and implementing recommended remedial action.

Daily Construction Reports

As part of the daily construction report (Section 01 33 00), a daily record of safety infractions, near misses, and accidents/incidents per Section 01 35 29 (Health and Safety) will be submitted to the Project Representative. The daily THA will also be included in the daily construction report.

Weekly Construction Reports

As part of the weekly construction report (Section 01 33 00), a weekly record of safety infractions, near misses, and accidents/incidents per Section 01 35 29 (Health and Safety) will be submitted to the Project Representative. The weekly “tool box” topic will also be included in the weekly construction report.

Monthly Progress Reports

Submit Monthly Contractor Injury Report on Form 01063-A consisting of a summary of the current month’s injury accidents to the project representative. As part of the Monthly Report included with the pay application to the Project Representative, any major issues relating to safety will be included.

Annual Construction Season Summary Reports

As part of the Annual Construction Report PPM will include a Health and Safety Summary that addresses incidents and follow-up, monitoring results, and changes in Work activities

HASP Location

Copies of the HASP will be located on each construction barge, inside of the crew shack, and at SMA5 in the field office/crew shack.

25.0 SITE SPECIFIC HAZARDS AND CONTROL MEASURES

Site Hazard Evaluation and Control Measures

The following list represents the site-specific safety hazards most likely to be associated with the project work. Each hazard has been analyzed to provide the likelihood of encountering the hazard, the risk associated with the hazard and the severity of the hazard, should it occur. Furthermore, engineering controls, administrative controls, and implementation to prevent the hazard occurrence has been outlined for each item. Please refer to the Risk Assessment Chart in Attachment B for understanding how likelihood and severity impact the overall risk for the activity as well as the RAWP for more details on the site activities.

Physical Hazards

Struck By/Caught Between

Likelihood	Severity	Risk
Unlikely	Moderate	Moderate

Engineering Controls:

- Work areas such as swing radius, overhead work, etc. will be barricaded or demarcated.
- Ensure adequate illumination.
- Use of backup alarms and horns.

Administrative Controls:

- Identify pinch points, man/machine interface, overhead work, and access patterns.
- Perform and document daily equipment inspections, as appropriate.

Implementation:

- Inspect the work area for possible struck by/caught between hazards such as high traffic areas, equipment swing radius, etc.
- Maintain and communicate controlled access zones.
- Ensure workers on the ground establish eye contact with operators prior to entering the operation area.
- Ensure that only qualified operators operate machinery.
- Do not stand or walk behind or alongside moving equipment.
- Identify any overhead hazards.

Fall from Height

Likelihood	Severity	Risk
Unlikely	Minor	Moderate

Engineering Controls:

- Restraint systems such as guardrails and hole covers will be used, unless not feasibly possible, then fall arrest, floatation devices or administrative controls will be used.
- Install scaffolding, with handrails, where possible, to eliminate the need for PPE.
- Ladders shall be manufactured and rated for extra heavy-duty work, at least Type 1A rated (300 lbs. minimum).

Administrative Controls:

- Fall protection training will be provided and documented for the proper use of each type of equipment used.
- Fall Protection Work Plan.
- Utilize planning process to identify fall hazards and systems.
- Delineate leading edge and other fall hazards.
- Fall Protection Safety Monitor System is not allowed on any PPM project without prior approval from Director of HSE.
- All fall equipment will be inspected before use including daily and shifts. Most recent documented annual inspection will be kept on site.
- Fall equipment will be stored inside away from the elements in a dry container.

Implementation:

- Install guardrails or delineation wherever possible.
- When working over or near water, ensure PFDs are donned (zipped & clipped).
- Fall protection will be utilized when working 4-feet above a lower level.
- When using a ladder for work activities or access, the ladder shall be secured at both the top and

bottom.

- Dock edge work will likely require fall protection, use of engineered anchor points, including Perimeter Limiter or Davit Arm may be necessary.
- Utilize the Fall Protection Work Plan to identify fall hazards and determine the correct protection required for each hazard.

A fall protection system is required when walking or working at levels with an unprotected side or edge, four feet or more above a lower level. This includes, but is not limited to, floors, roofs, ramps, bridges, runways, pipelines, and ladders. A guardrail system, fence, barricade, or cover will be the primary fall protection system utilized for excavation, wells, pits, shafts, holes, skylights, other openings and working over the water if there is an obstruction to the water below.

Fall protection, including a full body harness with a properly secured lanyard/SRL, will be used when working at height above open water, unless the use of fall protection equipment creates a greater risk. A fall protection work plan will be filled out by the Superintendent/SSHO and crew before work commences.

Falling overboard

Likelihood	Severity	Risk
Unlikely	Minor	Moderate

Engineering Controls:

- Standard PPE including PFD or float coat including a beacon will be worn at all times.
- Housekeeping on the project will be maintained to reduce clutter and trip hazards.
- Work will be performed in areas where the risk of going overboard is minimized.

Administrative Controls:

- Training will be provided for use of Skiffs and work on barges.
- The buddy system or means of communication and observation will be established before task.
- Appropriate equipment and personnel for the task will be chosen and the work plan will be reviewed.
- PPM's Working Over or Near Water Policy and Person Overboard Plan in their I2P2 address how workers will be removed from the water, should they fall overboard.

Implementation:

- Daily Pre-Task Plans will be done with the entire crew during the morning meeting work through the days plan and execution.
- Site inspections will be done to minimize the and substandard condition that would contribute to site hazards.
- PPE will be kept in working order and replaced when necessary.
- Person Overboard training will be conducted Quarterly throughout the project. Training will include a mockup of actual hazard and documented for all workers exposed to the hazard.
- Throw rings with minimum of 90 feet of line will be provided on all barges and ships used.

Manual Lifting

Likelihood	Severity	Risk
Almost Certain	Minor	High

Engineering Controls:

- Use equipment, when possible, for moving loads.
- Keep load close to body; avoid twisting while carrying loads.
- Lift with legs.
- Use gloves.
- Check for nails, slivers, exposed staples.

Administrative Controls:

- Limit weight carried by one person to 50lbs or less.
- Use hand truck, cart, or dolly.
- Have clear path to where you are going.

Implementation:

- Working in these awkward reaching and or bent positions can lead to injury over time. When using proper body positioning techniques, employees can avoid injuries associated with repetitive motion, heavy lifting, and reaching and straining.

Heat Stress

Likelihood	Severity	Risk
Unlikely	Minor, during colder months or High, if wearing restrictive protective clothing and/or in closed environment	Moderate

Engineering Controls:

- Provide shade and water
- Perform task in best suited area

Administrative Controls:

- Rotate personnel when heat is high
- Talk about heat stress and encourage communication about wellness
- Post signs about heat and acclimation
- Encourage proper attire
- Supervisors to require mandatory breaks when in restrictive clothing or area for cool down and evaluation of workers

Implementation:

- Heat Exposure – PPM complies with WAC 296-62-095 through 09560. Each barge has shaded and cooled break shacks with water and heat illness resources. Electrolyte supplements are provided in addition to the mandatory breaks associated with temperature triggers.

Outdoor Temperature Action Level- Table 1	
Nonbreathable clothes such as Tyvek	52°
All other clothing	80°

Table 2 Air Temperature	Mandatory cool-down rest periods
At or above 90°F	10 minutes/ 2 hours
At or above 100°F	15 minutes/ 1 hour

Cold Stress

Likelihood	Severity	Risk
Rare	Moderate	Moderate

Engineering Controls:

- Heated Enclosures: Provide heated shelters for workers to warm up during breaks.
- Insulated Tools and Equipment: Use tools and equipment with insulated handles to reduce the risk of cold-related injuries.

Administrative Controls:

- Work Scheduling: Schedule work during the warmer parts of the day and limit exposure time to cold environments.
- Training: Train workers to recognize the signs and symptoms of cold stress and the importance of proper clothing and hydration.

Implementation:

- PPE: Ensure all workers are equipped with appropriate personal protective equipment (PPE), including insulated gloves, hats, and clothing.
- Buddy System: Implement a buddy system where workers monitor each other for signs of cold stress.
- Breaks: Schedule frequent breaks in warm areas to allow workers to recover from the cold.
- Hydration: Encourage workers to drink warm, non-caffeinated fluids to stay hydrated and maintain body heat.

Icy conditions – The project superintendent and foreman will analyze the work areas in the morning prior to beginning work and determine if the barge, skiffs, equipment and dock location have icy/slippery conditions. If it is determined that icy conditions are present, ice-melt will be used to provide traction on the main access paths and in addition steps will be taken to de-ice the steps on the equipment.

Cold winter conditions – Employees will be instructed to wear layered clothing and dry gloves to help prevent frostbite or hypothermia. Cold weather conditions will be discussed during Toolbox meetings and on JHA's. The barge has heated areas where employees can go to get warm.

Hypothermia can happen at temperatures below 50° when wet weather conditions are present. Clothing that is wet and against the skin will be removed to prevent hypothermia.

Hypothermia	
Symptoms: <ul style="list-style-type: none"> • Shivering (may stop as temp drops) • Slurred speech or mumbling • Slow, shallow breathing • Weak pulse • Clumsiness • Drowsiness or low energy 	Response: <ul style="list-style-type: none"> • Call 911 if condition does not improve • Move person inside or out of wind and rain • Insulate them from the ground • Remove wet clothing and replace with warm • Offer warm sweet, non-alcoholic drinks • Consider use of CPR if trained
Frostbite	
Symptoms: <ul style="list-style-type: none"> • Fumbles with task/uncoordinated • Violent shivering • Weak pulse • Slow breathing • Personality changes 	Response: <ul style="list-style-type: none"> • Call 911 • Move person inside or out of wind and rain • Give warm food or drink • Handle them carefully • External heat source

Noise Exposure

Likelihood	Severity	Risk
Possible	Moderate	Low

Engineering Controls:

- Mufflers
- Ear Protection

Administrative Controls:

- Hearing conservation program.
- Job rotation
- Monitoring
- Training

Implementation:

- Hearing protection to be required in areas where noise exceeds 85dBA.
- Provide a choice of at least two different hearing protection devices.
- Rotate employees out of high noise areas.

- Inspect equipment for functioning mufflers.

Hearing protection is required at 85dB for an 8-hour shift and anytime the noise is at or above 140dB. Please see PPM IIPP for Hearing Protection program

Spills/Leaks

Likelihood	Severity	Risk
Unlikely	Minor	Moderate

Engineering Controls:

- Secondary containment
- Preventative/predictive maintenance

Administrative Controls:

- Daily equipment inspections
- Spill Prevention, Control and Countermeasures Plan (SPCC)
- Safety Data Sheets

Implementation:

- Equipment shall be inspected daily, and maintenance schedules will be followed.
- Ensure that secondary containment is utilized for static equipment and storage facilities.
- In the event of a spill or leak follow the procedures outlined in the SPCC Plan.
- Ensure spill kits are available and located near the area of active work. Restock spill kits, as necessary.

Weather

Likelihood	Severity	Risk
Likely	Minor	Moderate

Engineering Controls:

- Shelter Construction: Build and maintain weatherproof shelters on-site to protect workers from extreme weather conditions such as heavy rain, high winds, or extreme temperatures.
- Heating and Cooling Systems: Install portable heaters or air conditioning units in shelters to maintain a comfortable temperature for workers.
- Drainage Systems: Implement effective drainage systems to prevent water accumulation and reduce the risk of flooding during heavy rain.
- Fire Breaks: Create and maintain fire breaks around the work site to prevent the spread of wildfires. Clear vegetation and combustible materials from these areas regularly.
- Fire-Resistant Materials: Use fire-resistant materials in the construction of on-site structures and storage facilities.
- Water Supply: Ensure an adequate water supply is available for firefighting purposes, including the installation of water tanks and fire hoses.

Administrative Controls:

- Weather Monitoring: Regularly monitor weather forecasts and conditions. Use alerts and notifications to inform workers about adverse weather conditions.
- Work Schedule Adjustments: Modify work schedules to avoid the most extreme weather conditions, such as rescheduling outdoor tasks to avoid midday heat or suspending work during severe weather events.
- Emergency Procedures: Develop and communicate clear emergency procedures for weather-related incidents, including evacuation routes and willer points.
- Fire Monitoring: Implement a wildfire monitoring system to detect and track nearby wildfires. Use alerts to inform workers of potential fire threats.
- Evacuation Plans: Develop and communicate comprehensive evacuation plans, including designated evacuation routes and willer points.
- Fire Safety Training: Conduct regular fire safety training for all employees, focusing on wildfire prevention, evacuation procedures, and the use of firefighting equipment.

Implementation:

- Training: Provide training to all employees on recognizing and responding to adverse weather conditions, including symptoms of heat stress, hypothermia, and frostbite.
- PPE: Ensure that workers have access to appropriate personal protective equipment (PPE) for various weather conditions, such as rain gear, insulated clothing, and sun protection.
- Communication: Maintain open lines of communication with local weather services and emergency responders to stay informed and prepared for sudden weather changes.
- Training: Provide ongoing training on fire prevention techniques and emergency response procedures. Include drills to ensure readiness.
- Equipment: Equip the site with firefighting tools and ensure they are easily accessible and maintained regularly.
- Coordination: Establish coordination with local fire departments and emergency services. Hold regular meetings to review emergency response plans and conduct joint drills.

Inclement weather – The project superintendent will make the determination if inclement weather presents a safety hazard to the crew and equipment. The superintendent will cancel work if he feels weather presents to great of risk to employees and equipment.

Wildfire Smoke

Likelihood	Severity	Risk
Unlikely	Minor due to time of year	Low

Engineering Controls

- Performing some work inside if possible
- Using HEPA filters in indoor areas
- Reducing work intensity
- Avoiding, or reducing work that creates additional dust, fumes, or smoke

Administrative Controls:

Workers will follow the below table:

When there is a danger of the Air Quality Index (AQI 2.5) registering at or above the following levels, the following will be done:

AQI 2.5	Action
69- 100	Employers are encouraged to have N95 respirators available for workers to use
101-300	Employers are required to have N95 available for voluntary use
301 -499	Employees are distributed a N95 to wear during this exposure level
Above 499	Work will cease

Wildfire smoke is a mix of gases and fine particles from burning vegetation, building materials, and other materials. Wildfire smoke can make anyone sick. Even someone who is healthy can get sick if there is enough smoke in the air. Breathing in smoke can have immediate health effects, including:

- Coughing
- Wheezing and shortness of breath
- Trouble breathing normally
- Chest pain
- Stinging eyes
- Irritated sinuses
- A scratchy throat
- Runny nose
- Headaches
- An asthma attack
- Tiredness
- Fast heartbeat

Because of the hazards associated with wildfire smoke, we have implemented the policies based on the Washington Administrative Code (WAC) 296-820 Wildfire Smoke. All employees will be oriented to the hazards of wildfire smoke by attending our Wildfire Toolbox talk. This will be done no later than the beginning of July each year. Included in the Tool Box talk is information on the limitations and hazards of wearing a respirator. The complete policy and Response Plan can be found in the I2P2 in Appendix J of the HASP.

All employees are encouraged to let their supervisor know if they believe they are being affected by wildfire smoke or the wearing of a restrictive respirator.

Each supervisor at the construction jobsite will check air quality when wildfire smoke is present using the AirNow app. If levels are measured at the below levels for two consecutive readings (one hour apart), the supervisor will communicate the AQI levels and communicate with workers that N95 are available in the job trailer. Throughout the day the supervisor, or appointed worker will keep an update on the wildfire smoke levels and communicate these to the work crew.

This communication will be verbally to subcontractors and Pacif Pile and Marine employees at the beginning of each day where levels are expected to rise above the action level and written down in a log for any workers to see in the main office trailer.

Fire

Likelihood	Severity	Risk
Unlikely	Minor	Moderate

Engineering Controls:

- Provide flammable liquids cabinets to properly store gasoline, diesel, etc.
- Gasoline, Diesel, and other flammable and combustible liquids shall only be stored in metal, self-venting, Type I or II, portable containers with self-closing lids and built-in flash arrestors. No plastic containers.
- Designate controlled pathways.
- Keep the barge deck clean and free of loose materials and equipment.

Administrative Controls:

- Conduct work area inspections, prior to and during work activities.
- Ensure “Hot Work” activities are not conducted within 35’ of combustible materials or materials are protected with a flame-resistant material.
- Fire Watch shall be maintained for 30 minutes following “Hot Work” activities.
- Display signs in the immediate work area to alert others of flammable liquids or “Hot Work” activities.
- Fire Extinguishers shall be immediately available in the work area and one fire extinguisher shall be available at each “Hot Work” activity station.
- All workers will be trained in the use of a fire extinguisher and the type extinguisher to be used for each category of fire. PPM will have the appropriate type in each work area.

Implementation:

- Housekeeping shall be performed daily as work progresses.
- Perform a 360-degree observation of your surroundings.
- Store all tools, equipment, and materials in a designated area.
- Avoid carrying materials which will block visibility.
- In the event of a fire, workers will attempt to extinguish the fire only if it is small and containable. If not, workers shall evacuate the area and call the fire department immediately. See evacuation plan in ERP.

Slips, Trips and Falls

Likelihood	Severity	Risk
High	Moderate	Moderate

Engineering Controls:

- Provide adequate lighting for work areas and pathways.
- Designate controlled pathways.
- Keep the barge deck clean and free of loose materials and equipment.

Administrative Controls:

- Conduct work area inspections.
- Ensure adequate resources are available to provide housekeeping.

- Identify designated walkways.

Implementation:

- Housekeeping shall be performed daily as work progresses.
- Perform a 360-degree observation of your surroundings.
- Elevate or cover cords.
- Shovel away all snow, ice, mud, etc.
- Store all tools, equipment, and materials in a designated area.
- Avoid carrying materials which will block visibility.
- Avoid distractions such as talking, texting and cell phone use while walking.

Traffic

Likelihood	Severity	Risk
Almost Certain	Insignificant	Moderate

Engineering Controls

- Traffic Barriers: Install physical barriers such as concrete or water-filled barriers to separate construction areas from active traffic lanes.
- Signage: Use high-visibility signs to direct and warn both construction personnel and the public of ongoing work zones and traffic changes.
- Lighting: Ensure adequate lighting in work zones, especially during low-light conditions, to improve visibility for both workers and drivers.
- Speed Reduction Measures: Implement speed reduction measures such as speed bumps or rumble strips in and around work zones to slow down vehicular traffic.

Administrative Controls

- Traffic Control Plans: Develop and implement a comprehensive traffic control plan that outlines the flow of traffic, detours, and safety measures according to the WATCHBOOK 2024 edition. This plan can be found in Appendix AE of the RAWP.
- Scheduling: Schedule construction activities during off-peak hours to minimize traffic disruption and reduce the risk of accidents.
- Worker Training: Provide specialized training for all personnel on traffic safety procedures, including how to safely navigate work zones and interact with moving traffic.
- Communication: Establish clear communication protocols for coordinating between traffic control personnel, construction workers, and site supervisors.

Implementation

- Barrier Installation: Deploy barriers at the beginning of the project, ensuring they are placed correctly and securely. Regularly inspect and maintain barriers to ensure their effectiveness.
- Signage Setup: Install all necessary signage before starting any work. Conduct regular checks to ensure signs remain visible and in good condition. Replace any damaged or obscured signs immediately.

- **Lighting Arrangements:** Set up adequate lighting in all work zones, particularly in areas with poor natural light. Regularly maintain lighting equipment to ensure consistent performance.
- **Speed Control:** Implement speed reduction measures and monitor their effectiveness. Adjust or add additional measures as needed based on traffic flow and safety observations.
- **Traffic Control Plan Execution:** Follow the traffic control plan meticulously, making adjustments as necessary based on real-time conditions and feedback.
- **Training Programs:** Conduct initial and refresher training sessions for all personnel on traffic safety, emphasizing practical scenarios and emergency response procedures.
- **Regular Safety Meetings:** Hold regular safety meetings to discuss traffic-related incidents, review current safety measures, and plan for any necessary changes or improvements.
- **Monitoring and Adjustment:** Continuously monitor traffic conditions and the effectiveness of control measures. Be prepared to make adjustments quickly to address any emerging hazards or issues.

For the project a traffic control plan has been developed to facilitate road closures, site access, construction equipment, and vehicle traffic. All traffic control plans, and haul routes shall include vehicle speed limit(s). Any construction vehicles driving on site premises shall always follow posted speed limits. Traffic control plan will be communicated to employees during project kickoff. The traffic control plan can be found in the break shack on the barge or at upland office locations in the RAWP. The traffic control and associated road closures may restrict access for EMS vehicles and response. If this creates an impediment for EMS, rescue, or travel to the primary designated medical providers it will be addressed in the project kick off with alternate routes to primary or secondary medical providers.

Additional Information related to Traffic Control can be found in Appendix AE of the RAWP. All traffic control related hazards will be presented and noted in the morning meeting and on the PTP.

Vessel Traffic

Likelihood	Severity	Risk
Possible	Minor	High Risk

Engineering Controls:

- Use of radar and electronic navigation aids to detect other vessels and obstacles.
- Installation of proper navigation lights and sound signals as per USCG and COLREGS requirements.
- Maintenance of vessel speed limits (2-3 knots when repositioning, 7 knots in the waterway).

Administrative Controls:

- Continuous monitoring of VHF Channels 13, 14, & 16 for distress and hailing.
- Communication between vessels will use agreed upon VHF channel other than 16 to be determined at site.
- Daily coordination with the USCG, WM Transload Facility, and tribal coordinators.
- Submission of Local Notice to Mariners (LTAMs) to notify of construction activities affecting navigation.
- Compliance with the right-of-way hierarchy and navigation channel protocols.

- Regular crew training on low visibility protocols, navigation aids, and emergency communication procedures.

Implementation:

- Equip tr vessels with functional radar and AIS systems.
- Conduct regular maintenance checks on navigation lights and sound signal equipment.
- Train crew members on the use of radar, AIS, and VHF communication protocols.
- Maintain a daily log of vessel movements and communication with other waterway users.
- Ensure all vessels adhere to speed limits and proper navigation channels.

For Push Boats, due to motor classification under 250 hp, all training will be performed by PPM and based on the manufacturer’s manual. No worker will be allowed to operate any vessel without proper training. All training will be documented. Please refer to Appendix S of the RAWP for additional information regarding Vessel Management.

Working over Water

Likelihood	Severity	Risk
Almost Certain	Moderate	High Risk

Engineering Controls

- Install guardrails or barriers on all elevated work platforms, decks, and walkways over water to prevent falls.
- Use floating platforms or barges to provide stable work surfaces and minimize the risk of falls.

Administrative Controls

- Ensure all personnel working over water are trained in water safety, fall protection, and the use of personal protective equipment (PPE).
- Implement a buddy system to ensure workers are always paired and can assist each other in case of an emergency.
- Conduct regular safety briefings and toolbox talks focusing on the hazards of working over water and the necessary precautions.
- Assign supervisors to continuously monitor work activities and ensure compliance with safety protocols.

Implementation

- Provide appropriate PPE, including life jackets, fall protection gear, and thermal wear, to all workers.
- Regularly inspect and maintain all safety equipment, guardrails, barriers, and PFAS to ensure they are in good working condition.

Work conducted on piers and wharfs as well as off of barges qualifies as “work over water”. As such, PPM personnel engaged in this project will be required to don USCG approved personal flotation devices while on the deck of the barge or within 6 feet of the leading edge of a wharf structure with an in-place bull rail (such as the facility located at 700 South Riverside Drive). Also present as personal protective devices will be at a minimum of two (2) life rings with at least 90ft of rope attached available on each barge. All employees will be educated with the hazards associated with working near the water during orientation,

during weekly safety meeting and reviewed on the THA's. Employees will also be educated on the rescue plan, in the event an employee falls into the water.

During operations, one rescue boat/skiff will be deployed within the work area at all times. Each barge will be equipped with means to readily access the work and rescue skiffs. Requirements for boat safety are outlined in section 4.10 of this plan.

A skiff with a trained operator will be provided for monitors during the work hours. Monitors will be educated in the hazards associated with working near the water and required to always wear a PFD while in the skiff or on the barge. In the event an employee does fall into the water, they will be rescued by buoy or pulled up into the safety skiff. They will be immediately taken to land or the barge where they will be assessed for injury. PPM will conduct Person Overboard training at the beginning of each project and periodically thereafter.

Boat Safety

Likelihood	Severity	Risk
Almost Certain	Minor	High Risk

Engineering Controls

- Safety Barriers and Guards: Install physical barriers and guards on the boat to prevent falls overboard.
- Proper Lighting: Ensure adequate lighting on the boat, especially in areas where tasks are performed, to avoid accidents during low visibility conditions.
- Communication Systems: Equip boats with reliable communication systems (e.g., radios) to ensure constant contact with the shore and other boats.
- Life-Saving Equipment: Equip each boat with appropriate life-saving equipment, including life jackets, lifebuoys, and emergency beacons.

Administrative Controls

- Training: Provide comprehensive boat safety training to all personnel, covering emergency procedures, proper use of equipment, and safe operation practices.
- Safety Policies and Procedures: Develop and enforce boat safety policies and procedures, including guidelines for safe speed, safe loading limits, and mandatory use of life jackets.
- Regular Safety Drills: Conduct regular safety drills, such as man-overboard drills and emergency evacuation procedures, to ensure readiness in case of an actual emergency.
- Pre-Operational Checks: Implement a checklist system for pre-operational safety checks, ensuring that all safety equipment is present and functional before departure.

Implementation

- Daily Safety Briefings: Conduct daily safety briefings before boat operations commence, highlighting specific hazards and safety measures for the day.
- Inspection and Maintenance: Perform regular inspections and maintenance of all boats and safety equipment to ensure they are in good working condition.
- Monitoring Compliance: Assign an SSHO or supervisor to monitor compliance with boat safety policies and procedures during operations.

- **Incident Reporting:** Establish a clear incident reporting procedure for any accidents or near-misses and review these incidents to improve safety measures.
- **Documentation and Record Keeping:** Maintain detailed records of all safety training, drills, inspections, and incidents to ensure continuous improvement of safety protocols.

Pacific Pile and Marine will mobilize boats/skiffs for use on this project. The boats/skiffs will be used for safety, access, production and work monitoring. The following guidelines are necessary to ensure the safety of employees, visitors and monitors while utilizing boats/skiffs on this project:

- Only trained boat/skiff operators will be allowed to operate boats/skiffs. State approved boater education cards are required for all boats, skiffs, push boats, survey boats, etc. Captain’s License required for all tugboats used to move barges.
- Anyone operating or riding in the boat shall wear an approved PFD.
- The PFD will be zipped and clipped at all times.
- Boats/skiffs will be inspected prior to each shift and removed from service if safety deficiencies are identified.
- Boats/skiffs will be outfitted with a running motor, oars, 30” ring buoy with 90 ft of rope, fire extinguisher, and a fire extinguisher.
- Never stand up in a boat/skiff while boat/skiff is moving.
- Do not place hands or other body parts in pinch points when positions near the barge, dock or other equipment.
- If a person falls out of the boat/skiff do not jump into the water to rescue the person.
- Throw the ring buoy to the person and then pull them into the boat/skiff.
- Do not position the boat/skiff near the excavator bucket unless boat/skiff operator has contacted excavator operator, and the operator has removed his/her hands from the controls.
- Listen to directions from skiff operator at all times.

Access to the Barge

Likelihood	Severity	Risk
Likely	Moderate	High Risk

Engineering Controls:

- **Access Equipment:** Install secure gangways with handrails and anti-slip surfaces to provide safe access to the barge.
- **Safety Barriers:** Use physical barriers or guardrails at the edge of the barge to prevent accidental falls into the water.
- **Lighting:** Ensure adequate lighting on access points and pathways to the barge to improve visibility during low light conditions.
- **Non-Slip Surfaces:** Apply non-slip coatings or mats on walkways and gangways to reduce the risk of slipping, especially when surfaces are wet.

Administrative Controls:

- **Training:** Provide comprehensive training for all personnel on safe practices for accessing and working on barges, including emergency procedures.
- **Signage:** Post clear signage indicating safe access routes, hazardous areas, and emergency contact information.
- **Inspections:** Conduct regular inspections of access points, gangways, and safety equipment to ensure they are in good condition and functioning properly.
- **Access Protocols:** Establish and enforce protocols for accessing the barge, including mandatory use of personal flotation devices (PFDs) and adherence to safe boarding procedures.
- **Supervision:** Assign a supervisor or SSHO to oversee access to the barge, ensuring compliance with safety protocols and addressing any safety concerns immediately.

Implementation:

- **Deployment of Access Equipment:** Install and maintain gangways, handrails, and non-slip surfaces at all barge access points. Ensure these are inspected daily for any signs of wear or damage.
- **Safety Briefings and Training:** Conduct initial and refresher training sessions for all employees on the proper use of access equipment, emergency procedures, and the importance of wearing PFDs. Hold daily safety briefings to remind workers of specific hazards and safe practices related to accessing the barge.
- **Routine Inspections:** Schedule regular inspections of all access points, walkways, and safety barriers by a designated SSHO. Document findings and promptly address any issues identified during inspections.
- **Enforcement of Access Protocols:** Enforce the use of PFDs and adherence to established access protocols through regular monitoring and supervision. Address any non-compliance immediately through corrective actions and additional training if necessary.
- **Emergency Preparedness:** Ensure that emergency rescue equipment, such as life rings and throw ropes, are readily available and accessible near barge access points. Conduct regular emergency drills to ensure all personnel are familiar with rescue procedures and response actions in the event of an incident.

Hand Tools

Likelihood	Severity	Risk
Likely	Minor	Moderate

Engineering Controls

- Use ergonomically designed hand tools that reduce the risk of strain and injury.
- Ensure tools are designed to minimize vibration and excessive force.
- Implement a regular maintenance schedule for all hand tools to ensure they are in good working condition.
- Conduct pre-use inspections to identify and address any defects or wear. Any tools found to be defective will be red tagged and removed from work area
- Utilize hand tools with built-in safety features such as guards, non-slip grips, and auto-shutoff mechanisms.

Administrative Controls

- Provide comprehensive training for all employees on the proper use of hand tools. Training will be based on Owner manual for each tool.
- Certify employees on specific tools and ensure they understand the associated risks and safe operating procedures.
- Supervision: Implement regular supervision and monitoring to ensure workers are using hand tools correctly and safely.
- Job Rotation: Implement job rotation to minimize repetitive strain injuries from prolonged use of hand tools.

Implementation:

- Tool Selection: Choose hand tools that are appropriate for the task and user. Ensure all tools meet safety standards.
- Inspections and Maintenance: Conduct regular inspections of all hand tools. Establish a maintenance schedule to keep tools in optimal condition.

Heavy Equipment

Likelihood	Severity	Risk
Likely	Major	High

Engineering Controls

- Guarding and Barriers: Install physical barriers around hazardous areas to prevent unauthorized access. Ensure all heavy equipment is equipped with appropriate guarding to protect workers from moving parts.
- Maintenance and Inspection: Implement a regular maintenance schedule to keep equipment in safe operating condition. Conduct pre-use inspections to identify and address any potential issues before equipment is used. Inspections will follow manufacturer’s guidelines.
- Safety Features: Equip all heavy equipment with safety features such as backup alarms, mirrors, lights, and cameras to enhance visibility and alert workers to moving equipment.

Administrative Controls

- Training and Certification: Ensure all operators are properly trained and certified to operate heavy equipment. Provide refresher training regularly to keep skills and knowledge up to date.
- Operational Procedures: Develop and enforce standard operating procedures (SOPs) for heavy equipment operation. Include guidelines for safe operation, load limits, and emergency shutdown procedures.
- Site Planning and Layout: Plan the layout of the worksite to minimize the interaction between heavy equipment and workers. Designate specific areas for equipment operation and pedestrian traffic.
- Communication Protocols: Establish clear communication protocols between equipment operators and ground personnel. Use radios, hand signals, or other methods to ensure effective communication.

Implementation

- **Pre-Use Inspections:** Implement a checklist for pre-use inspections of heavy equipment. Ensure operators complete the checklist before using any equipment and report any issues immediately.
- **Scheduled Maintenance:** Set up a maintenance log and schedule regular maintenance checks for all heavy equipment. Document all maintenance activities and repairs.
- **Training Programs:** Develop comprehensive training programs for equipment operators. Include both classroom instruction and hands-on training. Maintain records of training completion and certifications.

Pacific Pile and Marine and its subcontractors will mobilize one or more excavators for use in this project. The following guidelines are necessary to follow while personnel are working around heavy mobile equipment:

- Never pass behind working equipment without first making direct contact with the operator over radio or visual communication.
- Heavy equipment on the job site always has the right of way.
- Never come between mobile equipment and its intended load
- Riding on non-handrailed, open mechanical areas, or the ladder of mobile equipment is forbidden.
- While working with heavy equipment, only one spotter should ever direct an operator at a time.
- Prior to working with heavy equipment, establish an agreed upon method of communication with the operator.
- Only qualified operators shall operate equipment.

All lines used in operations should be inspected daily for cracks or leaks. All fittings will be inspected visually every day. Deficiencies shall be noted on inspection cards. Cracked and leaking lines or fittings will be repaired (in the field if possible) prior to equipment operations.

Equipment will be checked daily for unsafe conditions. Operators will ensure any issues are resolved before commencing tasks. These items will be noted in the equipment inspection log and sent to the PPM equipment dept through the equipment inspection form submitted daily in HCSS. If the deficiencies are of a critical nature the operator and site supervisor will use the LOTO program (see Appendix H of this HASP) and take the equipment out of operation.

Equipment and Materials Loading/Unloading

Likelihood	Severity	Risk
Possible	Moderate	High

Engineering Controls:

- **Mechanical Aids:** Use forklifts, cranes, hoists, and other mechanical aids to lift and move heavy materials to reduce manual handling and the risk of musculoskeletal injuries.
- All rigging used to handle components and hardware will be positively attached.
- **Barrier Systems:** Install guardrails, barriers, and warning signs around loading/unloading areas to keep unauthorized personnel out and prevent accidental falls or collisions.
- **Stabilization Equipment:** Use stabilizers and leveling equipment to ensure that vehicles and loading platforms are stable and secure during loading/unloading operations.

- All material including dredged and fill material will be properly bermed and covered to avoid contamination and spread.

PPM will be using barges with a maximum capacity of 2,000tons for KP 1-4 barges, 3,200tons for the Kumtux, and 3,800tons for the Eglon barge. Clean import material barge will be loaded from center progressing out to bow and stern at equal distances. Contaminated sediment barges will be loaded at stern for water quality management and then progress towards bow once a 2-degree list to stern is obtained.

Administrative Controls:

- Training and Certification: Ensure that all personnel involved in loading/unloading operations are trained and certified in the use of equipment and safe handling procedures.
- Standard Operating Procedures (SOPs): Develop and enforce SOPs for loading/unloading operations, including steps for safe handling, lifting techniques, and emergency procedures.
- Safety Inspections: Conduct regular safety inspections of equipment, vehicles, and loading/unloading areas to identify and address potential hazards.
- Signage and Communication: Use clear signage to indicate loading/unloading zones and communicate hazards. Implement a communication system (e.g., radios) for coordination among workers during operations.
- Equipment will be dedicated to activity when involving contaminated material to avoid cross contamination until machinery can be adequately cleaned.

Implementation:

- Pre-Operation Checks: Perform pre-operation checks on all equipment to ensure they are in good working condition before starting loading/unloading activities.
- Staging Areas: Designate specific staging areas for materials and equipment to keep the work area organized and reduce the risk of tripping or falling objects.
- Personal Protective Equipment (PPE): Require workers to wear appropriate PPE, such as high-visibility vests, hard hats, gloves, and steel-toed boots, to protect against injuries.
- Monitoring and Supervision: Assign a qualified supervisor to oversee loading/unloading operations, ensuring compliance with safety procedures and addressing any issues that arise.
- Emergency Preparedness: Equip the loading/unloading area with emergency response equipment, such as fire extinguishers and first aid kits, and ensure workers are trained in their use.

Various load lifting equipment and activities will be required for mobilization, demobilization and during construction activities on site.

- Comply with the load lifting equipment manufacturer's operating instruction manual.
- Personnel on the ground and in vehicles will ensure that equipment/load lifting operators are aware of their presence before entering the equipment/load lifting work area.
- Equipment shall not be overloaded to reduce the potential for accidents and risk of loss.
- Personnel signaling equipment operators shall be positioned within continuous sight of the operator, but outside of any potential pinch point or crushing impact area in the event a load falls or is inadvertently dumped.
- The equipment operators will ensure that their driving/working surface and operations are in compliance with the equipment manufacturer's requirements and site operating conditions to ensure that there is no uncontrolled loss of load or overturning.

Please refer to Appendix L of the RAWP for additional details regarding Material Placement work activities.

Dredging

Likelihood	Severity	Risk
Almost Certain	Moderate	High

Engineering Controls

- Use of guardrails and barriers around moving parts of dredging and excavation equipment.
- Installation of emergency stop controls on all heavy machinery.
- Regular maintenance and inspection of equipment to ensure safe operation.

Administrative Controls

- Implementing a comprehensive training program for operators on safe equipment handling and emergency procedures.
- Establishing clear communication protocols, including the use of hand signals and radios.
- Developing and enforcing a lockout/tagout (LOTO) program for equipment maintenance (See Appendix H of this HASP for reference).

Implementation

- Conducting daily safety briefings and equipment checks before the start of each shift.
- Designating SSHOs to monitor compliance with safety protocols.
- Providing operators with personal protective equipment (PPE) such as hard hats, safety glasses, gloves, and steel-toed boots.

Please refer to Appendix J of the RAWP for additional details regarding the Dredging & Excavation work activities.

Excavation

Likelihood	Severity	Risk
Likely	Moderate	High

Engineering Controls

- Slope or Bench Excavations: Where feasible, slope the sides of the excavation to an angle that is safe for the type of soil and depth of the excavation.
- Barrier Systems: Install physical barriers around the excavation site to prevent accidental falls or unauthorized entry.
- Proper Access and Egress: Provide ladders, steps, or ramps for safe entry and exit to and from the excavation.

Administrative Controls

- **Pre-Planning and Communication:** Conduct site-specific hazard analysis and planning before starting excavation. Communicate the plan to all workers involved.
- **Training:** Ensure all workers are trained on excavation safety, hazard recognition, and emergency procedures.
- **Daily Inspections:** Assign a competent person to perform daily inspections of the excavation site to identify and mitigate any hazards.
- **Utility Location:** Before excavation begins, identify and mark all underground utilities.
- **Emergency Procedures:** Should an emergency situation occur, including cave-ins, water intrusion, or hazardous atmospheres, the SSHO and/or supervisor shall be contacted as soon as practicable.
- **Monitoring:** Continuously monitor for hazardous atmospheres and provide ventilation if necessary.

Implementation

- Conduct a pre-excavation survey to identify underground utilities and potential hazards.
- Mark the excavation boundaries clearly and set up warning signs to alert nearby workers and equipment operators.
- Assign a competent person to supervise the excavation activities and ensure adherence to safety protocols.
- Use monitoring equipment to detect hazardous gas levels and ensure proper ventilation.
- Provide personal protective equipment (PPE) such as hard hats, safety boots, gloves, and high-visibility clothing to all workers.
- Ensure that fall protection equipment is available and used where necessary.
- Maintain clear communication channels between all workers and supervisors on-site.
- Conduct daily toolbox talks to review the specific hazards and safety measures for the day's excavation activities.

Personnel and Equipment Decontamination

Likelihood	Severity	Risk
Likely	Minor	Moderate

Engineering Controls

- **Decontamination Stations:** Establish designated decontamination stations equipped with necessary facilities for thorough cleaning of personnel and equipment.
- **Containment Systems:** Use impermeable barriers and containment systems to prevent the spread of contaminants beyond the decontamination area.
- See ERP for Decontamination Procedures.

Administrative Controls

- **Training Programs:** Provide comprehensive training for all personnel on decontamination procedures, including proper use of personal protective equipment (PPE) and decontamination agents.

- Decontamination Procedures: Develop and implement standard operating procedures (SOPs) for decontamination, detailing the steps for safely and effectively removing contaminants from personnel and equipment.
- Scheduling and Rotation: Implement work schedules that include regular breaks and rotation of personnel to prevent fatigue and reduce exposure time during decontamination activities.

Implementation

- Set Up Decontamination Stations: Establish fully equipped decontamination stations at strategic locations on the site. These stations should include wash areas, showers, and containment units.
- Equip Stations with Necessary Supplies: Stock decontamination stations with appropriate cleaning agents, brushes, waste containers, and PPE such as gloves, masks, and protective suits.
- Conduct Training Sessions: Organize regular training sessions for all site personnel, focusing on decontamination procedures, proper use of PPE, and emergency response actions in case of accidental exposure.
- Monitor and Maintain Equipment: Regularly inspect and maintain decontamination equipment to ensure it is functioning correctly and efficiently. Replace worn-out or defective equipment promptly.
- Record Keeping: Maintain detailed records of all decontamination activities, including dates, personnel involved, equipment decontaminated, and any incidents that occurred. These records should be accessible for review by regulatory authorities and project management.
- Implement SOPs: Ensure that all personnel follow the established SOPs during decontamination activities. Supervisors should monitor compliance and provide guidance as needed.
- Review and Improve Procedures: Periodically review decontamination procedures and update them based on feedback, incident reports, and changes in regulations or best practices. Implement improvements to enhance safety and efficiency.

Material Placement

Likelihood	Severity	Risk
Almost Certain	Moderate	High

Engineering Controls

- Guardrails and Barriers: Install guardrails and barriers around moving parts of excavators, loaders, and barges to prevent accidental contact.
- Emergency Stop Controls: Equip all heavy machinery with emergency stop controls.
- Regular Maintenance: Ensure all equipment undergoes regular maintenance and inspections to keep them in safe working condition.
- Non-slip Surfaces: Install non-slip surfaces on decks, walkways, and work platforms.
- Proper Lighting: Ensure proper lighting in all work areas, especially during nighttime operations.
- Secure Handrails and Guardrails: Provide secure handrails and guardrails on all elevated surfaces.

Administrative Controls

- Comprehensive Training: Implement a comprehensive training program for operators on safe equipment handling and emergency procedures.

- Communication Protocols: Establish clear communication protocols, including the use of hand signals and radios.
- Lockout/Tagout (LOTO): Develop and enforce a lockout/tagout program for equipment maintenance (See Appendix H of this HASP for reference).
- Housekeeping Protocols: Establish housekeeping protocols to keep walkways clear of debris and obstructions.
- Regular Safety Audits: Conduct regular safety audits to identify and mitigate slip, trip, and fall hazards.
- Proper Footwear Training: Train employees on proper footwear and safe walking practices.
- PPM will be using barges with a maximum capacity of 230 yd³ and will be loaded at the center of the barge.

Implementation

- Conduct daily safety briefings and equipment checks before each shift.
- Designate SSHOs to monitor compliance with safety protocols.
- Provide operators with personal protective equipment (PPE) such as hard hats, safety glasses, gloves, and steel-toed boots.
- Enforce the use of appropriate footwear with non-slip soles.
- Regularly inspect and maintain walkways and work areas to ensure they are free of hazards.
- Implement a slip, trip, and fall incident reporting system to track and address issues promptly.

Transloading

Likelihood	Severity	Risk
Likely	Minor	Moderate

Engineering Controls

- Containment Systems: Use sealed and lined containers to prevent the release of contaminated sediments during transloading.
- Ventilation: Implement local exhaust ventilation systems at transloading points to capture and remove airborne contaminants.
- Dust Suppression: Utilize water sprays or dust suppression systems to minimize the generation of airborne particulates.
- Isolation: Establish physical barriers or enclosures around transloading areas to limit the spread of contaminants and protect nearby workers.

Administrative Controls

- Training: Provide comprehensive training for all personnel involved in transloading operations, focusing on handling contaminated materials, emergency procedures, and proper use of personal protective equipment (PPE).
- Health Monitoring: Medical surveillance monitoring program to establish baseline data, for all crew working in CRZ or EZ, who are exposed to at or above the action level for any chemical, to detect any adverse effects from exposure to contaminated sediments.

- **Work Scheduling:** Schedule transloading activities during times of low wind or adverse weather conditions to minimize the spread of contaminants.
- PPM will be using barges with a maximum capacity of 230 yd³ and will be loaded at the center of the barge.

Implementation

- **Personal Protective Equipment (PPE):** Ensure all workers involved in transloading operations wear appropriate PPE, such as gloves, coveralls, respiratory protection, and eye protection.
- **Site Preparation:** Before transloading begins, prepare the site by setting up containment systems, barriers, and ventilation equipment. Ensure all equipment is in good working condition.
- **Monitoring and Supervision:** Assign a supervisor to oversee transloading activities and ensure compliance with SOPs. Use real-time monitoring equipment to detect the presence of airborne contaminants and take immediate action if levels exceed safety thresholds.
- **Emergency Preparedness:** Equip the transloading area with spill kits, emergency showers, and eye wash stations. Conduct regular drills to ensure all personnel are familiar with emergency procedures.
- **Recordkeeping:** Maintain detailed records of all transloading activities, including the volume of contaminated sediments handled, the personnel involved, any incidents or spills, and the actions taken to mitigate risks.

Please refer to Appendix K of the RAWP for additional details regarding the Transloading, Transportation, and Disposal work activities.

Operations at PPM Yard

Likelihood	Severity	Risk
Possible	Minor	Moderate

Engineering Controls

- **Insulated Shelters:** Provide insulated and heated break areas where workers can take warm-up breaks.
- **Radiant Heaters:** Install radiant heaters in work areas to provide localized heating.
- **Wind Barriers:** Set up temporary wind barriers or screens to reduce wind chill in outdoor work areas.

Administrative Controls

- **Work/Rest Schedules:** Implement work/rest schedules that allow workers to take frequent breaks in warm areas.
- **Buddy System:** Use a buddy system to monitor each other for signs of cold stress.
- **Training:** Train workers to recognize the symptoms of cold stress (e.g., hypothermia, frostbite) and the importance of proper clothing.
- **Emergency Procedures:** Establish emergency procedures for cold-related illnesses and ensure quick access to first aid.

Implementation

- **Provision of Equipment:** Supply workers with insulated clothing, gloves, hats, and thermal socks.

- **Monitoring Weather Conditions:** Monitor weather forecasts and adjust work schedules to avoid exposure during extreme cold conditions.
- **Hydration:** Encourage workers to drink warm, non-caffeinated fluids to stay hydrated and warm.
- **Regular Inspections:** Conduct regular inspections of the workplace to ensure that heaters are functioning correctly and that wind barriers are properly installed.
- **Communication:** Ensure clear communication channels so workers can quickly report any signs of cold stress and supervisors can take immediate action.

Installation of Steel Pipe Piling, Bulkhead Wall System, and Outfall Energy Dissipation Structures

Likelihood	Severity	Risk
Likely	Moderate	High

Hazard: Heavy Equipment Operation

Potential Risks:

- Equipment malfunction
- Operator error
- Poor visibility leading to accidents
- Struck by or caught in between
- Fire
- Flash exposure
- Confined Space hazards

Engineering Controls:

- **Position Tracking:** Use Hypack software to track excavator and barge positioning in relation to structures to ensure precise movements.
- **Spotters and Visual Aids:** Employ spotters on the barge and tug to provide additional oversight, especially when GPS cannot accurately account for the vertical relationship between dredge equipment and structures. Install blind spot cameras on excavators and tugs to enhance visibility.
- **Safety Buffers and Barriers:** Installation of floating fenders or buoys around structures to act as physical barriers preventing direct contact.
- **Proper PPE for visibility and eye protection based on flash hazard.**

Administrative Controls:

- **Training:** Ensure operators are trained in using the Hypack software and understand the importance of maintaining safe distances from structures.
- **Speed Limits:** Implement speed limits for tugs and swing speeds for excavators operating near structures to ensure safe and deliberate maneuvers.
- **Use Hot Work permit for any spark or heat producing activity. See IIPP for program.**

Implementation:

- Conduct regular training sessions for operators on using position tracking software and understanding the setup and function of safety buffers.
- Regularly inspect and maintain visual aids, cameras, and barriers to ensure they are functioning correctly.
- Monitor and enforce speed limits through periodic checks and audits.

Hazard: Working in Confined Spaces and Under Structures

Potential Risks:

- Limited access and egress
- Exposure to hazardous substances
- Structural collapse
- Follow Confined Space procedures. See Appendix G for Confined Space procedures and permit.

Engineering Controls:

- Cautious Placement and Navigation: Use GPS positioning and manual spotters when placing materials or navigating under structures. Ensure operations are conducted cautiously to prevent damage.
- Field Verification: Conduct field verification of dimensions, elevations, and clearances of structures before commencing dredging activities.

Administrative Controls:

- Emergency Procedures: Develop and train employees on emergency procedures specific to confined spaces and working under structures, including evacuation routes and contact points for emergencies.
- Monitoring: Continuous monitoring of work areas for signs of structural weakness or hazardous substance leaks.

Implementation:

- Schedule regular field verification and risk assessments before starting work in confined spaces or under structures.
- Mock rescue will be performed on site with required personnel and documented.
- Conduct regular emergency drills to ensure all employees are familiar with evacuation routes and procedures.
- Implement a monitoring system to detect and report any hazardous conditions immediately.

Hazard: Exposure to Hazardous Substances

Potential Risks:

- Inhalation or skin contact with toxic materials including Cr6.
- Chemical burns
- Long-term health effects

Engineering Controls:

- Dewatering and Sediment Processing: Use mechanical separators, centrifuges, belt presses, and filtration units to dewater and treat sediments, reducing exposure to hazardous substances.
- Spill Containment: Maintain an inventory of spill containment equipment, including booms, skimmers, and absorbent materials, and develop clear procedures for deployment

- Exposure monitoring will be performed as needed for any hazards during welding process.

Administrative Controls:

- Personal Protective Equipment (PPE): Provide appropriate PPE such as gloves, masks, and protective clothing to employees working with or near hazardous substances.
- Safety Data Sheets (SDS): Ensure all employees have access to and understand the SDS for the materials they are handling.

Implementation:

- Regularly check and restock spill containment equipment and ensure all employees know how to use it.
- Conduct regular PPE training and checks to ensure all employees are properly equipped and using PPE correctly.
- Display and review SDS with employees regularly, ensuring understanding and compliance with safety guidelines.

Hazard: Emergency Situations (e.g., Fires, Extreme Weather)

Potential Risks:

- Injury or death due to inadequate emergency response
- Property damage
- Environmental contamination

Engineering Controls:

- Emergency Equipment: Ensure the availability of emergency response equipment, such as fire extinguishers, first aid kits, and rescue boats

Administrative

- Alarm Systems: Install and maintain alarm systems to alert employees in case of an emergency
- Emergency Drills: Conduct regular emergency drills, including fire drills, person overboard drills, and severe weather drills, to ensure preparedness. Person overboard drills will be conducted on a quarterly basis; other drills to be scheduled on an as needed basis.
- Emergency Protocols: Develop and implement detailed emergency protocols for various scenarios, including extreme weather conditions and equipment failures

Implementation:

- Regularly inspect and maintain emergency response equipment to ensure it is in working order.
- Schedule and conduct quarterly emergency drills, debriefing afterward to identify and address any areas for improvement.
- Review and update emergency protocols periodically, ensuring all employees are trained and familiar with the procedures.

Please refer to Appendix I of the RAWP for additional details regarding the Structures Plan.

Fueling

Likelihood	Severity	Risk
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Likely	Moderate	High
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Engineering Controls:

- Fueling Station Design: Establish designated fueling areas with spill containment systems, such as spill pallets and absorbent materials, to prevent fuel spills from contaminating the environment.
- Automatic Shut-Off Nozzles: Use fueling nozzles with automatic shut-off mechanisms to prevent overflows and spills during fueling.
- Ventilation Systems: Ensure proper ventilation in enclosed fueling areas to prevent the accumulation of flammable vapors.
- Fuel Storage: Store fuel in double-walled, above-ground tanks with leak detection systems and secondary containment to mitigate the risk of leaks and spills.
- Transfer of flammables will have proper grounding to prevent fires.

Administrative Controls:

- Training: Provide comprehensive training to all personnel involved in fueling operations on proper fueling techniques, spill response procedures, and emergency protocols.
- Fuel Handling Permits: Require all personnel involved in fueling operations to obtain and maintain appropriate fuel handling permits and certifications.
- Inspection and Maintenance: Conduct regular inspections and maintenance of fueling equipment and storage tanks to ensure they are in good working condition and comply with safety standards.
- Fuel Logs: Maintain accurate logs of all fueling activities, including date, time, quantity of fuel dispensed, and personnel involved.

Implementation:

- Site Preparation: Designate specific areas for fueling operations, clearly marked and equipped with spill containment systems and safety equipment.
- Employee Training: Ensure that all personnel involved in fueling operations complete initial and refresher training on fueling procedures, hazard recognition, and emergency response.
- SOP Enforcement: Implement and strictly enforce SOPs for fueling operations, ensuring that all steps are followed meticulously to prevent accidents.
- Inspection Protocols: Establish a routine inspection schedule for fueling equipment and storage tanks, documenting any issues and corrective actions taken.
- Emergency Preparedness: Equip fueling areas with spill kits, fire extinguishers, and emergency shutdown systems, and conduct regular drills to prepare personnel for potential fueling emergencies.

Equipment Maintenance

Likelihood	Severity	Risk
Likely	Minor	Moderate

Engineering Controls

- Proper Ventilation Systems: Install ventilation systems in maintenance areas to ensure the removal of harmful fumes and to provide a consistent supply of fresh air.
- Guarding and Enclosures: Utilize physical barriers and guards around moving parts of machinery to prevent accidental contact and injuries.
- Ergonomic Workstations: Design maintenance workstations to reduce strain and injury, incorporating adjustable work surfaces and appropriate seating.
- Automatic Shutoffs: Equip machines with automatic shut-off mechanisms that activate if a malfunction is detected or if an operator is in danger. See table 5.1 in the RAWP for equipment that has automatic shutoffs.

Administrative Controls

- Regular Training Programs: Conduct regular training sessions for maintenance personnel on safe maintenance practices, including the proper use of tools and equipment.
- Maintenance Schedules: Develop and adhere to a strict maintenance schedule to ensure all equipment is routinely inspected and maintained.
- Pre-Task Safety Meetings: Hold safety meetings before maintenance activities to review the tasks, potential hazards, and necessary safety precautions.

Implementation

- Regular Training Programs: Conduct regular training programs for all maintenance personnel on safe maintenance practices and emergency response procedures.
- Maintenance Logs: Keep detailed logs of all maintenance activities, inspections, and repairs performed on each piece of equipment.
- Safety Audits: Perform regular safety audits to ensure compliance with maintenance procedures and identify areas for improvement.
- Communication: Foster open communication between maintenance personnel and supervisors to quickly address any safety concerns or equipment issues.

Lock Out/Tag Out/Test Out

Likelihood	Severity	Risk
Possible	Major	High

Engineering Controls:

- Lockout Devices: Utilize locks, chains, and other devices to physically isolate energy sources.
- Tagout Devices: Use standardized tags to indicate that the equipment is isolated and should not be operated.
- Isolation of Energy Sources: Implementing mechanical and electrical isolators to ensure complete de-energization.

Administrative Controls:

- Lockout/Tagout Procedures: Develop and implement written procedures for shutting down, isolating, blocking, and securing equipment. See Appendix H for procedures.

- **Training:** Provide comprehensive training to all employees on lockout/tagout procedures and the importance of adhering to these protocols.
- **Communication:** Establish a clear communication protocol for lockout/tagout activities, ensuring all personnel are informed and aware of the status of equipment.
- **Periodic Inspections:** Conduct regular inspections of lockout/tagout procedures and equipment to ensure compliance and effectiveness.
- **Authorization:** Assign specific personnel authorized to perform lockout/tagout procedures.

Implementation:

- **Preparation:** Identify all energy sources that need to be isolated and prepare for lockout/tagout.
- **Notification:** Inform all affected employees of the lockout/tagout process and the equipment involved.
- **Shutdown:** Properly shut down the machinery or equipment following the established procedures.
- **Isolation:** Physically isolate the equipment from all energy sources using lockout devices.
- **Application of Lockout/Tagout Devices:** Apply lockout and tagout devices to each energy-isolating device.
- **Release of Stored Energy:** Ensure all stored energy is safely released or restrained.
- **Verification of Isolation:** Verify that the equipment is completely isolated and cannot be operated.
- **Performance of Maintenance/Service:** Conduct the required maintenance or service work on the isolated equipment.
- **Removal of Lockout/Tagout Devices:** Once the work is complete, remove the lockout/tagout devices following the established procedures.
- **Notification of Re-energization:** Inform all affected employees that the lockout/tagout devices have been removed and the equipment is ready to be re-energized.

If and or when Lock Out/Tag Out/Test Out is needed on this project the superintendent/SSHO will follow the PPM LOTO program in PPM’s I2P2. If Utilities are encountered that need to utilize the LOTO program the Project manager will contact the Owner Rep and work with all outside parties to safely implement the steps needed. No PPM personnel will shut off live electrical boxes, blank pipes, or any utilities not outlined previously in the Work Plan.

Lifting and Hoisting

Likelihood	Severity	Risk
Likely	Moderate	High

Engineering Controls

- Ensure that all lifting and hoisting equipment, such as cranes, hoists, and slings, are designed to handle the intended loads and are regularly inspected and maintained according to manufacturer specifications and industry standards.
- Utilize load-limiting devices and overload indicators to prevent exceeding the equipment's rated capacity.
- Provide ergonomic lifting devices such as powered lift tables, hoists, and forklifts to reduce the physical strain on workers.

- Install anti-sway devices on cranes to stabilize loads during lifting operations.
- Designate specific areas for lifting and hoisting operations to ensure they are clear of obstructions and have adequate space for safe maneuvering.
- Utilize barriers and warning systems to keep unauthorized personnel out of lifting zones.
- PPM will be using barges with a maximum capacity of 2,000tons for KP 1-4 barges, 3,200tons for the Kumtux, and 3,800tons for the Eglon barge. Clean import material barges will be loaded from center progressing out to bow and stern at equal distances. Contaminated sediment barges will be loaded at stern for water quality management and then progress towards bow once a 2-degree list to stern is obtained. Please refer to Appendix L of the RAWP for additional details regarding Material Placement work activities.

Administrative Controls

- Ensure that all personnel involved in lifting and hoisting operations are properly trained and certified in the use of the equipment, as well as in recognizing and avoiding hazards.
- Provide regular refresher training to keep skills and knowledge up to date.
- Implement a permit-to-work system for high-risk lifting operations to ensure all necessary precautions are taken.
- Establish clear communication protocols, including the use of hand signals and two-way radios, to ensure effective coordination among the lifting team.
- Conduct pre-lift meetings to discuss the lifting plan, roles, responsibilities, and potential hazards.
- Assign a qualified supervisor to oversee all lifting and hoisting operations, ensuring compliance with safety procedures and addressing any issues promptly.
- Implement regular audits and inspections to identify and rectify unsafe practices.

Implementation

- Conduct a thorough risk assessment before each lifting operation to identify potential hazards and determine appropriate controls.
- Develop a detailed lift plan that includes load weight, center of gravity, lifting points, and equipment to be used.
- Verify that the load is within the equipment's rated capacity and that all rigging is secure and appropriately rated for the load.
- Ensure that the load is balanced and stable before lifting and use tag lines to control the load during movement.
- Follow the designated lift plan and SOPs during lifting operations, adjusting as necessary based on real-time conditions.
- Maintain constant communication among the lifting team and use spotters to monitor the operation from different vantage points.
- Conduct a post-operation review to evaluate the lifting operation, identify any issues or near-misses, and implement corrective actions to improve future operations.
- Document all lifting operations, including risk assessments, lift plans, and post-operation reviews, for ongoing safety management and compliance.

Electricity and Grounding

Likelihood	Severity	Risk
Unlikely	Moderate	Moderate

Engineering Controls

- Insulation: Use insulated tools and equipment to prevent electrical shocks.
- Ground Fault Circuit Interrupters (GFCIs): Install GFCIs to protect against electrical shock hazards.
- Proper Grounding: Ensure all electrical systems and equipment are properly grounded.
- Barrier Protection: Use barriers and guards to prevent accidental contact with live electrical parts.
- Equipment Design: Use electrical equipment designed to operate safely in the specific environment and conditions present at the site.

Administrative Controls

- Training: Provide comprehensive training to all personnel on electrical safety, including proper use of tools and equipment.
- Lockout/Tagout (LOTO): Establish and enforce a LOTO program to ensure equipment is de-energized before maintenance or repair work is performed (See Appendix H of this HASP for reference).
- Signage: Post clear and visible signs warning of electrical hazards and indicating safe practices.

Regular Inspections: Conduct regular inspections of electrical systems and equipment to identify and correct potential hazards.

Implementation

- Design and Planning: During the project design phase, incorporate engineering controls to mitigate electrical hazards. Ensure that electrical systems meet all applicable codes and standards.
- Training Programs: Develop and deliver training programs on electrical safety, LOTO procedures, and emergency response for electrical incidents. Ensure all personnel are trained and certified.
- LOTO Procedures: Implement LOTO procedures and provide the necessary equipment and training for personnel to safely de-energize and isolate electrical systems.
- Maintenance and Inspections: Establish a schedule for regular maintenance and inspections of electrical equipment and systems. Document and address any issues found during inspections. Any tools or equipment found to be defective will be red tagged and taken out of work area.
- Emergency Response Planning: Develop emergency response plans for electrical incidents, including procedures for dealing with electrical shocks, fires, and equipment malfunctions. Ensure all personnel are familiar with these plans.

Confined Space

Likelihood	Severity	Risk
Unlikely	Major	Moderate

PPM does not anticipate having any confined space entry requirements on the project. If confined space entry is determined to be needed the Project Representative (PR) will be notified and a Confined Space Entry procedure and permit will be prepared for review and approval prior to engaging in the work.

Engineering Controls

- **Forced Air Ventilation:** Use fans or blowers to provide fresh air and remove contaminated air from the confined space. Ensure continuous air monitoring to confirm adequate ventilation.
- **Local Exhaust Ventilation:** Employ local exhaust systems to capture and remove contaminants at the source.
- **Continuous Gas Monitoring:** Implement continuous monitoring devices to detect hazardous gases (e.g., oxygen deficiency, combustible gases, toxic substances) inside the confined space.
- **Alarm Systems:** Ensure that monitoring equipment is equipped with audible and visual alarms to alert workers of dangerous atmospheric conditions.
- **Physical Barriers:** Install guardrails, covers, or barriers around the confined space opening to prevent accidental falls.
- **Warning Signs:** Post clear signage around the entry points indicating the presence of a confined space and associated hazards.

Administrative Controls

- **Confined Space Entry Permit:** Implement a permit system requiring written authorization before entering a confined space. The permit should detail the nature of the work, potential hazards, atmospheric testing results, and required controls.
- **Job Hazard Analysis (JHA):** Conduct a thorough JHA to identify potential hazards and specify control measures before issuing a permit.
- **Employee Training:** Provide comprehensive training for all workers who may enter confined spaces, including recognition of hazards, use of protective equipment, emergency procedures, and safe work practices.
- **Rescue Team:** PPM will rely on first responders for rescue in confined space rescue. If during the confined space procedure development, it is determined that PPM needs to have an in-house rescue team due to project site access, then a training program will be developed and submitted to the PR for review and approval. The rescue team plan identifies the training, personnel, and gear required for safe and efficient rescue.
- **Entry and Exit Procedures:** Establish clear procedures for safe entry and exit, including communication protocols and use of entry attendants.
- **Buddy System:** Require a buddy system where a standby person remains outside the confined space to monitor and assist the entrant if needed.

Implementation

- **Pre-Entry Preparation:** Verify that all engineering and administrative controls are in place before issuing an entry permit. Ensure that all monitoring and ventilation equipment is functional and properly calibrated.
- **Safety Briefings:** Conduct pre-entry safety briefings to review potential hazards, control measures, emergency procedures, and roles and responsibilities.

- **Continuous Monitoring:** Maintain continuous atmospheric monitoring throughout the duration of work inside the confined space. Document readings and immediately evacuate if hazardous conditions are detected.
- **Communication:** Ensure constant communication between the entrant(s) and the standby person. Use two-way radios or other reliable communication devices.
- **Rescue Plan:** Develop and communicate a detailed rescue plan specific to the confined space. Ensure that the rescue team is equipped and ready to respond at a moment's notice.
- **First Aid and Medical Services:** Have first aid supplies and medical services readily available. Ensure that rescue personnel are trained in first aid and CPR.
- **Decontamination:** If applicable, establish decontamination procedures for personnel and equipment exiting the confined space to prevent contamination spread.
- **Review and Documentation:** Review the work conducted, evaluate the effectiveness of the controls, and document any incidents or near-misses. Use this information to improve future confined space entries.

Landscaping and Irrigation

Likelihood	Severity	Risk
Likely	Minor	Moderate

Engineering Controls

- **Machine Guards:** Ensure that all landscaping equipment (e.g., mowers, trimmers, blowers, skid steer, mini excavators) are equipped with appropriate guards to protect operators from moving parts.
- **Ergonomic Tools:** Use ergonomically designed tools and equipment to minimize strain and reduce the risk of musculoskeletal injuries.
- **Safe Storage:** Store chemicals (e.g., fertilizers, pesticides, herbicides) in secure, well-ventilated areas away from ignition sources and incompatible materials.
- **Spill Containment:** Implement spill containment systems, such as secondary containment trays, to prevent accidental releases of hazardous substances.
- **Noise Barriers:** Use noise barriers or enclosures around loud equipment to reduce exposure to high noise levels.
- **Hearing Protection:** Provide hearing protection devices (e.g., earplugs, earmuffs) to workers operating or working near noisy equipment.

Administrative Controls

- **Equipment Operation:** Train workers on the proper use, maintenance, and safety procedures for all landscaping and irrigation equipment.
- **Chemical Safety:** Provide training on safe handling, application, and disposal of chemicals, including understanding Safety Data Sheets (SDS) and using personal protective equipment (PPE).
- **Job Hazard Analysis (JHA):** Conduct thorough JHAs for landscaping and irrigation activities to identify potential hazards and establish control measures, prior to the start of work; activities include planting, spreading loose material, etc.

- **Chemical Application Procedures:** Develop and implement standardized procedures for mixing, applying, and disposing of chemicals to minimize exposure and environmental impact.
- **PPE Requirements:** Ensure workers wear appropriate PPE, such as gloves, safety glasses, long sleeves, and protective footwear, based on the specific tasks and hazards identified.
- **PPE Training:** Train workers on the correct use, care, and limitations of their PPE.
- **Ergonomic Assessments:** Conduct regular ergonomic assessments to identify and address potential risks associated with repetitive motions, awkward postures, and heavy lifting.

Implementation

- **Site Assessment:** Perform a thorough site assessment to identify potential hazards, such as uneven terrain, water sources, and existing vegetation, before starting landscaping and irrigation activities.
- **Pre-Work Briefings:** Conduct pre-work briefings to review potential hazards, control measures, work procedures, and emergency response plans.
- **Equipment Inspection:** Inspect all equipment daily before use to ensure it is in good working condition and free of defects.
- **Chemical Handling:** Follow proper procedures for mixing, applying, and disposing of chemicals. Ensure that SDS are readily available on-site for all chemicals used.
- **Communication:** Maintain clear communication among workers, especially when operating equipment or handling chemicals. Use radios or other communication devices if necessary.
- **Spill Response Plan:** Develop and communicate a spill response plan for chemical spills. Ensure that spill kits and emergency contact numbers are readily available on-site.
- **First Aid and Medical Services:** Have first aid supplies and medical services readily available. Train workers in first aid and CPR.
- **Clean-Up Procedures:** Implement clean-up procedures to ensure that all equipment is properly stored, chemicals are securely sealed, and the work area is free of hazards.
- **Incident Review:** Review any incidents or near-misses that occurred during the work, document the findings, and use this information to improve future safety practices.

Public Protection

Likelihood	Severity	Risk
Unlikely	Minor	Moderate

Engineering Controls

- **Fencing and Barriers:** Install secure fencing and barriers around the worksite perimeter to prevent unauthorized access.
- **Warning Signs:** Post clear, visible warning signs around the perimeter to inform the public of potential hazards and restricted areas.
- **Dust Suppression:** Use water sprays, misting systems, or dust suppressants to minimize dust generation during activities such as excavation, demolition, and transportation.
- **Emission Control:** Equip machinery and vehicles with emission control devices to reduce the release of pollutants.

- Noise Barriers: Erect noise barriers or enclosures around noisy equipment to reduce noise levels reaching public areas.
- Soundproofing: Apply soundproofing materials to equipment and machinery when feasible.

Administrative Controls

- Public Notices: Issue public notices through local media, community boards, and direct mailings to inform residents and businesses of the project timeline, potential hazards, and safety measures.
- Community Meetings: Hold community meetings to provide updates on project progress, address public concerns, and gather feedback.
- Traffic Management Plan: Develop and implement a traffic management plan to control vehicle and pedestrian traffic around the worksite. This may include detours, temporary road closures, and designated crossing points.
- Flaggers and Signage: Use trained flaggers and clear signage to direct traffic and ensure the safety of both workers and the public.
- Site-Specific HASP: Develop a site-specific Health and Safety Plan that includes protocols for public protection, detailing potential hazards and control measures.
- Emergency Response Plan: Create an emergency response plan that includes procedures for protecting the public in the event of an emergency, such as a chemical release or fire.

Implementation

- Risk Assessment: Conduct a thorough risk assessment to identify potential hazards to the public and develop appropriate control measures.
- Stakeholder Engagement: Engage with local stakeholders, including residents, businesses, and community groups, to communicate project plans and safety measures.
- Monitoring: Continuously monitor the worksite and surrounding areas for hazards that could impact the public. Adjust control measures as necessary based on monitoring results.
- Site Security: Maintain site security to prevent unauthorized access. Ensure that security personnel are trained to handle public interactions and emergencies.
- Hotline and Website: Establish a hotline and website where the public can access information about the project and report concerns or incidents.
- Regular Updates: Provide regular updates to the public on project progress, changes in activities, and any new potential hazards.
- Evacuation Procedures: Develop and communicate clear evacuation procedures for the public in the event of an emergency.
- First Aid and Medical Services: Ensure that first aid supplies and medical services are available and accessible to both workers and the public in case of an emergency.
- Site Restoration: Restore the site and surrounding areas to a safe and clean condition once work is completed. Remove all temporary structures, signage, and barriers.
- Public Feedback: Solicit feedback from the public on the effectiveness of the safety measures and use this information to improve future projects.

Bloodborne Pathogens

Likelihood	Severity	Risk
Possible	Moderate	High

Engineering Controls

- **Sharps Containers:** Provide puncture-resistant, leak-proof, and labeled containers for the disposal of needles, blades, and other sharps. Ensure these containers are readily accessible at all locations where sharps are used.
- **Handwashing Stations:** Install handwashing stations equipped with soap, water, and disposable towels in areas where exposure to BBPs may occur. If handwashing facilities are not feasible, provide antiseptic hand cleansers or towelettes.
- **Physical Barriers:** Use physical barriers, such as splash guards or protective screens, to minimize the risk of exposure to BBPs during procedures that may generate splashes or sprays.

Administrative Controls

- **Written Program:** The bloodborne pathogen program can be found in Appendix E of this plan.
- **Training:** Provide initial and annual BBP training to all employees who may be at risk of exposure. Training should cover:
 - Use of personal protective equipment (PPE)
 - Procedures to follow in the event of an exposure
 - Safe work practices
- **Instruction in Avoiding Contamination:** Train employees on appropriate measures to avoid contamination, such as proper hand hygiene, safe handling of sharps, and avoiding contact with potentially infectious materials.
- **Vaccination:** Offer a preventive inoculation program that includes vaccinations for tetanus/diphtheria, hepatitis B, and other relevant immunizations. Ensure that vaccinations are available at no cost to all employees at risk of occupational exposure.
- **Record Keeping:** Maintain records of employee vaccinations and provide reminders for booster shots as needed.
- **PPE Requirements:** Provide PPE and clothing to protect against infection. Required PPE includes:
 - Rubber boots with full sole and heel steel insert-liners
 - Safety glasses or goggles
 - Gloves (disposable and durable types)
 - Face shields and masks where splashing of infectious materials may occur
- **Usage Training:** Train employees on the correct use, care, and limitations of their PPE. Ensure that PPE is readily available and properly maintained.
- **Hand Hygiene Stations:** Install hand hygiene stations equipped with soap, water, and disposable towels in areas where exposure to BBPs may occur. If handwashing facilities are not feasible, provide antiseptic hand cleansers or towelettes.

- **Decontamination Facilities:** Provide facilities for workers to clean up and wash thoroughly. Ensure that these facilities are equipped with:
 - Running water
 - Soap and disinfectants
 - Disposable towels or hand dryers
 - Waste disposal containers for contaminated materials
- **Personal Hygiene Practices:** Encourage and enforce good personal hygiene practices, such as regular handwashing, avoiding eating or drinking in contaminated areas, and proper disposal of PPE.

Implementation

- **Risk Assessment:** Conduct a thorough risk assessment to identify potential exposure scenarios and determine appropriate control measures.
- **Equipment and Supplies:** Ensure that all necessary protective equipment, vaccination records, hand hygiene facilities, and other safety equipment are available and maintained.
- **PPE Use:** Require the use of appropriate PPE when there is a risk of exposure to BBPs. Regularly inspect and replace worn or damaged equipment.
- **Safe Work Practices:** Enforce safe work practices, such as proper hand hygiene, safe disposal of sharps, and immediate cleaning and disinfection of contaminated surfaces.
- **Signage:** Post clear signage around the worksite to remind workers of the importance of PPE, hand hygiene, and safe work practices.
- **Emergency Contacts:** Provide workers with emergency contact numbers for medical assistance in case of exposure incidents.
- **Immediate Response:** Ensure that procedures are in place for the immediate response to exposure incidents, including first aid and reporting protocols.
- **Medical Evaluation:** Facilitate access to medical evaluation and follow-up for employees who experience an exposure incident. Ensure confidentiality of medical records.

Wildlife, Plants, and Insects

Likelihood	Severity	Risk
Unlikely	Minor	Moderate

Engineering Controls

- **Fencing and Netting:** Use fencing and netting to create physical barriers that keep wildlife away from work areas, particularly in areas where hazardous activities are conducted.
- **Protective Clothing:** Provide workers with protective clothing such as long sleeves, pants, and gloves to prevent bites, stings, and contact with toxic plants.
- **Shaded Areas:** Set up shaded areas or shelters to protect workers from sun exposure and reduce the risk of insect bites in open areas.
- **Insect-Repellent Gear:** Supply workers with insect-repellent clothing and gear, such as hats with nets and treated clothing.

Administrative Controls

- **Hazard Recognition:** Train workers to recognize hazardous wildlife, plants, and insects specific to the project area. Include information on how to avoid contact and what to do in case of an encounter.
- **First Aid Training:** Provide first aid training specific to wildlife bites, stings, and plant-related injuries, including the use of epinephrine for severe allergic reactions.
- **Site Assessment:** Conduct regular site assessments to identify and document the presence of hazardous wildlife, plants, and insects. Adjust work procedures accordingly.
- **Safe Work Practices:** Develop and implement safe work practices, such as avoiding work during peak activity times for certain wildlife and using designated paths to avoid disturbing natural habitats.
- **Insect Control:** Implement measures to control insect populations, such as using insect repellents, traps, and environmentally safe pesticides around work areas.
- **Vegetation Management:** Regularly clear and manage vegetation to minimize hiding places for wildlife and reduce the presence of toxic plants.

Implementation

- **Risk Assessment:** Perform a thorough risk assessment to identify potential hazards related to wildlife, plants, and insects. Develop control measures based on the findings.
- **Equipment and Supplies:** Ensure that all necessary protective equipment, first aid supplies, and insect repellents are available and maintained on-site.
- **Protective Measures:** Enforce the use of protective clothing and gear to minimize exposure to bites, stings, and plant contact. Regularly inspect and replace worn or damaged equipment.
- **Monitoring:** Continuously monitor the work area for signs of hazardous wildlife, plants, and insects. Take immediate action to address any new hazards that arise.
- **Signage:** Post clear signage around the worksite to warn workers of potential hazards and remind them of safe work practices.
- **Emergency Contacts:** Provide workers with emergency contact numbers for medical assistance in case of bites, stings, or severe allergic reactions.
- **First Aid Kits:** Ensure that first aid kits are stocked with supplies necessary to treat bites, stings, and plant-related injuries. Include items such as antihistamines, epinephrine auto-injectors, and topical treatments.
- **Incident Response Plan:** Notify your supervisor and/or the SSHO when wildlife is encountered, personnel are exposed to plants, or bitten by insects. Ensure evacuation information is included in the daily huddle and THA information.
- **Incident Review:** Review and document any incidents involving wildlife, plants, or insects. Analyze the causes and implement corrective actions to prevent future occurrences.
- **Plan Updates:** Regularly update the site-specific Health and Safety Plan based on incident reviews, changes in the work environment, or new information about local hazards.

APPENDIX A: JOB HAZARD ANALYSIS (JHA) TOOLS

PPE REQUIREMENTS		PLANT, EQUIPMENT, & TOOLS		SIGNS & TAGS		PERMITS & TRAINING	
Hard Hat	<input checked="" type="checkbox"/>	Wooden Steps	<input type="checkbox"/>	Personnel Working Above/ Below	<input checked="" type="checkbox"/>	SDS's	<input checked="" type="checkbox"/>
Helmet w/ Chin Strap	<input type="checkbox"/>	Hand Tools	<input checked="" type="checkbox"/>	Barrier Mesh	<input type="checkbox"/>	Instruction Manuals	<input type="checkbox"/>
Safety Glasses (Including Rx)	<input checked="" type="checkbox"/>	Shovel	<input checked="" type="checkbox"/>	Flagging	<input checked="" type="checkbox"/>	Procedures	<input checked="" type="checkbox"/>
Safety Goggles	<input type="checkbox"/>	Welding Machine	<input checked="" type="checkbox"/>	Hard Barricades	<input checked="" type="checkbox"/>	Work Instructions	<input type="checkbox"/>
Faceshield	<input type="checkbox"/>	Oxy/Acetylene cutting torch	<input checked="" type="checkbox"/>	Heavy Lifting Signs	<input type="checkbox"/>	Hot Work Permit	<input checked="" type="checkbox"/>
Hearing Protection	<input type="checkbox"/>	Impact Wrench	<input checked="" type="checkbox"/>	Personnel Danger/Caution Tags	<input type="checkbox"/>	Isolation Permit	<input type="checkbox"/>
Steel-Toed Boots	<input checked="" type="checkbox"/>	Grinder	<input checked="" type="checkbox"/>	Out of Service Tags	<input checked="" type="checkbox"/>	Excavation/Backfill Permit	<input type="checkbox"/>
High Visibility Jacket/Vest	<input type="checkbox"/>	Ladder	<input checked="" type="checkbox"/>	Information Tags	<input type="checkbox"/>	Confined Space Permit	<input checked="" type="checkbox"/>
Personal Floatation Device (PFD)	<input checked="" type="checkbox"/>	Scaffold	<input type="checkbox"/>	Confined Space Entry Signs	<input checked="" type="checkbox"/>	Hazardous Work Permit	<input checked="" type="checkbox"/>
Gloves – Cut Level Resistant	<input type="checkbox"/>	Fire Extinguisher	<input checked="" type="checkbox"/>	Warning Signs	<input checked="" type="checkbox"/>	PTC WORK PERMIT	<input type="checkbox"/>
Gloves – Impervious	<input type="checkbox"/>	Fire Blanket	<input type="checkbox"/>	Other	<input type="checkbox"/>	Other	<input type="checkbox"/>
Gloves – Nitrile	<input checked="" type="checkbox"/>	Excavator	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>	Other	<input type="checkbox"/>
Gloves – Welding	<input checked="" type="checkbox"/>	Backhoe/Skid Steer	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>	Other	<input type="checkbox"/>
NIOSH Approved Dust Mask	<input type="checkbox"/>	Front End Loader	<input checked="" type="checkbox"/>				
Air Purifying Respirator	<input type="checkbox"/>	Forklift	<input checked="" type="checkbox"/>				
Powered Air Purifying Respirator	<input type="checkbox"/>	Bulldozer	<input type="checkbox"/>				
Airline Respirator	<input type="checkbox"/>	Roller/Compactor	<input type="checkbox"/>				
Self-Contained Breathing	<input type="checkbox"/>	Slings	<input checked="" type="checkbox"/>				
Fall Protection Harness	<input checked="" type="checkbox"/>	Aerial Work Platform (Boom Lift)	<input type="checkbox"/>				
Lanyard	<input checked="" type="checkbox"/>	Scissor Lift	<input type="checkbox"/>				
Self-Retracting Lifeline	<input type="checkbox"/>	Extension Leads	<input type="checkbox"/>				
Flame-Retardant Clothing	<input type="checkbox"/>	Power Source	<input type="checkbox"/>				
Other	<input type="checkbox"/>	LOTO	<input type="checkbox"/>				
Other	<input type="checkbox"/>	Other	<input type="checkbox"/>				

Other	<input type="checkbox"/>	Other	<input type="checkbox"/>
		Other	<input type="checkbox"/>

Electrical	X	Vehicles	X	Weather	X
Chemical		Height	X	Access	X
Tools	X	Depth		Dust	X
Gases		Weight		Bacteria	
Pressure		Rotating Equipment	X	Heat	X
Vibration	X	Moving Equipment	X	Dehydration	
Noise	X	Lifting Equipment	X	Hot / Cold Objects	X
UV Radiation (Hot Work / Sun)	X	Heavy Equipment	X	Hazardous Materials	x
Lighting	X	Overhead hazards		Engulfment	
Manual Material Handling	x	Other: _____		Other: _____	
Other: _____		Other: _____		Other: _____	

RISK ASSESSMENT CHART

Risk is calculated after applying engineering and administrative controls and the use of Personal Protective Equipment (PPE). To determine risk,

	Severity What is the severity of injuries, potential damages, financial impacts (if the risk event actually occurs)?				
	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood How likely is the event to occur at some, undetermined, time?	No injuries/First Aid No Environmental Damage <\$1,000 Damage	Some First Aid Required Low Environmental Damage <\$10,000 Damage	Off-Site Medical Treatment Required Medium Environmental Damage <\$100,000 Damage	Extensive Injuries High Environmental Damage <\$1,000,000 Damage	Death or Multiple Major Injuries Toxic Environmental Damage >\$1,000,000 Damage
Almost Certain Expected in Normal Circumstances (95-100%)	MODERATE RISK = 11	HIGH RISK = 16	HIGH RISK = 20	CRITICAL RISK * = 23	CRITICAL RISK * = 25
Likely Will probably occur in most circumstances (40-50%)	MODERATE RISK = 7	MODERATE RISK = 12	HIGH RISK = 17	HIGH RISK = 21	CRITICAL RISK * = 24
Possible Might occur at some time (1-10%)	LOW RISK = 4	MODERATE RISK = 8	HIGH RISK = 13	HIGH RISK = 18	CRITICAL RISK * = 22
Unlikely Could occur at some future time (.1-.9%)	LOW RISK = 3	MODERATE RISK = 5	MODERATE RISK = 9	HIGH RISK = 14	HIGH RISK = 19
Rare Only in exceptional circumstances (.01-.09%)	LOW RISK = 1	LOW RISK = 2	MODERATE RISK = 6	MODERATE RISK = 10	HIGH RISK = 15
*CRITICAL RISK tasks require planning meeting with Safety Department prior to the start of work.					



Job Hazard Analysis/Work Method Statement

DATE: 10/10/2024

JOB DESCRIPTION: 24004 LDW

Responsible Discipline:

Step No.	Work Method Step Describe the task step by step	Hazard / Risk What are the hazards of each step?	Risk Score Without Controls	Control Methods & Monitoring What hazard safeguards will be used? How will the effectiveness of the controls be determined? (Inspection & ongoing monitoring)	New Risk Score	Action By
Step No.	Mob & Demob	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
1	Mobilize equipment and materials	<div style="border-bottom: 1px solid black; padding: 2px;">Overhead loads</div> <div style="border-bottom: 1px solid black; padding: 2px;">Falls in water/Drowning</div> <div style="padding: 2px;">Stored Energy (Anchor Lines, spud wells, and mooring lines)</div>	22	<div style="border-bottom: 1px solid black; padding: 2px;">Stay clear of swing radius</div> <div style="border-bottom: 1px solid black; padding: 2px;">USCG Approved PFDs & Life Ring Buoys</div> <div style="padding: 2px;">Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells</div>	13	MH
1.1	Tow barges to and from SMAs, DRF, and Agg yards	<div style="border-bottom: 1px solid black; padding: 2px;">Stored Energy (Anchor Lines, spud wells, and mooring lines)</div> <div style="border-bottom: 1px solid black; padding: 2px;">Tow Bridles</div> <div style="padding: 2px;">Securing mooring lines</div>	23	<div style="border-bottom: 1px solid black; padding: 2px;">Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells</div> <div style="border-bottom: 1px solid black; padding: 2px;">Stay clear of tow bridles when live</div> <div style="padding: 2px;">Keep extremities out of mooring</div>	18	MH

		Securing mooring lines		line pinch points		
1.2	Access barges via boats	Falls in water/Drowning	20	USCG Approved PFDs & Life Ring Buoys	8	MH
		Severe Weather		Monitor weather and tide cycles		
		Stored Energy (Anchor Lines, spud wells, and mooring lines)		Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells		
Step No.	Demolition	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
2	Removal of demo debris	Human Equipment Interface	22	Stay clear of equipment while demoing	13	MH
		Exposure to Contaminated materials		Level D PPE		
		Overhead loads		Stay clear of clamshell & excavator swing radius		
2.1	Vibro, Dead pull, and Deadstcik	Pile slipping out of jaws	23	Attach a safety line to pile (If necessary)	13	MH
		Handling Hydraulic Lines		Buddy system while handling lines		
		Pinch Points		Keep hands clear of jaws		

2.2	Cut Piles	Cuts & Burns	20	Cut with welding gloves and Leathers	5	MH
		Arc Flash		Utilize shaded cutting glasses		
		Falls		Utilize fall protection when necessary		
2.3	Decontaminate equipment and personnel	Human Equipment Interface	20	Stay clear of clamshell bucket & Disposal Barge	8	MH
		Exposure to Contaminated materials		Level D PPE		
		Slips, trips, and falls		Maintain good housekeeping		
2.4	Transload and dispose contaminated sediment	Human Equipment Interface	23	Stay clear of operating equipment	12	MH
		Exposure to Contaminated materials		Level D PPE		
		Potential Dust Exposure		Dust Suppression System (Water)		
Step No.	Dredging Operation	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
		Falls in		USCG Approved PFDs & Life		

3	Dredge	water/Drowning	25	Ring Buoys	13	MH
		Human Equipment Interface		Stay clear of clamshell bucket & Disposal Barge		
		Stored Energy (Anchor Lines, spud wells, and mooring lines)		Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells		
3.1	Manage Moonpool/turbidity curtain	Falls in water/Drowning	20	USCG Approved PFDs & Life Ring Buoys	8	MH
		Severe Weather		Monitor weather and tide cycles		
		Man Overboard		Man overboard procedure		
3.2	Dewater barges	Slips, trips, and falls	25	Assure three points of contact while accessing barges	17	MH
		Exposure to Contaminated materials		Level D PPE		
		Stored energy in mooring lines		Monitor mooring lines based on barges listing		
3.3	Decontaminate equipment and personnel	Human Equipment Interface	23	Stay clear of clamshell bucket & Disposal Barge	17	MH
		Exposure to Contaminated		Level D PPE		

3.3	Decontaminate equipment and personnel	Contaminated materials	20	Level D PPE	17	MH
		Slips, trips, and falls		Maintain good housekeeping		
3.4	Equipment Maintenance	Stored Energy	20	Stay clear of stored energy while performing maintenance	8	MH
		Human Equipment Interface		Excavator to be at all stop during maintenance		
		Pinch Points		Keep extremities out of the bite		
Step No.	Transload Operation	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
4	Secure and tow barges to DRF	Stored Energy (Anchor Lines, spud wells, and mooring lines)	25	Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells	10	MH
		Tow Bridles		Stay clear of tow bridles when live		
		Securing mooring lines		Keep extremities out of mooring line pinch points		
4.1	Transload sediment at DRF	Human Equipment Interface	25	Stay clear of operating equipment	14	MH
		Exposure to Contaminated materials		Level D PPE		

		Potential Dust Exposure		Dust Suppression System (Water)		
4.2	Decontaminate barges	Human Equipment Interface	23	Stay clear of clamshell bucket & Disposal Barge	17	MH
		Exposure to Contaminated materials		Level D PPE		
		Slips, trips, and falls		Assure three points of contact while accessing barges		
4.3	Transport sediment to landfill	Human Equipment Interface	23	Stay clear of rail cars and trucks	9	MH
		Exposure to Contaminated materials		Level D PPE & Dust Suppression System (Water)		
		Pinch Points		Keep extremities out of pinch points		
4.4	Dispose of sediments	Human Equipment Interface	25	Stay clear of operating equipment	14	MH
		Exposure to Contaminated materials		Level D PPE & Dust Suppression System (Water)		
		Struck by Truck		Make Eye contact with truck driver		

Step No.	Pipe Pile Installation	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
5	Rig Pipe Piles	Rigging Failure	21	Check rigging before every use	8	MH
		Pinch Points		Keep extremities out of pinch points		
		Rogue waves		Monitor boat traffic while rigging		
5.1	Loft pipe pile	Miscommunication	21	Use radios & Hand signals	8	MH
		Overhead loads		Stay clear of crane swing radius		
		Crushed by load		Stay clear while lofting pile		
5.2	Drive pipe pile	Pile slipping out of jaws	21	Attach a safety line to pile	8	MH
		Handling Hydraulic Lines		Buddy system while handling lines		
		Pinch Points		Keep hands clear of jaws		
		Cuts & Burns		Cut with welding gloves and		

5.3	Pipe Pile Cutoff	Cuts & Burns	21	Leathers	8	MH
		Arc Flash		Utilize shaded cutting glasses		
		Falls		Utilize fall protection when necessary		
Step No.	Sheet Pile Installation	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
6	rig sheet pile	Rigging Failure	21	Check rigging before every use	8	MH
		Pinch Points		Keep extremities out of pinch points		
		Rogue waves		Monitor boat traffic while rigging		
6.1	Loft sheet pile	Miscommunication	21	Use radios & Hand signals	8	MH
		Overhead loads		Stay clear of crane swing radius		
		Crushed by load		Stay clear while lofting pile		
6.2	Drive sheet pile	Pile slipping out of jaws	21	Attach a safety line to pile	12	MH
		Handling Hydraulic Lines		Buddy system while handling lines		
		Pinch Points		Keep hands clear of jaws		
6.3	Cut and weld bulkhead	Cuts & Burns	17	Cut with welding gloves and Leathers	8	MH
		Arc Flash		Utilize shaded cutting glasses		
		Falls		Utilize fall protection when necessary		
Step No.	Concrete Placement	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
		Cuts				

7	Install Rebar	Cuts	20	Cut resistant gloves	5	MH
		Overhead loads		Stay clear of swing radius		
		Lifting		Use mechanical Equipment over 5		
7.1	Build Forms	Pinch Points	13	Keep extremities clear of pinch po	5	MH
		Falls		Utilize fall protection when necessary		
		Overhead loads		Stay clear of swing radius		
7.2	Place Concrete	Concrete Burns	21	Rubber boots & Nitrile gloves und	12	MH
		Struck by truck		Stay clear of concrete trucks		
		Access		Provide proper access to placeme		
7.3	Cure Concrete	Burns	14	Assure heaters are not burning co	5	MH
		Cuts		Wear cut resistant gloves		
		Exposure to chemicals		Limit direct contact with concrete		
Step No.	Outfall Dissipation Structures	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
8	Deliver gabion materials	Rigging failure	14	Check rigging before every use	5	MH
		Pinch points		Keep extremities clear of pinch points		
		Unsecure Load		Assure load is properly secured with straps		
		Cuts		Wear cut resistant gloves		

8.1	Tie gabion baskets	Cuts	18	wear cut resistant gloves	8	MH
		Pinch points		Keep extremities clear of pinch points		
		Potential dust exposure		Dust Suppression System (Water)		
8.2	Prep existing surface	Human Equipment Interface	18	Stay clear of operating equipment	8	MH
		Falls in water/Drowning		USCG Approved PFDs & Life Ring Buoys		
		Access		Assure proper access has been established		
8.3	Install baskets	Rigging failure	21	Check rigging before every use	12	MH
		Pinch points		Keep extremities clear of pinch points		
		Overhead loads		Stay clear of swing radius		
Step No.	Clean Material Placement	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
		Stored Energy (Anchor Lines, spud wells, and mooring lines)		Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells		

9	tow clean material barge	Tow Bridles	24	Stay clear of tow bridles when live	17	
		Securing mooring lines		Keep extremities out of mooring line pinch points		
9.1	place cap materials	Human Equipment Interface	18	Stay clear of operating equipment	13	
		Pinch points		Keep extremities clear of pinch points		
		Stored Energy (Anchor Lines, spud wells, and mooring lines)		Do not cross loaded anchor lines or mooring lines, and keep extremities out of spud wells		
9.2	Stockpile Clean Materials	Human Equipment Interface	21	Stay clear of operating equipment	12	
		Potential dust exposure		Dust Suppression System (Water)		
		Struck by load		Stay clear of equipment pathway		
Step No.	Traffic Control	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
	instal/remove traffic control signs	TBD				
		TBD				

		TBD				
	flagging of active traffic controls	TBD				
		TBD				
		TBD				
		TBD				
	South Park Marina public protections	Boat traffic	22	Buoy signage	8	
		Foot traffic		Delineators on dock		
		Noise		Limit noise exposure to protect ge		
Step No.	SMA 5 Remediation Activities	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
	mob sma5	TBD				
		TBD				
		TBD				
	excavate SMA 5	TBD				
		TBD				
		TBD				
	manage water	TBD				
		TBD				
		TBD				
	manage esp	TBD				
		TBD				

	manage ESC	TBD				
		TBD				
	backfill	TBD				
		TBD				
		TBD				
Step No.	Landscaping & Irrigation	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
	mob landscape	TBD				
		TBD				
		TBD				
	dig and install plants	TBD				
		TBD				
		TBD				
	import planting soil	TBD				
		TBD				
		TBD				
	temp irrigation	TBD				
		TBD				
		TBD				
Step No.	Survey	Hazard / Risk	Risk Score Without Controls	Control Methods & Monitoring	New Risk Score	Action By
		Falls in		USCG Approved PFDs & Life		

	Collect hydrographic survey data	water/Drowning	14	Ring Buoys	5	
		Severe Weather		Monitor tide cycles		
		Vessel traffic		Monitor vessel traffic		
	Collect topographic survey data	Falls in water/Drowning	14	USCG Approved PFDs & Life Ring Buoys	5	
		Severe Weather		Monitor tide cycles		
		Vessel traffic		Monitor vessel traffic		
	Establish monitoring points for structures	Pinch points	18	Keep extremities clear of pinch points	8	
		Slips, trips, and falls		Assure three points of contact		
		Access		Assure proper access has been established		
	Record monitoring points for structures	Falls in water/Drowning	18	USCG Approved PFDs & Life Ring Buoys	8	
		Human Equipment Interface		Stay clear of operating equipment		
		Slips, trips, and falls		Assure three points of contact		

APPENDIX B: EMERGENCY RESPONSE PLAN



EMERGENCY REPSONSE PLAN

LDW Upper Reach

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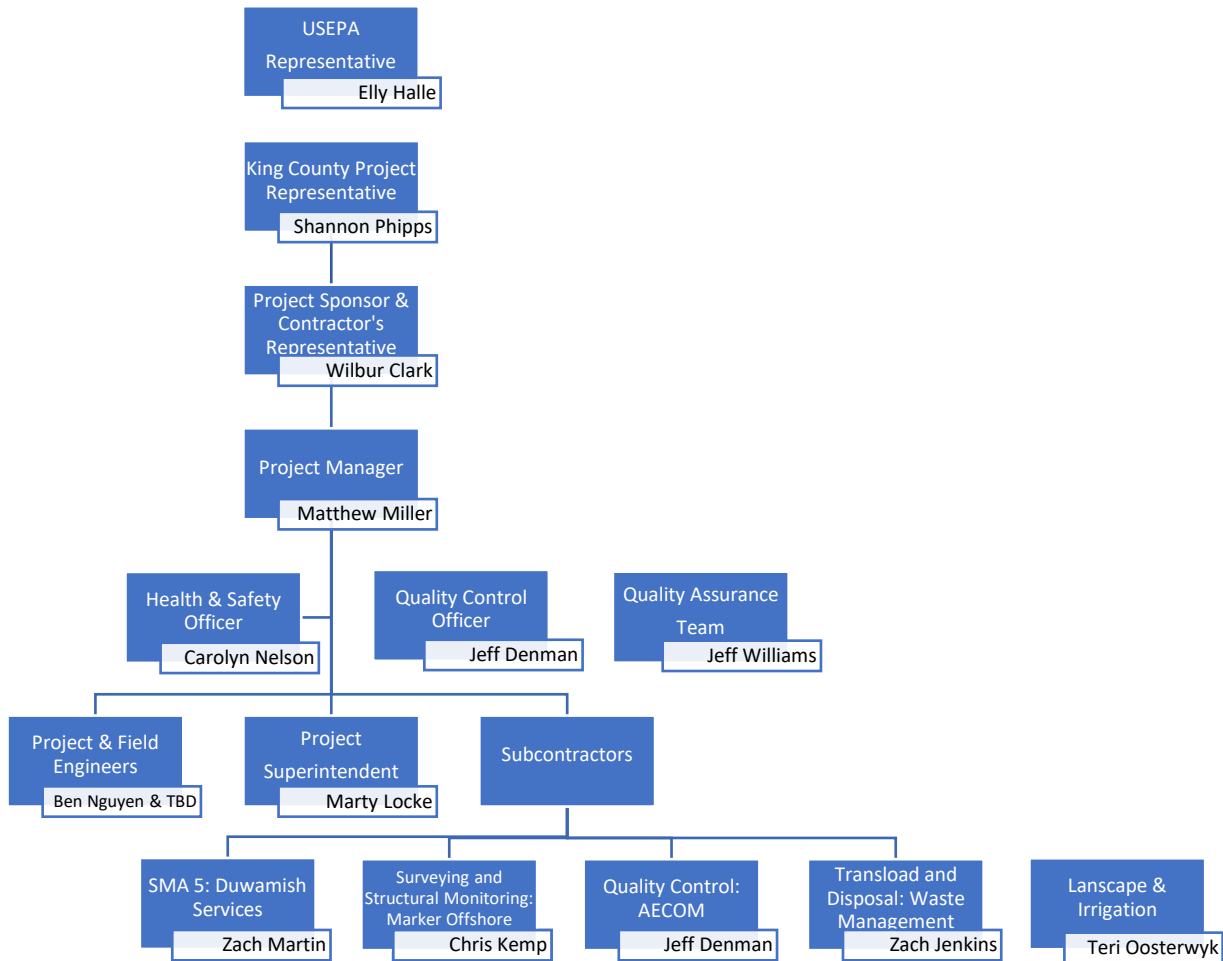
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INTRODUCTION

The purpose of this plan is to ensure that safety protocols are clearly outlined and followed. The main tool to accomplish this will be the use of a Job Hazard Analysis (JHA). The JHA is outlined in section 3.1 of the HASP. The purpose of the JHA is to identify what hazards each activity poses, as minor as they may be, and apply the appropriate measures to eliminate or control the hazard which exposes the workers or environment. This will include PPE selection, tools and trained workers to either perform the work or emergency response. Any emergency response that is outside of Pacific Pile and Marine will be contacted for availability and ability before the project starts. All workers will be orientated to this plan and all JHA which affect the worker.

1.0 RESPONSIBLE PERSONS

- **Site Safety & Health Officer** is responsible for the overall implementation of the Emergency Response Plan, as well as the following items:
 - Identify outside emergency support personnel.
 - Analyzing the emergency and deciding how to respond in the most efficient and effective manner.
 - Act as the project's primary coordinator with emergency services; to include but not limited to police, fire protection and rescue, ambulance providers, right of way utility owners, and the owner.
 - Directing the efforts of various internal response personnel.
 - Coordinating with the response efforts of other entities.
- **Project Supervisors** are responsible for implementing the Emergency Response Plan at the field level and informing their employees of the location of their assigned emergency assembly area in the daily Safety Huddle meeting, and as necessary as the crew progresses through the days planned work activities. During an evacuation, they are also responsible for taking prompt action in ensuring that all personnel move to the designated assembly area and are accounted for in a timely manner.
- **Employees** have a responsibility during an emergency evacuation to promptly proceed to the designated assembly area in an orderly manner. After arriving at the assembly area employees will partake in an organized head count and remain in the assembly area until directed by the Project Manager or Superintendent to do otherwise.
- Pacific Pile and Marine's Superintendents and Foremen will inform all employees in the recognition, response and who to contact if emergency procedures is/are needed. Please see the following Chain of Command chart:



The on-site emergency management personnel include:

ORGANIZATIONAL STRUCTURE			
Pacific Pile & Marine		Phone Numbers	
Project Representative	JC Clark	██████████	After Hours Contact
Project Manager	Matt Huston	██████████	After Hours Contact
Superintendent (24/7 Contact)	Marty Locke	██████████	After Hours Contact
Regional HSE Manager	Carolyn Nelson	██████████	After Hours Contact
Project Engineer(s)	Ben Nguyen	██████████	
Field Engineer(s)			
Foreman	Bobby Cossell	██████████	
Office	Seattle Main Office	██████████	
Director of HSE (24/7 Contact)	Matt Rolf	██████████	After Hours Contact

Outside Reporting Agencies		
EPA	800-424-4372	
National Response Center	(800) 424-8802	Required within 12 hours
Coast Guard	(206) 217-6200 (24hrs)	Channel 16 for vessel emergency
Washington Emergency Management Division	(800) 258-5990 (800) OILS-911	24/7

2.0 DESIGNATED EMERGENCY SERVICES PROVIDERS

This portion of the plan has been developed to help ensure that all service providers near the project can provide timely and effective response during construction. These types of emergency services include fire rescue, police, and medical assistance.

The following service providers have been identified for the project:

EMERGENCY SERVICES PROVIDERS		
SERVICE PROVIDER	LOCATION	PHONE NUMBERS
Police: Seattle Police Department	West Precinct 810 Virginia Street Seattle, WA 98101	Emergency: 911 (206) 684-8917
Ambulance: Seattle Fire Department	Station #5 925 Alaska Way Seattle, WA 98104	Emergency: 911 (206) 386-1400
Fire: Seattle Fire Department	Water Based Emergency: Station #5 925 Alaska Way Seattle, WA 98104	Emergency: 911 Specify emergency: Water or Land based. (206) 386-1400
Emergency Room: Harborview Medical Center ED	325 9th Ave Seattle, WA 98104	(206) 774-3074

In the event of an emergency, the following coordination points have been established as points of reference where Emergency Responders will be met..

EMERGENCY COORDINATION POINTS	
Coordination Point	Location
Primary Coordination Point	South Park Marina
Secondary Coordination Point	700 S. Riverside Dr. Seattle, WA 98108 For land-based emergencies: Use above address and meet at vehicle gate entrance on south side of building.
911 meeting point	South Park Marina
911 meeting point (Back-up)	700 S. Riverside Dr. Seattle, WA 98108 Secondary Muster may be used

3.0 MEDICAL / NON-MEDICAL EMERGENCIES

When calling emergency response personnel make sure to tell them you are on the Duwamish River and will meet the emergency personnel at the South Park Marina

- Also, be sure to provide them with your cell phone (or project office) number should they need more information enroute.
- After calling, ensure someone is waiting at the marina to meet the emergency response team and guide them to the injured person(s)

Medical Emergency

In the event of a medical emergency:

1. Stop the work activity.
2. Assess the cause of the injury to avoid injury to yourself (i.e. live wires, gases, hazardous materials).
3. Do not move the casualty unless they remain in danger.
4. Pacific Pile and Marine foreman or Superintendent will notify King County representative of the emergency.
5. First Aid Provider will designate an individual to call for medical assistance (e.g., ambulance, site medic).
6. First Aid Provider will designate an individual to retrieve the first aid kit and blankets.
7. Request assistance from other First Aid Providers as necessary. Administer first aid:
 - a. Assess responsiveness: ask permission.
 - b. Send for medical help.
 - c. Place casualty/victim face up.
 - d. Check Airway, Breathing and Circulation ABC's
 - e. Control severe bleeding.
8. If CPR is deemed necessary:
 - a. Begin chest compressions at a rate of at least 100 compressions per minute.
 - b. CPR shall be continued until:
 - i. Until an AED is applied (then follow AED instructions)
 - ii. casualty begins to respond,
 - iii. another first aid provider takes over,
 - iv. medical help takes over, or
 - v. physically unable to continue.
9. If the casualty begins to breathe on their own, place them in the recovery position, monitor and treat for shock as appropriate.
10. Individual in communication with the designated medical assistance shall attempt to answer any questions, stay on the line until information is verified and follow instruction.
11. Arrange for medical transport as needed. A designated individual should be positioned to direct medical transport to the casualty.

12. Personnel shall await further instruction from the Site Supervisor, Site Safety & Health Officer, or designate (e.g., resume activity)
13. Provide a written report known as the Incident Report with 24 hours of any incident to Project Representative.

Instructions for Non-Emergency Injuries

1. Report all injuries, no matter how slight, to your foreman immediately for proper first aid or medical attention. Even the slightest scratch should be treated to avoid infection or tetanus.
2. Contact the safety manager immediately.
3. Pacific Pile and Marine foreman or Superintendent will notify King County representative of the emergency.
4. Employee will be taken to PPM's office.
5. If medical assistance is necessary, employee will be transported to **Concentra** at 3223 1st Ave. South, Suite C. Seattle Washington (See Attached map and directions – Attachment C).
6. For all injuries, job-site foreman must record details of incident, listing witnesses, environmental factors, and time of day and sequence of events. Copies of an accident reporting form are contained within the foreman's field book.
7. Notify the Project Owner Representative immediately of all near miss incidents and all incident accidents involving personal injury and property damage.
8. Provide a written report known as the Incident Report with 24 hours of any incident to Project Representative.

First Aid Kit and AED Locations

Office Trailer: First aid cabinet mounted on wall.

Equipment Barge: On bulkhead in lunchroom

Decontamination of Injured Employees

The SSHO (or another designated person) must be informed immediately of the circumstances requiring emergency decontamination and rescue, and account for all personnel. If urgent medical treatment is required, decontamination of PPE may be delayed until the victim is stabilized.

- If decontamination cannot be performed, first wrap the victim in blankets or plastic sheeting to reduce contamination of other personnel. Next, alert emergency and offsite medical personnel to potential contamination. Then, instruct emergency and offsite medical personnel about specific decontamination procedures if necessary.
- If decontamination can be performed without interfering with essential first aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or death to the victim or first aid providers, decontamination should be undertaken immediately.
- If a heat-related illness develops, protective clothing must be removed as soon as possible.

For more detailed decontamination procedures for equipment, personnel and controls see sections 9 and 12 of HASP.

4.0 INCLEMENT WEATHER

Heavy rain and high winds are a common occurrence in most regions where Pacific Pile & Marine conducts business and particularly during most of our work season(s). Project management and supervisors observe

weather forecasts on a daily basis, at minimum, to anticipate any upcoming inclement weather that may necessitate the shutdown of ongoing construction operations.

High winds are a threat to crane work; wind can cause a mobile crane, and other equipment, to tip over if adequate precautions are not taken. All equipment shall be lowered when winds exceed manufacturer's wind speed limit. Each operator will have this information available for the JHA crane activity or in the pick plan.

Winds generally cause rough sea conditions, leading to rolling and crashing waves, which often splash over the surface of the barge. For this reason, loose material, small tools and equipment, and other miscellaneous materials shall be secured prior to the start of work or at the end of the shift, or at any time during the course of the workday as needed. Small boats and skiffs can easily become swamped due to high seas and wave action; extra caution must be taken during the use of these boats.

For snow and icy conditions, main walkways will be treated to provide adequate footing. This will be performed before any work is done at the start of each workday.

If there is any stockpiling of soils, they will be properly bermed to prevent water from entering stockpile, from possible flooding, or causing the soil to erode or run off. If heavy rain is expected, the piles will be duly checked to ensure berms are properly installed and secured.

Check the weather forecast before participating in outdoor activities. If the forecast calls for thunderstorms, consider your trip or activity, and make sure adequate safe shelter is readily available. Many applications are available for smart phones and devices have lightning alert capabilities or display lightning strikes on radar maps; download one for your smart phone and enable location services to receive alerts.

Since thunderstorms are difficult to foresee, it is important that employees be educated in the safety precautions to take in the event of a thunderstorm.

Employees should seek shelter indoors during a thunderstorm when possible. When indoors, it is important employees avoid contact with electrical appliances, conductive surfaces, and structures. When a weather advisory is given, a member of the management team will be responsible for tracking lightning strikes. If lightning is within 5 miles, then employees shall be instructed to take shelter. They may return to work after 30 minutes if no strikes occurred in the 5-mile radius of the work area.

When outdoors, they shall seek shelter in vehicles, if possible. Lightning will strike the easiest source to ground, not necessarily the highest. Conductive objects such as trees, telephone poles, crane booms, and flagpoles shall be avoided. A safe distance from a conductive object is twice the object's height. Objects that may carry electric current from a remote thunderstorm should also be avoided. These objects would include telephone lines, pipelines, and fences. An employee shall not use electric tools outdoors if a thunderstorm is in the immediate area. Employees shall not be permitted to work on cranes during a thunderstorm. To prevent damage or injury, cranes shall be grounded.

5.0 FIRE

Fires are one potential hazard that may require emergency response. For this reason, the Project Superintendent will monitor operations to ensure welding, cutting, and hot work safety controls are fully implemented.

In addition to the above actions, Project Management shall:

- Ensure that all emergency response numbers are posted next to the job phone in the main office, employee bulletin board, and employee job shacks.
- Communicate with the facility desk and advise project personnel of the potential for inadvertent fires.
- Coordinate necessary training activities to emergency response situation with outside personnel.

If employees have been properly trained in the operation of a fire extinguisher, they may attempt to put out a small fire, if the following conditions are met:

- The fire must be small (i.e., smaller than a trash can) and in its early stages.
- The employee must have an escape route.
- The employee must be trained and know they have the right type of extinguisher.
- The employee must be safe from toxic gases.
- There must be no hazardous conditions that could quickly accelerate the fire (e.g., presence of chemicals and/or combustibles, especially dry grass, etc.).
- Above all, if in doubt, the employee must not attempt to fight the fire

6.0 SPILLS / ENVIRONMENTAL INCIDENTS

Spills are releases of pollutants into the natural environment. The guideline set forth by the EPA establish requirements to report spills to navigable waters or adjoining shorelines. Discharges of oil in quantities that may be harmful to public health or the environment include those that:

- Violate applicable water quality standards,
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines, or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Some examples of spills of pollutants that may occur on the project include:

- Petroleum oils,
- Gasoline,
- Diesel, and
- Kerosene, smoke, or dust.
- Environmental waste

In the event of a spill or an environmental incident the following steps shall be taken.

- 1) Notify the appropriate site supervision and implement the Spill Prevention, Containment, and Clean up Plan located in the HASP binder in the break shack.
- 2) Don required personal protective equipment (e.g., rubber gloves, rubber apron, rubber boots, safety goggles, and appropriate respirator).
- 3) Contain and/or control the spill (e.g., dikes and spill control agents such as sand or absorbent booms).
- 4) Clean up the material using the spill kits located on the project site. Using a large hand tool (i.e., non-sparking shovel) ensuring all the liquid has been exposed and mixed with the absorbent material.

When required notify the customer and appropriate agencies.

When to Report?

All Spills must be recorded in HCSS and or in the PPM Spill Log

A spill or environment incident must be reported if it:

- harms or causes material discomfort to any person,
- injures or damages property or animal life,
- impairs the quality of the natural environment air, water, or land,
- Violate applicable water quality standards,
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines,
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.
- causes adverse health effects, or
- presents a safety risk.

Who Must Report?

By law, a spill must be immediately reported if you:

- cause or permit the release, and
- had control of the substance just before the spill occurred.

Where to Report?

A spill must be immediately reported to:

- the client,
- the municipality, and
- the person in control of the substance if known and not already aware.

What to Report?

When reporting the incident provide the following information:

- caller name and phone number,
- name of company or individual responsible for the spill,
- time and location of the spill,
- type and quantity of material spilled (if you know), and
- status of the spill, including actions being taken to control the spill.

Minor Spill

Minor spills shall also be immediately cleaned up. A minor spill is one that usually presents little or no hazard to person or property and is small enough to be safely cleaned up using the emergency spill kit.

DISPOSAL

The disposal of waste material resulting from a spill or leak is of extreme importance. All disposal actions must be in accordance with Part X of the Environmental Protection Act.

7.0 EVACUATION

If a situation requires an evacuation or emergency muster/assembly, the pre-determined alarm will be initiated:

- Three long loud blasts followed by a pause then three more blasts on an air horn or equipment horn

In the event of an emergency, all employees in the work area must be assigned a designated assembly area to proceed. Assembly areas may remain the same for several weeks or months or may change with regular frequency. New areas will be discussed during the daily Safety Huddle meetings with work crews. The assembly areas will be located at strategic places, close enough to work areas for access, but far enough away from potential disaster areas to afford protection to personnel. Since it is not possible to predetermine where these areas need to be due to changing conditions, the site safety personnel and superintendent will assess each new “place of refuge” to determine if safe conditions are met based on the hazards. This information for the SMA, barges, PPM yard and transload facility will be identified in the specific JHA associated to these tasks. Alternate areas will be considered in case of inclement weather and other possible conditions. Assembly Areas will provide a definite destination for an orderly evacuation, allow for grouping so that instructions can easily be conveyed to all affected personnel, and expedite the search for missing personnel if need be.

DESIGNATED ASSEMBLY AREA	
Assembly Area	Location
Primary Muster Point	Work Barges
Secondary Muster Point	700 S. Riverside Dr. Seattle 98108

All personnel (e.g., workers, contractors, visitors) of the area requiring evacuation or muster/assembly will immediately assemble at the designated Muster Point, Assembly Area or Shelter-in-Place as determined by the alarm or communication.

The Site Supervisor, Site Safety & Health Officer, or designate will take action to account for all personnel, including visitors (i.e., head count, roll call using the days THA). The Site Supervisor, Site Safety Officer, or designate shall ensure the appropriate emergency response is activated.

Foremen who are responsible for mobile or heavy equipment shall determine whether the equipment will remain where it is, at the time of the emergency, or if it will be moved to a predetermined area. Pacific Pile and Marine will utilize the expertise of their subcontractor before any needed emergency movement of their equipment.

Employees, upon notification, shall shut down all equipment, extinguish smoking materials, and assist with securing the jobsite as directed by their supervisor. Required personal protective equipment is to remain in use. Employees shall proceed quickly to their assigned assembly areas and shall remain there pending further instructions from the Project Manager, Superintendent, and/or outside emergency services providers. Employees will remain in the assembly area pending instructions from their supervisor. Pacific Pile & Marine, LP, and subcontractor supervisors should inform employees with respect to the type of emergency and plans for the resumption or suspension of work.

Should a worker(s) be determined missing, a worker aware of the pending dangers is to return to the work area to look for missing the worker(s). A method of communication such as a two-way radio is mandatory for workers performing a search.

Should it be determined that an individual is still within the hazard zone, establish whether a rescue can be safely attempted. Follow the ‘Emergency Rescue Procedure’ if properly trained and a rescue attempt will not put another individual in jeopardy.

Personnel shall await further instruction from the Site Supervisor, Site Safety & Health Officer, or designate (e.g., all clear and re- entry or further evacuation)

All work will be evaluated either by use of JHA, or by use of Confined Space Permit, for evaluating what rescue procedures are needed. The procedures, if performed internally, will be practiced at least annually. All workers involved will attend the mock rescue and it shall be documented. Any new workers will have to attend a mock rescue.

If outside rescue is utilized, it must be verified that the outside rescue personnel can perform a timely rescue. All communication with outside rescue personnel will be documented. Typically the outside rescue team will visit the site in person.

8.0 VEHICLE INCIDENTS

In the event of a vehicle incident (including collisions as well as mechanical difficulties such as breakdowns and flat tires) the following response is recommended. For breakdowns and flat tires, if not able to safely self-correct the issue, contact an emergency provider. For rental vehicles, contact the rental company.

If a collision has occurred, assess the situation, and move all occupants (except the injured) out of further harm's way. If safe to do so, remove the car from the traveled way. Call 911 if necessary and report the incident to the PPM HSE Dept at (206) 331-3873, ext. 1601 as soon as practical. If in a PPM owned or leased vehicle, contact our fleet manager, Justin Weatherbee, at (206) 940-8718. If appropriate, wait for police to arrive. Provide insurance information to other drivers if necessary or requested, and collect the same. If possible, obtain names and phone numbers of witnesses. Take photographs of the scene. **DO NOT ADMIT LIABILITY, AGREE TO PAY FOR DAMAGE, OR SIGN A DOCUMENT RELATED TO AN INCIDENT EXCEPT AS REQUIRED BY LAW.**

For personal vehicles used on PPM business, contact the HSE Dept at (206) 331-3873, ext. 1601, and an emergency provider.

9.0 TRAINING

The overall effectiveness of the Emergency Response Plan is based on employee training and the execution of practice of emergency response drills. Due to the length of the project, and possible employee turnover, it will be necessary to review this plan at least during or after each phase completion. Pacific Pile & Marine Project Management will ensure that the plan is initially discussed in the new hire employee orientations and in scheduled daily Safety Huddle meetings along with providing updated maps, detailing the coordination points to all supervisors as needed.

Planning and Preparation to ensure comprehensive emergency preparedness, Pacific Pile & Marine (PPM) will engage in pre-emergency planning and preparation activities. This includes a pre-construction meeting as well as regular weekly meetings with the Project Representative (PR), the Environmental Protection Agency (EPA), and local emergency responders to discuss potential hazards, emergency procedures, and coordination efforts. These meetings will ensure that all parties are aware of their roles and responsibilities and that emergency services providers are supplied with the necessary information to deliver prompt services in the event of an emergency.

10.0 Hazard Communication

Pacific Pile and Marine will identify and list all chemicals on the project site, then communicate associated hazards through safety meetings, trainings, etc. to all its project team members and subcontractors. See section 11.4 of the HASP for more information. A comprehensive list of Safety Data Sheets is maintained by the PPM HSE Department, as well as access to TotalSDS, by all PPM employees and its subcontractors:

<https://manager.totalsds.com/ss/safetysearch.html?clientId=CR8N657K8LA7MUJ51LXZ3RHN5XHBM23V>

When workers are required to perform non-routine tasks involving hazardous chemicals, a meeting will be held involving the employee(s) regarding the hazardous chemicals that will be used or may be found during

the work activity and the proper precautions to take to avoid exposure. The SSHO (or other designated person) shall ensure that training is completed on all hazardous chemical exposure prior to use.

Employees of other contractors working at sites where Pacific Pile & Marine is acting as a general or prime contractor will be provided access to SDS files maintained by the job supervisor, either in a job office or in the supervisor's vehicle.

The Pacific Pile & Marine jobsite supervisor is responsible for notifying the responsible subcontractor supervisor or job foreman of any chemical hazards that may be encountered in the normal course of their work on the premises, the labeling system in use, the protective measures to be taken, the safe handling procedures to be used and the location and availability of SDS's. Each contractor bringing chemicals on-site must provide the Pacific Pile & Marine jobsite foreman with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken when working with these chemicals.

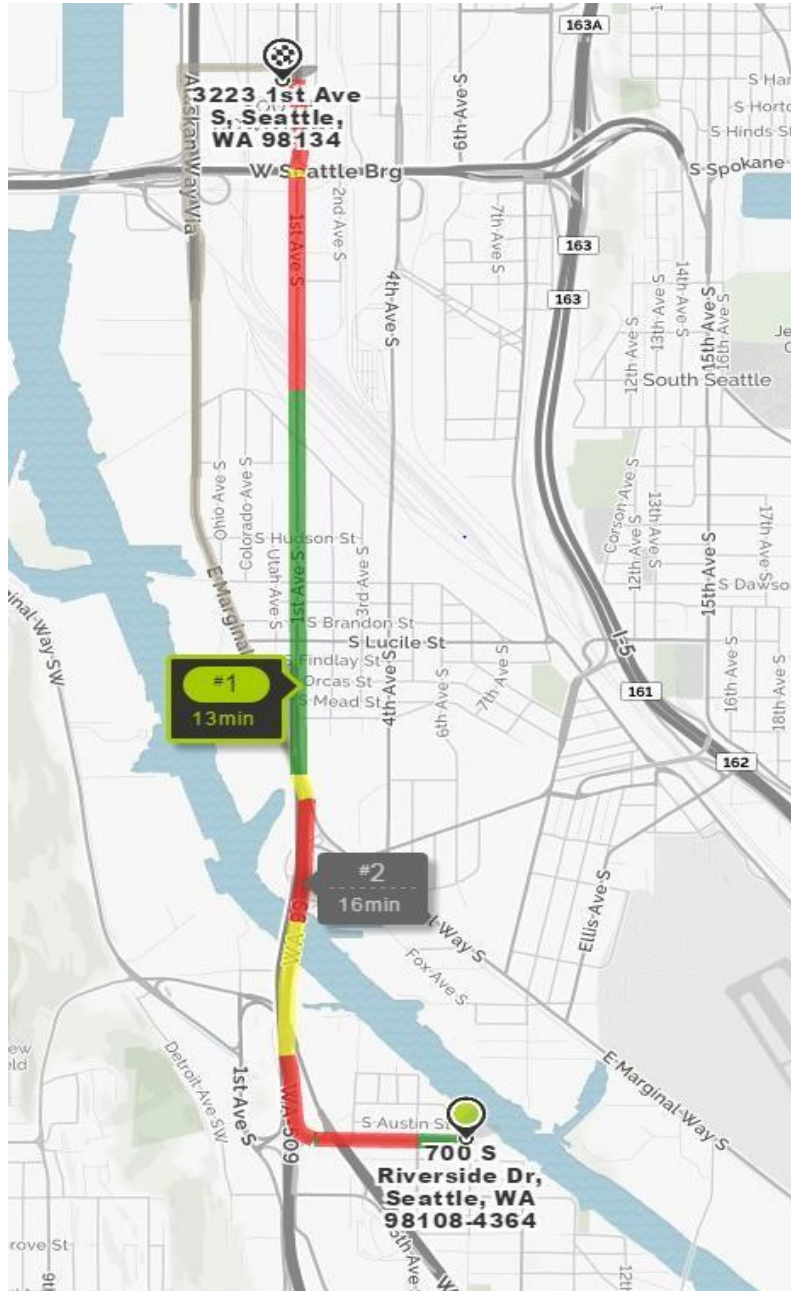
11.0 ERP Revisions

Any Emergency Response Plan revisions that must be made during to the project will be drafted by the Project Manager and the Project Superintendent, in unison, with final reviews completed by the SSHO. Revisions or updates will be done when condition(s) have changed such as a new location of work activity or new hazards introduced. If a new or revised JHA is done, then an evaluation of the ERP will be performed to ensure that any hazards have been adequately addressed. Review will take place when a new revisions are done and will be reviewed by the Project Sponsor prior to implementation. Major changes may require resubmittal to King County.

Pacific Pile and Marine will work closely with King County to ensure a safe work site is maintained.

Map and Directions to Medical Clinic for Non-Emergency Treatment

Directions – Head west on S. Riverside Dr. towards S. Holden Street. Stay straight on to Holden Street. Merge onto WA-99 North. Turn slight right onto 1st Ave South. 3223 1st Ave. South, Suite C is on the left.



APPENDIX C: SPILL PREVENTION, CONTROL & COUNTERMEASURES PLAN

Spill Prevention, Control, and Countermeasure Plan

Revision: 0	Date: July 9, 2024
Revision: 01	Date: July 19, 2024
Revision: 02	Date: August 23, 2024
Revision: 03	Date: August 28, 2024
Revision: 04	Date: October 7, 2024
Revision: 05	Date: November 14, 2024



LOWER DUWAMISH WATERWAY

Upper Reach Remedial Action

Contract KC001065

Prepared By:



700 S. Riverside Dr.

Seattle, WA 98108

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1.0 Introduction

This Spill Prevention, Control, and Countermeasure Plan (SPCC) is included in the Environmental Mitigation Binder, an element of the Remedial Action Work Plan (RAWP) as per Specification Section 01 35 43 (Environmental Procedures), for the Lower Duwamish Waterway (LDW) Upper Reach. This SPCC describes procedures to be implemented for spill prevention and response during remedial construction activities for the upper reach of the Lower Duwamish Waterway Superfund Site (Site) in King County, Washington.

1.1 Roles and Responsibilities

1.2 Spill Prevention and Response Coordinator

All efforts will be made to avoid spilling any of the materials used on Site. However, spills do happen and responding can be difficult without a specialized knowledge of the protocol and resources required. As such, Pacific Pile & Marine (PPM) has assigned Marty Locke (Superintendent, 24 hours contact number 206-963-8927) as the Spill Prevention and Response Coordinator and Matt Miller (Project Manager, 24 hour contact number 206-715-7466) as an alternative in the event of a spill during in-water or upland Site operations. In the event of a spill the Spill Prevention and Response Coordinator will be responsible to:

- Identify all Federal, State, Municipal and Owner requirements relating to spill prevention, control, and remediation. Including the established Shipboard Oil Pollution Emergency Plan (SOPEP) for the vessel Lash 4.
- Produce and periodically update a hazardous materials inventory (see **Section 2.1**) upon which site-specific procedures will be based.
- Ensure that containment and recovery equipment is available on Site in quantities capable of sufficiently responding to the most serious spill conditions identified in the hazardous materials inventory (see **Section 3.1**).
- Initiate, oversee, and direct activities relating to the prevention and recovery of any accidental release of hazardous materials into the environment in coordination with the Project Representative (see **Section 3.2**).
- Produce documentation and co-ordination of notifications and reports pertaining to spills (see **Section 3.5**).
- Co-ordinate training of Site employees on spill response (see **Section 3**).
- Liaise and co-ordinate communications and activities with the Project Representative, subcontractors, and regulators during containment and remedial operations.

A more detailed explanation of our spill response procedure is provided in **Section 3**.

1.3 Superintendent

The Superintendent for this project is Marty Locke. General responsibilities of the Superintendent are provided in the RAWP, additional responsibilities specific to the SPCC include:

- Ensure work is conducted in a manner which will reduce the likelihood of environmental spills.
- As one of the two Spill Prevention and Response Coordinators, assist in the control and remediation of any accidental spills.

- Communicate environmental requirements as well as the elements of spill prevention, control, and remediation to the field crew through the daily Tailgate Meetings.

1.4 Site Personnel

All site personnel will be responsible for the following:

- Conducting their work in a manner that achieves the required environmental protection, and which will reduce the likelihood of accidental spills.
- Assisting in spill containment and remediation as directed by the Spill Prevention and Response Coordinator and/or the Superintendent.

1.5 Training

PPM will provide the following training and communications regarding spill prevention and response:

- The Spill Prevention and Response Coordinator will ensure that all Site personnel including employees of subcontractors are introduced to the proper use, handling, and storage of materials on Site which could present a hazard to the environment, as well as the location(s), use and limitations of spill containment and recovery equipment.
- The Spill Prevention and Response Coordinator will ensure that all Site personnel including employees of subcontractors are fully aware of the spill prevention and response procedures outlined in **Sections 2** and **3**.
- PPM's new hire orientation includes a section on safety and environmental awareness and responsibilities. Each employee is required to complete the orientation before being permitted to go to work. Orientation paperwork will be maintained by PPM, copies of the paperwork can be provided to the Project Representative upon request.
- Environmental issues pertaining to spill prevention, containment, response, management, and cleanup will be discussed at all Tailgate Meetings and general safety meetings. In addition, at the start of all operations that could affect the environment, all affected personnel will be instructed upon specific procedures to protect the surrounding environment.
- Site employees actively involved in the spill prevention, spill response and cleanup operations will complete 40-hour Occupational Safety and Health Hazardous Waste Operations and Emergency Response (HAZWOPER) training including annual 8-hour refresher training.

2.0 Spill Prevention

2.1 Materials and Information Inventories

PPM's Spill Prevention and Response Coordinators will document an inventory of all materials, which if inadvertently released could be hazardous to the environment. The hazardous material inventory will include the type of product, quantity, and storage and use conditions as outlined in the Safety Data Sheet (SDS) for each material. The inventory will be current and updated quarterly (or more frequently if necessary), will be posted in a known location to all personnel, and be made available to the Project Representative as needed.

The Spill Prevention and Response Coordinators will retain a file of SDS sheets for each material on Site, at a known location that is accessible for review in accordance with the Global Harmonization System (GHS) to aid in classification and labeling of chemicals. PPM uses Total SDS, a web-based software

system, that allows Site personnel access to SDSs via QR codes which will be posted at locations on Site where hazardous materials will be stored. SDS documents will additionally be printed and accessible onsite for all Site personnel.

A preliminary list of hazardous substances to be used at the Site is provided in Table 2-1.

Table 2-1: Preliminary List of Hazardous Substances

Hazardous Material	Intended Use	Estimated Quantity	Location	Secondary Containment
Gasoline, Unleaded, Ethanol free	Work Skiff, Pumps, , Misc. Small Tool Fuel	250 Gallons	Day tank located on barges	Double-walled fuel tank located on barge deck
Diesel #2	Equipment & Vehicle Fuel	5,500 Gallons	Day tank located on barges	Double-walled fuel tank located on barge deck
Biodegradable Hydraulic Fluid	Hydraulic Fluid for Heavy Machinery	55 Gallons	Within on-site tools connex	Collapsible berm or drum containment pallet.
Motor Oil	Motor Oil for Heavy Machinery	25 Gallons	Within on-site tools connex	Collapsible berm or equivalent.
Antifreeze/Engine Coolant	Engine Coolant	25 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily
Gear Oil	Gear Oil for Heavy Machinery	5-10 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily.
Aluminum Grease	Lubricant for Equipment Bearings	5 Gallons	Within on-site tools connex	Collapsible berm or drum containment pallet.
Paints, Solvents, Etc.	Miscellaneous	10 Gallons	Within on-site tools connex	Collapsible berm or equivalent.

Each material in Table 2-1 will be included in the hazardous material inventory which will be reviewed by Site personnel to ensure the correct storage and use conditions as outlined in the SDS for each material.

In order to reduce the likelihood of a spill PPM will implement the following measures and procedures:

- Identify spill hazards and analyze likelihood of spills;
- Perform daily equipment inspections and repair any damaged or worn parts prior to use;
- Where possible, hazardous materials will be stored on durable impervious surfaces and within manufactured secondary containment capable of containing 110% of the largest single container stored in the secondary containment;
- Where possible, hazardous materials will be stored under cover, such as tarpaulins or roofs, to prevent entry of rainwater into the secondary containment;
- Maintain good housekeeping (see **Section 2.5**);
- Transfer of hazardous materials from one storage container to another will be performed in or over a secondary containment;
- Plastic sheeting will not be used in a containment system for long-term storage of chemicals or equipment with fuel tanks;
- When possible, spill pads will be attached to equipment fuel tanks; and
- Site personnel will be trained in spill prevention.

A daily record summarizing inspections performed for spill prevention and measure implemented, controls, and actions taken to address spills or mitigate the risk of spills will be reported in the Daily Construction Report as outlined in Specification Section 01 33 00 (Submittals).

2.2 Equipment Use and Maintenance

The following spill prevention measures will be implemented for operation of equipment and maintenance:

- Equipment delivered to the worksite will be in good operating condition and kept in proper operating condition;
 - Daily equipment inspections will be performed and documented prior to use to inspect for leaks and mechanical conditions that have the risk of resulting in spills of fuel, lubricating oils, or hazardous materials;
 - Equipment maintenance will be performed by a qualified person and at a designated Site location away from the LDW when possible and no draining or replacing of engine fluids will be conducted at the Site;
 - Fueling and routine maintenance operations will be conducted in accordance with Section 2.4 and the job hazard analysis provided in the Site Specific Health & Safety Plan (Appendix F of the RAWP);
 - Designated fueling and maintenance locations will be proposed and approved at the discretion of Project Representative (See Section 2.9 of the Erosion and Sediment Control Plan for more details);
 - Oily rags, oils and other fluids generated during equipment repairs and maintenance will be collected and disposed of in accordance with applicable standards and regulations.
- Fueling of land-based equipment will occur by mobile trucks in a staging area or over pavement a minimum of 150 feet from any open water and a minimum of 100 feet from any natural or human-made drainage conveyance. Additionally, fueling locations will be inspected by either the Project Engineer or Construction Quality Control Officer after fueling and results documented in the Daily Construction Report;
 - Drip pans will be placed under fuel tanks during refueling of land-based equipment, drip pan contents will be disposed of according to **Section 3.4**;
 - Exact areas for fueling and maintenance in SMA 5 will be defined, demarcated, and shown on a site map when the SPCCC and other work plans are updated prior to the SMA 5 work.
 - Drip pans will be placed under fuel tanks and hydraulic hoses of land-based equipment left on Site overnight, inspection of the drip pan will be documented on the daily equipment inspection form and contents of the drip pan, if any, will be disposed of according to **Section 3.4**;
 - When possible, spill pads will be attached to equipment fuel tanks;
 - Equipment use will be limited to approved work locations;
 - Land-based equipment will be located away from drainage pathways, waterways, and other sensitive areas to the maximum extent possible;
 - During the purging of Site tanks and/or associated lines, spill pans or secondary containments will be in place to prevent the release of any hazardous materials to the surface, surface water, catch basins, or soils within or surrounding the Site; and
 - Spill kits will be maintained on each working barge (Lash 4, Cool Bob, and WEB) and at SMA 5 worksite. Each piece of equipment will have a portable spill kit on board. In addition, drum spill kits will be strategically located near working areas and within 100 feet of fueling operations. Drum spill kits will include the following materials at a minimum:
 - (100) 15 x 19" Pads;
 - (4) 3" x 12' Sorbent Socks;

- (8) 18 x 18" Pillows;
- (1) box Nitrile Gloves;
- (1) Emergency Handbook;
- (1) pair Goggles;
- (5) Disposal Bags;
- Oil-absorbent boom: Four each, 5 feet in length;
- Oil-skimming system (including 2" pump) for in-water work spill kits;
- (1) Pallet of Sandbags (for land side spill kits); and
- (20lbs) Oil absorbent material, such as cat litter or sawdust, for land side spill kits.

SMA 5 construction is expected to take place between December 2026 and March 2027. Spill kit contents for SMA 5 will be assessed at a later date once the Site can be accessed by PPM and subcontractors as part of the pre-construction planning for Construction Season 3.

General maintenance activities will be:

1. General Preparation (Pre-Maintenance)

1. Pre-Maintenance Inspection

- Inspect the area for any signs of leaks, spills, or damage around the equipment.
- Ensure all spill kits, absorbents, and containment systems (such as drip trays) are available and nearby.
- Verify that secondary containment (such as pans or berms) is properly set up under the equipment, particularly under areas where fuel, oil, or other fluids may be released.

2. Shut Down Equipment

- Power down the equipment and ensure there is no pressure or residual motion in any systems (fuel, oil, hydraulics) before starting work.
- Allow hot components to cool down to prevent pressure buildup and to minimize the risk of fires.

3. Communication and Documentation

- Notify the relevant supervisor before starting maintenance.
- Ensure documentation, like maintenance logs or permits, is reviewed and filled out before beginning the task.

2. Specific BMPs for Common Maintenance Tasks

A. Fuel Filter Replacement

1. Preparation

- Place a **secondary containment pan** under the filter area to capture

any fuel drips.

- Use **spill absorbent pads** or pillows around the fuel filter area to prevent small drips from spreading.
- Make sure a **spill kit** is available nearby before beginning.

2. Fuel System Shutoff

- **Shut off** the fuel supply valve to prevent fuel from leaking while the filter is being replaced.
- **Depressurize** the system by opening the fuel lines or loosening the filter slightly to release any trapped pressure into the containment tray.

3. Removing the Filter

- Slowly **unscrew the old filter** while keeping an absorbent cloth wrapped around the connection to catch residual fuel.
- **Immediately place the old filter** into a **sealed container** to prevent fuel from spilling during handling.

4. Replacing the Filter

- **Check the new filter** for any damages, and pre-fill it with fuel if necessary (make sure this is done over the containment tray).
- Install the new filter **securely** and wipe any spilled fuel off the connection area with an absorbent pad.

5. Cleanup

- Use absorbent materials to clean any residual drips or spills around the area.
- Dispose of the used filter and absorbents in a **sealed, labeled container** for proper disposal as hazardous waste.

B. Oil Change or Top-Off

1. Preparation

- Place a **drip pan** or **containment pad** under the engine's oil drain plug and around the oil filter.
- Ensure **absorbent socks** are placed around the workspace to contain any potential spills.

2. Draining the Oil

- Slowly open the drain plug, allowing oil to flow directly into the pan. Be prepared with a rag to wipe off any small spills around the plug.
- **Remove the oil filter** while holding it over the drip pan. Immediately place the filter into a **sealed bag** or container to prevent leaking.

3. Filling with New Oil

- Place a **funnel** over the oil filler to avoid spillage during refilling.

- Slowly pour oil into the engine, keeping an absorbent cloth at the ready to catch any drips around the filler.
- Ensure any **oily rags, pads, or containers** used during the process are sealed for proper disposal.

4. Post-Change Inspection

- Wipe the area clean and ensure no oil residue remains around the engine or filler cap.
- Check the oil levels once the engine has been run, and ensure no further leaks are present.

C. Hydraulic Line Maintenance

1. Preparation

- Place **drip pans** or a containment mat underneath all hydraulic connections to capture potential leaks.
- Have **absorbent pads and booms** placed around hydraulic line fittings to prevent spills from spreading.

2. Depressurizing the System

- Turn off and **depressurize the hydraulic system** before disconnecting any hoses.
- Slowly loosen fittings to **release any residual pressure** into the containment system.

3. Disconnecting Hydraulic Lines

- Use an absorbent cloth to wrap around the fitting while loosening it to capture any remaining hydraulic fluid.
- Immediately plug or cap the disconnected lines to prevent leaks.

4. Replacing Hydraulic Hoses

- Ensure the replacement hose or fitting is **pre-filled** with hydraulic fluid if necessary to prevent air from entering the system.
- Connect the new hose tightly, ensuring no hydraulic fluid is dripping.
- Inspect for leaks after re-pressurizing the system.

5. Post-Maintenance Cleanup

- Use absorbents to clean any drips or leaks, and dispose of them in a **sealed, labeled container** for hazardous waste collection.

D. Engine Coolant Replacement

1. Preparation

- Place **drip pans** beneath the engine and coolant drain points.
- Position absorbent materials around hoses and drain points to

prevent spills from spreading.

2. Draining the Coolant

- Open the radiator cap slowly to release pressure, and begin draining coolant into the containment pan.
- Ensure that any disconnected hoses are plugged to prevent further spillage.

3. Replacing the Coolant

- Pour the new coolant slowly into the radiator or coolant system, ensuring no spills around the filler cap.
- Have an absorbent cloth ready to wipe up any drips.

4. Post-Maintenance Cleanup

- Clean any coolant spills immediately with absorbent pads.
- Ensure all coolant containers are **sealed** and disposed of properly to prevent contamination of waterways.

2.3 Equipment and Site Inspections

Prior to the start of in-water work for each construction season, a general marine condition survey will be conducted by a certified marine surveyor for each barge proposed for use during that season in accordance with Specification Section 35 10 00 (Navigation Safety and Marine Traffic Control). No barge will be used at the Site until the general marine condition survey report has been reviewed and accepted by the Project Representative. If at any point during construction a barge requires repair, a new general marine conditions survey will be completed, see the Water Quality Protection Plan for additional details.

During each construction season daily inspections will be performed on each piece of equipment prior to use and each barge will be inspected prior to transport from each SMA to the Transload Facility. Material storage areas, fuel tanks and hoses, and secondary containments will be inspected weekly for signs of drips, leaks, or damage.

In addition to daily equipment inspections, PPM's Site Health and Safety Officer (HSO) or designated representative will perform regular site audits and forward the report to the PPM Project Manager and Superintendent, results of these inspections will be summarized in the Daily Construction Report.

2.4 Refueling of In-Water Equipment

The barges and excavators that will be mobilized for the project will arrive to the Site with full fuel and will be refueled as necessary on-site according to the steps below. A full fuel tank (5,500 gallons) on the barges should last for the duration of the in-water work season. When refueling is required then a marine fuel transfer will be conducted within the guidelines set forth in this document.

While refueling skiffs and machinery on the barges the following steps will be followed:

1. Ensure no smoking or hot work is taking place in the surrounding areas.
2. Ensure that adequate spill absorbents are readily available and use drip pan when possible.
3. Measure the quantity that is required to be able to anticipate when the tank is nearly full.

4. Check equipment (hoses, valves) for condition and repair if required. Ensure there are no hose couplers or joints over the water.
5. Ensure the vessel is secure.
6. While refueling never leave the area unattended.
7. Securely fasten the storage tank.
8. Place the drum or pump in the required location with the containment in place.

No engine fluids will be allowed to be drained at the Site, the Site boundary is identified in the Contract Drawings as LDW Upper Reach approximate boundary. These maintenance activities when needed will occur off site at PPM's various marine yards.

2.5 Site Activities and Clean-up

Site clean-up (i.e., shoveling and sweeping) will be an on-going maintenance activity. All barge deck surfaces will be kept free of sediment or associated materials to prevent discharge to the LDW. General Site clean-up and housekeeping will be conducted at the end of each workday.

Best Management Practices (BMPs) outlined in the Site Erosion and Sediment Control Plan will be implemented throughout Site activities to prevent haul trucks and heavy equipment from tracking mud, soil, sediment, and debris from the Site and to prevent pollutants from being discharged into the LDW, stormwater line, sanitary sewer, or groundwater.

BMPs outlined in the Water Quality Protection Plan will be implemented throughout Site activities to minimize water quality exceedances, minimize resuspension of dredged and placement materials, and to prevent pollutants from reaching surface waters.

2.6 Fuel and Hazardous Material Storage

The primary concern regarding the use and storage of fuel or other hazardous materials is the uncontrolled or accidental release into the environment. PPM recognizes the negative impacts as a result of accidental releases to the environment, including adverse effects on terrestrial and aquatic habitat and species, soil, surface and groundwater quality, and human health and safety. The following spill prevention measures will be implemented for material storage:

- All fuel and hazardous materials such as solid chemicals, liquid chemicals, paints, petroleum products, caustic solutions, and waste materials, including batteries and electronic components, will be stored securely according to SDSs, standards, and regulations to prevent entry of contaminants into the LDW.
 - o The above items will be stored in locked containers on the barges and at the SMA5 worksite.
 - o The SMA 5 site is already a secured site but additional fencing will be utilized at the site if necessary to keep out unauthorized public access.
- Non-compatible and reactive chemicals will be stored separately to prevent mixing;
- All waste storage areas will be clearly designated and labeled with signage and kept segregated from new product storage;
- Fuel and hazardous material storage area will be away from drainage pathways, waterways, and other sensitive areas to the maximum extent possible;

- All containers will be labeled and SDSs will be accessible via QR codes which will be posted at locations on Site where hazardous materials will be stored, paper copies of all SDS documents will additionally be accessible to all Site personnel;
- All fuel tanks, equipment, and containers housing hazardous chemicals shall be locked at the end of shift to ensure proper security to discourage vandalism;
- All empty containers that have not been cleaned will be stored in an upright secure manner and labeled "Empty"; and
- As applicable, waste materials will be temporarily stored in drums or other leak-proof containers on Site and during transport for disposal.

Waste materials will be disposed of at an approved and permitted disposal facility and Certificates of Disposal will be obtained.

3.0 Spill Response

PPM is contracted with **Emergency Environmental Services** to provide emergency response in the event that PPM is not able to contain or address a large spill. Their emergency 24-hr number is **1-888-477-4554**.

3.1 Spill Response Procedures

PPM will maintain the following equipment and materials on Site in sufficient quantities to address spills and will restock as necessary to ensure an adequate and continuous supply. Spill kits will be inspected weekly to ensure they contain all necessary materials for effective spill response. Kits will be restocked as necessary, including at the beginning of each season and immediately after any spill or use of materials. These periodic inspections and restocking procedures will ensure that spill kits are always fully equipped to handle potential spills promptly and efficiently. See the Erosion and Sediment Control Plan (Attachment A drawings of Appendix W of the Remedial Action Work Plan) for upland spill kit locations. A total of two spill kits will be located on each Construction barge (one on each barge). In addition, each Construction barge will have additional oil absorbent boom (enough to fully surround the barge), 500 oil absorbent pads, two 20-pound ABC dry chemical fire extinguishers and additional PPE. Spill kits shall contain the following items at the minimum:

- (100) 15 x 19" Pads;
- (4) 3" x 12' Sorbent Socks;
- (8) 18 x 18" Pillows;
- (1) box Nitrile Gloves;
- (1) Emergency Handbook;
- (1) pair Goggles;
- (5) Disposal Bags;
- Oil-absorbent boom: Four each, 5 feet in length;
- Oil-skimming system (including 2" pump) for in-water work spill kits;
- (1) Pallet of Sandbags (for land side spill kits); and
- (20 lbs.) Oil absorbent material, such as cat litter or sawdust, for land side spill kits.
- (3) Drain covers (SMA 5 spill kits only)

- (3) Drain plugs (SMA 5 spill kits only)

In the event of a spill PPM will immediately clean up the spill and restore the area to the satisfaction of the Project Representative and other regulatory agencies, where involved. Spill kit contents for SMA 5 will be assessed at a later date once the site can be accessed by PPM and subcontractors as part of the pre-construction planning for Construction Season 3.

3.2 Discovery and Assessment of Hazard Spill

Any Site personnel that notice a spill of any material is required to immediately notify their supervisor and the Spill Prevention and Response Coordinator. The following procedures will be performed upon discovery of a spill:

- Notify the Spill Prevention and Response Coordinators.
- Ensure personnel and public safety by warning individuals in the immediate vicinity.
- Ensure no ignition source(s) is present if the spill is of a known flammable material.
- The Spill Prevention and Response Coordinators will immediately proceed to the scene where they will make an initial assessment of:
 - The type of material spilled;
 - The estimated quantity spilled;
 - The total quantity involved;
 - The surface area involved or affected;
 - Specific hazards of an imminent nature which will require emergency response from EES Consulting or other specialized handling;
 - Criteria for containing the spilled material; and
 - Determination of personnel and equipment necessary to initiate action and recovery.
- Don the following PPE prior to initiating further spill response procedures:
 - Gloves: Chemical-resistant gloves (e.g., nitrile, neoprene) to protect hands from oil and cleaning agents.
 - Coveralls: Disposable or reusable coveralls made from oil-resistant materials to protect skin and clothing.
 - Boots: Chemical-resistant boots or shoe covers to protect feet from oil and other hazardous substances.
 - Eye Protection: Safety goggles or face shields to protect eyes from splashes.
 - Respiratory Protection: Depending on the severity and type of oil, respirators (N95, P100, or supplied-air respirators) will be needed to protect from inhaling harmful vapors or aerosols. Any personnel that will need to wear a respirator will have been medically cleared to wear a respirator and fit tested for the respirators needed for spill response measures.
 - Hard Hats: In areas where there is a risk of falling objects or head injury.
 - Hearing Protection: If working in noisy environments or with loud equipment.

3.3 Containment and Elimination of Source

The following procedures will be performed to contain and eliminate the source of a spill.

- Secure the Area
 - o Limit access to spill area
 - o Prevent unauthorized entry onto Site
- Stop the Flow (when possible)
 - o Act quickly to reduce the risk of environmental impacts
 - o Close valves, shut off pumps or plug holes/leaks, set containers upright
 - o Stop the flow of the spill at its source
- Contain the Spill
 - o In-water - Deploy Containment Booms:
 - Selection: Choose booms based on the spill size and conditions (e.g., absorbent booms, inflatable booms).
 - Placement:
 - Downstream/Downwind: Deploy booms downstream or downwind of the spill to intercept the oil.
 - Encircling the Spill: Encircle the spill area by connecting booms in a U-shaped or circular formation to contain the spread.
 - Anchoring: Anchor the booms securely to prevent movement due to currents or wind.
 - o Block Off and Protect Drains and Culverts:
 - Drain Covers: Use drain covers or mats to seal off storm drains, culverts, and other drainage structures.
 - Sandbags: Place sandbags around drains and culverts to create a physical barrier.
 - Drain Plugs: Install temporary drain plugs to block any entry points for the spill.
 - o Prevent Spilled Material from Entering Drainage Structures:
 - Ditches and Channels: Block ditches and channels using sandbags, soil, or other suitable materials.
 - Diversion: Create diversion channels or barriers to redirect the flow of oil away from drainage structures.
 - o Use Spill Sorbent Material to Contain the Spill:
 - Sorbent Booms and Pads: Deploy sorbent booms and pads within the containment area to absorb the spill.
 - Granular Sorbents: Spread granular sorbents such as sand, ground clay, sawdust, or other absorbent materials to soak up the spill on land.
 - o Construct Temporary Dikes, Berms, or Other Methods:
 - Dikes: Build temporary dikes using soil, sandbags, or other materials to contain

the spill and prevent it from spreading.

- Berms: Create berms along the shoreline or spill perimeter to contain the oil within a defined area.
- Other Methods: Use other methods such as inflatable barriers or portable containment pools to prevent discharge off-site or into waterways.
- Minimize Contamination:
 - Quick Response: Act quickly to deploy containment measures to minimize the spread of oil and contamination.
 - Use of Barriers: Utilize physical barriers to prevent oil from reaching sensitive areas such as wetlands, beaches, and habitats.
 - Avoid Overhandling: Minimize handling and disturbance of the spilled oil to reduce further contamination.

3.4 Disposal

Waste material from spill response measures will be temporarily stored in drums or other leak-proof containers after cleanup and during transport for disposal. Waste materials will be properly disposed of with Waste Management utilizing their approved Duwamish Reload Facility to dispose of oily waste. Certificate of disposal will be obtained from Waste Management, please see the Transloading, Upland Transportation, Waste Characterization, and Disposal Plan for more details on waste disposal at the Site. In the event of a spill the spill will be reported according to **Section 3.5** and a summary of the spill response measures, disposal, cleanup, and restoration measures will be included in the Daily Construction Report and Weekly Construction Report.

3.5 Spill Reporting

Reporting requirements for different types of spills and the related contact information is provided in Table 3-1.

Table 3-1: Spill Reporting

Type of spill	Reporting requirements	Required contacts ¹
Oil and hazardous substance spills to water	<ul style="list-style-type: none"> • Report immediately. 	<ul style="list-style-type: none"> • The National Response Center at 1-800-424-8802 • Washington Emergency Management Division at 1-800-258-5990 • US Coast Guard Sector Puget Sound at 206-217-6001

Type of spill	Reporting requirements	Required contacts ¹
Release of hazardous or extremely hazardous substance	<ul style="list-style-type: none"> • Report immediately. • Provide a follow-up notification within 30 days. • See full EPCRA reporting requirements. 	<ul style="list-style-type: none"> • The State Emergency Response Commission (SERC) at 1-800-258-5990 • Your Local Emergency Planning Committee (LEPC) <ul style="list-style-type: none"> ○ King County: Thomas Sharp at 206-205-4069 ○ City of Seattle: Noah Katka at 206-386-1400 • The National Response Center at 1-800-424-8802
Dangerous waste	<ul style="list-style-type: none"> • Report immediately. 	<ul style="list-style-type: none"> • Call 911 • Notify the appropriate Ecology regional office <ul style="list-style-type: none"> ○ 1-800-645-7911 (24/7) ○ Northwest region: 206-594-0000 (During business hours)
Leaking underground storage tanks	<ul style="list-style-type: none"> • Report within 24 hours. 	<ul style="list-style-type: none"> • Notify the appropriate Ecology regional office <ul style="list-style-type: none"> ○ 1-800-645-7911 (24/7) ○ Northwest region: 206-594-0000 (During business hours)
Oil spills to ground	<ul style="list-style-type: none"> • Report within 90 days. • Oil industry contingency plan holders may have different reporting timeframes designated by their contingency plans. 	<ul style="list-style-type: none"> • Notify the appropriate Ecology regional office <ul style="list-style-type: none"> ○ 1-800-645-7911 (24/7) ○ Northwest region: 206-594-0000 (During business hours)
Spills to air	<ul style="list-style-type: none"> • Report within 90 days. 	<ul style="list-style-type: none"> • Notify the appropriate Ecology regional office <ul style="list-style-type: none"> ○ 1-800-645-7911 (24/7) ○ Northwest region: 206-594-0000 (During business hours)

Note: 1. Information is current at the time of this SPCC development and is subject to change throughout the project.

A reportable spill is one in which:

- The spill enters, or is likely to enter, a body of water; or

In the event of any oil or product discharges into public waters, or onto land with risk of entry into public waters, PPM will immediately notify the Project Representative and other required reporting agencies at their listed 24-hour response numbers.

- National Response Center: (800) 424-8802
- Washington Emergency Management Division: (800) 258-5990 or (800) OILS-911
- Washington State Department of Ecology, Northwest Regional Office: (800)-645-7911
- U.S. Coast Guard: (206) 217-6001

The following information must be reported, and will be recorded by PPM personnel, to the extent practicable,

- The date and time of the spill
- The location of the spill site
- A description of the spill site and the surrounding area
- A description of the source of the spill
- The type and quantity of substance spilled
- A description of the circumstances, cause, and adverse effects of the spill
- Details of action taken or proposed
- The names of the government, federal government, local government and first nation government agencies at the spill site
- The names of other persons or government, federal government, local government or first nation government agencies advised about the spill

APPENDIX D: CONTRACTOR AND SUBCONTRACTOR TRAINING REQUIREMENTS

Aerial Lifts	Flagging	Personal Protective Equipment
Asbestos Awareness	Forklift Operator	Respiratory Protection
Boom Lift/Aerial Lift Safety (Operator)	Hazard Awareness and Identification	Rigging I (General)
Carcinogens	HAZCOM (GHS)	Rigging II (Rigger)
Compressed Air & Gas Safety	HAZWOPER	Safety Leadership
Confined Space I (Entrant/Attendant/Supervisor)	Hearing Conservation	Scaffolding I (General)
Confined Space II (Competent Person)	Hot Work	Scaffolding II (Erection & Dismantling)
Crane Assembly/Disassembly	Incident Investigation	Scaffolding III (Competent Person)
Cranes and Derricks	Incident Reporting	Signaling (Cranes, etc.)
Disciplinary Procedures	Laser Safety	Silica
Electrical Safety	Lead	Spill Prevention
Emergency Planning	LOTO	Steel Erection
Emergency Response	Observations, Audits, and Inspections	Subcontractor Safety
Excavation & Trenching	OSHA 10	Substance Abuse Training
Fall Prevention	OSHA 30	Supervisor Training
Fire Extinguisher	Pile Driving	Vehicle Use
Fire Prevention / Protection	Power Actuated Tools (Certification)	Working Over Water
First Aid/CPR/AED/Bloodborne Pathogens	Power, Hand & Machine Tool Safety	Workplace Violence

	Office (General)	Office (Management)	Safety Representative	Safety Management	Craft (Laborer)	Craft (Piledriver)	Craft (Carp)	Craft (Equip)	Field/Project Engineers	Project Foreman	Project Supervision	Project Superintendent	Project Management	Senior Management							New Hire Orieintation		Every 12 Months	Every 18 Months	Every 24 Months	Random	As Per Regulatory Requirement
Incident Investigation	x	x	x	x					x	x	x	x	x								x			x			
Incident Reporting	x	x	x	x	x	x	x	x	x	x	x	x	x	x							x						
Aerial Lifts				x	x	x	x	x	x	x	x	x															x
Asbestos Awarness				x	x	x	x	x	x	x	x	x	x														x
Crane Assembly/Disassembly				x	x			x	x		x	x															x
Carcinogens				x	x				x	x	x	x															x
Compressed Air & Gas Safety				x	x	x			x	x	x	x	x														
Confined Space I (Participant)				x	x	x	x		x	x	x	x	x										x				x
Confined Space II (Competent Person)				x	x																						x
First Aid/CPR/AED/Bloodborne Pathogens	x	x	x	x					x		x	x											x				x
Cranes and Derricks				x	x	x		x	x	x	x	x	x														x
Disciplinary Procedures	x	x	x	x	x	x	x	x	x	x	x	x	x	x													
Effective HSE Mgmt I				x									x												x		
Effective Safety Mgmt II				x									x	x											x		
Electrical Safety	x	x	x	x	x	x			x	x	x	x	x	x							x		x				

	Office (General)	Office (Management)	Safety Representative	Safety Management	Craft (Laborer)	Craft (Piledriver)	Craft (Carp)	Craft (Equip)	Field/Project Engineers	Project Foreman	Project Supervision	Project Superintendent	Project Management	Senior Management							New Hire Orintation		Every 12 Months	Every 18 Months	Every 24 Months	Random	As Per Regulatory Requirement
Electric Power			X	X					X		X	X	X														
Emergency Planning	X	X	X	X	X	X			X	X	X	X	X	X									X				
Emergency Response	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X		
Emergency Alarm Systems	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X		
Excavation & Trenching			X	X	X				X	X	X	X	X									X	X				
Fall Prevention		X	X	X	X	X			X	X	X	X	X									X	X				
Fire Extinguisher	X	X	X	X	X	X			X	X	X	X	X	X								X	X				
Fire Prevention / Protection	X	X	X	X	X	X			X	X	X	X	X	X								X	X				
Forklift Operator			X	X	O	X			O	O	O	O															X
Hazard Awareness and Identification	X	X	X	X	X	X	X	X	X	X	X	X	X														X
HAZCOM (GHS)	X	X	X	X	X	X	X	X	X	X	X	X	X														X
HAZWOPER			X	X	O				O	O	O	O	O														X
Hearing Conservation	X	X	X	X	X	X			X	X	X	X	X	X								X	X				
Hot Work		X	X	X		X			X	X	X	X	X										X				
Laser Safety			X	X					X	X	X	X	X										X				

	Office (General)	Office (Management)	Safety Representative	Safety Management	Craft (Laborer)	Craft (Piledriver)	Craft (Carp)	Craft (Equip)	Field/Project Engineers	Project Foreman	Project Supervision	Project Superintendent	Project Management	Senior Management							New Hire Orintation		Every 12 Months	Every 18 Months	Every 24 Months	Random	As Per Regulatory Requirement
Lead	x	x	x	x	x	x			x	x	x	x	x	x													x
LOTO			x	x	x				x	x	x	x	x	x							x		x				
Manlift/Aerial Lift Safety (Operator)			x	x	o	x			o	o	o	o	o														x
Observations, Audits, and Inpesctions			x	x					x	x	x	x	x														
OSHA 10			x	x	x	x			x	x	x	x	x	o													x
OSHA 30			x	x					x	x		x	x	o													x
Pile Driving			x	x			x	x	x	x		x															
PPE	x	x	x	x	x	x			x	x	x	x	x	x							x		x				
Power, Hand & Machine Tool Safety	x	x	x	x	x	x			x	x	x	x	x								x		x				
Power Actuated Tools (Certification)			o	o	o	x			o	o	o	o															x
Respiratory Protection		x	x	x	x	x			x	x	x	x	x								x		x				
Rigging I (General)			x	x	x	x			x	x	x	x															x
Rigging II (Rigger)			x	x	x	x			o	o	o	o	o								x		x				x
Safety Leadership			o	o	o	o			x	x	x	x	x									x	x				
Flammable Liquids, Gases			x	x					x	x	x	x	x	x											x		

APPENDIX E: BLOODBORNE PATHOGENS PLAN

Purpose

This Bloodborne Pathogen Exposure Control Plan has been established to ensure a safe and healthful working environment and act as a performance standard for all employees. This program applies to all occupational exposure to blood or other potentially infectious materials.

Scope

This program addresses all occupational exposure to blood or other potentially infectious materials. OSHA and state agencies require that all employers can "reasonably anticipate exposure" of employees to infectious material to prepare and implement a written exposure control plan.

Key Responsibilities

Exposure Control Officer (PPM Safety Department)

- Has overall responsibility for developing and implementing the Exposure Control Procedure for all facilities.

Site Project Manager and Supervisors

- Site project manager and supervisors are responsible for exposure control in their respective areas.

Employees

- Know what tasks they perform that have occupational exposure.
- Plan and conduct all operations in accordance with our work practice controls.
- Develop good personal hygiene habits.

Procedure

Training

- PPM shall ensure that all employees with occupational exposure participate in a training program. Training is conducted for all employees with occupational exposure before initial assignment and within 1 year of previous training. Training shall be provided at the time of initial assignment & within 1 year of an employee's previous training. Training shall include:
 - What bloodborne pathogens are; how to protect themselves from exposure
 - Methods of warnings (signs, labels, etc.)
 - The OSHA requirements of bloodborne pathogens
 - The Hepatitis B vaccine shall be made available to all employees that have occupational exposure at no cost to the employee(s)

Availability of Procedure to Employees

- All employees will have access to a copy of the exposure control plan. Access to a copy of the exposure control plan shall be provided in a reasonable time, place, and manner.

Reviews and Update of the Procedure

- The procedure is reviewed annually and updated whenever we establish new functional positions within our facility that may involve exposure to biohazards.

Exposure Determination

- There are no job classifications in which some or all employees have occupational exposure to bloodborne pathogens that may result from the performance of their routine duties.
- Designated employees are trained to render first aid and basic life support. Rendering first aid or basic

life support will expose employees to bloodborne pathogens and will require them to adhere to this program.

- In addition, no medical sharps or similar equipment is provided to, or used by, employees rendering first aid or basic life support.
- This exposure determination has been made without regards to the Personal Protective Equipment that may be used by employees.
- A listing of all first aid and basic life support trained employees in this work group shall be maintained at each work site and at each first aid kit.

Methods of Compliance

Universal Precautions

- When differential between body fluids is difficult or impossible, all body fluids will be considered potentially infectious.

Engineering Controls

- Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Engineering controls should be examined and maintained or replaced on a regular schedule to ensure their effectiveness. Hand washing facilities shall be readily available at all work locations. If provision of hand washing facilities is not feasible, then an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes shall be provided by PPM.
- Containers for contaminated reusable sharps that our clients provide have the following characteristics: Puncture-resistant; Color-coded or labeled with a biohazard warning label; Leak-proof on the sides and bottom.
- Secondary containers which are: Leak-proof; Color-coded or labeled with a biohazard warning label; Puncture-resistant, if necessary.

Work Practice Controls

- Employees shall wash their hands immediately, or as soon as feasible, after removal of potentially contaminated gloves or other personal protective equipment.
- Following any contact of body areas with blood or any other infectious materials, employees wash their hands and any other exposed skin with soap and water as soon as possible.
- Hand washing facilities shall be available. If hand washing facilities are not feasible PPM will provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes.
- Contaminated needles and other contaminated sharps should not be handled if you are not AUTHORIZED or TRAINED to do so. Contaminated needles and other contaminated sharps are not bent or recapped.
- Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is potential for exposure to biohazardous materials.
- Food and drink are not kept in refrigerators, freezers, on countertops or in other storage areas where potentially infectious materials are present.
- All equipment or environmental surfaces shall be cleaned and decontaminated after contact with blood or other infectious materials.
- Specimens of blood or other potentially infectious materials must be put in leak proof bags for handling, storage, and transport.
- If outside contamination of a primary specimen container occurs, that container is placed within a second leak proof container, appropriately labeled for handling and storage.
- Bloodborne pathogens kits are located on top of first aid kits and are to be used in emergency situations by the caregiver. Once the seal is broken on kit and any portion has been used it is not to be reused.

Pathogen Kits shall be ordered and replaced promptly. Biohazard bags are identified by stickers and located in the first aid area. Contaminated supplies are to be disposed at once.

Personal Protective Equipment

When the possibility of occupational exposure is present, PPE is to be provided at no cost to employees such as gloves, gowns, etc. PPE shall be used unless employees temporarily declined to use under rare circumstances. PPE shall be repaired and replaced as needed to maintain its effectiveness. All PPE shall be of the proper size and readily accessible.

Our employees adhere to the following practices when using their personal protective equipment:

- Any garments penetrated by blood or other infectious materials are removed immediately.
- All potentially contaminated personal protective equipment is removed prior to leaving a work area.
- Gloves are worn whenever employees anticipate hand contact with potentially infectious materials or when handling or touching contaminated items or surfaces.
- Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured or otherwise lose their ability to function as an "exposure barrier".
- Masks and eye protection (such as goggles, face shields, etc.) are used whenever splashes or sprays may generate droplets of infectious materials.
- Any PPE exposed to bloodborne pathogens shall be disposed of properly.
- PPE shall be used unless employees temporarily declined to use PPE under rare circumstances.
- PPE should be cleaned, laundered & properly disposed of if contaminated.
- PPM will repair and replace PPE as needed to maintain its effectiveness.

Housekeeping

Our staff employs the following practices:

- All equipment and surfaces are cleaned and decontaminated after contact with blood or other potentially infectious materials.
- Protective coverings (such as plastic trash bags or wrap, aluminum foil or absorbent paper) are removed and replaced.
- All trash containers, pails, bins, and other receptacles intended for use routinely are inspected, cleaned, and decontaminated as soon as possible if visibly contaminated.
- Potentially contaminated broken glassware is picked up using mechanical means (such as dustpan and brush, tongs, forceps, etc.).

Post-Exposure and Follow Up

- Post-Exposure Evaluation & Follow-Up

If there is an incident where exposure to bloodborne pathogens occurred, we immediately focus our efforts on investigating the circumstances surrounding the exposure incident and making sure that our employees receive medical consultation and immediate treatment.

The PPM Safety Manager/ Supervisor investigates every reported exposure incident and a written summary of the incident and its causes is prepared, and recommendations are made for avoiding similar incidents in the future. We provide an exposed employee with the following confidential information:

- Documentation regarding the routes of exposure and circumstances under which the exposure incident occurred.
- Identification of the source individual (unless not feasible or prohibited by law).

Once these procedures have been completed, an appointment is arranged for the exposed employee with a qualified healthcare professional to discuss the employee's medical status. This includes an evaluation of any reported illnesses, as well as any recommended treatment.

Information Provided to the Healthcare Professional. We forward the following:

- A copy of the Biohazards Standard.
- A description of the exposure incident.
- Other pertinent information.

Healthcare Professional's Written Opinion

- After the consultation, the healthcare professional provides our facility with a written opinion evaluating the exposed employee's situation. We, in turn, furnish a copy of this opinion to the exposed employee.

The written opinion will contain only the following information:

- Whether Hepatitis B Vaccination is indicated for the employee.
- Whether the employee has received the Hepatitis B Vaccination.
- Confirmation that the employee has been informed of the results of the evaluation.
- Confirmation that the employee has been told about any medical conditions resulting from the exposure incident which require further evaluation or treatment.
- All other findings or diagnoses will remain confidential and will not be included in the written report.

Record Keeping

All records shall be made available upon request of employees, OSHA's Assistant Secretary and the Director of OSHA for examination and copying. Medical records must have written consent of employee before released. COMPANY shall meet the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

The respective Human Resources representative shall maintain Bloodborne Pathogen exposure records. Employee medical records shall be kept confidential and are not to be disclosed without the employee's written consent, except as required by 29 CFR 1910.1030 or other law.

Accurate medical records for each employee with occupational exposure must be maintained for at least the duration of employment plus 30 years and shall include at least the following:

- Employee's name, Social Security number and COMPANY employee number.
- Employee's Hepatitis B vaccination status, including vaccination dates.
- All results from examinations, medical testing, and follow-up procedures, including all health care professional's written opinions.
- Information provided to the health care professional.
- Any Hepatitis B Vaccine Declinations.

Training records shall be maintained for 3 years from the date on which the training occurred and shall include at least the following:

- Outline of training program contents.
- Name of person conducting the training.
- Names and job titles of all persons attending the training.
- Date of training.

Labels and Signs

Biohazard warning labeling shall be used on containers of regulated waste, Sharps disposal containers,

contaminated laundry bags and containers, and contaminated equipment.

Information

Information provided to our employees includes:

- The Biohazards Standard itself.
- The epidemiology and symptoms of bloodborne diseases.
- The modes of transmission of bloodborne pathogens.

Our facility's Exposure Control Procedure (and where employees can obtain a copy).

- Appropriate methods for recognizing tasks and other activities that may involve exposure.
- A review of the use and limitations of methods that will prevent or reduce exposure.
- Selection and use of personal protective equipment.
- Visual warnings of biohazards within our facility including labels, signs, and "color-coded" containers.
- Information on the Hepatitis B Vaccine.
- Actions to take and persons to contact in an emergency involving potentially infectious material.
- The procedure to follow if an exposure incident occurs, including incident reporting.
- Information on the post-exposure evaluation and follow-up, including medical consultation.

VACCINATION DECLINATION FORM

Date: _____

Employee Name: _____

Employee ID#: _____

I understand that due to my occupational exposure to blood or other potential infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline the Hepatitis B vaccination currently. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature

Date

Facility Representative Signature

Date

POST-EXPOSURE EVALUATION AND FOLLOW-UP CHECKLIST

The following steps must be taken, and information transmitted, in the case of an employee's exposure to bloodborne pathogens:

ACTIVITY _____

COMPLETION DATE _____

Employee furnished with documentation regarding exposure incident.

Source individual identified.

Source individual: _____

Appointment arranged for employee with healthcare professional.

Professional's name: _____

Documentation forwarded to healthcare professional.

Bloodborne Pathogens Standard Description of exposed employee's duties:

Description of exposure incident, including routes of exposure:

APPENDIX F: HOT WORK PERMIT

Instructions for Completing the HOT WORK PERMIT

Applicability:

This Permit is required for all construction, maintenance, and repair activities involving open flame or producing heat or sparks.

Definitions:

Type A Hot Work: Any open flame or heat producing work that results in slag, sparks, or fire brands, such as welding, torch cutting, abrasive cutting, grinding or similar activities.

Type B Hot Work: Open flame work performed on non-combustible materials not resulting in sparks such as brazing and soldering.

Type C Hot Work: Any open flame operation not classified as Type A or B. Any open flame or heat producing activity performed on combustible materials such as torch applied roofing. This class of work is quite variable and may present an extreme risk of fire.

Fire Watch: A person(s) to be continuously present (including during breaks and meal periods), continuously alert, has line of sight of Hot Work activities, and is prepared to instantly respond to any indications of fire. In some cases, the Fire Watch may have other duties.

Process:

1. Survey the area of work to assess the risk of fire resulting from the proposed Hot Work and develop a work plan to mitigate risks. (Don't forget to ask the question: Are there other ways to accomplish the work to eliminate the use of open flame or spark producing activities? If "YES", evaluate cost and schedule impacts of changing the work plan.)

The work plan may be written, at the discretion of the superintendent. It should include:

- Removal of combustible materials for a radius of 35 feet or if impractical, protection of any combustibles within 35' of the work, including those areas on the opposite sides of interior walls.
 - Provisions for continuous fire watch, including fire extinguishers and necessary training.
 - Provisions for intermittent fire monitoring after open flame and spark producing activities.
2. Physically survey the area of work prior to the start of open flame or spark producing activity.
 3. Complete the Hot Work Permit Form. One Permit is required per hot work activity/per shift/per location. The Permit will become invalid if the conditions of work change.
 4. Do the work:
 - Post signs and put protective measures in place. Maintain protective measures throughout the work, include continuous and uninterrupted Fire Watch.
 - Continue Fire Watch until _____ 30 minutes or _____ 1-hour after completion of Type A & C Hot Work activities. Fire Watch may be discontinued for Type B Hot Work when the material is cold to the touch.
 - At end of the Fire Watch period complete the Fire Watch Closeout signature block and close out form verifying that the hot work is complete and return to project office.
 5. Perform Fire Monitoring:
 - Start at the completion of Fire Watch and continue for designated time (if no Fire Watch is required, then Fire Monitoring shall start at the completion of Hot Work activities and continue for the designated time).
 - At completion of Fire Monitoring, complete the Fire Monitoring Closeout signature block and return the form to the jobsite office.

In the Event of a Fire or Other Emergency:

1. Call 911 (or other site-specific emergency #) to report the location & nature of the emergency and to summon assistance.
2. In case of a fire, activate the fire notification procedure to evacuate the building, then, attempt to extinguish the fire ONLY if there is no immediate personal danger, otherwise evacuate the area immediately.

HOT WORK PERMIT

To be completed by the Person performing Hot Work:

Date:	Duration of Open Flame or Spark Producing Activity
Job Name:	Start Date & Time:
Contact:.....	End Date & Time:
Phone:.....	Location:

Work Description: *Type A:* Grinding Welding Torch Cutting

Type B: Brazing & Soldering

Type C: Pipe Thawing Other Open Flame Operation (describe).....

SAFETY MEASURES TAKEN: Identify those measures or precautions that apply to the requested Hot Work Permit

Yes N/A **GENERAL**

- ..Fire extinguishers are provided (by the one performing the work) and immediately accessible in the Hot Work area.
- ..All Hot Work equipment, including welders, torches, cylinders, hoses, etc. are in good repair. Welders are certified for the operations planned.

FLAMMABLE ENVIRONMENTS

- ..Flammable vapors eliminated from the atmosphere of the work.

COMBUSTIBLES

- ..Are any flammable/combustible materials or construction directly under or within 35' of Hot Work area?
... If "YES," provide necessary protection.
- ..Combustible materials or construction within 35' of welding/ torch cutting operations are being:
 Removed Shielded Protected from welding operations.
- ..Combustible floors wetted down or protected with fire-resistive sheets.
- ..Openings in floors or walls protected with fire resistive sheets or tarps.

WORK ON WALLS & CEILINGS

- ..Construction is non-combustible and without combustible coverings or insulation.
- ..Combustibles moved from both sides of walls and from exposed areas above and below the work.

WORK ON ENCLOSED EQUIPMENT AND SPACES

- ..Enclosed equipment cleaned of combustibles.
- ..Containers and enclosed equipment purged of flammable liquids and vapors.
- ..Pressurized vessels, piping and equipment removed from service, isolated and vented.

PROTECTION OF OCCUPANTS & PASSERSBY:

- ..Warning signs and barriers placed as necessary to inform and protect other personnel in the work area.
- ..Ultraviolet protection screens provided for welding and acetylene cutting operations.

FIRE WATCH:

- ..Fire watch will be provided from start of open flame work to not less than:
 30 minutes after hot work ceases for Type A & C Hot Work or
 until the work is cold to the touch for Type B Hot Work.
Fire Watch is continuous including during coffee & lunchbreaks, and after-shift end.
- Fire Watch is knowledgeable and proficient in use of fire extinguishers.
- Fire Watch is knowledgeable of PPM or site emergency procedures.

Fire Watch Closeout:

The Hot Work area and adjacent areas to which sparks and heat might have spread, were inspected, during the fire watch period and were found free of any indication of fire.

Date & Time Completed: Signed

Fire Monitoring Closeout:

Work area was monitored for a period of _____ following Hot Work and the area found to be free of any indication of fire.

Date & Time Completed: Signed

This page shall be posted in the HOT WORK area for its duration.

WARNING!

HOT WORK IN PROGRESS

WATCH FOR FIRE!

**IN CASE OF EMERGENCY,
Call 911**

This page shall be posted in the HOT WORK area for its duration.

APPENDIX G: CONFINED SPACE PERMIT



CONFINED SPACE

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart: AA

WA L&I DOSH Safety Standards:

WAC 296-809 Confined Spaces

INTRODUCTION

Many workplaces contain spaces that are “confined” because their configurations hinder the activities of any employee who must enter, work in, and exit from them. In many instances, employees who work in confined spaces also face increased risk of exposure to serious physical injury from such hazards as entrapment, engulfment, and hazardous atmospheric conditions.

PURPOSE

The purpose of Pacific Pile & Marine’s Confined Space Program is to set procedures/safe work practices that will ensure workers safe entry into confined spaces and permit-required confined spaces to perform routine tasks associated with their employment.

OBJECTIVE

The objectives of the Confined Space program include:

- Compliance with all state and federal regulations regarding confined spaces.
- Assessment of the feasibility of reducing the total number of confined spaces.
- Limiting the number of confined space entries.
- Identification, evaluation, and elimination of potential hazards within confined spaces, prior to entry.
- Establishment and implementation of a permit system for entry into confined spaces.
- Training employees who may work in confined spaces on proper procedures and entry techniques.

RESPONSIBILITY

Employer

In administering this Confined Space Program, Pacific Pile & Marine will:

- Monitor the effectiveness of the program.
- Provide atmospheric testing and equipment as needed.
- Provide personal protective equipment as needed.
- Provide training to affected employees and supervisors.
- Provide technical assistance as needed.
- Preview and update the program on at least an annual basis or as needed.

Project Management

- Evaluate, with support from Safety Director, the workplace to determine if any confined spaces exist on the project.
- Inform workers of confined spaces by posting danger signs, Confined Space signs “Do Not Enter” at the confined space entry location.
- Verify that the project specific safety plan includes the confined space PPM procedure to ensure employees are protected from the hazards of confined space entry.
- Implement the confined space procedures within the project specific safety plan and ensure the PPM confined space procedures is followed.

Project Supervision

- Know and understand how to implement the confined space procedure
- Provide the necessary resources to implement this procedure
- Verify that confined space attendants, entry supervisors, rescue team members and entrants are properly trained.

Safety Department

- Verify that all workers who are required to enter, supervise, and/or monitor confined space work are qualified and properly trained in all aspects of the confined space procedures; and
- Prior to entry into a Permit Required Confined space, verify that all appropriate safeguards are in place.
- Ensure training of personnel is conducted and documented.
- Coordinate with outside responders.
- Ensure that equipment is in compliance with standards.
- Ensure that the Responsible Person in charge of confined space work shall:
 - Ensure requirements for entry have been completed before entry is authorized.
 - Ensure confined space monitoring is performed by personnel qualified and trained in confined space entry procedures.
 - Ensure that the rescue team has simulated a rescue in a confined space within the past twelve (12) months.
 - Know the hazards that may be faced during entry, including the mode (how the contaminant gets into the body), signs or symptoms, and consequences of exposure.
 - Fill out a permit.
 - Determine the entry requirements.
 - Require a permit review and signature from the authorized Entry Supervisor.
 - Notify all involved employees of the permit requirements.
 - Post the permit in a conspicuous location near the job.
 - Renew the permit or have it reissued as needed (a new permit is required every shift).
 - Determine the number of Attendants required to perform the work.
 - Ensure all Attendant(s) know how to communicate with the entrants and how to obtain assistance.
 - Post any required barriers and signs.
 - Remain alert to changing conditions that might affect the conditions of the permits (i.e., require additional atmospheric monitoring or changes in personal protective equipment).
 - Change and reissue the permit or issue a new permit, as necessary.
 - Ensure periodic atmospheric monitoring is done according to permit requirements.
 - Ensure that personnel doing the work and all support personnel adhere to permit requirements.
 - Ensure the permit is canceled with the work is done.

- Ensure the confined space is safely closed and all workers are cleared from the area.

Entry Supervisors

Responsible Person(s) shall serve as the Entry Supervisor(s) and shall be qualified and authorized to approve confined space entry permits. The Entry Supervisor(s) shall be responsible for:

- Determining if conditions are acceptable for entry.
- Authorizing entry and overseeing entry operations.
- Terminating entry procedures as required.
- Serving as an Attendant if the person is trained and equipped appropriately for that role.
- Ensuring measures are in place to keep unauthorized personnel clear of the area.
- Checking the work at least twice a shift to verify and document permit requirements are being observed (more frequent checks shall be made if operations or conditions are anticipated that could affect permit requirements).
- Ensuring that necessary information on chemical hazards is kept at the worksite for the employees or rescue team.
- Ensuring a rescue team is available and instructed in their rescue duties (i.e., an onsite team or a prearranged outside rescue service).
- Ensuring the rescue team members have current certification in first aid and cardiopulmonary resuscitation (CPR).

Attendants

Responsible Person(s) shall function as an Attendant(s) and shall be stationed outside of the confined workspace for the duration of the entry operations. The Attendant(s) shall:

- Be knowledgeable of and be able to recognize potential confined space hazards.
- Maintain a sign-in/sign-out log with a count of all persons in the confined space, and ensure all entrants sign in and out.
- Monitor surrounding activities to ensure the safety of personnel.
- Maintain effective and continuous communication with personnel during confined space entry, work, and exit.
- Shall attend only one confined space entry at any one time, and shall not perform any other duties
- Order personnel to evacuate the confined space if he/she:
 - observes a condition which is not allowed on the entry permit,
 - notices the entrants acting strangely, possibly because of exposure to hazardous substances,
 - notices a situation outside the confined space which could endanger personnel,
 - notices a hazard within the confined space that has not been previously recognized or taken into consideration,
 - must leave his/her workstation, or
 - must focus attention on the rescue of personnel in some other confined space that he/she is

monitoring.

- Immediately summon the Rescue Team if crew rescue becomes necessary.
- Keep unauthorized persons out of the confined space, order them out, or notify authorized personnel of an unauthorized entry.

Entrants / Affected Employees

Employees who are granted permission to enter a confined space shall:

- Read and observe the entry permit requirements.
- Remain alert to the hazards that could be encountered while in the confined space.
- Properly use the personal protective equipment that is required by the permit.
- Immediately exit the confined space when:
 - they are ordered to do so by an authorized person,
 - they notice or recognize signs or symptoms of exposure,
 - a prohibited condition exists, or
 - the automatic alarm system sounds.

Alert Attendant(s) when a prohibited condition exists and/or when warning signs or symptoms of exposure exist.

Authorized entrants are also responsible for refusing to work in confined spaces until an entry supervisor has deemed entry to be safe and has given approval for entry, or if a hazard is identified while working in the confined space.

Multiple Employers / Contractors

Pacific Pile & Marine shall inform all other affected outside employers and contractors of the permit space locations and permit space hazards at Pacific Pile & Marine site. All affected outside employers and contractors will be educated on the confined space program and confined space requirements of Pacific Pile & Marine. Multiple permit space entries conducted by outside employers and contractors shall be reviewed and coordinated prior to authorized entry by any party. Pacific Pile & Marine shall not enter into any binding business agreement with contractors or employers that do not meet the confined space program and training requirements.

DEFINITIONS

Authorized Supervisor

The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this procedure and legislative jurisdictional requirements.

Competent Person / Competent Worker / Qualified Worker

One who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them or as otherwise defined by applicable legislation.

Confined Space

Is a space that:

- Is large enough and so configured that a worker can bodily enter and perform assigned work; and

- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.) that can complicate provisions of first aid, evacuation, rescue, or other emergency response services; and
- Is not designed for continuous worker occupancy.

Confined Space Attendant

An individual stationed outside a confined space who monitors the authorized entrants and who performs all (attendant) duties assigned in the employer's permit space.

Confined Space Entrant

A worker who is authorized by the employer to enter a permit space.

Emergency Response Personnel

An individual or group of individuals that has been trained and designated to perform confined space rescue.

Entry

The action by which a person passes through an opening into a permit-required confined space. Entry includes work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of the opening.

Entry Permit

The entry permit is a written document in which the employer authorizes the employee to enter the confined or enclosed space. Refer to HSEOP-13-01 Confined Space Entry Permit.

Hazardous Areas

Hazardous areas are defined as areas that are confined and where there are noxious gases, explosive unventilated wet wells, and empty but not clean bins, tanks, dryers, scrubbers, boiler, ducting, and towers. In still air, these conditions can and have existed in above-grade areas.

Hazardous Atmosphere

An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following:

- Flammable gas, vapor, or mist more than 10% of its lower flammability limit,
- Airborne combustible dust at a concentration that meets or exceeds its LFL. (Note: This concentration may be approximated as a condition in which the dust obscures vision at five feet or less),
- Atmospheric oxygen concentrations below 19.5% or above 23.0%,
- Atmospheric concentrations of any substance for which a dose or a permissible exposure is published in applicable standards or regulations, and/or
- Any other atmospheric condition that is immediately dangerous to life or health.

Hot Work

Any work being performed that presents an ignition or heat source. Examples are welding, grinding, burning, chipping, or electrical equipment.

Immediately Dangerous to Life or Health (IDLH)

A condition characterized by an oxygen deficient atmosphere or an atmosphere concentration of any harmful

substance that poses an immediate threat to life or health that may cause irreversible or delayed adverse health effects or may interfere with an individual's ability to escape from dangerous atmosphere.

Inerting

Refers to the process of purging the atmosphere of a space with an inert gas (one which will not support combustion) to eliminate the potential for fire or explosion. The typical gas used will be either carbon dioxide or nitrogen.

Inerting does not remove the source of flammable vapor (i.e., flammable liquids) but instead removes the vapor above the liquid creating an oxygen deficient atmosphere.

Isolation

Refers to the act of verifying that the space cannot be inadvertently refilled with product and/or re-energized electrically or mechanically while workers are inside through implementation/ installation of isolating devices such as blanking or blinding pipes, removing sections of inlet lines, pipes or ducts, a double-block-and-bleed, lockout of all sources of energy or installing a mechanical block.

Natural (Gravity) Ventilation

Ventilation provided to a space by non-mechanical means. Air moving into a space opening would be considered natural ventilation. This is not an effective method for maintaining the safety of workers inside a confined space.

Oxygen Deficiency

An atmosphere where oxygen concentration is less than 19.5% by volume. Federal/State/Provincial safety regulations require that workers wear air-supplied respirators in oxygen deficient atmospheres.

Oxygen Enriched

An atmosphere where oxygen concentration is greater than 23% by volume. Fire and explosion potentials are greatly increased.

Permit-Required Confined Space

A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere,
- Contains a material that has a potential for engulfing an entrant,
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section, and/or
- Contains any other recognized serious safety or health hazard.

Purging

Is the displacement of the atmosphere inside a space with fresh air or an inert gas?

Alternate Entry

Is one that meets the definition of a confined space but does not have the potential to contain an atmospheric hazard.

Alternate Entry spaces will be checked for atmospheric contamination prior to initial entry with special attention to the oxygen, LEL and carbon monoxide levels. If the space is free of contamination and has no potential for accumulation of contaminants, then no permit or additional atmospheric sampling is required. Typically, such spaces are trenches and excavations, crawl spaces, new tanks, ducts, pits, boiler cavities or equipment vaults.

Upon initial testing, the atmospheric sampling results must show:

- Oxygen concentrations between 19.5% and 23% by volume,
- LEL at or less than 1%,
- Carbon monoxide 1 ppm or less, and
- There is no potential for other contaminants.

Note: If the concentration of carbon monoxide is between 1 and 5 ppm, continue the entry into the confined space but verify the concentration every four hours or continuously monitor. Also, investigate to determine the source of the carbon monoxide. If at any time the concentration is over 5 ppm, the space must be changed to a permit required confined space.

Retrieval System

Equipment used for non-entry rescue of persons from permit spaces.

SAR

Supplied Air Respirator.

SCBA

Self-Contained Breathing Apparatus.

PROCEDURE

General

This procedure must be followed before entering a confined space for any work task. Strict adherence with this procedure is necessary. Failure to follow this procedure will be considered a serious violation of PPM Safety policy and will result in disciplinary action up to and including dismissal. Subcontractors shall meet or exceed this procedure based on legislative jurisdictional requirements.

Upon mobilization of a project, all confined spaces must be identified by project management; must be identified and labeled "Confined Space – Do Not Enter".

No person, under any circumstances, may enter a space containing an explosive or oxygen enriched atmosphere. All entries into spaces with unknown hazards will be supervised by a supervisor completely familiar with this procedure. This supervisor will be responsible for enforcing all the provisions contained in this procedure. An entry permit and checklist will be completed before entry and posted at the work location.

Any deviations from this procedure will require the approval of the Corporate Safety Director.

A combustible gas/oxygen meter, and/or a gas specific instrument must be used to monitor the atmosphere inside a confined space initially before entry and on a continual basis.

All instruments are to be calibrated or span checked prior to use. Calibrations shall be documented and retained for referral purposes.

Any monitoring will be performed by workers who are competent with the equipment and its operation.

Daily records will be maintained for all confined space entry work.

Confined Space Entry Permit

Confined Space Entry Permit form needs to be filled out prior to entering any Permit Required confined space. Complete use of the form will verify that all health and safety considerations have been addressed prior to entry.

This form is to be signed by all workers and acts as a permit for the entry. This form is used in conjunction with this procedure to determine special precautions necessary for entry.

This permit shall be available at the access location of the confined space and shall be dated and valid for one shift only.

The entry permit cannot be completed until all testing and sampling has been accomplished. This means that it must be filled out at the site.

The entry supervisor is responsible for the safety of workers involved in an entry and shall evaluate, plan, and implement the procedures necessary to safeguard the workers assigned to the job.

Efforts should be made to determine the present and previous contaminants contained in the confined space. The information should be listed on the permit form.

Control Measures

Control Measures for Permit Required Confined Space

The following control measures must be put in place for a Permit Required Confined Space:

- Hazard assessment of the area,
- Supplied breathing air,
- Qualified confined space monitor,
- Specific rescue plan, complete with required rescue equipment,
- Completed confined space entry permit,
- All entrants and monitors must be trained on entry process, PPE use, rescue equipment, and plan,
- Communication procedure,
- First-aid must be available onsite,
- Appropriate PPE made available, and
- Written authorization from the safety department.

Control Measures for Alternate Entry Spaces

The following control measures must be put in place for a Non-Permit spaces:

- Hazard assessment of the area,
- Completion of initial atmospheric monitoring by the entry supervisor,
- Re-evaluation of the restricted space if contaminants exist, and
- Appropriate PPE made available.

Coordination of Work/Multi-Employee Worksite

When workers of more than one employer perform work in the same confined space, the contractor controlling the site activities must coordinate entry operations. The contractor controlling the site must prepare a coordination document to verify that the various employers perform their duties in a way that protects the health and safety of all workers entering the confined space.

A copy of the coordination document must be provided to each employer of workers who perform work in the confined space.

Each employer is responsible for the health and safety of their own workers and for verifying compliance with confined space legislative requirements.

Fall Protection

Anyone who is at risk of falling into a tank or vessel must have appropriate fall protection. Standard handrails, mid-rails, and toe boards shall be installed as needed to keep workers from falling into tanks, vessels, or bins. All workers must have completed fall protection training.

Intrinsically Safe/Explosion Proof

Electrical equipment which does not present the potential for electrical spark and which has been certified as safe for use in flammable atmospheres must be used as necessitated by space classification.

All electrical equipment taken into a space containing (or previously containing) flammable liquids or vapors will be rated Class I Group C & D at a minimum, and Class II group G at a minimum.

Energy Isolation

Energy isolation is the act of physically locking out electrical, hydraulic, or pneumatic controls and/or mechanical linkage to provide isolation.

Typically, this is performed by lock and key or the physical removal of key components that make it impossible for a system to be restarted while workers are working on, or inside the system.

PPM's Lockout/Tagout policy for the machinery and equipment must be used in conjunction with this section.

All workers must be trained as to the specifics of the Lockout/Tagout procedure prior to commencing work operations and records must be maintained of the training.

Before entering any confined space, workers will take sufficient steps to verify that toxic contaminants or potentially hazardous products do not re-enter a space or that hazardous situations do not develop while workers are inside. This is accomplished by validating that the confined space is completely isolated from all other electrical or mechanical systems by physical disconnection. Isolation includes the verification that mechanical or electrical apparatus cannot become energized while workers are inside. Isolation in these cases can include physical lockout of switches or controls, disconnecting electrical supplies, or the mechanical blocking of moving equipment and process systems.

Isolation shall be achieved by locking circuit breakers and/or disconnecting the ON position lever with a key type padlock. Isolation of all moving parts shall be achieved by disconnecting, blinding, or capping any linkage, valves, drive belts, shafts, water/steam lines, chaining controls, or systems which enter, feed, or impact in the confined space. Equipment with moving mechanical parts shall be blocked/ secured so there can be no inadvertent movement.

The key must remain with the person working inside the confined space. If more than one person is inside the confined space, each person shall place his/her own lock on the lockout point. In some cases, it may be more feasible for one supervisor to have the lock for an entire trade group with the understanding that this supervisor is responsible for checking that all individuals have been safely accounted for before removing the lock. Refer to **PPM's Lockout/Tagout Policy before isolating the system.**

Mechanical Ventilation

Mechanical ventilation is a method of providing ventilation into a confined space, which is typically provided by electrically powered or air driven blowers. From a ventilation engineering standpoint, air blown into a space (forced air) is more effective in providing consistent dilution inside the space than air exhausted, (induced air).

Negative pressure can be provided by placing the blower inside the space. This method can be effective in allowing

clean air to be drawn into the space but is not as effective in producing uniform dilution of contaminants. Use of continuous mechanical ventilation will be necessary when working inside Permit Required Confined Spaces. Ventilation must be provided at the minimum rate of four air changes per hour.

Flexible tubing or ductwork is used to distribute air to all areas of the space. Electrical ventilation equipment must be grounded.

Emergency Retrieval Equipment

Refers to mechanical hoist equipment designed to raise and lower workers from a space. All equipment used for raising or lowering workers will be rated for such operations by the manufacturer. An emergency plan must be developed for entry into Permit Required Confined Spaces

Workers entering a Permit Required Confined Space shall wear a full body harness. Mechanical retrieval devices shall be available at the entry position. The full body harness will have such design features as to keep the individual in an upright orientation if a vertical rescue is required.

The rescue person shall be equipped to be capable of immediately rescuing the worker in the confined space.

Initial Atmosphere Testing

Prior to entry, all spaces will be initially tested for carbon monoxide, flammable vapors and oxygen deficiency, plus toxic vapor, or gases (based on the potential for toxics being present).

The confined space attendant shall know how to operate the atmospheric monitor assigned to him and the supervisor will verify that the atmospheric monitor is properly calibrated.

A CGI (Calibrated Gas Instrument) will be span (bump) checked prior to use or every 24 hours or as per manufacturers' specifications to maintain proper operation and will be calibrated on a yearly basis as per manufacturers' specifications. CGIs will not be used for certifying an area "safe for entry" unless these requirements have been met.

Oxygen meters used to confirm the completeness of inerting will be tested with a 100% nitrogen atmosphere to make certain that the meter will read 0% oxygen.

When monitoring, measurements will be made from top to bottom and in all remote sections of the space. It may be necessary to enter the space to test remote locations.

Continuous monitoring of the atmosphere in Permit Required Confined Spaces shall be conducted.

Purging and Ventilation

Prior to entry, mechanical ventilation will be initiated for Permit Required Confined Spaces to reduce or maintain flammable vapor levels to 10% LEL or less.

Some legislative jurisdictional requirements state that this ventilation is to be continuous. This ventilation is primarily designed to verify that oxygen deficiencies or flammable atmospheres do not develop. Ventilation is not always sufficient to maintain toxic-free environments and therefore, continuous monitoring of permit required confined spaces is always conducted.

Note: this ventilation will discharge contaminants outside the space and will therefore present exposure potentials to outside workers. This discharge may also present fire or explosion hazards outside the space.

Electrical fans will not be placed inside a space or set up to move air that contains flammable vapors unless they are equipped with explosion-proof capability and are certified by the appropriate and applicable regulatory agencies.

Safety Equipment

The following minimum equipment requirements are specified:

- Oxygen and combustible gas monitors and a calibration kit. Photo ionizing detector, and detector tubes will be used as necessary to determine toxic content of an atmosphere,
- Mechanical ventilation equipment,
- All workers entering a confined space shall wear clothing appropriate to protect the wearer against known or suspected toxic or irritating materials. Specific type of suit material will be described in the permit,
- Hearing protection shall be used when noise levels and exposure times exceed those in applicable standards,
- The exact level and type of respiratory protection for Permit Required Confined Space entries shall be determined by Corporate Safety Director based upon the conditions and test results of the confined space and the work activity performed,
- All respirators shall be approved devices and shall be fitted and maintained in accordance with the Respiratory Protection Policy,
- The specific type and degree of rescue equipment will depend upon the nature of the confined space regarding access/egress. This decision should consider the exact way the individual could be feasibly extracted, i.e., by the wrists, waist, straight-up, and the accompanying strain to the rescuer's body,
- A body harness is required when an employee is working in an area that, for purposes of rescue, is considered restricted and when any failure of ventilation could allow the build-up of toxic or explosive gases within the time necessary to vacate the area,
- The type of harness selected must facilitate removal from the confined space,
- If the worker in the confined space is required to wear a harness, the rescue/stand-by person shall also have a safety harness and emergency respirator immediately
- available to him/her, and
- Additional rescue equipment such as a tripod, block and tackle and lifelines shall be available, set-up, and in working order if needed to remove a worker from a Permit-Required Confined Space. This equipment must be capable of being hand operated. Rescue equipment is not required for entry into restricted confined spaces.

Rescue Plans

A rescue plan must be developed and published, and copies provided to supervisors, entrants, and rescue workers for all Permit Required Confined Spaces.

Rescue Personnel

Permit Required Confined Spaces

The rescue personnel must be readily available, (Fire Department). Ensure local fire department is trained to perform confined space rescues. Fire department shall be notified when PPM performs work in a Permit Required Confined Space.

Restricted Confined Spaces

No special precautions are deemed necessary beyond the normal site emergency response capability and awareness of off-site confined space rescue contacts unless otherwise specified.

Confined Space Attendant

In the event entry into a Permit Required Confined Space is required, an confined space attendant must be present. All permit required confined space entries require a confined space attendant to be assigned to the space.

This person's duties include maintaining communication and providing necessary assistance to workers inside.

The confined space attendant's primary responsibilities with permit required confined spaces are communicate with entrants and initiation of rescue procedures (although this person will never go inside the space).

Confined space attendants cannot leave a permit required confined space for any reason unless relieved by another trained confined space attendant or the space is evacuated.

Communication needs to be established for permit required confined space attendants so assistance can be summoned without the attendant person having to leave the area.

Continuous Atmospheric Monitoring

It is recognized that the condition in some spaces may change over time. Initial testing may underestimate hazards in these situations.

Continuous monitoring of flammables, oxygen, and/or toxics is always required in Permit Required Confined Spaces. Recording of those results are required on Confined Space Entry Permit.

Equipment designed for continuous monitoring and an audible alarm should be used.

Continuous Ventilation

Once ventilation is started for permit required confined spaces, periodic checks should be made of the surrounding area to verify that contaminated air is exhausted in a location that creates no hazard to people or equipment.

Continuous ventilation shall be maintained as part of the work procedure for permit required confined spaces because of desorption of walls, evaporation, or chemicals and toxic atmospheres which may develop due to the nature of the confined space activity, i.e., welding or painting.

Continual forced air ventilation shall be provided in all permit required confined spaces. If monitoring identifies that the ventilation is not sufficient to maintain the atmosphere below 10% LEL, the confined space shall be evacuated immediately until the problem is corrected.

Air intake fans shall be located so they will not pick-up exhaust gases from vehicles, heaters, furnaces, or adjacent operations capable of generating airborne contaminants.

Blowers should be located so that there are no unnecessary bends in the hose. One 90-degree bend can reduce the output to 70% of rated capacity; two 90-degree bends to 50%, three bends to 33%, etc.

Lighting

All portable lights shall have protective covers and be intrinsically safe when working in potentially flammable atmospheres.

Heavy duty flexible cords will be used with good insulation and connectors. No splices are permitted. Cracked or worn insulation shall be replaced.

Lighting shall not be suspended by cords unless specifically designed for it.

All lights and plug assemblies and GFCIs should be checked with a volt/ground meter prior to use in a confined space.

Summary

- Preplanning
 - Locate known confined spaces,
 - Become familiar with types of hazards associated with confined spaces,

- Identify and secure necessary tools,
- Be prepared to test atmospheres,
- Obtain proper protective equipment, and
- Training:
 - Awareness and recognition of hazards and hazard controls,
 - Hands-on use of equipment, and
 - Simulated rescues.
- Rescue Factors
 - Planning:
 - Recognize problems,
 - Evaluate solutions,
 - Select solution, and
 - Act (pro-active NOT reactive).
- Organizing:
 - Determine resources, and
 - Arrange resources.
- Directing:
 - Define responsibilities,
 - Positive actions,
 - Facts collected, and
 - Strategy changed if necessary.
- Controlling:
 - Coordination of team,
 - Delegation of authority, and
 - Monitoring requirements.
- Coordination:
 - Communication of objectives, and
 - Specify deployment of resources.

6.19 Checklist for Confined Space Entry

Checklist for Entry, working in and exiting Confined Spaces

- Oxygen-deficient atmosphere,
 - Flammable or explosive.
- Poisonous or toxic,

- Egress and entry limitation,
- Isolation/lockout and tagout requirements,
- Electrical hazards,
- Mechanical hazards,
- Communications,
- Permit requirements,
- Visibility,
- Ventilation,
- Explosion-proof equipment,
- Eliminate ignition source,
- Proper safety gear,
- Safety lines,
- Positive pressure SCBA,
- In-line system,
- Back-up system/resources,
- Test meters,
- Removal equipment,
- Stretchers, baskets,
- Medical help, and
- Contingency plan including rescue workers and equipment.

6.20 Training Requirements

All workers entering a confined space must be thoroughly trained in this procedure or as per legislative jurisdictional requirements. Special emphasis must be placed on verifying that workers can perform rescue operations effectively.

6.20.1 Authorized Supervisors shall know:

- How to determine if the entry permit contains required information before allowing entry,
 - Prior to entry know:
 - Identification and control of hazards:
- Procedures,
- Practices, and
 - Equipment.
 - How to determine that entry operations remain consistent with terms of the Permit,
 - How to determine that acceptable conditions are present,

- How to cancel or terminate the permit if acceptable conditions are not maintained, and
- How to take necessary measures:
 - Concluding and operation,
 - Close off a permit space, and
 - Cancel the permit after completion of work.

6.20.2 Authorized Entrants shall know:

- Hazards of entry,
- Hazard controls,
- How to select, fit, use, and care for PPE,
- Communication procedures to signal the authorized attendant if conditions change, a worker is injured, PPE failure, lighting failure or if rescue is required,
- How to recognize behavioral changes due to exposure,
- How to detect prohibited conditions such as unblinded lines, unvented or purged areas, electrical energization, and improper or not intrinsically safe tools and equipment, and
- How to properly enter work and exit a space.

6.20.3 Authorized Attendants shall:

- Remain stationed outside permit space,
- Maintain accurate count of entrants,
- Know potential hazards associated with space,
- Know the hazard controls,
- Monitor activities inside without physically entering the space,
- Monitor activities outside, which may negatively impact the space, and
- How to maintain effective and continuous contact.
- How to order evacuation of entrants when he/she:
 - Observes a condition which is not allowed by permit,
 - Detects behavioral effects of exposure,
 - Detects condition outside which endangers entrants,
 - Detects uncontrolled hazard within permit space,
 - Is monitoring more than one permit space and the rescue of entrants from one space is required, and
 - Must leave workspace.
- How to summon rescue and other emergency services,
- How to take following actions:
 - Warn unauthorized persons away from space.
- How to perform any assigned rescue and emergency duties without entering permit space.

Onsite Rescue Teams

- Trained to properly use personal protective equipment necessary for making rescues,
- Trained to perform assigned rescue functions, and
- Practice at least once every twelve months:
 - Simulated rescues using mannequins or dummies, and
 - Rescues through representative openings which approximate spaces from which rescues may be required.

Each rescue team must maintain a current certification in basic first aid and CPR skills and know how to coordinate efforts with third party rescue teams.

Outside Rescue Teams

- Must verify that rescuers are aware of hazards they may confront when called on to perform rescues.
- Provided access to permit spaces so they can:
 - Develop rescue plans,
 - Practice rescue operations, and
 - Coordinate efforts with onsite or other third-party rescue teams as required.

Confined Space and Permit Required Confined Space Recognition Form

Part 1:

- | | | |
|--|---|---|
| 1) Is the space large enough so an employee can bodily enter and perform work? | Y | N |
| 2) Does the space have limited or restricted means for entry and exit? | Y | N |
| 3) Is the space not designed for continuous human occupancy? | Y | N |

If the answer is "Yes" to all items in Part 1, continue to Part 2. If the answer is "No" to any of the above items, the space is not considered a confined space and no further action is needed.

Part 2:



- | | | |
|--|---|---|
| 1) Does the space contain or potentially contain a hazardous atmosphere? | Y | N |
| 2) Does the space contain any chemicals or chemical residue? | Y | N |
| 3) Does the space contain any flammable/combustible substances? | Y | N |
| 4) Does the space contain or potentially contain decomposing organic matter? | Y | N |
| 5) Does the space have any pipes which bring chemicals into it? | Y | N |
| 6) Does the space have any materials that can trap or potentially trap, engulf, or drown an entrant? | Y | N |
| 7) Is vision obscured by dust at 5 feet or less? | Y | N |
| 8) Does the space contain any mechanical equipment servicing the space? | Y | N |
| 9) Does the space contain thermal hazards (e.g. extreme hot or cold)? | Y | N |
| 10) Does the space have converging walls or sloped floors to smaller cross-sections which could trap or asphyxiate an entrant (entrapment hazard)? | Y | N |
| 11) Does the tank or vessel contain rusted interior surfaces? | Y | N |
| 12) Does the space contain excessive noise levels which could interfere with communication with an attendant? | Y | N |
| 13) Are there any operations within 50 feet of the entrance that could present a hazard to entrants? | Y | N |
| 14) Are there any hazards from falling objects? | Y | N |
| 15) Are there any lines under pressure servicing the space? | Y | N |
| 16) Are cleaning solvents involved or paints going to be used in the space? | Y | N |
| 17) Is welding, cutting, brazing, riveting, scraping, or sanding going to be performed in the space? | Y | N |
| 18) Is electrical equipment located in or required to be used in the space? | Y | N |
| 19) Are there any corrosives which could irritate the eyes in the space? | Y | N |
| 20) Does the space have poor natural ventilation so that a hazard atmosphere could develop without the use of mechanical ventilation? | Y | N |

If any of the questions in Part 2 have been checked "Yes", the confined space is a permit-required confined space. As such, entry into these spaces must be performed under the protection of a full permit required space. If all of the questions in Part 2 have been checked "No", the confined space is a simple confined space. If any questions have been checked "Yes" and the hazard has been recognized and eliminated, you may re-classify the space as a non-permit required space. If any of the questions have been checked "Yes" and the hazard cannot be eliminated, a full-permit required confined space program must be followed.


APPENDIX H: LOCKOUT/TAGOUT

Main Information

Date *

Job *

Recorder (or employee you are visiting) *

Lockout / Tagout Verification

Site Location/Job name *

Date *

Name of person verifying LOTO *

Verification questions

Has there been a change in job assignments, machines, equipment or processes?

YES NO

If so, have employees been re-trained when job assignments, machines, equipment or processes have changed?

YES NO

Are the locks uniquely identified, uniquely keyed, and only used for the purpose of LOTO?

YES NO

Does the tag used with the lock identify the worker servicing the machine or equipment?

NO

Have equipment and machine-specific LOTO procedures been documented in writing?

NO

Does the employee know where the written LOTO procedures are located?

NO

Does the employee notify affected employees and all other employees in the area before starting the LOTO procedure?

NO

Can the employee identify all hazardous energy sources and associated hazards for the equipment or machine to be locked out?

NO

Does the employee follow the proper LOTO procedures for de-energizing the equipment or machine?

NO

Does the employee demonstrate the proper steps for placement, removal and transfer of LOTO devices?

NO

Does the employee use the proper methods to verify the equipment or machine was de-energized?

NO

Before releasing the machine or equipment from LOTO, does the employee inspect the machine or equipment to ensure it is operationally intact?

NO

Does the employee ensure that all employees are safely positioned before re-energizing?

NO

Were all affected employees and all other employees in the area notified that LOTO devices have been removed?

NO

If there was a NO answer to any of these questions, was the employee re-trained in LOTO procedures?

NO

Signature section

Signature of authorized person doing LOTO verification. *

Date and Time *



ISOLATION LOG

Date of Isolation:

Description of Work:

List of Equipment out of Service:

Necessary Requirements of Clear Isolation:

Authorized Employee Signature: _____

Person Continuing Work Signature: _____

Locks/Tags for GROUP LOCKOUT or Multiple Locks/Tags

Lock # or Tag	Date Installed	Date Removed	Print Name (for Group Lockout)	Signature

(If additional space is needed, please attach an additional page)

APPENDIX I: SAFETY DATA SHEETS

SDS EMERGENCY INFORMATION

Search and find the SDS in your SDS library.

SECTION 1 of the SDS will contain all the information you need. Have this available when you call.



SECTION 1

- EMERGENCY TELEPHONE NUMBER
- PRODUCT NAME
- MANUFACTURER

SECTION 4

- FIRST AID MEASURES



Follow First Aid Measures as directed in **SECTION 4**.

SPILLS • EXPOSURES • POISONINGS
ACCIDENTAL RELEASES • FIRES



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APPENDIX J: PPM INJURY AND ILLNESS PREVENTION PLAN



INJURY & ILLNESS PREVENTION PROGRAM

INJURY & ILLNESS PREVENTION PROGRAM

POLICY INDEX

- Policy Page/Management Statement
- Abrasive Blasting
- Aerial Lifts
- Arsenic Awareness
- Asbestos Awareness
- Barge Safety
- Benzene Awareness
- Bloodborne Pathogens
- Case Management & Return to Work Policy
- Cold Stress
- Confined Space Program
- Contaminated Soil Protocol
- Crane & Hoist Safety Policy
- Crane Lift Director Policy
- Crane Personnel Hoisting Procedure
- Disciplinary Policy / Procedures
- Diving Operations Safety
- Electrical Extension Cord & Power Tool Safety
- Ergonomics Program
- Excavation, Trenching, & Shoring
- Fall Protection
- Fatigue Management
- Fire Protection
- First Aid & CPR Policy
- General Waste Policy
- Great Catch / Near-Miss Program
 - Great Catch Report Form
- Hand & Power Tools
- Hazard Communication (HAZCOM)
- Hazardous Waste Operations & Emergency Response (HAZWOPER)
- Heat Stress
- Hot Work, Welding, & Cutting
 - Hot Work Permit
- Hydrogen Sulfide
- Incident Investigation & Reporting Procedures
- Job Hazard Analysis (JHA) & Control
- Ladder Safety
- Lead Awareness
- Leading Indicators
- Lockout-Tagout
- Noise Exposure – Hearing Conservation
- Pandemic Preparedness
- Personal Protective Equipment Assessments
- Pile Driving
- Powered Industrial Trucks (Forklifts)
- Process Safety Management
- Respiratory Protection
- Safety Absolutes
- Safety Inspections
- Scaffolds
- Silica Awareness
- Silica Exposure Control Plan
- Spill Prevention
- Stop Work Authority
- Subcontractor Safety Management
- Vehicle Safety
- Wildfire Smoke Policy
- Working Over or Near Water

Management Statement

The Management at Pacific Pile & Marine recognizes that accident prevention is an essential ingredient in our business. We are dedicated to providing the active leadership and support necessary to develop and maintain a successful Injury & Illness Prevention Program with these objectives:

- Provide a safe and healthful work environment for all employees.
- Minimize the risk of human and economic losses resulting from personal injury and property damage.
- Ensure the security, protection and wellbeing of the personnel, equipment, and vehicles of our Company.
- Comply with all health, safety, and environmental laws that apply to the workplace and jobsites.

Accident and loss prevention must be considered a vital part of every job in our Company. The success of the Injury & Illness Prevention Program requires the full and earnest cooperation of each Pacific Pile & Marine employee. All of us should work with safety as our first priority and production as our next priority. Employees should report unsafe conditions or practices to their supervisor, project management, or the HSE Department.



Wilbur L. Clark, CEO



Matt Rolf, CSP, CHST, Director of HSE



ABRASIVE BLASTING POLICY

Complying with:

OSHA Safety and Health Regulations for General Industry Standard:

Part 1910, Subpart Z

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subparts: D, E, Z

PURPOSE

The purpose of this program is to provide training and qualification guidelines for the safe operation of Abrasive Blasting. The Safety Department is responsible for facilitating this program.

SCOPE

This program applies to all employees and subcontractors working within and in the vicinity of the controlled Abrasive Blasting area.

QUALIFICATION REQUIREMENTS

All Abrasive Blasting operators are required to be fully qualified and competent in the operation of each piece of equipment they are required to operate.

HAZARDOUS SUBSTANCES

Whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist and/or are produced during construction work, their concentrations will not exceed the threshold limit values as specified state and federal regulations. When ventilation is used as an engineering control method, the system will be installed and operated according to the requirements of this section. The following policies shall be used to reduce the workers exposure and keep it below the Threshold Limit Value (TLV).

VENTILATION

Local exhaust ventilation when used will be designed to prevent dispersion of dusts, fumes, mists, vapors, and gases in concentrations into the air causing harmful exposure. Such exhaust systems will be so designed that dusts, fumes, mists, vapors, or gases will not be drawn through the work area of employees.

Exhaust fans, jets, ducts, hoods, separators, and all necessary appurtenances, including refuse receptacles, will be so designed, constructed, maintained, and operated as to ensure the required protection by maintaining a volume and velocity of exhaust air sufficient to gather dusts, fumes, vapors, or gases from said equipment or process, and to convey them to suitable points of safe disposal, thereby preventing their dispersion in harmful quantities into the atmosphere where employees work.

The exhaust system will be in operation continually during all operations which it is designed to serve. If the employee remains in the contaminated zone, the system will continue to operate after the cessation of said operations, the length of time to depend upon the individual circumstances and effectiveness of the general ventilation system.

Since dust capable of causing disability is, according to the best medical opinion, of microscopic size, tending to remain for hours in suspension in still air, it is essential that the exhaust system be continued in operation for a time after the work process or equipment served by the same will have ceased, to ensure the removal of the harmful elements to the required extent. For the same reason, employees wearing respiratory equipment should not remove same immediately until the atmosphere seems clear.

The air outlet from every dust separator, and the dusts, fumes, mists, vapors, or gases collected by an exhaust or ventilating system will discharge to the outside atmosphere. Collecting systems which return air to work area may be used if concentrations which accumulate in the work area air do not result in harmful exposure to employees. Dust and refuse discharged from an exhaust system will be disposed of in such a manner that it will not result in harmful exposure to employees.

DUST HAZARDS FROM ABRASIVE BLASTING

Abrasives and the surface coatings on the materials blasted are shattered and pulverized during blasting operations. The dust formed will contain particles of respirable size. The composition and toxicity of the dust

from these sources will be considered in making an evaluation of the potential health hazards.

The concentration of respirable dust or fume in the breathing zone of the abrasive blasting operator or any other worker will be kept below the levels specified in by regulations or other pertinent sections of this part.

Organic abrasives which are combustible will be used only in automatic systems. Where flammable or explosive dust mixtures may be present, the construction of the equipment, including the exhaust system and all electric wiring, will conform to the requirements of American National Standard Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1-1961 (NFPA 91-1961), and Subpart S of this part. The blast nozzle will be bonded and grounded to prevent the build-up of static charges. Where flammable or explosive dust mixtures may be present, the abrasive blasting enclosure, the ducts, and the dust collector will be constructed with loose panels or explosion venting areas, located on sides away from any occupied area, to provide for pressure relief in case of explosion, following the principles set forth in the National Fire Protection Association Explosion Venting Guide. NFPA 68-1954.

BLAST-CLEANING ENCLOSURE

Should a blast cleaning enclosure be necessary the following rules include:

Blast-cleaning enclosures will be exhaust ventilated in such a way that a continuous inward flow of clean air will be maintained at all openings in the enclosure during the blasting operation.

All air inlets and access openings will be baffled or so arranged that by the combination of inward air flow and baffling the escape of abrasive or dust particles into an adjacent work area will be minimized and visible spurts of dust will not be observed.

The rate of exhaust will be sufficient to provide prompt clearance of the dust-laden air within the enclosure after the conclusion of blasting.

Before the enclosure is opened, the blast will be turned off and the exhaust system will be run for a sufficient period to remove the dusty air within the enclosure.

EXHAUST VENTILATION SYSTEM

When dust leaks are noted, repairs will be made as soon as possible.

The static pressure drops at the exhaust ducts leading from the equipment will be checked when the installation is completed and periodically thereafter to assure continued satisfactory operation. Whenever an appreciable change in the pressure drop indicates a partial blockage, the system will be cleaned and returned to normal operating condition.

In installation where the abrasive is recirculated, the exhaust ventilation system for the blasting enclosure will not be relied upon for the removal of fines from the spent abrasive instead of an abrasive separator. An abrasive separator will be provided for the purpose.

The air exhausted from blast-cleaning equipment will be discharged through dust collecting equipment. Dust collectors will be set up so that the accumulated dust can be emptied and removed without contaminating other working areas.

PERSONAL PROTECTIVE EQUIPMENT

Employers must use only respirators approved by NIOSH under 42 CFR part 84 for protecting employees from dusts produced during abrasive-blasting operations.

Abrasive-blasting respirators will be worn by all abrasive-blasting operators:

- When working inside of blast-cleaning rooms, or

- When using silica sand in manual blasting operations where the nozzle and blast are not physically separated from the operator in an exhaust ventilated enclosure, or
- Where concentrations of toxic dust dispersed by the abrasive blasting may exceed the limits set in applicable regulations or other pertinent sections of this part and the nozzle and blast are not physically separated from the operator in an exhaust-ventilated enclosure.

Type CE Supplied Air respirators:

- Type CE continuous flow, positive pressure respirators can be used with half- or full-face masks, or with loose fitting hoods/helmets in the case that additional protection against abrasive blasting rebound or lead exposures up to 25 times the Permissible Exposure Limit (PEL).

Properly fitted particulate-filter respirators, commonly referred to as dust-filter respirators, may be used for short, intermittent, or occasional dust exposures such as cleanup, dumping of dust collectors, or unloading shipments of sand at a receiving point when it is not feasible to control the dust by enclosure, exhaust ventilation, or other means. The respirators used must be approved by NIOSH under 42 CFR part 84 for protection against the specific type of dust encountered.

A respiratory protection program as defined and described in PPM Respiratory Protection Program, will be established wherever it is necessary to use respiratory protective equipment.

Operators will be equipped with heavy canvas or leather gloves and aprons or equivalent protection to protect them from the impact of abrasives. Safety shoes will be worn to protect against foot injury where heavy pieces of work are handled.

Safety shoes will conform to the requirements of American National Standard for Men's Safety-Toe Footwear, Z41.1-1967.

Equipment for protection of the eyes and face will be supplied to the operator when the respirator design does not provide such protection and to any other personnel working in the vicinity of abrasive blasting operations. This equipment will conform to the requirements of 1926.102.

Air for abrasive-blasting respirators must be free of harmful quantities of dusts, mists, or noxious gases, and must meet the requirements for supplied-air quality and use specified in 29 CFR 1910.134(i).

MISCELLANEOUS

Dust will not be permitted to accumulate on the floor or on ledges outside of an abrasive-blasting enclosure, and dust spills will be cleaned up promptly. Aisles and walkways will be kept clear of steel shot or similar abrasive which may create a slipping hazard.

The blast cleaning nozzles will be equipped with an operating valve which must be held open manually. A support will be provided on which the nozzle may be mounted when it is not in use.

Compressed air will not be used for cleaning purposes except where reduced to less than 30 psi and then only with effective chip guarding and Personal Protective Equipment (PPE).

DEFINITIONS

Abrasive: A solid substance used in an abrasive blasting operation, such as steel, sand, or coal chips.

Abrasive blasting: The forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

Abrasive-blasting respirator: A respirator constructed so that it covers the wearer's head, neck, and shoulders to protect the wearer from rebounding abrasive.

Blast cleaning barrel: A complete enclosure which rotates on an axis, or which has an internal moving tread to tumble the parts, to expose various surfaces of the parts to the action of an automatic blast spray.

Blast cleaning room: A complete enclosure in which blasting operations are performed and where the operator works inside of the room to operate the blasting nozzle and direct the flow of the abrasive material.

Blasting cabinet: An enclosure where the operator stands outside and operates the blasting nozzle through an opening or openings in the enclosure.

Clean air: Air of such purity that it will not cause harm or discomfort to an individual if it is inhaled for extended periods of time.

Dust Collector: A device or combination of devices for separating dust from the air handled by an exhaust ventilation system.

Exhaust ventilation system: A system for removing contaminated air from a space, comprising two or more of the following elements (A) enclosure or hood, (B) duct work, (C) dust collecting equipment, (D) exhauster, and (E) discharge stack.

Particulate-filter respirator: An air purifying respirator commonly referred to as a dust or a fume respirator, which removes most of the dust or fume from the air passing through the device.

Respirable dust: Airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages.

Rotary blast cleaning table: An enclosure where the pieces to be cleaned are positioned on a rotating table and are passed automatically through a series of blast sprays.



AERIAL LIFT POLICY

PURPOSE

To provide training and qualification guidelines for the safe operation of aerial lifts and powered manned platforms. The Safety Officer is responsible for facilitating this program.

SCOPE

This program applies to all employees and subcontractors working within our controlled worksites.

QUALIFICATION REQUIREMENTS

All aerial lift operators are required to be fully qualified and competent in the operation of each piece of equipment they are required to operate. All New Hire operators are required to:

- Provide proof of training and or experience valid within one (1) year and pass an examination prior to acceptance, or
- Successfully complete the Aerial Lift Training Program.

AERIAL LIFT DESIGN

GENERAL

Unless otherwise provided in this section, aerial lifts acquired for use on or after January 22, 1973 shall be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix. Aerial lifts acquired before January 22, 1973 which do not meet the requirements of ANSI A92.2-1969, may not be used after January 1, 1976, unless they shall have been modified to conform with the applicable design and construction requirements of ANSI A92.2-1969. Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to jobsites above ground:

- Extendable boom platforms,
- Aerial ladders,
- Articulating boom platforms,
- Vertical towers, and
- A combination of any such devices.

CONSTRUCTION

Aerial equipment may be made of metal, wood, fiberglass reinforced plastic (FRP), or other material; may be powered or manually operated; and are deemed to be aerial lifts whether or not they are capable of rotating about a substantially vertical axis.

MODIFICATIONS

Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

AERIAL LIFT RULES

1. A daily or pre-shift inspection will be performed and documented using Attachment 1.
2. Do not use the aerial lift for hoisting material. Use only according to the manufacturer's

recommendations. Do not exceed boom and basket load limits specified by the manufacturer.

3. Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition. Tests shall be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition.
4. Only authorized persons shall operate an aerial lift.
5. All vehicles will have a reverse signal alarm audible above the surrounding noise levels or the vehicle is backed up only when an observer signals that it is safe to do so.
6. For lines rated 50 kV, or below, minimum clearance between the lines and any part of the lift will be ten (10) feet.
7. Belting off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted.
8. Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
9. A full body harness shall be worn, and a lanyard attached to the boom or basket when working from an aerial lift. (Fall Protection Program). A body belt is not acceptable as part of a personal fall arrest system. The use of a body belt in a tethering system or in a restraint system is acceptable.
10. The brakes shall be set and when outriggers are used, they shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline, provided they can be safely installed.
11. An aerial lift truck shall not be moved when the boom is elevated in a working position with men in the basket.
12. Articulating boom and extendable boom platforms, primarily designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.
13. The insulated portion of an aerial lift shall not be altered in any manner that might reduce its insulating value.
14. Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled, and outriggers are in stowed position.

TRAINING PROGRAM

The Aerial Lift Training Program is intended for all operators. The training program consists of:

- OSHA Standards Overview.
- Overview of manufacturers operation manual.
- Viewing of video-tape training film.
- Written examination.
- Satisfactory check out by a qualified person.
- Successful completion of this program requires.

- Classroom instruction.
- Written examination.
- A score of between 80% and 100% will require a review of missed questions, if any, and the score corrected to 100%.
- A score of below 80% will require complete retraining and testing.
- Field evaluation.

ATTACHEMENT #1

Aerial Platform Lift Operators Daily Checklist		
Name of Inspector:	Date of Inspection:	PPM Equipment Number:
Inspection	OK	Repairs Needed
1. Hydraulic system (Look for leaks)		
2. Basket Condition (Look for loose objects or damage)		
3. Fuel Supply		
4. Tire Condition		
5. Engine Oil Level		
6. Battery Water Level		
7. Check ground controls both emergency and with engine running		
8. Required Safety Equipment:		
• Fire extinguisher		
• Fall Protection		
• Respirator if required		
• Eye Wash		
9. Brakes (Brakes engage when drive lever is in neutral)		
10. All switch and control name decals legible		
11. Check each function:		
• Lift up		
• Lift down		
• Swing right		
• Swing left		
• Telescope in		
• Telescope out		
• Platform lever up		
• Platform lever down		
• Drive forward		
• Drive reverse		
• Steer right		
• Steer left		
• Check operation of platform controls on emergency power		
<p><i>*Do not use equipment and notify Supervisor if any defects or malfunctions are found. Return checklist to Supervisor</i></p>		



ARSENIC AWARENESS POLICY

Complying with:

OSHA Safety and Health Regulations for General Industry Standard:

Part 1910, Subpart: Z

PURPOSE

The purpose of the arsenic awareness policy is to insure the employees of Pacific Pile and Marine (PPM) have a complete understanding of the hazards associated with arsenic, its identification, PPE, testing, and worker rights.

INTRODUCTION

Short-term (acute) exposure to arsenic can cause irritation to the eyes, nose, throat, and skin. It can also cause central nervous system disorders and cognitive impairment. Long-term (chronic) exposure has produced anorexia, nervousness, irritability, dermatitis, labored breathing, and irreversible injury to the blood forming organs, cancer.

All PPM workers will be made aware of any host facilities (client) Emergency Response/Contingency Plan(s). This will be performed during initial and periodic contractor safety orientation training classes and at the direction of host facilities management. All PPM workers will be made aware of specifically, in the host facility, all locations/operations where arsenic is used. This arsenic program is an awareness program only. PPM will review and update the Arsenic Awareness plan when necessary and at least annually. The arsenic awareness plan will be available at the worksite and may be examined by any affected employee or authorized employee representative upon request.

RESPONSIBILITIES

Director of Health, Safety, & Environmental

The Director of HSE is responsible for:

- Ensuring that priority is given to full implementation of all policies, procedures, and other health and safety requirements.
- Facilitating the appropriation of funding to maintain a safe and healthful workplace.
- Maintaining safety awareness among all workers.
- Administering and documenting training.
- Approving protective equipment.
- Providing safety and health communications.
- Facilitating industrial hygiene monitoring.
- Notifying appropriate management of compliance.
- Overall implementation and audit of the Arsenic Program.
- Ensuring that only properly trained personnel can perform activities.
- Surveying the workplace for inappropriate practices or conditions affecting safety and make associated timely corrections.

EXPOSURE LIMIT REQUIREMENTS

PPM will assure that no worker is exposed to arsenic at concentrations greater than 0.01 milligrams per cubic meter of air (mg/m^3) (Permissible Exposure Limit - PEL) of air averaged over an 8-hour period.

- The action level for arsenic is an airborne concentration of 5 micrograms per cubic meter of air ($5 \text{ ug}/\text{m}^3$) averaged over an 8-hour period.

- When respirators are used to supplement engineering and work practice controls to comply with the PEL and all the worker exposure requirements have been met, for the purpose of determining whether PPM has complied with the PEL, may be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the worker's daily Time Weight Average (TWA) exposure.

EXPOSURE MONITORING REQUIREMENTS

Monitoring will be accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of arsenic.

- Dust collections equipment will be cleaned prior to each use and will be stored in a clean environment.
- Determinations of worker exposure will be made from breathing zone air samples that are representative of each worker's average exposure to airborne arsenic.
- Representative 8-hour TWA worker exposures will be determined based on one sample or samples representing the full shift exposure for each job classification in each work area.
- Determinations of compliance with the Short-Term Exposure Limits (STEL) will be made from 15-minute worker breathing zone samples measured at operations where there is reason to believe exposures are high, such as where tanks are opened, filled, unloaded or gauged; where containers or process equipment are opened and where arsenic is used for cleaning or as a solvent in an uncontrolled situation.
- For purposes of this section, monitoring of worker exposure is that exposure which would occur if the worker were not using a respirator.
- Pacific Pile & Marine (PPM) will, as needed, perform initial exposure monitoring as follow:
 - PPM will collect full shift and short-term personal samples including at least one sample for each shift for each job classification in each work area.
 - Full shift and short-term personal samples will be representative of the monitored worker's regular, daily exposure to arsenic.
 - PPM will monitor worker exposures and will base initial determinations on the worker exposure monitoring results and any of the following relevant considerations:
 - Any information, observations, or calculations which would indicate worker exposure to arsenic.
 - Any previous measurements of airborne arsenic.
 - Any worker complaints of symptoms which may be attributable to exposure to arsenic.
 - Baseline monitoring data will be obtained and documented for specific arsenic operations to establish exposure criteria levels for repetitive type of arsenic work.
 - Monitoring for the initial determination may be limited to a representative sample of the exposed workers who PPM reasonably believes are exposed to the greater airborne concentrations of arsenic in the workplace.
 - If the initial determination shows the possibility of any worker exposure at or above the action level, PPM will conduct monitoring which is representative of the exposure for each worker who is exposed to arsenic in the workplace.
 - If the initial determination and initial monitoring show that no worker is exposed to airborne

concentrations of arsenic at or above the action level, PPM will make a written record of such determination. The record will include at least the information specified in this section and will also include the date of determination, location within the worksite, and the name and worker number of each worker monitored.

- Periodic Monitoring (as needed):
 - If the initial determination or subsequent monitoring reveals worker exposure to be at or above the action level but below the PEL, PPM will repeat monitoring in accordance with this section at least once per year. PPM will continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time PPM may discontinue monitoring for that worker except as otherwise described above.
 - If the initial monitoring reveals worker exposure to be below the action level, the measurements need not be repeated except as otherwise described above.
 - If the initial monitoring reveals that worker exposure is above the PEL, PPM will repeat monitoring every 6 months. PPM will continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the PEL but at or above the action level at which time PPM will repeat monitoring for that worker at the frequency described in **EXPOSURE MONITORING REQUIREMENTS**, except as otherwise described above.

Worker Notification

- Within 15 working days after the receipt of monitoring results, PPM will notify each worker in writing of the results which represent that worker's exposure. Whenever the results indicate that the representative worker exposure, without regard to respirators, exceeds the PEL, PPM will include in the written notice a statement that the PEL was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible limit.

Observation of Monitoring

- PPM will provide affected workers or their designated representatives an opportunity to observe any monitoring of worker exposure to arsenic conducted pursuant to monitoring requirements. Whenever observation of the monitoring of worker exposure to arsenic requires entry into an area where the use of respirators, protective clothing or equipment is required, PPM will provide the observer with and assure the use of such respirators, clothing, and equipment, and will require the observer to comply with all other applicable safety and health procedures.
- Without interfering with the monitoring, observers will be entitled to:
 - Receive an explanation of the measurement procedures.
 - Observe all steps related to the monitoring of arsenic performed at the place of exposure.
 - Record the results obtained or receive copies of the results when returned by the laboratory.

Recordkeeping

PPM will establish and maintain an accurate record of all monitoring required in this section. This record will include:

- The date(s), number, duration, location, and results of each of the samples taken, including a description of the sampling procedure used to determine representative worker exposure, where applicable.
- A description of the sampling and analytical methods used as evidence of their accuracy.

- The type of respirator protective devices worn.
- Name, worker number, and job classification of the worker monitored and of all other workers whose exposure the measurement is intended to represent the environmental variables that could affect the measurement of worker exposure.

PPM will maintain these monitoring records for the duration of employment plus 30 years.

ENGINEERING AND WORK PRACTICE CONTROLS

Where any worker is exposed to arsenic above the PEL for more than 30 days per year, PPM will implement engineering and work practice controls (including administrative controls) to reduce worker exposure to arsenic. Wherever the engineering and work practice controls, which can be instituted, are not sufficient to reduce worker exposure to or below the PEL, PPM will nonetheless use them to reduce exposures to the lowest feasible level and will supplement them using required respiratory protection in this section.

Where engineering and work practice controls do not reduce worker exposure to or below the PEL, PPM will supplement these controls with respirators in accordance with respiratory protection requirements in Section 6.

Administrative controls will not be used to control exposure to arsenic.

PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Where the use of respirators is required under this program, PPM will provide, at no cost to the worker, and assure the use of respirators which comply with the requirements of this paragraph. Respirators will be used in the following circumstances:

- During the period necessary to install or implement engineering or work practice controls.
- In work situations in which engineering, and work practice controls are not sufficient to reduce exposures to or below the PEL.
- Whenever a worker requests a respirator.

Where respirators are required under this section, the selection of the appropriate respirator or combination of respirators will be made from Table 1.

PPM will provide a powered, air-purifying respirator in lieu of the respirator specified in Table 1 (at the end of this document) whenever:

- A worker chooses to use this type of respirator.
- This respirator will provide adequate protection to the worker.

PPM will select respirators from among those approved for protection against arsenic by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11. PPM will assure that the respirator issued to the worker exhibits minimum facepiece leakage and that the respirator fits properly.

- The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn and will be conducted in accordance with 29 CFR 1910.134.
- The tests will be used to select facepieces that provide the required protection.

If a worker exhibits difficulty in breathing during the fitting test or during use, PPM will make available to the worker an examination in accordance with Section 8.2 to determine whether the worker can wear a respirator while performing the required duty.

PPM will institute a respiratory protection program in accordance with 29 CFR 1910.134.

PPM will permit each worker who uses a respirator to change the cartridges every other day or whenever odor or irritation is detected and will maintain an adequate supply of cartridges for this purpose.

Workers who wear respirators will be permitted to leave work areas to wash their face and respirator facepiece whenever necessary to prevent skin irritation associated with respirator use.

If a worker is exposed to arsenic above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, PPM will provide at no cost to the worker and assure that the worker uses appropriate protective work clothing and equipment such as, but not limited to:

- Coveralls or similar full-body work clothing.
- Gloves, hats, and shoes or disposable shoe coverlets.
- Face shields, vented goggles, or other appropriate protective equipment which complies with 29 CFR 1910.133.

PPM will ensure that all protective clothing used during arsenic operations and maintenance operations involving arsenic is removed at the completion of a work shift.

PPM will ensure that contaminated protective clothing, which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change room which prevents dispersion of arsenic outside the container.

PPM will provide to the employees, a clean room with showers if employees are required to perform work in regulated areas.

MEDICAL SURVEILLANCE REQUIREMENTS

PPM will institute a medical surveillance program for all workers who are or may be exposed above the action level for more than 30 days per year. PPM will provide the required medical surveillance including multiple physician review without cost to workers and at a reasonable time and place.

MEDICAL REMOVAL REQUIREMENTS

When a physician makes a referral to a hematologist/internist the employee shall be removed from areas where exposures may exceed the action level until such time as the physician decides.

Following the examination and evaluation by the hematologist/internist, decision to remove a worker from areas where arsenic exposure is above the action level or to allow the worker to return to areas where arsenic exposure is above the action level will be made by the physician in consultation with the hematologist/internist.

This decision will be communicated in writing to PPM and worker. In the case of occupational exposure to arsenic above the action level and the requirements for future medical examinations to review the decision.

For any worker who is removed, PPM will provide a follow-up examination. The physician, in consultation with the hematologist/internist, will decide within 6 months of the date the worker was removed as to whether the worker will be returned to the usual job or whether the worker should be removed permanently.

Whenever a worker is temporarily removed from arsenic exposure, PPM will transfer the worker to a comparable job for which the worker is qualified (or can be trained for in a short period) and where arsenic exposures are as low as possible, but in no event higher than the action level. PPM will maintain the worker's current wage rate, seniority, and other benefits. If there is no such job available, PPM will provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

Whenever a worker is removed permanently from arsenic exposure based on a physician's recommendation, the worker will be given the opportunity to transfer to another position which is available or later becomes available for which the worker is qualified (or can be trained for in a short period) and where arsenic exposures are as low

as possible but in no event higher than the action level. PPM will assure that such worker suffers no reduction in current wage rate, seniority, or other benefits because of the transfer.

PPM will provide to a worker 6 months of medical removal protection benefits immediately following each occasion a worker is removed from exposure to arsenic because of hematological findings unless the worker has been transferred to a comparable job where arsenic exposures are below the action level.

For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that PPM will maintain the current wage rate, seniority, and other benefits of a worker as though the worker had not been removed.

PPM's obligation to provide medical removal protection benefits to a removed worker will be reduced to the extent that the worker receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or from employment with another employer made possible by virtue of the worker's removal.

HAZARD COMMUNICATION REQUIREMENTS

PPM will post the following warning signs in each work area where the PEL is exceeded:

**ARSENIC CANCER HAZARD FLAMMABLE
NO SMOKING AUTHORIZED PERSONNEL ONLY RESPIRATOR REQUIRED**

PPM will assure that no statement appears on or near any sign required by this paragraph which contradicts or detracts from the meaning of the required sign.

PPM will assure that signs required by this section are illuminated and cleaned as necessary so that the legend is readily visible.

Each employer who has a workplace in which there is a potential exposure to airborne arsenic at any level will inform workers of the content of Appendices A, B, and C of 29 CFR 1910.1018.

PPM will institute a training program for and assure the participation of all workers who are subject to exposure to arsenic at or above the action level or for whom the possibility of skin or eye irritation exists.

- PPM will provide initial training prior to the time of initial job assignment for these workers.
- The training program will be repeated at least annually for each worker.

PPM will assure that each worker is informed of the following:

- The content of 29 CFR 1910.1018 and its appendices.
- The specific nature of the operations which could result in exposure to arsenic above the action level.
- The purpose, proper selection, fitting, use, and limitations of respirators.
- The purpose and description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to arsenic with particular attention to the adverse reproductive effects on both males and females.
- The engineering controls and work practices associated with the worker's job assignment
- The contents of any compliance plan in effect.

- Instructions to workers that chelating agents should not routinely be used to remove arsenic from their bodies and should not be used at all except under the direction of a licensed physician.

PPM will make readily available to all affected workers a copy of 29 CFR 1910.1018 and its appendices. PPM will include as part of the training program, and will distribute to workers, any materials pertaining to the Occupational Safety and Health Act, the regulations issued pursuant to the Act, and this arsenic standard, which are made available to PPM by the Assistant Secretary of OSHA.

PPM will provide upon request, all materials relating to worker information and training program to the Assistant Secretary and the Director.

RECORDS MAINTENANCE AND ACCESS

Exposure monitoring, medical removal, and medical records required by this paragraph will be provided upon request to workers, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a) through (e) and 2(i). Medical removal records will be provided in the same manner as exposure records.

Whenever PPM ceases to do business, the successor worker will receive and retain the records required to be maintained by this section for the prescribed period; these records will be transmitted to the Director of NIOSH.

At the expiration of the retention period for the records required to be maintained by this section, PPM will notify the Director at least three months prior to the disposal of such records and will transmit those records to the Director it requested within the period.

PPM will also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

TABLE 1 RESPIRATORY PROTECTION FROM ARSENIC	
AIRBORNE CONCENTRATION OF ARSENIC OR CONDITION OF USE	REQUIRED RESPIRATOR
Less than or equal to 10 ppm	Half-mask, air-purifying respirator equipped with organic vapor cartridges
Less than or equal to 50 ppm	Full facepiece, air-purifying respirator with organic vapor cartridges.
Less than or equal to 100 ppm	Any powered, air-purifying respirator with organic vapor cartridges.
Less than or equal to 1000 ppm	Supplied-air respirators with full facepiece, hood, helmet, or suit, operated in positive pressure mode.
Greater than 1,000 ppm (Unknown concentration or firefighting)	Full facepiece, self-contained breathing apparatus operated in positive-pressure mode.



ASBESTOS AWARENESS

Complying with:

OSHA Safety and Health Regulations for General Industry Standard,

Part 1910, Subpart: Z

OSHA Safety and Health Regulations for Construction Standard,

Part 1926, Subpart: Z

PURPOSE

The purpose of this policy is to comply with the OSHA standards, to make employees of Pacific Pile and Marine aware of asbestos, and to prevent exposure to asbestos in the workplace. ***This program does NOT provide the necessary or required training to personnel to perform asbestos work for which state and other regulatory licensing requirements apply. It is PPM policy to not engage in any form of asbestos abatement. This program is intended for awareness purposes only if asbestos is present on a client location and training specific to that site becomes necessary.***

SCOPE

This awareness program applies to all of worksites controlled by Pacific Pile and Marine where one of our employees, or a subcontract employee, may be occupationally exposed to asbestos. PPM maintains asbestos free facilities and due to the nature of PPM work, encountering asbestos in the workplace is highly unlikely, however, client sites may contain asbestos in some form and this plan is intended to provide awareness to employees if ACM is identified within a client site by that site's owner.

INTRODUCTION

This document is intended to give the user an awareness level of the rules and regulations of Asbestos Abatement processes and procedures.

In the event PPM personnel are required to work on multi-contractor work sites, awareness training under this program will be provided to PPM personnel however the governing safe operations plan will be that of the client or abatement contractor; whichever is more stringent.

DEFINITIONS

- Adequately Wet: This means per 40 CFR 61, Subpart M, NESHAPs, sufficiently mixed or coated with water or an aqueous solution to prevent dust emissions. Further, as per the EPA 340/1-90-015, Definitions, adequately wet means sufficiently mix or penetrate with a liquid to prevent release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being wet.
- Aggressive method: Removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.
- Amended water: This means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.
- Asbestos: Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.
- Asbestos-containing material (ACM): Any material containing more than one percent asbestos.
- Authorized Person: Any person authorized by the employer and required by work duties to be present in regulated areas.
- Building/facility owner: Legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.
- Category I nonfriable ACM: asbestos-containing packings, gaskets, resilient floor coverings and associated mastics, and asphalt roofing products containing more than one percent asbestos.

- Category II nonfriable ACM: any material, excluding Category I nonfriable ACM containing more than one percent asbestos that, when dry, cannot be crumbled, cannot be crushed, pulverized, or reduced to powder by hand pressure.
- Certified Industrial Hygienist (CIH): One certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.
- Class I asbestos work: Activities involving the removal of TSI (Thermal System Insulation) and surfacing ACM and PACM.
- Class II asbestos work: Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
- Class III asbestos work: Repair and maintenance operations, where ACM, including thermal system insulation and surfacing material, is likely to be disturbed.
- Class IV asbestos work: Maintenance and custodial activities during which employees contact ACM and PACM, and activities to clean up waste and debris containing ACM and PACM.
- Clean room: Means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
- Closely resemble: Means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.
- Competent person: Means, in addition to the definition in 29CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure; who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): In addition, for Class I and Class II work who is specially trained in a training course which meet the criteria of EPA's Model Accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent and, for Class II and Class IV work, who is trained in an operations and maintenance (O & M) course developed by EPA (40 CFR 763.92 (a)(2)).
- Critical barrier: One or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.
- Decontamination area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.
- Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.
- Director: The Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.
- Disturbance: Means contact which releases fibers from ACM or PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard-sized glove bag or waste bag to access a building component.

- In no event, shall the amount of ACM or PACM disturbed exceed that which can be contained in one glove bag or waste bag, which shall not exceed 60 inches in length and width.
- Employee exposure: Means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.
- Equipment room (change room): A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.
- Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.
- Friable ACM: When dry, can be crumbled, pulverized, or reduced to powder by normal hand pressure.
- Glovebag: Means an impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.
- HEPA Filter: High-efficiency particulate air filter which is capable of trapping and retaining at least 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter or larger.
- Homogeneous area: An area of surfacing material or thermal system insulation that is uniform in color and texture.
- Industrial hygienist: A professional person qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.
- Intact: Means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.
- Modification for purposes of paragraph (g)(6)(ii): A changed or altered procedure, material, or component of a control system, which replaces a procedure, material, or component of a required system. Omitting a procedure or component or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of paragraph (g)(6)(ii) of 29 CFR 1926.1101.
- Negative Initial Exposure Assessment: Means a demonstration by the employer, which complies with the criteria in this section, that employee exposure during an operation is expected to be consistently below the PELs.
- PACM: Means "presumed asbestos containing material".
 - Presumed Asbestos Containing Material: Means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(4) of this section.
- Project Designer: A person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. §763.90(g).
- Regulated area: An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e)(6) of 29CFR 1926.1101.

- Removal: All operations where ACM and/or PACM is taken out or stripped from structures or substrates and includes demolition operations.
- Renovation: The modifying of any existing structure, or portion thereof.
- Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.
- Surface Material: Material that is sprayed, troweled, or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces or acoustical fireproofing, and other purposes).
- Surfacing ACM: Means surfacing material which contains more than 1% asbestos. μg) Thermal system insulation (TSI): Means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.
- Thermal system insulation ACM: Is thermal system insulation which contains more than 1% asbestos.

NOTIFICATIONS

1. Before any abatement begins, determination will be made of state, local agency and environmental regulatory notifications that are required for such work. Generally, such notifications include reporting of the date that an asbestos abatement project is going to start and when it is expected to be completed. There may be deadlines for submitting such notifications and mandatory requirements prior to and during the conduct of such work. Confirmation also will be made that the conduct of any such work complies with applicable state and other regulatory requirements for personnel licensing, certification, training, and other specifications.
2. The responsibility for notification lies with the facility owner. This does not relieve the contractor of the responsibility to ensure it has been done.
3. There may be instances in which an emergency notification is allowed. Generally, regulatory agencies will not consider poor planning an emergency. Exposure situations or catastrophic incidents are more likely to be approved. Remember, what constitutes an emergency is subjective.

QUALIFIED PERSONNEL AND LICENSING

- Licensing. Prior confirmation will be made of applicable state licensing and/or other regulatory requirements for an individual performing work as an asbestos contractor. There may be different or additional requirements for a competent person or workers if they are in an industrial facility.
- Competent Person. Also known as an asbestos supervisor, this individual must complete a 40-hour course provided by an EPA accredited institution. Additionally, competent persons may be required by the state or applicable local regulatory authority to be licensed to perform such work.
- Trained Worker. All asbestos workers must complete a 32-hour course provided by an EPA accredited institution. The state or applicable local regulatory authority may also require that these individuals be licensed to perform such work.

EMPLOYEE INFORMATION & TRAINING

- The company shall institute a training program for all employees who are exposed to airborne concentrations of asbestos at or above the PEL and/or excursion limit and ensure their participation in the program.
- Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

- The training program shall be conducted in a manner which the employee is able to understand. The employer shall ensure that each employee is informed of the following:
 - The health effects associated with asbestos exposure,
 - The relationship between smoking and exposure to asbestos producing lung cancer,
 - The quantity, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos,
 - The engineering controls and work practices associated with the employee's job assignment,
 - The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used,
 - The purpose, proper use, and limitations of respirators and protective clothing, if appropriate,
 - The purpose and a description of the medical surveillance program required by paragraph (l) of this section,
 - The content of this standard, including appendices,
 - The names, addresses, and phone numbers of public health organizations which provide information, materials, and/or conduct programs concerning smoking cessation,
 - The requirements for posting signs and affixing labels, and the meaning of the required legends for such signs and labels.
- The company shall also provide, at no cost to employees who perform housekeeping operations in an area that contains ACM or PACM, an asbestos awareness training course. The course shall at a minimum contain the following elements:
 - health effects of asbestos,
 - locations of ACM and PACM in the building/facility,
 - recognition of ACM and PACM damage and deterioration,
 - requirements in this standard relating to housekeeping, and
 - proper response to fiber release episodes, to all employees who perform housekeeping work in areas where ACM and/or PACM are present.
- Each such employee shall be so trained at least once a year.
- A written certificate of training shall be provided to each employee who successfully completes the training as specified in this program. Copies of the certificates of training shall be maintained as documentation.

ACCESS TO INFORMATION AND TRAINING MATERIALS

- The company shall make a copy of this standard and its appendices readily available without cost to all affected employees.
- The company shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the training program to the Assistant Secretary and the Director.

- The company shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89-1647, or equivalent self-help material.

PERMISSIBLE EXPOSURE LIMITS (PELs) & EXPOSURE MONITORING

- Time-weighted average limits (TWA). The company shall ensure that no employee is exposed to an airborne concentration of asbestos more than 0.1 fiber per cubic centimeter of air as an 8-hour time-weighted average (TWA) as determined by the method prescribed in Appendix A of 1910.1001, or by an equivalent method.
- Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos more than 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of 30 minutes as determined by accepted methods.
- Exposure monitoring. Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.
- Representative 8-hour TWA employee exposures shall be determined based on one or more samples representing full-shift exposures for each shift for each employee in each job classification in each work area.
- Representative 30-minute short-term employee exposures shall be determined based on one or more samples representing 30-minute exposures associated with operations that are most likely to produce exposures above the excursion limit for each shift for each job classification in each work area.
- The company shall establish regulated areas wherever airborne concentrations of asbestos and/or PACM are more than the TWA and/or excursion limit.

ENGINEERING CONTROLS & WORK PRACTICES

- The company shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the TWA and/or excursion limit except to the extent that such controls are not feasible. This shall be achieved primarily through ensuring that unless necessary, PPM personnel shall not, under any circumstance, disturb any identified ACM materials.
- Wherever the feasible engineering controls and work practices that can be instituted are not sufficient to reduce employee exposure to or below the TWA and/or excursion limit, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them using respiratory protection that complies with the requirements of this program and the company's written Respiratory Protection Program.
- For the following operations, wherever feasible engineering controls and work practices that can be instituted are not sufficient to reduce the employee exposure to or below the TWA and/or excursion limit, the company shall use them to reduce employee exposure to or below 0.5 fiber per cubic centimeter of air (as an 8-hour time-weighted average) or 2.5 fibers/cc for 30 minutes (short-term exposure) and shall supplement them by the use of any combination of respiratory protection, work practices and feasible engineering controls that will reduce employee exposure to or below the TWA and to or below the excursion limit permissible: Coupling cutoff in primary asbestos cement pipe manufacturing; sanding in primary and secondary asbestos cement sheet manufacturing; grinding in primary and secondary friction product manufacturing; carding and spinning in dry textile processes; and grinding and sanding in primary plastics manufacturing.

- Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with good practices such as those found in the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1979.
- All hand-operated and power-operated tools which would produce or release fibers of asbestos, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems which comply with paragraph (f)(1)(iv) of this section.
- Regarding wet methods, insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers to expose employees to levels more than the TWA and/or excursion limit, prescribed in paragraph (c) of this section, unless the usefulness of the product would be diminished thereby.
- No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos, shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated to effectively prevent the release of airborne fibers.
- Compressed air shall not be used to remove asbestos or materials containing asbestos unless the compressed air is used in conjunction with a ventilation system which effectively captures the dust cloud created by the compressed air.
- Sanding of asbestos-containing flooring material is prohibited.

REQUIREMENT FOR WRITTEN PROGRAM

- During work and where the TWA and/or excursion limit for asbestos is exceeded, the company shall establish and implement a written program to reduce employee exposure to or below the TWA and to or below the excursion limit by means of engineering and work practice controls, and using respiratory protection where required or permitted under this section.
- The hazards of exposure to asbestos shall be communicated to employees who have such an exposure as part of their work. Asbestos exposure in general industry occurs in a wide variety of industrial and commercial settings. Employees who manufacture asbestos-containing products may be exposed to asbestos fibers. Employees who repair and replace automotive brakes and clutches may be exposed to asbestos fibers.
- In addition, employees engaged in housekeeping activities in industrial facilities with asbestos product manufacturing operations, and in public and commercial buildings with installed asbestos containing materials may be exposed to asbestos fibers. Most of these workers are covered by this general industry standard, except for state or local governmental employees in non-state plan states.
- Employees who perform housekeeping activities during and after construction activities are covered by the asbestos construction standard, 29 CFR 1926.1101, formerly 1926.58. However, housekeeping employees, regardless of industry designation, should know whether building components they maintain may expose them to asbestos. The same hazard communication provisions will protect employees who perform housekeeping operations in all three asbestos standards: general industry, construction, and shipyard employment.
- As noted in the construction standard, building owners are often the only and/or best source of information concerning the presence of previously installed asbestos containing building materials. Therefore they, along with employers of potentially exposed employees, have specific information conveying and retention duties.

USE OF RESPIRATORS

- For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this paragraph. Respirators must be used during:
 - Periods necessary to install or implement feasible engineering and work-practice controls.
 - Work operations, such as maintenance and repair activities, for which engineering and work-practice controls are not feasible.
 - Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the TWA and/or excursion limit.
 - Emergencies.
- The company has established and implemented a written Respiratory Protection Program in accordance with 29 CFR 1910.134. Any use of respirators regarding asbestos work shall be done in compliance with the company's Respiratory Protection Program and OSHA requirements.
- The company shall provide a tight-fitting, powered, air-purifying respirator instead of any negative-pressure respirator specified in Table 1 of 1910.1001(g)(3) when an employee chooses to use this type of respirator and the respirator provides adequate protection to the employee.
- No employee must be assigned to tasks requiring the use of respirators if, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally using a respirator, or that the safety or health of the employee or other employees will be impaired using a respirator. Such employees must be assigned to another job or given the opportunity to transfer to a different position, the duties of which they can perform. If such a transfer position is available, the position must be with the same employer, in the same geographical area, and with the same seniority, status, and rate
- of pay the employee had just prior to such transfer.
- The company shall select and provide the appropriate respirator from Table 1 of 1910.1001(g)(3).
- Employees wearing negative pressure respirators shall have either quantitative or qualitative fit tests. The qualitative fit tests may be used only for testing the fit of a half mask. The project supervisor shall have the responsibility for ensuring that this testing is performed in accordance with the company's written Respiratory Protection Program and OSHA requirements under 29 CFR 1910.134.

REQUIREMENTS FOR PROTECTIVE WORK CLOTHING & EQUIPMENT

- If an employee is exposed to asbestos above the TWA and/or excursion limit, or where the possibility of eye irritation exists, the company shall provide at no cost to the employee, and ensure that the employee uses, appropriate protective work clothing and equipment such as, but not limited to:
 - Coveralls or similar full-body work clothing,
 - Gloves, head coverings, and foot coverings, and
 - Face shields, vented goggles, or other appropriate protective equipment which complies with 1910.133.

SPECIFIC INFORMATION REGARDING PPE

- The company shall provide information to affected employees regarding the purpose, proper use, and limitations of respirators and protective clothing, if appropriate to the work. This shall include information

about respirators, protective clothing, proper selection and use of protective clothing and equipment, and manufacturer's instructions for use of such clothing and/or equipment.

MEDICAL SURVEILLANCE AND EXPOSURE MONITORING

- All personnel working with asbestos in class I, II, or III work and are exposed at or above the PEL for more than 30 days a year must have medical surveillance through annual physicals and their exposure levels must be monitored and documented. All documentation must be kept for 30 years. A licensed physician must perform or supervise the exam.

ROUTE OF ENTRY

- Inhalation (breathing in) is the route of entry for asbestos fibers. Studies have shown that inhalation of asbestos fibers leads to increased risks of developing several diseases.

ASSOCIATED DISEASES

- Asbestosis, lung cancer, and mesothelioma are the primary diseases caused by asbestos exposure. Others include but are not limited to pleural plaques, pleural effusion, pleural thickening, cancer of the gastrointestinal tract and kidney cancer.

INTERACTION BETWEEN ASBESTOS AND SMOKING

- The relationship between smoking and asbestos exposure is called a synergistic effect since exposure to both greatly increase the risk of disease. Workers who smoke cigarettes and are exposed to asbestos are 50 to 90 times more likely to get lung cancer than nonsmoking, non-exposed workers.

INSURANCE

- It is a requirement that insurance coverage includes a rider for asbestos for any contractor working with asbestos.

EXPOSURE ASSESSMENT

- An exposure assessment is the decision-making process that develops the execution of the job. The factors that are involved in making that decision are:
 - Class of removal being performed:
 - Class I - removal of thermal insulation systems for demolition or renovation.
 - Class II - removal of non-friable asbestos such as floor tile or transite.
 - Class III - O & M activities
 - Class IV - Janitorial activities
 - Operation or shut down of equipment
 - Temperature of equipment
 - Public building or industrial facility
 - Indoors or outdoors
 - Prior exposure data
 - Criteria for negative exposure assessment:
- All asbestos work must begin with type C respirators unless a negative exposure assessment can be produced. Negative exposure assessment can be produced in two ways:

- Objective data - the type of asbestos (non-friable such as transite) and the method of removal will not release fibers above the PEL.
- Historical data - you have completed enough similar jobs, using personnel with similar work experience, under similar conditions without releasing fibers more than the PEL with respect to the protection factors of the respirators being used.

PROHIBITED WORK PRACTICES

- The following work practices and engineering controls are prohibited for all asbestos related work or work that disturbs asbestos or presumed asbestos-containing materials, regardless of measured exposure levels of initial exposure assessment:
 - High-speed abrasive disc saws not equipped with point of contact ventilator or enclosure with HEPA filtered exhaust air
 - Compressed air to remove asbestos or asbestos-containing materials, unless the compressed air is used with an enclosed ventilation system by sweeping, shoveling, or dry cleanup of dust and debris
 - Employee rotation to reduce exposure

ENGINEERING CONTROLS

- The purpose of any engineering control is to eliminate the hazard. In the case of asbestos abatement, the engineering controls should be designed to eliminate air-borne fibers.
- Class I abatement requires as a minimum:
 - HVAC systems must be isolated with 6 mil double layer plastic or equivalent
 - Impermeable drop cloths
 - All objects within the regulated area must be covered or removed iv) Ventilate regulated area through HEPA filtration
 - Negative pressure enclosures or negative pressure glovebags in conjunction with wet methods of removal or small walk-in enclosure
- Class II abatement requires:
 - Critical barriers
 - Impermeable drop cloths
 - Do not cut, abrade, or break material unless infeasible
 - Thoroughly wet material with amended water before and during removal
 - Remove the material intact, if possible
 - Immediately bag or wrap removed material
- Class III abatement requires:
 - Use wet methods and ventilation
 - If drilling, cutting, abrading, sanding, chipping, breaking, or sawing must use impermeable drop cloths and enclosures or glove bag systems
- Class IV abatement requirements:

- Wet methods and HEPA vacuums to clean up debris
- Must wear respirator if inside a regulated area
- Glovebags and mini enclosures for piping and small equipment:
- Negative pressure glove bags and mini enclosures are an easy, economical way of abating small-bore piping and equipment.
- A HEPA Vacuum is utilized to create negative pressure inside the glove bag or mini enclosure to ensure no fibers are released into the atmosphere.
- The main limitation for glove bags is on equipment that is in operation. If the surface temperature is too hot, it can melt the bags, or increase the temperature inside the bag to the point that it could burn the workers' hands. If the equipment is less than 150 degrees (temperature limitation set by OSHA) this should not be a problem.

ENCLOSURES

- Large scale projects and equipment:
 - A Negative Pressure Enclosure is utilized when there is a large amount of removal done in a small area or when the equipment is large enough that glove bags or mini- enclosures are not feasible. Negative pressure is achieved by negative air machines that pull as much as 1600 CFM. It is required to have a minimum of 4 air changes an hour inside the enclosure. The enclosure must be as airtight as possible to ensure negative pressure.
 - Regulated area: A regulated area is defined by OSHA to be all areas where airborne concentrations of asbestos may be present. An asbestos barricade with asbestos warning signs must be placed around the regulated area. This area must be maintained regardless of monitor results. Access to this area shall be strictly controlled and limited to authorized personnel only. Entrance and exit registers must be maintained to monitor and control the number of personnel in the regulated area. Only personnel with documented training, medical clearance and proper personal protective equipment are allowed entry into the regulated area. All personnel must be decontaminated upon exit from a regulated area, regardless of type and quantity of asbestos, method of removal or exposure levels.
 - Wet method: All classes of removal require the asbestos material to be sprayed with amended water, using an airless sprayer throughout the duration of the removal process. Amended water is simply water with a surfactant additive that breaks down the surface tension of the water to make it absorb more readily. The disposal bags must be sealed and of sufficient water use must be evident.
 - Lockdown: Once all gross removal is complete and all surfaces inside the glove bag or enclosure are clean, lockdown or encapsulates is sprayed over the entire inside of the enclosure or glove bag.

EXPOSURE MONITORING

- Exposure monitoring comes in two forms -- Area and Personnel.
 - Area Monitoring: All monitoring must be done in an ethical fashion. The abatement contractor cannot do air monitoring. It is recommended monitoring be done by a third party. An accredited lab must read all samples. Area and personnel sampling are usually read by phase contrast microscopy. Final clearance samples must be read by transmission electron microscopy.
 - Area monitoring documents the exposure inside and /or outside of the containment, glove bag or mini- enclosure. This information can be used to forewarn you of possible difficulty with your engineering controls or removal methods for example. A higher-than-expected reading inside the

enclosure could be caused by inadequately wetting the material before abating. A higher-than-expected reading outside the enclosure could be caused by a bad seal in the enclosure or a faulty negative air machine.

- Personnel Monitoring: Personnel monitoring is important, because it tells you what level of exposure your personnel are exposed to in their breathing zone. This data is critical when making a negative exposure assessment. OSHA requires an exposure monitoring and final clearance. A minimum of 1/4 of your work force must be monitored each day.

FINAL CLEARANCE MONITORING

- Before any critical barriers in an enclosure can be taken down, air samples must be taken and analyzed to show that there are no airborne fibers left inside the enclosure.
- These samples must be read by transmission electron microscopy. In addition to the air samples a visual inspection by your environmental contractor must be performed.
- Once the environmental contractor has signed off that final clearance has been achieved, the enclosure can then be dismantled.

HYGIENE FACILITIES & PRACTICES

- The Company shall provide clean change rooms for employees who work in areas where their airborne exposure to asbestos is above the TWA and/or excursion limit.
- The Company shall ensure that change rooms are in accordance with 1910.141(e) and are equipped with two separate lockers or storage facilities, so separated as to prevent contamination of the employee's street clothes from his protective work clothing and equipment.
- The Company shall ensure that employees who work in areas where their airborne exposure is above the TWA and/or excursion limit, shower at the end of the work shift.
- The Company shall provide shower facilities.
- The Company shall ensure that employees who are required to shower do not leave the workplace wearing any clothing or equipment worn during the work shift.
- The Company shall ensure that lunchroom facilities have a positive pressure, filtered air supply, and are readily accessible to employees.
- The Company shall ensure that employees who work in areas where their airborne exposure is above the PEL and/or excursion limit wash their hands and faces prior to eating, drinking, or smoking.



BARGE SAFETY

Complying with

OSHA Standards for Shipyard Employment

Part 1915, Subparts: A, B, C, D, H, I

OSHA Standards for Construction

Part 1926: Subpart E

OSHA Standards for Construction

Part 1926, Subpart: O

WA L&I DOSH Safety Standards for Construction

WAC 296-155 Part C

WA L&I DOSH Safety Standards for Construction

WAC 296-155 Part M

Purpose

The purpose of this program is to protect workers from the hazards of working in or around water. Preventative and protection measures must be provided in case an emergency arises.

Procedure

1. General Requirements

a. Personal Protective Equipment

- i. A United States Coast Guard (USCG) approved 30-inch life ring with 90-foot line attached and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water. Distance between rescue equipment will not exceed 200 feet.
- ii. All employees will wear Coast Guard-approved life vests with a USCG approved whistle attached, and water actuated emergency light attached that meets USCG requirements when they are on boats, barges, near the water's edge, or over water.
- iii. Employees will work in pairs, particularly in isolated areas.
- iv. Projects must consider float coats and pants in high hazard and cold weather conditions.
- v. Retrieval hooks must be made readily available.
- vi. The fall prevention policy applies to all marine operations.
- vii. Any project specific requirements for this section are listed here.

b. Lifesaving Boats

- i. A boat will be kept ready and immediately available for emergency rescue and will meet owner's requirements (i.e., requirements regarding steam cleaning prior to launch to eliminate introduction of invasive marine life such as zebra mussels).
- ii. The boat must be in the water or capable of being quickly launched by one person.
- iii. There must always be at least one person present and specifically designated to respond to water emergencies and operate the boat when there are employees above water.
- iv. When the operator is on break, another operator must be designated to provide the coverage while employees are above water.
- v. The designated operator must always either man the boat or remain in the immediate area such that the operator can quickly reach the boat and get underway.
- vi. The boat operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach the boat.
- vii. A communication system, such as a walkie-talkie, must be used to inform the operator of an emergency and to inform the operator where the boat is needed.
- viii. The boat must be equipped with both a motor and oars. Some jurisdictions restrict the use of two-stroke engines.
- ix. Boats must not be overloaded.
- x. Boats must be secured to prevent theft or vandalism (secure the oar(s) to prevent use by unauthorized individuals) during non-working hours.

- xi. Employees must stay seated when traveling in small boats. to keep them stable.
- xii. Any project specific requirements for this section are listed here.
- c. U.S. Coast Guard Requirements for Boats
 - i. Anchor or mooring lines
 - ii. Horn or whistle
 - iii. 20-pound ABC dry chemical fire extinguishers
 - iv. Lights for night operation
 - v. USCG approved 30-inch life ring with 90 feet of line attached
 - vi. First aid kit
 - vii. Any project specific requirements for this section are listed here
- d. Water Rescue
 - i. Regarding the number of skiffs required and the appropriate maximum response time, the following factors must be evaluated:
 - i. The number of work locations where there is a danger of falling into water
 - ii. The distance to each of those locations
 - iii. Water temperature
 - iv. Currents
 - v. Other hazards such as, but not limited to, rapids, dams, and water intakes/water

2. Barges

- a. General Requirements
 - i. Each barge will be equipped with:
 - i. USCG approved 30-inch life rings with 90 feet of line attached and secured either to a stationary anchor or stanchion
 - ii. Guardrails will be utilized where practicable
 - iii. Two 20-pound ABC dry chemical fire extinguishers
 - iv. A first aid kit and floating stokes basket (stretcher) with removable back board and neck brace/stabilizer
 - v. Gangplank with standard guardrails (height 42" +/- 3") along the full length on both sides
 - vi. Mooring lines
 - vii. Spill kits
 - viii. Flashlights
 - ix. Additional life preservers
 - x. A two-way radio

b. Ladders

- i. Ladders for access and rescue must be of sufficient length to be able to reach the water.
- ii. The foreman on each barge is responsible for keeping a supply of personal protective equipment on hand.
- iii. All superintendents, engineers, and foremen will have up to date First Aid/CPR/AED training.
- iv. Adequate first-aid supplies will be kept on each manned barge to handle severe injuries. There must be at least enough supplies available to stop bleeding from large wounds.
- v. Fire prevention and suppression is critical. Keep at least two fully charged, 20-pound ABC dry chemical fire extinguishers on hand near each major piece of equipment.
- vi. Signs should be posted on the barge with company name and emergency contact phone number so the company can be contacted should the barge break free.
- vii. "NO WAKE" signs will be posted. When working on float stages, the wake can cause the workers to lose their balance and fall into the water.
- viii. Tires should be maintained on the sides of the barge in the areas of the ladders. This will help prevent damage to the ladder and provides a crushing safe zone if someone falls into the water.
- ix. Barges that have fuel storage compartments must have a Shipboard Oil Pollution Emergency Plan (SOPEP).
- x. Barges must have the capability to accommodate crane tie-downs.

c. Access to Barges

- i. Ramps for access of vehicles to or between barges will be of adequate strength, provided with sideboards, well maintained, and properly secured.
- ii. These should be treated as temporary works and should be tagged, inspected, and display signage with weight capacity and number of people allowed on the ramps.
- iii. Ramps or gangways to barges shall be sturdy and be equipped with standard guardrails (height 42" +/- 3") on both sides and be a minimum of 20" wide.
- iv. Ramps or gangways are always required for access from barge to barge and barge to shore.
- v. Ramps or gangways should be secured at one end only to allow for movement and tidal fluctuations.
- vi. Obstructions will not be laid on or across the gangway.
- vii. The means of access will be adequately illuminated for its full length.
- viii. Non-slip paint or tape should be used to improve traction and cleats are required on steep walkways.
- ix. Walkways will be kept clean and clear of mud, ice, and snow.
- x. Clean-up trash and oil spills around access.

d. Tools

- i. Tools, materials, and equipment should be properly stored.

- i. Rigging materials should be kept on racks.
 - ii. Coil up ropes, hoses, and electric cords and keep them out of walkways.
 - iii. Do not climb over materials such as timber piling or debris unless they are stable, and a reasonable walkway has been provided.
- e. Working Surface of Barges
 - i. Three-foot clear walkway grab rail or taut hand line will be provided around the perimeter of barges.
 - ii. Marine superintendents will have an access and lay-down area on each barge to assist in housekeeping.
 - iii. Fuel and oil tanks must not be filled beyond the manufacturer's capacity.
 - iv. Spill kits must be readily available to contain and clean up spills.
 - v. Contact an environmental clean-up service before storing large quantities of fuel or oil on a barge. They must be able to respond immediately if a spill occurs that is too large for the project team to handle.
 - vi. In the event of a spill, local environmental authorities, the USCG, and construction manager must be contacted.
- f. Securing Barges
 - i. Each barge, tug, crew boat, or other sizeable vessel should be secured with at least one spud, two anchors, or two mooring lines. Rope lines need to be inspected daily so that rotted, worn, or undersized ropes will be replaced before they break. Do not leave a vessel until it has been properly secured.
 - ii. Superintendents must monitor the rise and fall of the tide and make sure that mooring lines have enough slack so they will not be stretched to the breaking point.
 - iii. Areas where anchor lines cross barge decks will be painted with bright colored striping.
 - iv. Do not sit or stand on anchor lines or use them as a handhold.
 - v. Post signs stating, "Do Not Stand Here" in areas where cables can potentially strike employees if they break (i.e., anchor lines, snatch blocks, fairleads).
 - vi. Lights are required to warn boaters of barges, anchor lines, and other marine obstructions. When lights are not possible: buoys, flags, signs, Styrofoam® (or equivalent) blocks, balls, or other visual warnings must be used.
 - vii. Written notice will be given to the USCG requesting that they publish the location of our barges and other marine obstructions in the "Notice to Mariners." The names and phone numbers of the USCG representatives will be posted in case of an emergency.
 - viii. Berms or sideboards will be used on docks, roads, ramps, Flexifloats®, barges, etc., where vehicles or equipment are being driven or operated.
 - ix. Berms or sideboards will be of adequate strength and height to keep equipment from driving off into the water.
 - x. The employer will ensure that there is at least one USCG-approved 30-inch life ring with not less than 90 feet of line attached, and at least one portable or permanent ladder, which will

reach the top of the apron to the surface of the water in the vicinity of each barge in use. If the above equipment is not available at the pier, the employer will furnish it during the time that he is working the barge.

- xi. All rubber-tired equipment and unstable objects that can roll or be thrown overboard by wind, waves, or vandals should be secured in place.
 - xii. Stub ups and tie downs that are no longer in use will be removed from the decks of the barges to prevent tripping. Protrusions that cannot be removed will be marked with a bright colored paint, cone, or other obvious marking.
- g. Cranes
- i. Cranes and other heavy equipment will be equipped with swing radius protection.
 - ii. Cranes and other heavy equipment must be tied down to the barge during operation.
 - iii. Crane load charts must be de-rated while operating on marine barges.
 - iv. A marine rated load chart will be posted in every crane that is set up on a barge or other marine vessel. Operators must be made clearly aware of the reduced lifting capacity and other dangerously different handling characteristics of a barge-mounted crane.
- h. Stability
- i. Cranes and other aerial equipment such as man lifts must stop immediately (except to correct the list) on any barge that is listing out of the ordinary.
 - ii. Boats, barges, and Flexifloats® (or equivalent) must be loaded and unloaded carefully to keep them stable and balanced.
 - iii. The competent person on each shift will visually check floating equipment for listing or instability due to leaks or unbalanced loads.
 - iv. Pumps need to be kept readily available to pump out leaking boats and barges.
 - v. Barge voids shall only be entered under the supervision and direction of a trained and designated Shipyard Competent Person acting under the guidance of a Certified Marine Chemist. Follow the Confined Space Procedures in the PPM Safety Manual.
 - vi. Install guardrails or temporary barricades around all open hatches.
- i. Inclement Weather
- i. A severe weather plan must be included in the project's emergency action plan.
 - ii. Project team shall determine what conditions will halt the use of small boats, such as strong currents or large waves.



BENZENE AWARENESS POLICY

PURPOSE

The purpose of the benzene awareness policy is to insure the employees of Pacific Pile and Marine have a complete understanding of the hazards associated with benzene, it's identification, PPE, testing, and worker rights.

INTRODUCTION

Short-term (acute) exposure to benzene can cause irritation to the eyes, nose, throat, and skin. It can also cause central nervous system disorders such as dizziness, euphoria, giddiness, headache, nausea, weakness, convulsions, and paralysis. Long-term (chronic) exposure has produced anorexia, nervousness, irritability, dermatitis, labored breathing, and irreversible injury to the blood forming organs (aplastic anemia and leukemia). Current studies suggest that low benzene exposures (about 10 ppm) have been associated with an increased risk of leukemia.

For Pacific Pile & Marine (PPM) locations where potential benzene exposure may be seen include refineries, tank removal, oil and gas related field operations including maintenance functions, work at closed refineries.

All PPM workers will be made aware of any host facilities (client) Emergency Response/Contingency Plan(s). This will be performed during initial and periodic contractor safety orientation training classes and at the direction of host facilities management. All PPM workers will be made aware of specifically, in the host facility, all locations/operations where benzene is used. This benzene program is an awareness program only.

RESPONSIBILITIES

The Safety Department is responsible for:

- Ensuring that priority is given to full implementation of all policies, procedures, and other health and safety requirements.
- Facilitating the appropriation of funding to maintain a safe and healthful workplace.
- Maintaining safety awareness among all workers.
- Administering and documenting training.
- Approving protective equipment.
- Providing safety and health communications.
- Facilitating industrial hygiene monitoring.
- Notifying appropriate management of compliance.
- Overall implementation and audit of the Benzene Program.
- Ensuring that only properly trained personnel can perform activities.
- Surveying the workplace for inappropriate practices or conditions affecting safety and make associated timely corrections.

EXPOSURE LIMIT REQUIREMENTS

PPM will assure that no worker is exposed to benzene at concentrations greater than 1 ppm (Permissible Exposure Limit - PEL) of air averaged over an 8-hour period.

- The action level for benzene is an airborne concentration of 0.5 ppm averaged over an 8-hour period.
- When respirators are used to supplement engineering and work practice controls to comply with the PEL and all the requirements of Section 6 have been met, worker exposure, for the purpose of determining whether PPM has complied with the PEL, may be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the worker's daily Time Weight Average (TWA) exposure.

EXPOSURE MONITORING REQUIREMENTS

Monitoring will be accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of benzene.

Determinations of worker exposure will be made from breathing zone air samples that are representative of each worker's average exposure to airborne benzene.

Representative 8-hour TWA worker exposures will be determined based on one sample or samples representing the full shift exposure for each job classification in each work area.

Determinations of compliance with the Short-Term Exposure Limits (STEL) will be made from 15-minute worker breathing zone samples measured at operations where there is reason to believe exposures are high, such as where tanks are opened, filled, unloaded, or gauged; where containers or process equipment are opened and where benzene is used for cleaning or as a solvent in an uncontrolled situation.

For purposes of this section, monitoring of worker exposure is that exposure which would occur if the worker were not using a respirator.

PPM will, as needed, perform initial exposure monitoring as follow:

- PPM will collect full shift and short-term personal samples including at least one sample for each shift for each job classification in each work area.
- Full shift and short-term personal samples will be representative of the monitored worker's regular, daily exposure to benzene.
- PPM will monitor worker exposures and will base initial determinations on the worker exposure monitoring results and any of the following relevant considerations:
- Any information, observations, or calculations which would indicate worker exposure to benzene.
- Any previous measurements of airborne benzene.
- Any worker complaints of symptoms which may be attributable to exposure to benzene.
- Baseline monitoring data will be obtained and documented for specific benzene operations to establish exposure criteria levels for repetitive type of benzene work.
- Monitoring for the initial determination may be limited to a representative sample of the exposed workers who PPM reasonably believes are exposed to the greater airborne concentrations of benzene in the workplace.
- If the initial determination shows the possibility of any worker exposure at or above the action level, PPM will conduct monitoring which is representative of the exposure for each worker who is exposed to benzene in the workplace.
- If the initial determination and initial monitoring show that no worker is exposed to airborne concentrations of benzene at or above the action level, PPM will make a written record of such determination. The record will include at least the information specified in this section and will also include the date of determination, location within the worksite, and the name and worker number of each worker monitored.

Periodic Monitoring (as needed)

- If the initial determination or subsequent monitoring reveals worker exposure to be at or above the action level but below the PEL, PPM will repeat monitoring in accordance with this section at least once per year. PPM will continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time PPM may discontinue monitoring for that worker except as otherwise provided in Section 4.5.
- If the initial monitoring reveals worker exposure to be below the action level, the measurements need not

be repeated except as otherwise provided in Section 4.5.

- If the initial monitoring reveals that worker exposure is above the PEL, PPM will repeat monitoring every 6 months. PPM will continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the PEL but at or above the action level at which time PPM will repeat monitoring for that worker at the frequency specified in Section 4.4, except as otherwise provided in Section 4.5.

Worker Notification

Within 15 working days after the receipt of monitoring results, PPM will notify each worker in writing of the results which represent that worker's exposure. Whenever the results indicate that the representative worker exposure, without regard to respirators, exceeds the PEL, PPM will include in the written notice a statement that the PEL was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible limit.

Observation of Monitoring

- PPM will provide affected workers or their designated representatives an opportunity to observe any monitoring of worker exposure to benzene conducted pursuant to monitoring requirements. Whenever observation of the monitoring of worker exposure to benzene requires entry into an area where the use of respirators, protective clothing or equipment is required, PPM will provide the observer with and assure the use of such respirators, clothing, and equipment, and will require the observer to comply with all other applicable safety and health procedures.
- Without interfering with the monitoring, observers will be entitled to:
 - Receive an explanation of the measurement procedures.
 - Observe all steps related to the monitoring of benzene performed at the place of exposure.
 - Record the results obtained or receive copies of the results when returned by the laboratory.

Recordkeeping

PPM will establish and maintain an accurate record of all monitoring required in this section. This record will include:

- The date(s), number, duration, location, and results of each of the samples taken, including a description of the sampling procedure used to determine representative worker exposure, where applicable.
- A description of the sampling and analytical methods used as evidence of their accuracy.
- The type of respirator protective devices worn.
- Name, worker number, and job classification of the worker monitored and of all other workers whose exposure the measurement is intended to represent the environmental variables that could affect the measurement of worker exposure.

PPM will maintain these monitoring records for at least 40 years or for the duration of employment plus 20 years, whichever is longer.

ENGINEERING AND WORK PRACTICE CONTROLS

Where any worker is exposed to benzene above the PEL for more than 30 days per year, PPM will implement engineering and work practice controls (including administrative controls) to reduce worker exposure to benzene. Wherever the engineering and work practice controls, which can be instituted, are not sufficient to reduce worker exposure to or below the PEL, PPM will nonetheless use them to reduce exposures to the lowest feasible level and will supplement them by the use of required respiratory protection in this section.

Where engineering and work practice controls do not reduce worker exposure to or below the PEL, PPM will

supplement these controls with respirators in accordance with respiratory protection requirements in this section. Administrative controls will not be used to control exposure to benzene.

PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Where the use of respirators is required under this program, PPM will provide, at no cost to the worker, and assure the use of respirators which comply with the requirements of this paragraph. Respirators will be used in the following circumstances:

- During the time necessary to install or implement engineering or work practice controls.
- In work situations in which engineering and work practice controls are not sufficient to reduce exposures to or below the PEL.
- Whenever a worker requests a respirator.

Where respirators are required under this section, the selection of the appropriate respirator or combination of respirators will be made from Table 1.

PPM will provide a powered, air-purifying respirator in lieu of the respirator specified in Table 1 whenever:

- A worker chooses to use this type of respirator.
- This respirator will provide adequate protection to the worker.

AIRBORNE CONCENTRATION OF BENZENE OR CONDITION OF USE	REQUIRED RESPIRATOR
Less than or equal to 10 ppm	Half-mask, air-purifying respirator equipped with organic vapor cartridges b.
Less than or equal to 50 ppm	Full facepiece, air-purifying respirator with organic vapor cartridges. c
Less than or equal to 100 ppm	Any powered, air-purifying respirator with organic vapor cartridges;
Less than or equal to 1000 ppm	Supplied-air respirators with full facepiece, hood, helmet, or suit, operated in positive pressure mode.
Greater than 1,000 ppm (Unknown concentration or firefighting)	Full facepiece, self-contained breathing apparatus operated in positive-pressure mode.

PPM will select respirators from among those approved for protection against benzene by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

PPM will assure that the respirator issued to the worker exhibits minimum facepiece leakage and that the respirator fits properly.

- The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn and will be conducted in accordance with 29 CFR 1910.134.
- The tests will be used to select facepieces that provide the required protection.

If a worker exhibits difficulty in breathing during the fitting test or during use, PPM will make available to the worker an examination in accordance with Section 8.2 to determine whether the worker can wear a respirator while performing the required duty.

PPM will institute a respiratory protection program in accordance with 29 CFR 1910.134.

PPM will permit each worker who uses a respirator to change the cartridges every other day or whenever odor or

irritation is detected and will maintain an adequate supply of cartridges for this purpose.

Workers who wear respirators will be permitted to leave work areas to wash their face and respirator facepiece whenever necessary to prevent skin irritation associated with respirator use.

If a worker is exposed to benzene above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, PPM will provide at no cost to the worker and assure that the worker uses appropriate protective work clothing and equipment such as, but not limited to:

- Coveralls or similar full-body work clothing.
- Gloves, hats, and shoes or disposable shoe coverlets.
- Face shields, vented goggles, or other appropriate protective equipment which complies with 29 CFR 1910.133.

PPM will assure that all protective clothing used during benzene operations and maintenance operations involving benzene is removed at the completion of a work shift.

PPM will assure that contaminated protective clothing, which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change room which prevents dispersion of benzene outside the container.

MEDICAL SURVEILLANCE REQUIREMENTS

PPM will institute a medical surveillance program for all workers who are or may be exposed above the action level for more than 30 days per year. PPM will provide the required medical surveillance including multiple physician review without cost

to workers and at a reasonable time and place.

MEDICAL REMOVAL REQUIREMENTS

When a physician makes a referral to a hematologist/internist the employee shall be removed from areas where exposures may exceed the action level until such time as the physician decides.

Following the examination and evaluation by the hematologist/internist, decision to remove a worker from areas where benzene exposure is above the action level or to allow the worker to return to areas where benzene exposure is above the action level will be made by the physician in consultation with the hematologist/internist.

This decision will be communicated in writing to PPM and worker. In the case of occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

For any worker who is removed, PPM will provide a follow-up examination. The physician, in consultation with the hematologist/internist, will decide within 6 months of the date the worker was removed as to whether the worker will be returned to the usual job or whether the worker should be removed permanently.

Whenever a worker is temporarily removed from benzene exposure, PPM will transfer the worker to a comparable job for which the worker is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible, but in no event higher than the action level. PPM will maintain the worker's current wage rate, seniority, and other benefits. If there is no such job available, PPM will provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

Whenever a worker is removed permanently from benzene exposure based on a physician's recommendation, the worker will be given the opportunity to transfer to another position which is available or later becomes available for which the worker is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. PPM will assure that such worker suffers no reduction in current wage rate, seniority, or other benefits because of the transfer.

PPM will provide to a worker 6 months of medical removal protection benefits immediately following each occasion a worker is removed from exposure to benzene because of hematological findings, unless the worker has been transferred to a comparable job where benzene exposures are below the action level.

For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that PPM will maintain the current wage rate, seniority and other benefits of a worker as though the worker had not been removed.

PPM's obligation to provide medical removal protection benefits to a removed worker will be reduced to the extent that the worker receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or from employment with another employer made possible by virtue of the worker's removal.

HAZARD COMMUNICATION REQUIREMENTS

PPM will post the following warning signs in each work area where the PEL is exceeded:

**BENZENE CANCER HAZARD FLAMMABLE - NO SMOKING AUTHORIZED
PERSONNEL ONLY RESPIRATOR REQUIRED**

PPM will assure that no statement appears on or near any sign required by this paragraph which contradicts or detracts from the meaning of the required sign.

PPM will assure that signs required by this section are illuminated and cleaned as necessary so that the legend is readily visible.

Each employer who has a workplace in which there is a potential exposure to airborne benzene at any level will inform workers of the content of Appendices A, B, and C of 29 CFR 1910.1028.

PPM will institute a training program for and assure the participation of all workers who are subject to exposure to benzene at or above the action level or for whom the possibility of skin or eye irritation exists.

- PPM will provide initial training prior to the time of initial job assignment for these workers.
- The training program will be repeated at least annually for each worker.

PPM will assure that each worker is informed of the following:

- The content of 29 CFR 1910.1028 and its appendices.
- The specific nature of the operations which could result in exposure to benzene above the action level.
- The purpose, proper selection, fitting, use, and limitations of respirators.
- The purpose and description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to benzene with attention to the adverse reproductive effects on both males and females.
- The engineering controls and work practices associated with the worker's job assignment.
- The contents of any compliance plan in effect.
- Instructions to workers that chelating agents should not routinely be used to remove benzene from their bodies and should not be used at all except under the direction of a licensed physician.

PPM will make readily available to all affected workers a copy of 29 CFR 1910.1028 and its appendices. PPM will include as part of the training program, and will distribute to workers, any materials pertaining to the Occupational Safety and Health Act, the regulations issued pursuant to the Act, and this benzene standard, which are made available to PPM by the Assistant Secretary of OSHA.

PPM will provide upon request, all materials relating to worker information and training program to the Assistant Secretary and the Director.

Reference Attachment 1 for a benzene data sheet.

RECORD MAINTENANCE AND ACCESS

Exposure monitoring, medical removal, and medical records required by this paragraph will be provided upon request to workers, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a) through (e) and 2(i). Medical removal records will be provided in the same manner as exposure records.

Whenever PPM ceases to do business, the successor worker will receive and retain the records required to be maintained by this section for the prescribed period; these records will be transmitted to the Director of NIOSH.

At the expiration of the retention period for the records required to be maintained by this section, PPM will notify the Director at least three months prior to the disposal of such records and will transmit those records to the Director it requested within the period.

PPM will also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

ATTACHMENTS

I. Substance Identification

A. Substance: Benzene.

SUBSTANCE SAFETY DATASHEET FOR BENZENE

B. Permissible Exposure: Except as to the use of gasoline, motor fuels and other fuels after discharge from bulk terminals and other exemptions specified in 1910.1028(a) (2):

B1. Airborne: The maximum time-weighted average (TWA) exposure limit is 1 part of benzene vapor per million parts of air (1 ppm) for an 8-hour workday and the maximum short-term exposure limit (STEL) is 5 ppm for any 15-minute period.

B2. Dermal: Eye contact shall be prevented, and skin contact with liquid benzene shall be limited.

C. Appearance and odor: Benzene is a clear, colorless liquid with a pleasant, sweet odor. The odor of benzene does not provide adequate warning of its hazard.

II. Health Hazard Data

A. Ways in which benzene affects your health. Benzene can affect your health if you inhale it, or if it comes in contact with your skin or eyes. Benzene is also harmful if you happen to swallow it.

B. Effects of overexposure.

B1. Short-term (acute) overexposure: If you are overexposed to high concentrations of benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in eyes, nose, and respiratory tract. You may develop a headache, feel dizzy, nauseated, or intoxicated. Severe exposures may lead to convulsions and loss of consciousness.

B2. Long-term (chronic) exposure. Repeated or prolonged exposure to benzene, even at relatively low concentrations, may result in various blood disorders, ranging from anemia to leukemia, an irreversible, fatal disease. Many blood disorders associated with benzene exposure may occur without

symptoms.

III. Protective Clothing and Equipment

A. Respirators. Respirators are required for those operations in which engineering controls or work practice controls are not feasible to reduce exposure to the permissible level. However, where employers can document that benzene is present in the workplace less than 30 days a year, respirators may be used in lieu of engineering controls. If respirators are worn, they must have joint Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) seal of approval, and cartridge or canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. If you experience difficulty breathing while wearing a respirator, you may request a positive pressure respirator from your employer. You must be thoroughly trained to use the assigned respirator, and the training will be provided by your employer.

B. Protective Clothing. You must wear appropriate protective clothing (such as boots, gloves, sleeves, aprons, etc.) over any parts of your body that could be exposed to liquid benzene.

C. Eye and Face Protection. You must wear splash-proof safety goggles if it is possible that benzene may get into your eyes. In addition, you must wear a face shield if your face could be splashed with benzene liquid.

IV. Emergency and First Aid Procedures

A. Eye and face exposure. If benzene is splashed in your eyes, wash it out immediately with large amounts of water. If irritation persists or vision appears to be affected see a doctor as soon as possible.

B. Skin exposure. If benzene is spilled on your clothing or skin, remove the contaminated clothing, and wash the exposed skin with large amounts of water and soap immediately. Wash contaminated clothing before you wear it again.

C. Breathing. If you or any other person breathes in large amounts of benzene, get the exposed person to fresh air at once. Apply artificial respiration if breathing has stopped. Call for medical assistance or a doctor as soon as possible. Never enter any vessel or confined space where the benzene concentration might be high without proper safety equipment and at least one other person present, who will stay outside. A lifeline should be used.

D. Swallowing. If benzene has been swallowed and the patient is conscious, do not induce vomiting. Call for medical assistance or a doctor immediately.

V. Medical Requirements

If you are exposed to benzene at a concentration at or above 0.5 ppm as an 8-hour time-weighted average or have been exposed at or above 10 ppm in the past while employed by your current employer, your employer is required to provide a medical examination and history and laboratory tests within 60 days of the effective date of this standard and annually thereafter. These tests shall be provided without cost to you. In addition, if you are accidentally exposed to benzene (either by ingestion, inhalation, or skin/eye contact) under emergency conditions known or suspected to constitute toxic exposure to benzene, your employer is required to make special laboratory tests available to you.

VI. Observation of Monitoring

Your employer is required to perform measurements that are representative of your exposure to benzene and you or your designated representatives are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and

equipment are required to be worn, you or your representative must also be provided with, and must wear the protective clothing and equipment.

VII. Access to Records

You or your representatives are entitled to see the records of measurements of your exposure to benzene upon written request to your employer. Your medical examination records can be furnished to yourself, your physician or designated representative upon request by you to your employer.

VIII. Precautions for Safe Use, Handling and Storage

Benzene liquid is highly flammable. It should be stored in tightly closed containers in a cool, well-ventilated area. Benzene vapor may form explosive mixtures in air. All sources of ignition must be controlled. Use non-sparking tools when opening or closing benzene containers. Fire extinguishers, where provided, must be readily available. Know where they are located and how to operate them.

Smoking is prohibited in areas where benzene is used or stored. Ask your supervisor where benzene is used in your area and for additional plant safety rules.

SUBSTANCE TECHNICAL GUIDELINES FOR BENZENE

I. Physical and Chemical Data

A. Substance identification.

A1. Synonyms: Benzol, benzole, coal naphtha, cyclohexatriene, phene, phenyl hydride, pyrobenzol. (Benzin, petroleum benzin and Benzine do not contain benzene).

A2. Formula: C (6) H (6) (CAS Registry Number: 71-43-2)

B. Physical data.

B1. Boiling Point (760 mm Hg); 80.1 deg. C (176 deg. F)

B2. Specific Gravity (water = 1): 0.879

B3. Vapor Density (air = 1): 2.7

B4. Melting Point: 5.5 deg. C (42 deg. F)

B5. Vapor Pressure at 20 deg. C (68 deg. F): 75 mm Hg

B6. Solubility in Water: .06%

B7. Evaporation Rate (ether = 1): 2.8

B8. Appearance and Odor: Clear, colorless liquid with a distinctive sweet odor.

II. Fire, Explosion, and Reactivity Hazard Data

A. Fire.

A1. Flash Point (closed cup): - 11 deg. C (12 deg. F)

A2. Autoignition Temperature: 580 deg. C (1076 deg. F)

A3. Flammable limits in Air. % by Volume: Lower: 1.3%, Upper: 7.5%

A4. Extinguishing Media: Carbon dioxide, dry chemical, or foam.

A5. Special Fire-Fighting procedures: Do not use solid stream of water since stream will scatter and spread fire. Fine water spray can be used to keep fire-exposed containers cool.

A6. Unusual fire and explosion hazards: Benzene is a flammable liquid. Its vapors can form explosive mixtures. All ignition sources must be controlled when benzene is used, handled, or stored. Where liquid or vapor may be released, such areas shall be considered as hazardous locations. Benzene vapors are heavier than air; thus, the vapors may travel along the ground and be ignited by open flames or sparks at locations remote from the site at which benzene is handled.

A7. Benzene is classified as a 1 B flammable liquid for the purpose of conforming to the requirements of 29 CFR 1910.106. A concentration exceeding 3,250 ppm is considered a potential fire explosion hazard. Locations where benzene may be present in quantities sufficient to produce explosive or ignitable mixtures are considered Class I Group D for the purposes of conforming to the requirements of 29 CFR 1910.309.

B. Reactivity.

B1. Conditions contributing to instability: Heat.

B2. Incompatibility: Heat and oxidizing materials.

B3. Hazardous decomposition products: Toxic gases and vapors (such as carbon monoxide).

III. Spill and Leak Procedures

A. Steps to be taken if the material is released or spilled. Absorb as much benzene as possible with suitable materials, such as dry sand or earth. The remaining material must be flushed with large amounts of water. Do not flush benzene into a confined space, such as a sewer, because of explosion danger. Remove all ignition sources. Ventilate enclosed places.

B. Waste disposal method. Disposal methods must conform to other jurisdictional regulations. If allowed, benzene may be disposed of: (a) By absorbing it in dry sand or earth and disposing in a sanitary landfill; (b) if small quantities, by removing it to a safe location from buildings or other combustible sources, pouring it in dry sand or earth and cautiously igniting it; and (c) if large quantities, by atomizing it in a suitable combustion chamber.

IV. Miscellaneous Precautions

A. High exposure to benzene can occur when transferring the liquid from one container to another. Such operations should be well ventilated and good work practices must be established to avoid spills.

B. Use non-sparking tools to open benzene containers which are effectively grounded and bonded prior to opening and pouring.

C. Employers must advise employees of all plant areas and operations where exposure to benzene could occur. Common operations in which high exposures to benzene may be encountered are:

- the primary production and utilization of benzene, and
- transfer of benzene.



BLOODBORNE PATHOGENS POLICY

Purpose

This Bloodborne Pathogen Exposure Control Plan has been established to ensure a safe and healthful working environment and act as a performance standard for all employees. This program applies to all occupational exposure to blood or other potentially infectious materials.

Scope

This program addresses all occupational exposure to blood or other potentially infectious materials. OSHA and state agencies require that all employers can "reasonably anticipate exposure" of employees to infectious material to prepare and implement a written exposure control plan.

Key Responsibilities

Exposure Control Officer (PPM Safety Department)

- Has overall responsibility for developing and implementing the Exposure Control Procedure for all facilities.

Site Project Manager and Supervisors

- Site project manager and supervisors are responsible for exposure control in their respective areas.

Employees

- Know what tasks they perform that have occupational exposure.
- Plan and conduct all operations in accordance with our work practice controls.
- Develop good personal hygiene habits.

Procedure

Training

- PPM shall ensure that all employees with occupational exposure participate in a training program. Training is conducted for all employees with occupational exposure before initial assignment and within 1 year of previous training. Training shall be provided at the time of initial assignment & within 1 year of an employee's previous training. Training shall include:
 - What bloodborne pathogens are; how to protect themselves from exposure
 - Methods of warnings (signs, labels, etc.)
 - The OSHA requirements of bloodborne pathogens
 - The Hepatitis B vaccine shall be made available to all employees that have occupational exposure at no cost to the employee(s)

Availability of Procedure to Employees

- All employees will have access to a copy of the exposure control plan. Access to a copy of the exposure control plan shall be provided in a reasonable time, place, and manner.

Reviews and Update of the Procedure

- The procedure is reviewed annually and updated whenever we establish new functional positions within our facility that may involve exposure to biohazards.

Exposure Determination

- There are no job classifications in which some or all employees have occupational exposure to bloodborne pathogens that may result from the performance of their routine duties.
- Designated employees are trained to render first aid and basic life support. Rendering first aid or basic

life support will expose employees to bloodborne pathogens and will require them to adhere to this program.

- In addition, no medical sharps or similar equipment is provided to, or used by, employees rendering first aid or basic life support.
- This exposure determination has been made without regards to the Personal Protective Equipment that may be used by employees.
- A listing of all first aid and basic life support trained employees in this work group shall be maintained at each work site and at each first aid kit.

Methods of Compliance

Universal Precautions

- When differential between body fluids is difficult or impossible, all body fluids will be considered potentially infectious.

Engineering Controls

- Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Engineering controls should be examined and maintained or replaced on a regular schedule to ensure their effectiveness. Hand washing facilities shall be readily available at all work locations. If provision of hand washing facilities is not feasible, then an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes shall be provided by PPM.
- Containers for contaminated reusable sharps that our clients provide have the following characteristics: Puncture-resistant; Color-coded or labeled with a biohazard warning label; Leak-proof on the sides and bottom.
- Secondary containers which are: Leak-proof; Color-coded or labeled with a biohazard warning label; Puncture-resistant, if necessary.

Work Practice Controls

- Employees shall wash their hands immediately, or as soon as feasible, after removal of potentially contaminated gloves or other personal protective equipment.
- Following any contact of body areas with blood or any other infectious materials, employees wash their hands and any other exposed skin with soap and water as soon as possible.
- Hand washing facilities shall be available. If hand washing facilities are not feasible PPM will provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes.
- Contaminated needles and other contaminated sharps should not be handled if you are not AUTHORIZED or TRAINED to do so. Contaminated needles and other contaminated sharps are not bent or recapped.
- Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is potential for exposure to biohazardous materials.
- Food and drink are not kept in refrigerators, freezers, on countertops or in other storage areas where potentially infectious materials are present.
- All equipment or environmental surfaces shall be cleaned and decontaminated after contact with blood or other infectious materials.
- Specimens of blood or other potentially infectious materials must be put in leak proof bags for handling, storage, and transport.
- If outside contamination of a primary specimen container occurs, that container is placed within a second leak proof container, appropriately labeled for handling and storage.
- Bloodborne pathogens kits are located on top of first aid kits and are to be used in emergency situations by the caregiver. Once the seal is broken on kit and any portion has been used it is not to be reused.

Pathogen Kits shall be ordered and replaced promptly. Biohazard bags are identified by stickers and located in the first aid area. Contaminated supplies are to be disposed at once.

Personal Protective Equipment

When the possibility of occupational exposure is present, PPE is to be provided at no cost to employees such as gloves, gowns, etc. PPE shall be used unless employees temporarily declined to use under rare circumstances. PPE shall be repaired and replaced as needed to maintain its effectiveness. All PPE shall be of the proper size and readily accessible.

Our employees adhere to the following practices when using their personal protective equipment:

- Any garments penetrated by blood or other infectious materials are removed immediately.
- All potentially contaminated personal protective equipment is removed prior to leaving a work area.
- Gloves are worn whenever employees anticipate hand contact with potentially infectious materials or when handling or touching contaminated items or surfaces.
- Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured or otherwise lose their ability to function as an "exposure barrier".
- Masks and eye protection (such as goggles, face shields, etc.) are used whenever splashes or sprays may generate droplets of infectious materials.
- Any PPE exposed to bloodborne pathogens shall be disposed of properly.
- PPE shall be used unless employees temporarily declined to use PPE under rare circumstances.
- PPE should be cleaned, laundered & properly disposed of if contaminated.
- PPM will repair and replace PPE as needed to maintain its effectiveness.

Housekeeping

Our staff employs the following practices:

- All equipment and surfaces are cleaned and decontaminated after contact with blood or other potentially infectious materials.
- Protective coverings (such as plastic trash bags or wrap, aluminum foil or absorbent paper) are removed and replaced.
- All trash containers, pails, bins, and other receptacles intended for use routinely are inspected, cleaned, and decontaminated as soon as possible if visibly contaminated.
- Potentially contaminated broken glassware is picked up using mechanical means (such as dustpan and brush, tongs, forceps, etc.).

Post-Exposure and Follow Up

- Post-Exposure Evaluation & Follow-Up

If there is an incident where exposure to bloodborne pathogens occurred, we immediately focus our efforts on investigating the circumstances surrounding the exposure incident and making sure that our employees receive medical consultation and immediate treatment.

The PPM Safety Manager/ Supervisor investigates every reported exposure incident and a written summary of the incident and its causes is prepared, and recommendations are made for avoiding similar incidents in the future. We provide an exposed employee with the following confidential information:

- Documentation regarding the routes of exposure and circumstances under which the exposure incident occurred.
- Identification of the source individual (unless not feasible or prohibited by law).

Once these procedures have been completed, an appointment is arranged for the exposed employee with a qualified healthcare professional to discuss the employee's medical status. This includes an evaluation of any reported illnesses, as well as any recommended treatment.

Information Provided to the Healthcare Professional. We forward the following:

- A copy of the Biohazards Standard.
- A description of the exposure incident.
- Other pertinent information.

Healthcare Professional's Written Opinion

- After the consultation, the healthcare professional provides our facility with a written opinion evaluating the exposed employee's situation. We, in turn, furnish a copy of this opinion to the exposed employee.

The written opinion will contain only the following information:

- Whether Hepatitis B Vaccination is indicated for the employee.
- Whether the employee has received the Hepatitis B Vaccination.
- Confirmation that the employee has been informed of the results of the evaluation.
- Confirmation that the employee has been told about any medical conditions resulting from the exposure incident which require further evaluation or treatment.
- All other findings or diagnoses will remain confidential and will not be included in the written report.

Record Keeping

All records shall be made available upon request of employees, OHSA's Assistant Secretary and the Director of OSHA for examination and copying. Medical records must have written consent of employee before released. COMPANY shall meet the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

The respective Human Resources representative shall maintain Bloodborne Pathogen exposure records. Employee medical records shall be kept confidential and are not to be disclosed without the employee's written consent, except as required by 29 CFR 1910.1030 or other law.

Accurate medical records for each employee with occupational exposure must be maintained for at least the duration of employment plus 30 years and shall include at least the following:

- Employee's name, Social Security number and COMPANY employee number.
- Employee's Hepatitis B vaccination status, including vaccination dates.
- All results from examinations, medical testing, and follow-up procedures, including all health care professional's written opinions.
- Information provided to the health care professional.
- Any Hepatitis B Vaccine Declinations.

Training records shall be maintained for 3 years from the date on which the training occurred and shall include at least the following:

- Outline of training program contents.
- Name of person conducting the training.
- Names and job titles of all persons attending the training.
- Date of training.

Labels and Signs

Biohazard warning labeling shall be used on containers of regulated waste, Sharps disposal containers,

contaminated laundry bags and containers, and contaminated equipment.

Information

Information provided to our employees includes:

- The Biohazards Standard itself.
- The epidemiology and symptoms of bloodborne diseases.
- The modes of transmission of bloodborne pathogens.

Our facility's Exposure Control Procedure (and where employees can obtain a copy).

- Appropriate methods for recognizing tasks and other activities that may involve exposure.
- A review of the use and limitations of methods that will prevent or reduce exposure.
- Selection and use of personal protective equipment.
- Visual warnings of biohazards within our facility including labels, signs, and "color-coded" containers.
- Information on the Hepatitis B Vaccine.
- Actions to take and persons to contact in an emergency involving potentially infectious material.
- The procedure to follow if an exposure incident occurs, including incident reporting.
- Information on the post-exposure evaluation and follow-up, including medical consultation.

VACCINATION DECLINATION FORM

Date: _____

Employee Name: _____

Employee ID#: _____

I understand that due to my occupational exposure to blood or other potential infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline the Hepatitis B vaccination currently. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature

Date

Facility Representative Signature

Date

POST-EXPOSURE EVALUATION AND FOLLOW-UP CHECKLIST

The following steps must be taken, and information transmitted, in the case of an employee's exposure to bloodborne pathogens:

ACTIVITY _____

COMPLETION DATE _____

Employee furnished with documentation regarding exposure incident.

Source individual identified.

Source individual: _____

Appointment arranged for employee with healthcare professional.

Professional's name: _____

Documentation forwarded to healthcare professional.

Bloodborne Pathogens Standard Description of exposed employee's duties:

Description of exposure incident, including routes of exposure:



**CASE MANAGEMENT &
RETURN-TO-WORK PROGRAM**



Purpose

The purpose of Pacific Pile & Marine’s (PPM) Case Management and Return-to-Work Policy is to provide guidelines for project management to expedite the rehabilitation of an employee with a work-related injury, with the goal of returning the injured employee to the full-duty workforce without jeopardizing medical recuperation. If unable to place an employee in the original position due to prescribed restrictions or limitations, project management in conjunction with PPM’s Corporate HSE Department, shall attempt to identify alternative work outside of the employee’s original position that will meet operation needs.

This policy facilitates gradual and consistent rehabilitation for an injured employee using temporary modified/alternative work assignments. PPM shall accommodate the injured employee through early rehabilitation and, where possible, placement into temporary work assignments to the benefit of both parties.

The Project’s HSE Representative, Project Manager, or designee in conjunction with the HSE Department will regularly monitor the recovery progress of the injured worker. The Corporate HSE Department may be used as resources to discuss the appropriate management plan for each individual case.

Role:	Name:	Contact #:	Email:
Director of HSE	Matt Rolf	(360) 708-2050	mattr@pacificpile.com
HSE Manager I	Carolyn Nelson	(206) 485-6561	carolynn@pacificpile.com
HSE Manager I	Brandon Moran	(206) 889-8781	brandonm@pacificpile.com

United States Longshore and Harbor Workers Compensation Act (USL&H) ONLY

Insurance Carrier:	American Equity Underwriters	Policy #:	ALMA02333-02
Claims:	AEU 3850 North Causeway Blvd Ste. 1600 Metairie, LA 70002	Billing:	AEU PO Box 14824 Lexington, KY 40512 claimopening@amequity.com

All State Act Workers’ Compensation Claims are administrated through Pacific Pile & Marine’s HSE Department.



COLD STRESS

Definitions

Hypothermia

A condition when a person's body loses heat faster than it can be produced. If body temperature drops to 95° F (~98.6° F is normal), uncontrollable shivering occurs. If body temperature continues to cool, the following symptoms may also occur:

- Vague, slow, slurred speech.
- Forgetfulness, memory lapses.
- Inability to use hands.
- Frequent stumbling.
- Drowsiness.
- Impairment of judgment.

Frostbite

A condition in which part of the body is frozen. Some of the symptoms may include:

- Lost sensation of touch, pressure, and pain, which may occur without awareness of any numbness or other sensation.
- Just before freezing, the skin becomes bright red.
- At freezing, small patches of white appear on skin.
- Skin becomes elastic.

Responsibilities

The Superintendent has overall responsibility for establishing and ensuring compliance with this procedure.

The Project Safety Manager is responsible for implementing and/or monitoring activities associated with this procedure.

It is the responsibility of all managers and supervisory personnel to enforce this procedure and to ensure that each employee follows it.

General Requirements

Cold, wet, windy conditions make prime hypothermia weather. Precautions shall be taken to keep warm.

In cold environments employees should test for symptoms of hypothermia and frostbite often. Wear loose fitting clothing that will not restrict blood flow to the limbs.

If an employee suspects a co-worker has experienced frostbite, they should seek medical attention immediately.

Implementation

Workers shall wear warm clothing, such as mittens, heavy socks, etc., when the air temperature is below 40-45° F. Chemical protective clothing, if required by the project, may be used to partially protect the employee from the cold.

When the air temperature is below 30-40° F, depending upon employee comfort, clothing for warmth should be worn in addition to chemical protective clothing as needed. This may include insulated suits; whole-body thermal underwear; wool or polypropylene socks to keep moisture off the feet when engaged in work activity which would cause sweating; insulated gloves when air temperatures are

extremely low--less than 5-10° F; gloves with reflective surfaces which reflect body heat back to the hand, boots; and insulated head covering, such as knit (ski) caps.

- At air temperatures below 35° F, the following work practices should be followed:
 - If the clothing of an employee could become wet on the job site, the outer layer of clothing should be impermeable to water.
 - If an employee's underclothing (socks, mittens, etc.) becomes wet in any way, the employee should immediately change into dry clothing. If the clothing becomes wet from sweating, the employee may finish the task causing the sweating before changing into dry clothing.
 - Employees should be provided a warm area to change from work clothing into street clothing.
 - Employees should be provided a warm break area. If appropriate, space heaters shall be provided in the work area to warm the hands and feet, etc. Necessary fire and electrical safety practices must be observed when using space heaters. Space heaters should be shut off when the site is not occupied.
 - Hot liquids, such as soups and warm drinks, may be consumed in the break area. The intake of caffeinated beverages should be limited, however, due to adverse diuretic and circulatory effects.
 - The buddy system should always be practiced. Any employee observed with severe shivering must leave the cold area immediately.
 - Employees should layer their clothing. Thinner, lighter-weight clothing should be worn closest to the body, with heavier-weight clothing layered outside the lighter, layer.
 - Employees should avoid overdressing when going into warm areas or when performing activities which are strenuous. This could lead to a heat stress problem.
 - Auxiliary heated versions of hand wear, footwear, etc., can be used instead of mittens and insulated socks, etc., if extremely cold conditions exist, and if such items do not create hazards in the work area.
 - Employees handling volatile liquids (gasoline, hexane, alcohol, etc.) must take special precautions to avoid saturating clothing or gloves with these liquids; there is added danger of injury from overexposure due to evaporative cooling.
 - Work shall be arranged in such a way that sitting still or standing for long periods of time is minimized.
 - All employees who work in cold areas shall be trained in the following subjects in accordance with Employee Safety Orientation and Training:
 - Proper first aid treatment.
 - Proper clothing practices.
 - Proper eating and drinking habits.
 - Recognition of impending adverse health effects.
 - Safe work practices.



CONFINED SPACE

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart: AA

WA L&I DOSH Safety Standards:

WAC 296-809 Confined Spaces

INTRODUCTION

Many workplaces contain spaces that are “confined” because their configurations hinder the activities of any employee who must enter, work in, and exit from them. In many instances, employees who work in confined spaces also face increased risk of exposure to serious physical injury from such hazards as entrapment, engulfment, and hazardous atmospheric conditions.

PURPOSE

The purpose of Pacific Pile & Marine’s Confined Space Program is to set procedures/safe work practices that will ensure workers safe entry into confined spaces and permit-required confined spaces to perform routine tasks associated with their employment.

OBJECTIVE

The objectives of the Confined Space program include:

- Compliance with all state and federal regulations regarding confined spaces.
- Assessment of the feasibility of reducing the total number of confined spaces.
- Limiting the number of confined space entries.
- Identification, evaluation, and elimination of potential hazards within confined spaces, prior to entry.
- Establishment and implementation of a permit system for entry into confined spaces.
- Training employees who may work in confined spaces on proper procedures and entry techniques.

RESPONSIBILITY

Employer

In administering this Confined Space Program, Pacific Pile & Marine will:

- Monitor the effectiveness of the program.
- Provide atmospheric testing and equipment as needed.
- Provide personal protective equipment as needed.
- Provide training to affected employees and supervisors.
- Provide technical assistance as needed.
- Preview and update the program on at least an annual basis or as needed.

Project Management

- Evaluate, with support from Safety Director, the workplace to determine if any confined spaces exist on the project.
- Inform workers of confined spaces by posting danger signs, Confined Space signs “Do Not Enter” at the confined space entry location.
- Verify that the project specific safety plan includes the confined space PPM procedure to ensure employees are protected from the hazards of confined space entry.
- Implement the confined space procedures within the project specific safety plan and ensure the PPM confined space procedures is followed.

Project Supervision

- Know and understand how to implement the confined space procedure
- Provide the necessary resources to implement this procedure
- Verify that confined space attendants, entry supervisors, rescue team members and entrants are properly trained.

Safety Department

- Verify that all workers who are required to enter, supervise, and/or monitor confined space work are qualified and properly trained in all aspects of the confined space procedures; and
- Prior to entry into a Permit Required Confined space, verify that all appropriate safeguards are in place.
- Ensure training of personnel is conducted and documented.
- Coordinate with outside responders.
- Ensure that equipment is in compliance with standards.
- Ensure that the Responsible Person in charge of confined space work shall:
 - Ensure requirements for entry have been completed before entry is authorized.
 - Ensure confined space monitoring is performed by personnel qualified and trained in confined space entry procedures.
 - Ensure that the rescue team has simulated a rescue in a confined space within the past twelve (12) months.
 - Know the hazards that may be faced during entry, including the mode (how the contaminant gets into the body), signs or symptoms, and consequences of exposure.
 - Fill out a permit.
 - Determine the entry requirements.
 - Require a permit review and signature from the authorized Entry Supervisor.
 - Notify all involved employees of the permit requirements.
 - Post the permit in a conspicuous location near the job.
 - Renew the permit or have it reissued as needed (a new permit is required every shift).
 - Determine the number of Attendants required to perform the work.
 - Ensure all Attendant(s) know how to communicate with the entrants and how to obtain assistance.
 - Post any required barriers and signs.
 - Remain alert to changing conditions that might affect the conditions of the permits (i.e., require additional atmospheric monitoring or changes in personal protective equipment).
 - Change and reissue the permit or issue a new permit, as necessary.
 - Ensure periodic atmospheric monitoring is done according to permit requirements.
 - Ensure that personnel doing the work and all support personnel adhere to permit requirements.
 - Ensure the permit is canceled with the work is done.

- Ensure the confined space is safely closed and all workers are cleared from the area.

Entry Supervisors

Responsible Person(s) shall serve as the Entry Supervisor(s) and shall be qualified and authorized to approve confined space entry permits. The Entry Supervisor(s) shall be responsible for:

- Determining if conditions are acceptable for entry.
- Authorizing entry and overseeing entry operations.
- Terminating entry procedures as required.
- Serving as an Attendant if the person is trained and equipped appropriately for that role.
- Ensuring measures are in place to keep unauthorized personnel clear of the area.
- Checking the work at least twice a shift to verify and document permit requirements are being observed (more frequent checks shall be made if operations or conditions are anticipated that could affect permit requirements).
- Ensuring that necessary information on chemical hazards is kept at the worksite for the employees or rescue team.
- Ensuring a rescue team is available and instructed in their rescue duties (i.e., an onsite team or a prearranged outside rescue service).
- Ensuring the rescue team members have current certification in first aid and cardiopulmonary resuscitation (CPR).

Attendants

Responsible Person(s) shall function as an Attendant(s) and shall be stationed outside of the confined workspace for the duration of the entry operations. The Attendant(s) shall:

- Be knowledgeable of and be able to recognize potential confined space hazards.
- Maintain a sign-in/sign-out log with a count of all persons in the confined space, and ensure all entrants sign in and out.
- Monitor surrounding activities to ensure the safety of personnel.
- Maintain effective and continuous communication with personnel during confined space entry, work, and exit.
- Shall attend only one confined space entry at any one time, and shall not perform any other duties
- Order personnel to evacuate the confined space if he/she:
 - observes a condition which is not allowed on the entry permit,
 - notices the entrants acting strangely, possibly because of exposure to hazardous substances,
 - notices a situation outside the confined space which could endanger personnel,
 - notices a hazard within the confined space that has not been previously recognized or taken into consideration,
 - must leave his/her workstation, or
 - must focus attention on the rescue of personnel in some other confined space that he/she is

monitoring.

- Immediately summon the Rescue Team if crew rescue becomes necessary.
- Keep unauthorized persons out of the confined space, order them out, or notify authorized personnel of an unauthorized entry.

Entrants / Affected Employees

Employees who are granted permission to enter a confined space shall:

- Read and observe the entry permit requirements.
- Remain alert to the hazards that could be encountered while in the confined space.
- Properly use the personal protective equipment that is required by the permit.
- Immediately exit the confined space when:
 - they are ordered to do so by an authorized person,
 - they notice or recognize signs or symptoms of exposure,
 - a prohibited condition exists, or
 - the automatic alarm system sounds.

Alert Attendant(s) when a prohibited condition exists and/or when warning signs or symptoms of exposure exist.

Authorized entrants are also responsible for refusing to work in confined spaces until an entry supervisor has deemed entry to be safe and has given approval for entry, or if a hazard is identified while working in the confined space.

Multiple Employers / Contractors

Pacific Pile & Marine shall inform all other affected outside employers and contractors of the permit space locations and permit space hazards at Pacific Pile & Marine site. All affected outside employers and contractors will be educated on the confined space program and confined space requirements of Pacific Pile & Marine. Multiple permit space entries conducted by outside employers and contractors shall be reviewed and coordinated prior to authorized entry by any party. Pacific Pile & Marine shall not enter into any binding business agreement with contractors or employers that do not meet the confined space program and training requirements.

DEFINITIONS

Authorized Supervisor

The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this procedure and legislative jurisdictional requirements.

Competent Person / Competent Worker / Qualified Worker

One who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them or as otherwise defined by applicable legislation.

Confined Space

Is a space that:

- Is large enough and so configured that a worker can bodily enter and perform assigned work; and

- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.) that can complicate provisions of first aid, evacuation, rescue, or other emergency response services; and
- Is not designed for continuous worker occupancy.

Confined Space Attendant

An individual stationed outside a confined space who monitors the authorized entrants and who performs all (attendant) duties assigned in the employer's permit space.

Confined Space Entrant

A worker who is authorized by the employer to enter a permit space.

Emergency Response Personnel

An individual or group of individuals that has been trained and designated to perform confined space rescue.

Entry

The action by which a person passes through an opening into a permit-required confined space. Entry includes work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of the opening.

Entry Permit

The entry permit is a written document in which the employer authorizes the employee to enter the confined or enclosed space. Refer to HSEOP-13-01 Confined Space Entry Permit.

Hazardous Areas

Hazardous areas are defined as areas that are confined and where there are noxious gases, explosive unventilated wet wells, and empty but not clean bins, tanks, dryers, scrubbers, boiler, ducting, and towers. In still air, these conditions can and have existed in above-grade areas.

Hazardous Atmosphere

An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following:

- Flammable gas, vapor, or mist more than 10% of its lower flammability limit,
- Airborne combustible dust at a concentration that meets or exceeds its LFL. (Note: This concentration may be approximated as a condition in which the dust obscures vision at five feet or less),
- Atmospheric oxygen concentrations below 19.5% or above 23.0%,
- Atmospheric concentrations of any substance for which a dose or a permissible exposure is published in applicable standards or regulations, and/or
- Any other atmospheric condition that is immediately dangerous to life or health.

Hot Work

Any work being performed that presents an ignition or heat source. Examples are welding, grinding, burning, chipping, or electrical equipment.

Immediately Dangerous to Life or Health (IDLH)

A condition characterized by an oxygen deficient atmosphere or an atmosphere concentration of any harmful

substance that poses an immediate threat to life or health that may cause irreversible or delayed adverse health effects or may interfere with an individual's ability to escape from dangerous atmosphere.

Inerting

Refers to the process of purging the atmosphere of a space with an inert gas (one which will not support combustion) to eliminate the potential for fire or explosion. The typical gas used will be either carbon dioxide or nitrogen.

Inerting does not remove the source of flammable vapor (i.e., flammable liquids) but instead removes the vapor above the liquid creating an oxygen deficient atmosphere.

Isolation

Refers to the act of verifying that the space cannot be inadvertently refilled with product and/or re-energized electrically or mechanically while workers are inside through implementation/ installation of isolating devices such as blanking or blinding pipes, removing sections of inlet lines, pipes or ducts, a double-block-and-bleed, lockout of all sources of energy or installing a mechanical block.

Natural (Gravity) Ventilation

Ventilation provided to a space by non-mechanical means. Air moving into a space opening would be considered natural ventilation. This is not an effective method for maintaining the safety of workers inside a confined space.

Oxygen Deficiency

An atmosphere where oxygen concentration is less than 19.5% by volume. Federal/State/Provincial safety regulations require that workers wear air-supplied respirators in oxygen deficient atmospheres.

Oxygen Enriched

An atmosphere where oxygen concentration is greater than 23% by volume. Fire and explosion potentials are greatly increased.

Permit-Required Confined Space

A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere,
- Contains a material that has a potential for engulfing an entrant,
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section, and/or
- Contains any other recognized serious safety or health hazard.

Purging

Is the displacement of the atmosphere inside a space with fresh air or an inert gas?

Alternate Entry

Is one that meets the definition of a confined space but does not have the potential to contain an atmospheric hazard.

Alternate Entry spaces will be checked for atmospheric contamination prior to initial entry with special attention to the oxygen, LEL and carbon monoxide levels. If the space is free of contamination and has no potential for accumulation of contaminants, then no permit or additional atmospheric sampling is required. Typically, such spaces are trenches and excavations, crawl spaces, new tanks, ducts, pits, boiler cavities or equipment vaults.

Upon initial testing, the atmospheric sampling results must show:

- Oxygen concentrations between 19.5% and 23% by volume,
- LEL at or less than 1%,
- Carbon monoxide 1 ppm or less, and
- There is no potential for other contaminants.

Note: If the concentration of carbon monoxide is between 1 and 5 ppm, continue the entry into the confined space but verify the concentration every four hours or continuously monitor. Also, investigate to determine the source of the carbon monoxide. If at any time the concentration is over 5 ppm, the space must be changed to a permit required confined space.

Retrieval System

Equipment used for non-entry rescue of persons from permit spaces.

SAR

Supplied Air Respirator.

SCBA

Self-Contained Breathing Apparatus.

PROCEDURE

General

This procedure must be followed before entering a confined space for any work task. Strict adherence with this procedure is necessary. Failure to follow this procedure will be considered a serious violation of PPM Safety policy and will result in disciplinary action up to and including dismissal. Subcontractors shall meet or exceed this procedure based on legislative jurisdictional requirements.

Upon mobilization of a project, all confined spaces must be identified by project management; must be identified and labeled "Confined Space – Do Not Enter".

No person, under any circumstances, may enter a space containing an explosive or oxygen enriched atmosphere. All entries into spaces with unknown hazards will be supervised by a supervisor completely familiar with this procedure. This supervisor will be responsible for enforcing all the provisions contained in this procedure. An entry permit and checklist will be completed before entry and posted at the work location.

Any deviations from this procedure will require the approval of the Corporate Safety Director.

A combustible gas/oxygen meter, and/or a gas specific instrument must be used to monitor the atmosphere inside a confined space initially before entry and on a continual basis.

All instruments are to be calibrated or span checked prior to use. Calibrations shall be documented and retained for referral purposes.

Any monitoring will be performed by workers who are competent with the equipment and its operation.

Daily records will be maintained for all confined space entry work.

Confined Space Entry Permit

Confined Space Entry Permit form needs to be filled out prior to entering any Permit Required confined space. Complete use of the form will verify that all health and safety considerations have been addressed prior to entry.

This form is to be signed by all workers and acts as a permit for the entry. This form is used in conjunction with this procedure to determine special precautions necessary for entry.

This permit shall be available at the access location of the confined space and shall be dated and valid for one shift only.

The entry permit cannot be completed until all testing and sampling has been accomplished. This means that it must be filled out at the site.

The entry supervisor is responsible for the safety of workers involved in an entry and shall evaluate, plan, and implement the procedures necessary to safeguard the workers assigned to the job.

Efforts should be made to determine the present and previous contaminants contained in the confined space. The information should be listed on the permit form.

Control Measures

Control Measures for Permit Required Confined Space

The following control measures must be put in place for a Permit Required Confined Space:

- Hazard assessment of the area,
- Supplied breathing air,
- Qualified confined space monitor,
- Specific rescue plan, complete with required rescue equipment,
- Completed confined space entry permit,
- All entrants and monitors must be trained on entry process, PPE use, rescue equipment, and plan,
- Communication procedure,
- First-aid must be available onsite,
- Appropriate PPE made available, and
- Written authorization from the safety department.

Control Measures for Alternate Entry Spaces

The following control measures must be put in place for a Non-Permit spaces:

- Hazard assessment of the area,
- Completion of initial atmospheric monitoring by the entry supervisor,
- Re-evaluation of the restricted space if contaminants exist, and
- Appropriate PPE made available.

Coordination of Work/Multi-Employee Worksite

When workers of more than one employer perform work in the same confined space, the contractor controlling the site activities must coordinate entry operations. The contractor controlling the site must prepare a coordination document to verify that the various employers perform their duties in a way that protects the health and safety of all workers entering the confined space.

A copy of the coordination document must be provided to each employer of workers who perform work in the confined space.

Each employer is responsible for the health and safety of their own workers and for verifying compliance with confined space legislative requirements.

Fall Protection

Anyone who is at risk of falling into a tank or vessel must have appropriate fall protection. Standard handrails, mid-rails, and toe boards shall be installed as needed to keep workers from falling into tanks, vessels, or bins. All workers must have completed fall protection training.

Intrinsically Safe/Explosion Proof

Electrical equipment which does not present the potential for electrical spark and which has been certified as safe for use in flammable atmospheres must be used as necessitated by space classification.

All electrical equipment taken into a space containing (or previously containing) flammable liquids or vapors will be rated Class I Group C & D at a minimum, and Class II group G at a minimum.

Energy Isolation

Energy isolation is the act of physically locking out electrical, hydraulic, or pneumatic controls and/or mechanical linkage to provide isolation.

Typically, this is performed by lock and key or the physical removal of key components that make it impossible for a system to be restarted while workers are working on, or inside the system.

PPM's Lockout/Tagout policy for the machinery and equipment must be used in conjunction with this section.

All workers must be trained as to the specifics of the Lockout/Tagout procedure prior to commencing work operations and records must be maintained of the training.

Before entering any confined space, workers will take sufficient steps to verify that toxic contaminants or potentially hazardous products do not re-enter a space or that hazardous situations do not develop while workers are inside. This is accomplished by validating that the confined space is completely isolated from all other electrical or mechanical systems by physical disconnection. Isolation includes the verification that mechanical or electrical apparatus cannot become energized while workers are inside. Isolation in these cases can include physical lockout of switches or controls, disconnecting electrical supplies, or the mechanical blocking of moving equipment and process systems.

Isolation shall be achieved by locking circuit breakers and/or disconnecting the ON position lever with a key type padlock. Isolation of all moving parts shall be achieved by disconnecting, blinding, or capping any linkage, valves, drive belts, shafts, water/steam lines, chaining controls, or systems which enter, feed, or impact in the confined space. Equipment with moving mechanical parts shall be blocked/ secured so there can be no inadvertent movement.

The key must remain with the person working inside the confined space. If more than one person is inside the confined space, each person shall place his/her own lock on the lockout point. In some cases, it may be more feasible for one supervisor to have the lock for an entire trade group with the understanding that this supervisor is responsible for checking that all individuals have been safely accounted for before removing the lock. Refer to **PPM's Lockout/Tagout Policy before isolating the system.**

Mechanical Ventilation

Mechanical ventilation is a method of providing ventilation into a confined space, which is typically provided by electrically powered or air driven blowers. From a ventilation engineering standpoint, air blown into a space (forced air) is more effective in providing consistent dilution inside the space than air exhausted, (induced air).

Negative pressure can be provided by placing the blower inside the space. This method can be effective in allowing

clean air to be drawn into the space but is not as effective in producing uniform dilution of contaminants. Use of continuous mechanical ventilation will be necessary when working inside Permit Required Confined Spaces. Ventilation must be provided at the minimum rate of four air changes per hour.

Flexible tubing or ductwork is used to distribute air to all areas of the space. Electrical ventilation equipment must be grounded.

Emergency Retrieval Equipment

Refers to mechanical hoist equipment designed to raise and lower workers from a space. All equipment used for raising or lowering workers will be rated for such operations by the manufacturer. An emergency plan must be developed for entry into Permit Required Confined Spaces

Workers entering a Permit Required Confined Space shall wear a full body harness. Mechanical retrieval devices shall be available at the entry position. The full body harness will have such design features as to keep the individual in an upright orientation if a vertical rescue is required.

The rescue person shall be equipped to be capable of immediately rescuing the worker in the confined space.

Initial Atmosphere Testing

Prior to entry, all spaces will be initially tested for carbon monoxide, flammable vapors and oxygen deficiency, plus toxic vapor, or gases (based on the potential for toxics being present).

The confined space attendant shall know how to operate the atmospheric monitor assigned to him and the supervisor will verify that the atmospheric monitor is properly calibrated.

A CGI (Calibrated Gas Instrument) will be span (bump) checked prior to use or every 24 hours or as per manufacturers' specifications to maintain proper operation and will be calibrated on a yearly basis as per manufacturers' specifications. CGIs will not be used for certifying an area "safe for entry" unless these requirements have been met.

Oxygen meters used to confirm the completeness of inerting will be tested with a 100%

nitrogen atmosphere to make certain that the meter will read 0% oxygen.

When monitoring, measurements will be made from top to bottom and in all remote sections of the space. It may be necessary to enter the space to test remote locations.

Continuous monitoring of the atmosphere in Permit Required Confined Spaces shall be conducted.

Purging and Ventilation

Prior to entry, mechanical ventilation will be initiated for Permit Required Confined Spaces to reduce or maintain flammable vapor levels to 10% LEL or less.

Some legislative jurisdictional requirements state that this ventilation is to be continuous. This ventilation is primarily designed to verify that oxygen deficiencies or flammable atmospheres do not develop. Ventilation is not always sufficient to maintain toxic-free environments and therefore, continuous monitoring of permit required confined spaces is always conducted.

Note: this ventilation will discharge contaminants outside the space and will therefore present exposure potentials to outside workers. This discharge may also present fire or explosion hazards outside the space.

Electrical fans will not be placed inside a space or set up to move air that contains flammable vapors unless they are equipped with explosion-proof capability and are certified by the appropriate and applicable regulatory agencies.

Safety Equipment

The following minimum equipment requirements are specified:

- Oxygen and combustible gas monitors and a calibration kit. Photo ionizing detector, and detector tubes will be used as necessary to determine toxic content of an atmosphere,
- Mechanical ventilation equipment,
- All workers entering a confined space shall wear clothing appropriate to protect the wearer against known or suspected toxic or irritating materials. Specific type of suit material will be described in the permit,
- Hearing protection shall be used when noise levels and exposure times exceed those in applicable standards,
- The exact level and type of respiratory protection for Permit Required Confined Space entries shall be determined by Corporate Safety Director based upon the conditions and test results of the confined space and the work activity performed,
- All respirators shall be approved devices and shall be fitted and maintained in accordance with the Respiratory Protection Policy,
- The specific type and degree of rescue equipment will depend upon the nature of the confined space regarding access/egress. This decision should consider the exact way the individual could be feasibly extracted, i.e., by the wrists, waist, straight-up, and the accompanying strain to the rescuer's body,
- A body harness is required when an employee is working in an area that, for purposes of rescue, is considered restricted and when any failure of ventilation could allow the build-up of toxic or explosive gases within the time necessary to vacate the area,
- The type of harness selected must facilitate removal from the confined space,
- If the worker in the confined space is required to wear a harness, the rescue/stand-by person shall also have a safety harness and emergency respirator immediately
- available to him/her, and
- Additional rescue equipment such as a tripod, block and tackle and lifelines shall be available, set-up, and in working order if needed to remove a worker from a Permit-Required Confined Space. This equipment must be capable of being hand operated. Rescue equipment is not required for entry into restricted confined spaces.

Rescue Plans

A rescue plan must be developed and published, and copies provided to supervisors, entrants, and rescue workers for all Permit Required Confined Spaces.

Rescue Personnel

Permit Required Confined Spaces

The rescue personnel must be readily available, (Fire Department). Ensure local fire department is trained to perform confined space rescues. Fire department shall be notified when PPM performs work in a Permit Required Confined Space.

Restricted Confined Spaces

No special precautions are deemed necessary beyond the normal site emergency response capability and awareness of off-site confined space rescue contacts unless otherwise specified.

Confined Space Attendant

In the event entry into a Permit Required Confined Space is required, an confined space attendant must be present. All permit required confined space entries require a confined space attendant to be assigned to the space.

This person's duties include maintaining communication and providing necessary assistance to workers inside.

The confined space attendant's primary responsibilities with permit required confined spaces are communicate with entrants and initiation of rescue procedures (although this person will never go inside the space).

Confined space attendants cannot leave a permit required confined space for any reason unless relieved by another trained confined space attendant or the space is evacuated.

Communication needs to be established for permit required confined space attendants so assistance can be summoned without the attendant person having to leave the area.

Continuous Atmospheric Monitoring

It is recognized that the condition in some spaces may change over time. Initial testing may underestimate hazards in these situations.

Continuous monitoring of flammables, oxygen, and/or toxics is always required in Permit Required Confined Spaces. Recording of those results are required on Confined Space Entry Permit.

Equipment designed for continuous monitoring and an audible alarm should be used.

Continuous Ventilation

Once ventilation is started for permit required confined spaces, periodic checks should be made of the surrounding area to verify that contaminated air is exhausted in a location that creates no hazard to people or equipment.

Continuous ventilation shall be maintained as part of the work procedure for permit required confined spaces because of desorption of walls, evaporation, or chemicals and toxic atmospheres which may develop due to the nature of the confined space activity, i.e., welding or painting.

Continual forced air ventilation shall be provided in all permit required confined spaces. If monitoring identifies that the ventilation is not sufficient to maintain the atmosphere below 10% LEL, the confined space shall be evacuated immediately until the problem is corrected.

Air intake fans shall be located so they will not pick-up exhaust gases from vehicles, heaters, furnaces, or adjacent operations capable of generating airborne contaminants.

Blowers should be located so that there are no unnecessary bends in the hose. One 90-degree bend can reduce the output to 70% of rated capacity; two 90-degree bends to 50%, three bends to 33%, etc.

Lighting

All portable lights shall have protective covers and be intrinsically safe when working in potentially flammable atmospheres.

Heavy duty flexible cords will be used with good insulation and connectors. No splices are permitted. Cracked or worn insulation shall be replaced.

Lighting shall not be suspended by cords unless specifically designed for it.

All lights and plug assemblies and GFCIs should be checked with a volt/ground meter prior to use in a confined space.

Summary

- Preplanning
 - Locate known confined spaces,
 - Become familiar with types of hazards associated with confined spaces,

- Identify and secure necessary tools,
- Be prepared to test atmospheres,
- Obtain proper protective equipment, and
- Training:
 - Awareness and recognition of hazards and hazard controls,
 - Hands-on use of equipment, and
 - Simulated rescues.
- Rescue Factors
 - Planning:
 - Recognize problems,
 - Evaluate solutions,
 - Select solution, and
 - Act (pro-active NOT reactive).
- Organizing:
 - Determine resources, and
 - Arrange resources.
- Directing:
 - Define responsibilities,
 - Positive actions,
 - Facts collected, and
 - Strategy changed if necessary.
- Controlling:
 - Coordination of team,
 - Delegation of authority, and
 - Monitoring requirements.
- Coordination:
 - Communication of objectives, and
 - Specify deployment of resources.

6.19 Checklist for Confined Space Entry

Checklist for Entry, working in and exiting Confined Spaces

- Oxygen-deficient atmosphere,
 - Flammable or explosive.
- Poisonous or toxic,

- Egress and entry limitation,
- Isolation/lockout and tagout requirements,
- Electrical hazards,
- Mechanical hazards,
- Communications,
- Permit requirements,
- Visibility,
- Ventilation,
- Explosion-proof equipment,
- Eliminate ignition source,
- Proper safety gear,
- Safety lines,
- Positive pressure SCBA,
- In-line system,
- Back-up system/resources,
- Test meters,
- Removal equipment,
- Stretchers, baskets,
- Medical help, and
- Contingency plan including rescue workers and equipment.

6.20 Training Requirements

All workers entering a confined space must be thoroughly trained in this procedure or as per legislative jurisdictional requirements. Special emphasis must be placed on verifying that workers can perform rescue operations effectively.

6.20.1 Authorized Supervisors shall know:

- How to determine if the entry permit contains required information before allowing entry,
 - Prior to entry know:
 - Identification and control of hazards:
- Procedures,
- Practices, and
 - Equipment.
 - How to determine that entry operations remain consistent with terms of the Permit,
 - How to determine that acceptable conditions are present,

- How to cancel or terminate the permit if acceptable conditions are not maintained, and
- How to take necessary measures:
 - Concluding and operation,
 - Close off a permit space, and
 - Cancel the permit after completion of work.

6.20.2 Authorized Entrants shall know:

- Hazards of entry,
- Hazard controls,
- How to select, fit, use, and care for PPE,
- Communication procedures to signal the authorized attendant if conditions change, a worker is injured, PPE failure, lighting failure or if rescue is required,
- How to recognize behavioral changes due to exposure,
- How to detect prohibited conditions such as unblinded lines, unvented or purged areas, electrical energization, and improper or not intrinsically safe tools and equipment, and
- How to properly enter work and exit a space.

6.20.3 Authorized Attendants shall:

- Remain stationed outside permit space,
- Maintain accurate count of entrants,
- Know potential hazards associated with space,
- Know the hazard controls,
- Monitor activities inside without physically entering the space,
- Monitor activities outside, which may negatively impact the space, and
- How to maintain effective and continuous contact.
- How to order evacuation of entrants when he/she:
 - Observes a condition which is not allowed by permit,
 - Detects behavioral effects of exposure,
 - Detects condition outside which endangers entrants,
 - Detects uncontrolled hazard within permit space,
 - Is monitoring more than one permit space and the rescue of entrants from one space is required, and
 - Must leave workspace.
- How to summon rescue and other emergency services,
- How to take following actions:
 - Warn unauthorized persons away from space.
- How to perform any assigned rescue and emergency duties without entering permit space.

Onsite Rescue Teams

- Trained to properly use personal protective equipment necessary for making rescues,
- Trained to perform assigned rescue functions, and
- Practice at least once every twelve months:
 - Simulated rescues using mannequins or dummies, and
 - Rescues through representative openings which approximate spaces from which rescues may be required.

Each rescue team must maintain a current certification in basic first aid and CPR skills and know how to coordinate efforts with third party rescue teams.

Outside Rescue Teams

- Must verify that rescuers are aware of hazards they may confront when called on to perform rescues.
- Provided access to permit spaces so they can:
 - Develop rescue plans,
 - Practice rescue operations, and
 - Coordinate efforts with onsite or other third-party rescue teams as required.



CONTAMINATED SOIL PROTOCOL

Because of the significant risk for potential liability and worker safety in dealing with contaminated soil issues, it's important to refer to the information below and ask questions when faced with one of the following situations:

CONTAMINATED SOIL IDENTIFIED PRIOR TO JOB START

In these situations, the contaminated soil is pre-existing and has been identified prior to the start of excavation. Please remember that this is not our soil and Pacific Pile & Marine should not take on liability for the contaminated soil.

It is important that the District Manager, Project Manager, Safety Director, HSE Department, Site Superintendent and Owner develop a plan on how to deal with the soil remediation prior to the soil excavation.

Some important things to remember:

- We should not contract with the Environmental Engineer or Soils Engineer for the identification of the material or method of disposal – this is the Owner's responsibility.
- We should not contract with or sign manifests with the disposal sites (dirty or clean soils). Pacific Pile & Marine should not appear on any manifests or permits for disposal of contaminated soil.
- In most situations, our subcontractor will be responsible for excavation and disposal of the soil. We need to set up protocols and mechanisms to track each specific load.
- The HSE Department will need to contract with an environmental firm to develop the required Health and Safety Plan and protocols for worker protection in and around the contaminated soils. Vapor (air) monitoring will be required during the actual remediation.
- The Subcontractor responsible for excavation and export of soil shall be contractually required to provide Pollution Coverage. Pacific Pile & Marine and the Owner shall be named additional insured.
- All trades persons working in or around the contaminated excavation must be HAZWOPER 40-hour trained.
- There is significant risk to Pacific Pile & Marine for mismanagement and improper segregation of clean and dirty soils. To mitigate our risk, we should:
 - Establish a clear protocol for segregation of clean and dirty soils.
 - Try to load out 100% clean or 100% dirty on separate days or shifts.
 - Require that the Owner provide continuous daily Environmental Engineer oversight of excavation and loading of soils when both clean and dirty soil exists on-site.
 - Maintain a log of exports.
 - Require signature of Environmental Engineer on soil export log.
 - Know when, where, and how much clean and dirty soil is being exported. When contaminated soil exists within the excavation we need to know exactly where each load of soil is being sent. (This is important because if a claim is made stating that a load of contaminated soil was dumped at a clean site, we can provide evidence of dates, trucks, quantities, etc... to limit or reduce liability.)

SITE IDENTIFIED AS CLEAN, BUT CONTAMINATED SOIL IS DISCOVERED AFTER JOB START

- Immediately notify the HSE Department, Project Manager, District Manager, and the owner.
- Discontinue work and secure, contain and barricade suspect areas until you've discussed with the above individuals.
- Remember, the soil is pre-existing, and it belongs to the Owner.
- Protocols, contracts and procedures for soil remediation and worker safety will need to be developed (refer to above).

SITE BECOMES CONTAMINATED THROUGH ACTIONS OF PACIFIC PILE & MARINE OR SUBCONTRACTOR (SPILL)

- Immediately notify Safety and Risk Department, Project Manager and Principle in Charge.
- Discontinue work and secure, contain and barricade suspect area until you've discussed with the individuals above.
- Determine next steps and develop a plan of action (see above).
- Because we caused the contaminated event, there may be additional steps to take, such as:
 - Notify insurance (liability and property damage issues)?
 - Do we need to notify any governmental agencies?
 - All parties will need to develop a plan for clean up and remediation.
 - Determine worker safety issues – do we need to hire an Industrial Hygienist?



CRANE & HOIST SAFETY PROGRAM

Complying with OSHA Safety and Health Regulations for Construction

29 CFR 1926 Subpart CC

PURPOSE

Several cranes, hoists, and rigging devices are used at Pacific Pile & Marine for lifting and moving materials. Pacific Pile & Marine's policy is to maintain a safe workplace for its employees; therefore, it cannot be overemphasized that only qualified and certified individuals shall operate these devices. The safety rules and guidance in this program apply to all operations at Pacific Pile & Marine that involve the use of cranes and hoists whether they are mobile or installed on or attached to barges or flexi-floats and to all Pacific Pile & Marine employees and subcontractor personnel who use such devices.

SCOPE

The provisions of the Crane Safety Program shall apply to all employees who operate and use overhead cranes, portable hoists, chains and slings, and personnel platforms. This program has been designed to provide employees with guidance pertaining to use of cranes. And, to provide an overview of the Occupational Safety and Health Administration (OSHA) standards.

RESPONSIBILITIES

Supervisors:

- Ensure that employees under their supervision receive the required training and are certified and licensed to operate the cranes and hoists in their areas.
- Provide training for crane operators. This training must be conducted by a qualified, designated instructor who is a licensed crane operator and a full-time Pacific Pile & Marine employee.
- Ensure that hoisting equipment is inspected and tested monthly by a competent person.
- Ensure that that rigging equipment is inspected daily and prior to use.
- Ensure that cranes used on their project has annual inspection certification.
- Ensure that damaged cranes or cranes that have been in an accident are re-certified prior to being back in service.

Crane and Hoist Operators:

Operators shall be qualified and certified:

- Shall comply with this crane safety manual and these policies and procedures.
- Shall have passed a written and practical examination through an accredited certification program.
- Must have a valid operator's license on their person while operating cranes.
- Must renew their license every five years by satisfying the requirements designated by the accrediting body.
- Shall be trained, certified, and authorized to operate the size of crane, type of crane, and type of work to be performed.
- Conduct functional tests prior to using the equipment.
- Select and use rigging equipment appropriately.
- Shall refuse to continue operation of the crane if it is determined that a lift is unsafe to be performed.
- Upon finding an unsafe condition, crane operator shall stop work and consult with the superintendent to create a safe plan of action. The PPM Safety Department shall also be notified.

Riggers

- Shall be trained in the selection and use of appropriate rigging equipment.
- Shall be competent/qualified to direct assemble/disassembly of crane equipment.

Signalers

- Shall be trained in the accepted form of signaling
- Have authority to stop work should an unsafe condition exist

Crane Oiler

- Shall not operate any crane equipment unless she/he possesses the qualifications of a bona fide crane operator.
- This limitation does not include positioning of the crane during relocation, assembly, or disassembly.
- May operate the crane as required during routine maintenance in the performance of his or her general duties.
- If she/he determines that a lift is unsafe to be performed, she/he shall notify the operator immediately and consult with the superintendent to create a safe plan of action. The PPM Safety Department shall also be notified.

Engineering/Maintenance/Operations Department:

- Ensure an annual inspection is performed by a State certified crane inspector.
- Perform maintenance on all cranes.
- Ensure that any modifications or additions that may affect the capacity or safe operation of the equipment must not be made without written approval from the manufacturer or approval from a registered professional engineer.
- Conduct periodic and special load tests of cranes and hoists.
- Maintain written records of inspections and tests and provide copies of all inspections and test results when required.
- Prior to making modifications, repairs, or additions to any crane, the equipment department, or its designated representative, shall identify any work to be completed with respect to the equipment or crane involved. Modifications or additions which affect the capacity or safe operation of the equipment are prohibited; the safety factor of the crane must not be reduced after such modifications are made. Once any modifications, repairs, or additions are completed, inspections and/or load test(s) shall be performed by a designated Qualified Person, determined by the Pacific Pile & Marine Equipment Manager, prior to placing the crane back into service.
- Schedule a non-destructive test and inspection for crane and hoist hooks at the time of the periodic load test, and test and inspect before use new replacement hooks and other hooks suspected of having been overloaded. The evaluation, inspection, and testing may include, but are not limited to visual, dye penetrant, and magnetic particle techniques referenced in ASME B30.10 (Hooks, Inspection and Testing.)
- Maintain all manuals for cranes and hoists in a central file for reference.

Safety Department

- Interpret crane and hoist safety rules and standards.

- Review the Crane Safety Program on an annual basis and revise, as necessary.
- Provide the technical assistance regarding the regulatory requirements of cranes, chains, slings, and hoists.

CRANE SAFETY DESIGN PROGRAM REQUIREMENTS

Following are the design requirements for cranes and hoists and their components:

- The design of all commercial cranes and hoists shall comply with the requirements of ASME/ANSI B30 standards.
- All crane and hoist hooks shall have safety latches.
- All cabs shall have a motion alarm to signal movement.
- Personnel baskets and platforms suspended from any crane shall be designed in accordance with the specifications in 29 CFR 1926.1431.

CRANE SAFETY REQUIREMENTS

- Report any unsafe conditions to the subcontractor foreman or Project Superintendent immediately.
- A copy of operational procedures for the crane shall always be in the cab.
- Access for entry and assembly of the crane shall be free from obstructions, underground hazards, and overhead power lines.
- During the assembly/disassembly of the equipment, the competent person must follow the manufacturers' instructions and prohibitions.
- Operational function, assembly/disassembly of crane equipment shall meet the requirements of the manufacturers' procedures, ANSI, ASME, and OSHA, and performed by a competent person.
- Crane equipment shall have the required inspection and proof load testing certificates current and available upon arrival at the job site.
- Lifting beams (commonly known as "spreader bars") shall conform to ANSI B30.20 regulations which require the following permanent markings:
 - Manufacturer's name
 - Serial number (ID #)
 - Weight of the bar
 - Rated load
- Proof of initial load testing shall be provided for all lifting beams. Load test shall not exceed 125% of the rated load.
- Engineering data shall be provided Management on all specialized below-the-hook lifting devices.
- No crane shall be operated near high voltage as follows:
 - - Up to 350 KV 20 Feet
 - - Over 350 KV 50 Feet

To comply with the 20/50 ft requirement: Identify the Work Zone. Define the work zone by demarcating boundaries, with flags, or a device such as a range limit device or a range control warning device and prohibit the

operator from operating past those boundaries. If the crane or load COULD get closer than 20/50 feet of Power Lines in the Work Zone, then:

- Crane operations near power lines, use one of 3 Options
 - **Option 1** – De-energize & Ground Power lines
 - **Option 2** - Maintain 20/50-foot clearance
 - **Option 3** - Obtain power line voltage from Utility Owner/Operator and ensure the crane or rigging does not get closer than the distances listed in the table below:

0 to 50 kV	10 feet
over 50 to 200 kV	15 feet
over 200 to 350 kV	20 feet
over 350 to 500 kV	25 feet
over 500 to 750 kV	35 feet
over 750 to 1000 kV	45 feet

- **Options 2 and 3** require the following:
 - Conduct a planning meeting with crane operator, & all workers who will be around crane & load
 - This meeting must address the location of the power lines and the steps that will be implemented to prevent encroachment-electrocution
 - If tag lines are used, they must be nonconductive
 - Erect elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings (Option 2 = 20/50 feet; Option 3 = Table above)
- No loads shall be lifted over personnel.
- No one shall place their hands or any other portion of the body under a load suspended by the crane.
- No unauthorized personnel shall be working within the lifting area of the crane.
- Yellow caution tape shall be used to prevent personnel from entering the crane rotation area.
- All personnel shall be clear of crawler tracks while the crane is moving.
- All personnel except for the operator and oiler shall be clear of the crane rotating area during its operation.
- A designated signal person shall be provided if the operator’s view is obstructed, if site specific safety concerns require it or if the operator determines that it is necessary.
- The signal person shall provide direction to the operator using the standard hand signals or radio communications that are common to the industry. The lifting area encompasses that area where the boom is likely to swing over during the lift. This area should be clear of any person who is not directly involved with the lifts being performed.
- Operation of crane equipment by persons designated as the oiler shall be conducted under the direct supervision of an experienced operator during non-critical lifts. Where such lifts are conducted, notice shall be given to all employees working with the crane equipment.

Note: Direct supervision requires the experienced operator to be present at the operator’s station during all lifts.

- No lifts shall exceed 75% of the manufacturer's load rating unless a written critical lift plan has been submitted and preapproved. Where tilt-panels panels are being lifted, no lifts shall exceed 85% of the manufacturer's load rating unless a written critical lift plan has been submitted and preapproved.
- The manufacturer's load chart shall be affixed to the crane or located in the operator's cab accessible to the operator.
- All lifts and crane configurations shall be consistent with the manufacturer's requirements and load charts.
- Per manufacturer's specifications, when pick and carry operations occur, the ground shall be smooth, level, and compacted, free from obstructions, underground hazards, graded and drained, so that in conjunction with support materials the crane is level. Also, if possible, the site shall be clear of overhead power lines.
- No cribbing shall be placed under the crane axle, frame, or out rigger extension beams.
- Jib and boom shall be free from structural damage that exceeds the manufacturer's maximum allowable tolerances.
- Anti two-blocking device shall be installed, functional, and operational on all cranes.
- A load indicator shall be on all load lines in use on mobile cranes.
- No crane shall be operated in wind speeds that exceed 35 mph or the manufacturer's recommendations whichever is the lesser wind speed.
 - Where surface area of material being lifted creates a sail affect, the crane may be required to cease operating at lower wind speeds than stated.
- Wind speed indicators shall be provided and properly affixed to the crane boom tip.
- Safety devices must be in proper working before operation begins.
- No person shall disable or circumvent a safety device while the crane is performing lifting service.

Operation Safety Rules

Operators shall comply with the following rules while operating the cranes and hoists:

- Do not engage in any practice that will divert your attention while operating the crane.
- Respond to signals only from the person who is directing the lift, or any appointed signal person. Always obey a stop signal, no matter who gives it.
- Do not move a load over people. People shall not be placed in jeopardy by being under a suspended load. Also, do not work under a suspended load unless the load is supported by blocks, jacks, or a solid footing that will safely support the entire weight. Have a crane or hoist operator remain at the controls.
- Ensure that the rated load capacity of an individual hoist, or any sling or fitting is not exceeded. Know the weight of the object being lifted or use a dynamometer or load cell to determine the weight.
- Avoid side pulls. These can cause the hoist rope to slip out of the drum groove, damaging the rope or destabilizing the crane.
- To prevent shock loading, avoid sudden stops or starts. Shock loading can occur when a suspended load is accelerated or decelerated and can overload the crane or hoist. When completing an upward or downward motion, ease the load slowly to a stop.

Pre-operational Test

At the start of each work shift, operators shall do the following steps before making lifts with any crane or hoist:

1. Visually inspect the hook, load lines, sheaves, and boom as much as possible.
2. Test the hoist brake to verify there is no drift without a load.
3. Lock out and tag for repair any crane or hoist that fails any of the above tests.

Moving a Load

- Center the hook over the load to keep the cables from slipping out of the drum grooves and overlapping, and to prevent the load from swinging when it is lifted. Inspect the drum to verify that the cable is in the grooves.
- Use a tag line when loads must traverse long distances or must otherwise be controlled.
- Plan and check the travel path to avoid personnel and obstructions.
- Lift the load only high enough to clear the tallest obstruction in the travel path.
- Start and stop slowly.
- Land the load when the move is finished. Choose a safe landing.

Never leave suspended loads unattended. In an emergency where the crane or hoist has become inoperative, if a load must be left suspended, barricade and post signs in the surrounding area, under the load, and on all four sides. Lock open and tag the crane.

Rigging

General Rigging Safety Requirements

Only select rigging equipment that is in good condition. All rigging equipment shall be inspected annually; defective equipment is to be removed from service and destroyed to prevent inadvertent reuse. The load capacity limits shall be stamped or affixed to all rigging components. Pacific Pile & Marine policy requires a minimum safety factor of 5 to be maintained for wire rope slings. The following types of slings shall be rejected or destroyed:

Nylon slings with:

- Abnormal wear.
- Torn stitching.
- Broken or cut fibers.
- Discoloration or deterioration.

Wire-rope slings with:

- Kinking, crushing, bird-caging, or other distortions.
- Evidence of heat damage.
- Cracks, deformation, or worn end attachments.
- Six randomly broken wires in a single rope lay.
- Three broken wires in one strand of rope.
- Hooks opened more than 15% at the throat.

- Hooks twisted sideways more than 10 deg. from the plane of the unbent hook.

Alloy steel chain slings with

- Cracked, bent, or elongated links or components.
- Cracked hooks.

Shackles, eye bolts, turnbuckles, or other components that are damaged or deformed.

Rigging a Load

Do the following when rigging a load:

- Determine the weight of the load. Do not guess.
- Determine the proper size for slings and components.
- Make sure that shackle pins and shouldered eye bolts are installed in accordance with the manufacturer's recommendations.
- Make sure that ordinary (shoulderless) eye bolts are not used.
- Use safety hoist rings (swivel eyes) as a preferred substitute for eye bolts wherever possible.
- Pad sharp edges to protect slings. Remember that machinery foundations or angle-iron edges may not feel sharp to the touch but could cut into rigging when under several tons of load. Wood, tire rubber, or other pliable materials may be suitable for padding.
- Do not use slings, eye bolts, shackles, or hooks that have been cut, welded, or brazed.
- Install wire-rope clips with the base only on the live end and the U-bolt only on the dead end. Follow the manufacturer's recommendations for the spacing for each specific wire size.
- Determine the center of gravity and balance the load before moving it.
- Initially lift the load only a few inches to test the rigging and balance.

Crane Overloading

Cranes or hoists shall not be loaded beyond their rated capacity for normal operations. Any crane or hoist suspected of having been overloaded shall be removed from service by locking open and tagging the main disconnect switch. Additionally, overloaded cranes shall be inspected, repaired, load tested, and approved for use before being returned to service.

Working at Heights on Cranes or Hoists

Anyone conducting maintenance or repair on cranes or hoists at heights greater than 10 feet shall use fall protection. Fall protection should also be considered for heights less than 10 feet. Fall protection includes safety harnesses that are fitted with a lifeline and securely attached to a structural member of the crane or building or properly secured safety nets.

Use of a crane as a work platform should only be considered when conventional means of reaching an elevated worksite are more hazardous or are not possible.

Hand Signals

Signals to the operator shall be in accordance with the standard hand signals unless voice communications equipment (telephone, radio, or equivalent) is used. Signals shall always be discernible or audible.

INSPECTION, MAINTENANCE, & TESTING

All tests and inspections shall be conducted in accordance with the manufacturer's recommendations.

Tests and Inspections

- All in-service cranes and hoists shall be inspected daily, by a competent person at the beginning of each shift, and the results shall be documented on the Daily Inspection Log.
- At least once weekly, the boom of all in-service cranes shall be laid down and inspected for damage (bent lacing, sheave condition, anti-two-block device, etc.). If site conditions do not allow for the boom to be laid down and inspected, other means shall be utilized to inspect the entire boom (binoculars, drone, etc.).
 - It is the responsibility of the site supervisor to verify this inspection is completed and submitted to equipment@pacificpile.com each week; this responsibility may be delegated from a superintendent to a foreman.
- No crane shall be operated prior to providing proof of an annual safety inspection performed by a qualified person. The inspection criteria and document shall be consistent with Federal Occupational Safety and Health Administration, Department of Labor regulations, and any regulatory agency governing the region that the project is located. Proof of such inspection shall be located on the crane upon its arrival at the job site and provided for inspection by a qualified person prior to operation of the crane on any project.
- Defective cranes and hoists shall be locked and tagged "out of service" until all defects are corrected. The inspector shall initiate corrective action by notifying the Equipment Manager.

Annual Inspections

The Maintenance Department shall schedule and supervise annual preventive maintenance (PM) and annual inspections by certified inspectors of all cranes and hoists. The annual PM and inspection shall cover

- Hoisting and lowering mechanisms.
- Limit switches and locking and safety devices.
- Structural members.
- Bolts or rivets.
- Sheaves and drums.
- Parts such as pins, bearings, shafts, gears, rollers, locking devices, and clamping devices.
- Brake system parts, linings, pawls, and ratchets.
- Load, wind, and other indicators over their full range.
- Gasoline, diesel, electric, or other power plants.
- Chain-drive sprockets.
- Crane and hoist hooks.
- Electrical apparatus such as controller contractors, limit switches, and push button stations.
- Wire rope.
- Hoist chains.

Load Testing

- Newly installed cranes and hoists shall be load tested at 125% of the rated capacity by designated personnel.
- Slings shall have appropriate test data when purchased. It is the responsibility of the purchaser to ensure that the appropriate test data are obtained and maintained.
- Re-rated cranes and hoists shall be load tested to 125% of the new capacity if the new rating is greater than the previous rated capacity.
- Fixed cranes or hoists that have had major modifications or repair shall be load tested to 125% of the rated capacity.
- Cranes that have been overloaded shall be inspected prior to being returned to service.
- Personnel platforms, baskets, and rigging suspended from a crane or hoist hook shall be load tested initially, then re-tested annually thereafter or at each new job site.
- All cranes and hoists with a capacity greater than 2,000 lbs. should be load tested every four years to 125% of the rated capacity.
- All cranes that perform lifts with the jib attachment or rolling outriggers on projects shall have a current certification stating that the jib and rolling outriggers have been proof load tested by a qualified person. Proof load tests shall be performed during the initial proof load testing and every four years thereafter, unless a structural repair has been performed on the crane. If a structural repair has been performed (even if the jib was not damaged) a load test shall be performed prior to placing the crane back into service. No proof load test of the jib or rolling outriggers is required during the annual certification if proof load testing of these components has been performed in accordance with the requirements specified above. Where the crane owner elects not to test the jib or rolling outriggers, it shall be noted on the certificate and the jib or rolling outriggers shall not be used until load testing has been successfully completed. *These requirements apply equally to telescopic and lattice boom cranes.*

LOAD RATING CHARTS

- A durable load chart with clearly legible letters and figures provided by the crane manufacturer or a certified agent experienced and familiar with the characteristics of the crane equipment shall be securely fixed (where the manufacturer's load chart is provided in a binder or other book form, the chart shall be located in the operator's cab) to the crane in a location clearly visible to the operator or within reach of the operator while at the control station.
- The chart shall contain a full and complete range of crane load ratings, consistent with the manufacturer's' recommendations, at all stated operating radii or boom angles and for also alternate ratings for use and non-use of optional equipment on the mobile crane, such as outriggers and counterweights which affect ratings.
- The chart shall also contain essential precautionary or warning notes relative to limitations on equipment and operating procedures, including indication of the least stable position. In addition, no crane shall be rerated unless such rating changes are approved by the certified agent. Load ratings shall be expressed in terms related to method of measuring boom angle and length or lifting radius.

CRITICAL LIFTS

A critical lift is established where any one of the following conditions are created:

- Where in the crane's current configuration at any point during the lift, a gross load weight exceeds 75%

of the capacity of the crane up to 90% of the capacity of the crane.

- **Any lift over 90% of the capacity of the crane is considered an Engineered lift. Engineered lifts MUST be approved by an in-house Registered Professional Engineer, the Director of HSE, or a third-party engineer.** Engineered lifts will require an engineer's stamp from the state the lift is being performed.
- Lifts that exceed 80% of the crane's 3-degree list chart at the specified radius where cranes operate from barges.
- A single lift that two or more cranes are used including tandem lifts and tailing cranes.
- Lifts made in proximity of power lines as defined by the voltage clearance specifications described in Section 5.
- Lifts involving specialized or unique and complex rigging equipment.
- Hoisting of suspended work platforms.
- Static tower crane erection and dismantle.
- Making lifts below the ground level where the crane is positioned.
 - **Note:** *Where the below the ground lift is minimal, a critical lift plan may not be required.*

Critical Lift Plan

Where a critical lift will be performed, a written critical lift plan shall be written prior to commencing with the lift. The written plan shall include the following:

1. Crane manufacturer, capacity, and all specifications for the configuration to be used for the lift.
2. Load chart data for the crane to be used to make the lift.
3. Total calculated weight of the load to be lifted including all rigging and other deductions consistent with the manufacturer's load chart.
4. Diagrams of the lift that provides geometrical conditions of the load, rigging, and all crane positions during the lift. The drawing shall provide the following:
 - a. Locations of all components to be lifted prior, during and after the lift is completed.
 - b. Radius points.
 - c. Swing patterns.
 - d. If the lift must be aborted, positions where the load may be safely landed.
 - e. Areas where any personnel, public, and vehicles must be evacuated during the lift.
5. Potential ground loading for each point of contact by the crane in selected locations in which the crane will perform the critical lift.
6. Soil and subsurface data and information pertaining to location on which the crane used for the critical lift will be positioned. This information shall come from an authoritative source such as a geotechnical engineer or a professional civil engineer registered in the state where the project is located.
7. An engineer shall use the data provided in #5 and #6 above to verify and confirm the following:
 - a. The soil and subsurface conditions are capable of supporting all loads imposed during the critical lift.
 - b. The design of cribbing and other supports used under the crane load points are appropriate to safely

transfer such loads.

- c. The placement of the crane on the barge and the barge itself is capable to support the loads imposed during the critical lift.
8. Critical lift plans will be developed by project engineers/project managers/project superintendents
9. Operator qualifications.
10. Method by which communication will be provided to the crane operator. (Designated signal person, two-way radio, hard wire phone system, etc.)
11. A critical lift hazard analysis which identifies the hazards associated with the lift and the means and methods to reduce, mitigate, or eliminate the hazards.
12. Emergency action plan. The written plan shall be submitted 72 hours prior to any critical lift for review by the job superintendent and crane operator. No critical lifts shall be conducted prior to such approval.
13. The designated lift coordinator and project manager will verify all components of the Critical Plan are in place prior to commencing with the critical lift.
14. The designated lift coordinator and project manager will review the critical lift plan for each critical lift with all crew members involved with the critical lift prior to the critical lift. The lift coordinator, project manager and crew members will all sign the critical lift plan prior to the lift taking place to verify the plan has been reviewed.

CRANE SUSPENDED WORK PLATFORMS

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

State and Federal regulatory agencies have stringent requirements concerning hoisting personnel on work platforms (man-baskets or jillies). While some of the requirements concern the types of devices used, others relate to the procedures that must be used prior to and during any personnel lift.

Procedures

Pre-lift Meeting:

Before every use of a work platform, the operator, signal person, workers, and the person responsible for the task must meet to discuss all aspects of the lift (equipment, lift path, work tasks, lowering path) as well as potential hazards (clearances, weather, sea conditions for floating rigs included).

This meeting must be held at each new work location and repeated for any employees newly assigned to the operation. "At each new work location" has been interpreted to mean each time the crane is shifted to a new location, except for barge mounted cranes, where one meeting at the beginning of each day would suffice as long as all aspects of the day's work are discussed.

Trial Lift and Proof Test:

After the meeting, the crew must perform a trial lift, and may be required to perform a proof test as well. A proof test must be done once at the beginning of platform. The proof test requires loading the work platform to one hundred twenty-five percent (125%) of its rated capacity and holding it in a suspended position for 5 minutes, and then performing a visual inspection of all components.

The trial lift involves loading the work platform to its intended weight using tools and supplies necessary for the

job, and additional weight to represent the personnel to be hoisted. Then the platform must be hoisted without personnel aboard to each of the positions at which work will be performed, while the operator and crew check all systems for proper function and assure that no interferences exist. The trial lift must be performed each time the crane is moved, or the lift route is substantially changed.

Crane and Derrick Suspended Personnel (work) Platforms

Scope and Application

This standard applies to the design, construction, testing, use and maintenance of personnel platforms and the hoisting of personnel platforms on the load lines of cranes or derricks.

Definitions

For the purposes of this section, the following definitions apply:

- a. **Failure:** Load refusal, breakage, or separation of components.
- b. **Hoist (or hoisting):** All crane or derrick functions such as lowering, lifting, swinging, booming in and out or up and down, or suspending a personnel platform.
- c. **Load Refusal:** The point where the ultimate strength is exceeded.
- d. **Maximum Intended Load:** The total load of all employees, tools, materials, and other loads reasonably anticipated to be applied to the personnel platform or personnel platform component at any one time.
- e. **Runway:** A firm, level surface designed, prepared, and designated as a path of travel for the weight and configuration of the crane being used to lift and travel with the crane suspended platform. An existing surface may be used if it meets these criteria.

General Requirements.

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use and dismantling of conventional means of reaching the work site, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous, or is not possible because of structural design or work site conditions.

Operational Criteria

- a. Hoisting of the personnel platform shall be performed in a slow, controlled, cautious manner with no sudden movements of the crane or derrick, or the platform.
- b. Load lines shall be capable of supporting, without failure, *at least seven times* the maximum intended load. However, where rotation resistant rope is used, the lines shall be capable of supporting, without failure, *at least ten times* the maximum intended load. The required design factor is achieved by taking the current safety factor of 3.5, then applying the fifty percent de-rating of the crane capacity.
- c. Load and boom hoist drum brakes, swing brakes and locking devices, such as pawls or dogs, shall be engaged when the occupied personnel platform is in a stationary working position.
- d. The load line hoist drum shall have a system or device on the power train, other than the load hoist brake, which regulates the lowering rate of speed of the hoist mechanism (controlled load lowering). Free fall is prohibited.
- e. The crane shall be uniformly level with one percent of level grade and located on firm footing. Cranes equipped with outriggers shall have them all fully deployed following manufacturer's specifications, insofar as applicable, when hoisting employees.

- f. The total weight of the loaded personnel platform and related rigging shall not exceed fifty percent of the rated capacity for the radius and configuration of the crane or derrick.
- g. The use of machines having live booms (booms in which lowering is controlled by a brake without aid from other devices, which slow the lowering speeds) is prohibited.
- h. When a multiple-part line block is in use, a substantial strap must be used between the crane hook and common ring, shackle or other equivalent device to eliminate employee exposure to the lines running through the block, and to the block itself.

Rigging

- a. Lifting bridles on box-type platforms shall consist of four legs of equal length, with one end securely shackled to each corner of the platform and the other end securely attached to a common ring, shackle or other equivalent device to accommodate the crane hook, or strap to the crane hook.
- b. Shackle bolts used for rigging of personnel platforms shall be secured against displacement.
- c. A substantial safety line shall pass through the eye of each leg of the bridle adjacent to the common ring, shackle, or equivalent device and be securely fastened with a minimum amount of slack to the lift line above the headache ball or to the crane hook itself.
- d. All eyes in wire rope sling shall be fabricated with thimbles.
- e. Wire rope, shackles, rings, master links and other rigging hardware must be capable of supporting, without failure, *at least five times* the maximum intended load applied or transmitted to that component. Where rotation resistant wire rope is used for slings, they shall be capable of supporting, without failure, *at least ten times* the maximum intended load.
- f. Hooks on headache ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin shall be used.
- g. Bridles and associated rigging for attaching the personnel platform to the hoist line shall be used only for the platform and the necessary employees, their tools, and the materials necessary to do their work and shall not be used for any other purpose when not hoisting personnel.

Personnel Platforms – Design Criteria

- a. A qualified engineer, or a qualified person competent in structural design, shall design the personnel platform and suspension system,
- b. The suspension system shall be designed to minimize tipping of the platform due to the movement of employees occupying the platform.
- c. The personnel platform itself, except the guardrail system and body belt/harness anchorages, shall be capable of supporting, without failure, its own weight and *at least five times* the maximum intended load - based on a minimum allowance of five hundred pounds for the first person with light tools, and an additional two hundred fifty pounds for each additional person.
- d. The personnel platform shall be conspicuously posted with a plate or other permanent marking that indicates the weight of the platform and its rated load capacity or maximum intended load.

Platform Specifications

- a. Each personnel platform shall be equipped with a guardrail system that meets the requirements, and shall be enclosed (at least from the toe board to mid-rail) with either solid construction or expanded metal and

have openings no greater than one-half inch (1.27cm).

- b. A grab rail shall be installed inside the entire perimeter of the personnel platform.
- c. Access gates, if installed, shall not swing outward during hoisting.
- d. Access gates, including sliding or folding gates, shall be equipped with a restraining device to prevent accidental opening.
- e. Headroom shall be provided that allows employees to stand upright in the platform.
- f. In addition to the use of hard hats, employees shall be protected by overhead protection on the personnel platform when employees are exposed to falling objects.
- g. All rough edges exposed to contact by employees shall be surfaced or smoothed to prevent injury to employees from punctures or lacerations.
- h. A qualified welder, familiar with the weld grades, types, and material specified in the platform design, shall perform all welding of the personnel platform and its components.
- i. Occupants of all personnel platforms shall wear a full-body harness and lanyard that meet the requirements of ANSI Z359.
- j. Box-type platform: The workers lanyard shall be secured to the work platform or guardrail of the work platform.
- k. Rescue platform:
 - i. If the platform is used as a rescue vehicle, the injured worker shall be strapped into the stretcher or basket.
 - ii. The basket shall then be secured by lanyard to an anchorage within the platform.
- l. Boatswains chair: The worker's lanyard shall be secured to the lift line above the headache ball or to the crane hook itself.

Personnel Platform Loading

- a. The personnel platform shall not be loaded more than its rated load capacity.
- b. The number of employees occupying the personnel platform shall not exceed the number required for the work being performed.
- c. Personnel platforms shall be used only for employees, their tools, and materials necessary to do their work, and shall not be used to hoist only materials or tools when not hoisting personnel.
- d. Materials and tools for use during a personnel lift shall be secured to prevent displacement.
- e. Materials and tools for use during a personnel lift shall be evenly distributed within the confines of the platform while the platform is suspended.

Trial Lift, Inspection and Proof Testing

- a. A trial lift, with the unoccupied personnel platform loaded at least to the anticipated lift weight, shall be made from ground level, or any other location where employees will enter the platform, to each location at which the personnel platform is to be hoisted and positioned. This trial lift shall be performed immediately prior to placing personnel on the platform. The operator shall determine that:
 - i. all systems, controls and safety devices are activated and functioning properly

- ii. no interferences exist, and
- iii. all configurations necessary to reach those work locations will allow the operator to remain under the fifty percent limit of the host's rated capacity.

Materials and tools to be used during the actual lift can be loaded in the platform. A single trial lift may be performed at one time for all locations that are to be reached from a single set-up position.

- b. The trial lift shall be repeated prior to hoisting employees whenever the crane or derrick is moved and set up in a new location or returned to a previously used location. Additionally, the trial lift shall be repeated when the lift route is changed, unless the operator determines that the route change is not significant (i.e., the route change would not affect the safety of hoisted employees).
- c. After the trial lift, and just prior to hoisting personnel, the platform shall be hoisted a few inches and inspected to ensure that it is secure and properly balanced. Employees shall not be hoisted unless the following conditions are determined to exist:
 - i. Hoist ropes shall be free of kinks,
 - ii. Multiple-part lines shall not be twisted around each other,
 - iii. The primary attachment shall be centered over the platform, and
 - iv. The hoisting system shall be inspected if the load rope is slack to ensure all ropes are properly seated on drums and in sheaves.
- d. A visual inspection of the crane or derrick, rigging, personnel platform and the crane or derrick base support or ground shall be conducted by a competent person immediately after the trial lift to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure.
- e. Any defects found during inspections that create a safety hazard shall be corrected before hoisting personnel.
- f. At each job-site, prior to hoisting employees on the personnel platform and after any repair or modification, the platform and rigging shall be proof tested to one hundred twenty-five percent (125%) of the platform's rated capacity by holding it in a suspended position for five minutes with the test load evenly distributed on the platform (this may be done concurrently with the trial lift). After proof testing, a competent person shall inspect the platform and rigging. Any deficiencies found shall be corrected and another proof test shall be conducted. Personnel hoisting shall not be conducted until the proof testing requirements are satisfied.
- g. Documentation, such as lift capacity information, verifying that the requirements of this standard have been met shall be retained at the jobsite and produced when requested.

Work Practices

- Employees shall keep all parts of the body inside the platform during raising, lowering, and positioning. This provision does not apply to an occupant of the platform performing the duties of a signal person.
- Before employees exit or enter a hoisted personnel platform that is not landed, the platform shall be secured to the structure where the work is to be performed, unless securing to the structure creates an unsafe situation.
- Tag lines shall be used unless their use creates an unsafe condition.
- The crane or derrick operator shall always remain at the controls when the crane engine is running, and

the platform is occupied.

- Hoisting of employees shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.
- Employees being hoisted shall remain in continuous sight of, and in direct communication with, the operator or signal person. In those situations where direct visual contact with the operator is not possible, and the use of a signal person would create a greater hazard for that person, direct communication alone, such as by radio, may be used.
- Hand signals to the operator shall be in accordance with those prescribed by the applicable ANSI standard for the type of crane or lift in use, unless voice communication equipment is utilized. Signals shall always be discernible or audible.
- Except over water, employees occupying the personnel platform shall use a body belt/harness system and lanyard appropriately attached to the lower load block or overhaul ball, or to a structural member within the personnel platform capable of supporting a fall impact for employees using the anchorage.
- No lifts shall be made on another of the crane's or derrick's load lines while personnel are suspended on a platform.
- Personal platforms cannot be used in winds (sustained or gust) more than twenty mph or in electrical storm, snow, ice, sleet, or other adverse weather conditions which could affect the safety of personnel.
- When welding is to be accomplished from the personnel platform, suitable electrode holders must be provided to protect them from contact with any conducting components of the platform.

Traveling

1. Hoisting of employees while the crane is traveling is prohibited except for portal, tower, and locomotive cranes, or where the employer demonstrates that there is no less hazardous way to perform the work.
2. Under any circumstances where a crane would travel while hoisting personnel, the employer shall implement the following procedures to safeguard employees:
 - a. Crane travel shall be restricted to a fixed track or runway.
 - b. Travel shall be limited to the load radius of the boom used during the lift; and iii. The boom must be parallel to the direction of travel.
 - c. A complete trial run shall be performed to test the route of travel before employees can occupy the platform. This trial run can be performed at the same time as the trial lift required by subsection (9)(a) of this section, which tests the route of the lift.
 - d. If travel is done with a rubber-tired carrier, the condition and air pressure of the tires shall be checked.

The chart capacity for lifts on rubber shall be used for application of the fifty percent reduction of rated capacity. Notwithstanding, subsection (4)(f) of this section, outriggers may be partially retracted, as necessary, for travel.

Pre Lift-Meeting

1. A meeting attended by the crane or derrick operator, signal person(s) (if necessary for the lift), employee(s) to be lifted, and the person responsible for the task to be performed shall be held to review the appropriate requirements of this section and the procedure to be followed.
2. This meeting shall be held prior to the trial lift at each new location and shall be repeated for any employees newly assigned to the operation.

3. Prior to using the suspended personnel platform to hoist personnel the competent person must conduct and inspection of the suspended personnel platform utilizing PPM's Pre-Lift Meeting Checklist.

9.2.13 Personnel Hoisting with Friction Cranes

1. All previous items in Section 9.2 must be addressed, along with the following:
 - a. Crane personnel baskets shall only be used the auxiliary/whip line.
 - b. Only one (1) function is allowed at a time.
 - c. The use of a live boom (free fall) is prohibited; the boom hoist must have a secondary mechanism or device designed to prevent the boom from falling in the event the primary system used to hold or regulate the boom hoist fails, as follows:
 - i. Friction drums must have:
 1. A friction clutch and, in addition, a braking device, to allow for controlled boom lowering.
 2. A secondary braking or locking device, which is manually or automatically engaged, to back-up the primary brake while the boom is held (such as a secondary friction brake or a ratchet and pawl device).
 - d. On friction equipment, whenever moving a boom off a support, first raise the boom a short distance (sufficient to take the load of the boom) to determine if the boom hoist brake needs to be adjusted. On other types of equipment with a boom, the same practice is applicable, except that typically there is no means of adjusting the brake; if the brake does not hold, a repair is necessary.
 - e. Where friction mechanisms (such as brakes and clutches) are used to control the boom hoist or load line hoist, they must be:
 - i. Of a size and thermal capacity sufficient to control all rated loads with the minimum recommended reeving.
 - ii. Adjustable to permit compensation for lining wear to maintain proper operation.

RECORDS

Maintenance Department shall maintain records for all cranes, hoist and rigging equipment.

DEFINITIONS

Accessory Gear: A secondary part of the crane or crane component which contributes to the overall function of the crane which includes but is not limited to jibs, jib assemblies, outriggers, sheave assemblies, and counterweights.

Anti-Two Blocking Device: A warning or damage prevention feature which alerts the operator before the load block or ball assembly contacts upper boom sheave assembly.

Below-the-Hook Lifting Device: Rigging used in conjunction with the crane to attach the load to be lifted to the crane hook assembly which includes but is not limited to such items as wire rope slings, lifting beams, skookum blocks, shackles, and web slings.

Certified Agent: The manufacturer, or a person who is currently registered as a professional civil, mechanical, or structural engineer by the state in which a project is located and is knowledgeable in the structure and use of the equipment.

Certification of Crane Operators (NCCCO): The National Commission for the Certification of Crane Operators (NCCCO) is an independent not-for-profit corporation formed to establish and administer a nationwide program

of certification of operators. This organization establishes set standards for measuring the knowledge and proficiency for the safe operation of crane equipment.

Functional: A safety device shall be in use and operating while the crane is in use. Functional does not mean merely “capable of performing” for purposes of these safety requirements.

Jib: An extension attached to the boom point to provide added boom length for lifting specified loads.

On-Rubber Pick and Carry: A lift made in conjunction with the manufacturer’s load chart without the use of outriggers in which the load is lifted and moved under the power of the crane unit.

Rolling Outriggers: An accessory component that is attached to the outrigger assembly in lieu of outrigger pads which allow for pick and carry with the outriggers extended. Use of this equipment requires that the component and load chart is approved by the manufacturer or certified agent.

Qualified Person: A person who, by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work.



CRANE LIFT DIRECTOR POLICY

Complying with:

OSHA Safety and Health Standards for Construction

29 CFR 1926 Subpart CC

WA L&I DOSH Safety Standards for Construction

WAC 296-155-53401 Duties of Assigned Personnel

ASME B30.5-2021 Mobile & Locomotive Cranes

B30.5-3.1.3 Responsibilities

POLICY

Several cranes, hoists, and rigging devices are used at Pacific Pile & Marine for lifting and moving materials. Pacific Pile & Marine's policy is to maintain a safe workplace for its employees; therefore, it cannot be overemphasized that only qualified and certified individuals shall operate these devices.

SCOPE

The provisions of the Crane Safety Program shall apply to all employees who operate and use cranes, multiple cranes/lines, and personnel platforms. This program has been designed to provide employees with guidance pertaining to the management of cranes. And, to provide an overview of the Occupational Safety and Health Administration (OSHA) standards.

RESPONSIBILITIES

Site Supervisors

The Site Supervisor has control over the site, as the name describes, as they are typically the most knowledgeable regarding ground conditions as well as workflow and crew requirements; are become even more significant when a workspace is limited or working conditions are poor. The Lift Director is designated by the Site Supervisor, therefore, it is important they have direct access to those responsible for creating the rules (Site Supervisor).

- Ensuring the crane is inspected and in good condition.
- Determining whether additional regulations/requirements are applicable.
- Ensuring a qualified person is designated as the Lift Director.
- Ensuring crane operations are coordinated with other jobsite activities.
 - Ensuring that the area for the crane is adequately prepared (access, room, suitable ground, traffic control).
- Ensuring Assembly/Disassembly is supervised by a qualified person.
- Ensuring crane operators meet the requirements.
- Ensuring conditions that may adversely affect crane operations are addressed.
- Allowing crane operations near powerlines only when requirements are met.
- Defining special lifting operations protocol.
- Ensuring the rigging crew is supervised by a qualified person.
- Ensuring crane maintenance is performed.

Lift Directors

Under ASME, the Lift Director is required to be a **qualified** (see definition) individual. Therein lies the issue. Site supervisors must have some means by which to show that the Lift Director successfully demonstrated the ability to solve or resolve Lift Director problems.

The areas of Lift Director responsibilities help define the content of what the Lift Director should know. They include:

- Being present at the jobsite during lifting operations.
- Ensuring the area needed for crane operations has been prepared before operations commence.
- Ensuring personnel involved understand their responsibilities, assigned duties, and associated hazards.

- Addressing safety concerns and being responsible if they overrule concerns and direct operations to continue.
- Appointing the signal person(s) and ensuring they are qualified.
- Ensuring compliance when working near power lines.
- Ensuring the load rigging is performed by a competent rigger.
- Ensuring precautions are implemented in special lifting operations. Such operations include, but are not limited to, the following:
 - Multiple crane lifts,
 - Multiple load line lifts,
 - Lifting personnel,
 - Pick and carry operations, or
 - Mobile/articulating cranes operating on barges.
- Ensuring applicable requirements are met when hoisting personnel.
- Informing the crane operator of the weight of loads to be lifted, as well as the lifting, moving, and placing locations for these loads.
- Obtaining the crane operator's verification that this weight does not exceed the crane's rated capacity.

The Lift Director does not have to watch every single lift, this is the responsibility of the Rigger. Lift Directors can assign rigging of the load and load parameters to a crew and shall be alerted if the parameters change. However, on any critical lift, the qualified Lift Director shall play more of a visible role.

The Lift Director has the responsibility to address the safety concerns and they are responsible if they overrule the concerns and direct operations to continue. This paramount duty and responsibility rests with the person who the Site Supervisor identified and qualified to direct the crews—the Lift Director.

Lift Directors do not have to be experts on the crane at the site (they rely on the Crane Operator for crane and load chart information); however, the Lift Director takes all the factors into account before letting the lift proceed.

Riggers

- Shall be trained in the selection and use of appropriate rigging equipment (chain, wire rope, synthetic).

Signalpersons

- Shall be trained in the accepted form of signaling (hand, voice, radio).

Multiple Load Line Operations

A qualified person shall approve the planned operation.

- The lift director shall ensure that the crane operator has selected the correct load rating charts (e.g., boom or jib load rating chart) for the configuration being used, considering factors such as position of the load being lifted, lifting points, etc.
- The crane operator and the lift director shall verify that the load on any individual load line and the total weight of the load including hook blocks, hook balls, slings and rigging, etc., do not exceed the capabilities of the crane.
- The crane operator and the lift director shall review the operational characteristics and limitations of the

crane established by the crane manufacturer or qualified person that relate to simultaneous multiple drum operation (e.g., same or opposite direction of rotation of drums, limited rope layers on tandem drums, etc.).

- Each load line shall be equipped with its own anti-two block device.

TRAINING

All personnel shall be appropriately trained for their task prior to start of work. Lift Directors shall be trained prior to assignment and a refresher shall be given at least every 5 years, unless the Lift Director's competency is challenged, then retraining may occur sooner.

DEFINITIONS

Duties of Assigned Personnel:

- **Crane Owner:** Has custodial control of a crane by virtue of lease or ownership.
- **Crane User:** Arranges the crane's presence on a worksite and controls its use there.
- **Site Supervisor:** Exercises supervisory control over the worksite on which a crane is being used and over the work that is being performed on that site.
- **Lift Director:** Directly oversees the work being performed by a crane and associated rigging crew.
- **Crane Operator:** Directly controls the crane's functions.

Certified: A person who meets the testing requirements by a nationally recognized third party with regard to the subject matter.

Competent: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

Qualified: A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.



CRANE PERSONNEL HOISTING PROCEDURE

Crane Personnel Hoisting Procedure (Friction)

The following procedure shall be referred to when using a friction crane for personnel hoisting platform (basket, jilly, etc.); the following friction cranes P-CRA-001 (9310), P-CRA-008 (9299), P-CRA-012 (9310), P-CRA-013 (11320), and P-CRA-020 (9310) are the only cranes that are properly setup to use with a personnel hoisting platform.

For further information, please reach out to the PPM HSE Department.

1. Leave parking brake set
2. Brake will release and apply automatically with friction
3. If two-block occurs the hoist with stop and brake will apply
4. Only one function is allowed at a time (per OSHA)
5. Use dog as well as brake when possible

ALL PERSONNEL HOISTING MUST BE COMPLETED
ON THE WHIP LINE ONLY

1926.1437 - Floating cranes/derricks and land cranes/derricks on barges.

1926.1437(f) Operational aids.

1926.1437(f)(1) An anti two-block device is required only when hoisting personnel or hoisting over an occupied cofferdam or shaft.



DISCIPLINARY POLICY / PROCEDURE

DISCIPLINARY POLICY

It is the policy of Pacific Pile & Marine, LP (PPM), that any employee who violates any of the Company's policies, safety rules, and/or standards of conduct will be subject to disciplinary action. Dependent upon the severity or frequency of the violation, disciplinary action may involve any, or all, of the following:

- **Verbal Warning:** A conversation between a supervisor and an employee or a discussion of unsafe practices during a safety meeting. May be appropriate for minor offenses related to items that will not cause serious injury or problems on the worksite.
- **Written Warning:** A written document that outlines the practice that needs to be corrected. The employee will be asked to sign the warning to acknowledge receipt. Copies will go in the employee's personnel file. Written warnings may be issued for second offenses of minor safety related offenses or other offenses and shall be issued for all serious violations of company policies and/or safety regulations. Any violation of a safety rule which could result in a moderate to serious injury shall heed, at a minimum, a written warning.
 - **First Written Notice** – The individual receives the written warning which shall be submitted to the HR department and forwarded to the individuals union, if applicable.
 - **Second Written Notice** – If within two months of the first, will render the individual ineligible to work on any PPM jobsite for a period of 30 days.
 - **Third Written Notice** – If within six months of the first, will render the individual ineligible to work on any PPM jobsite for a period of 90 days.
- **Suspension:** Suspension without pay for one or more days may be used as a form of disciplinary action. An Employee Disciplinary Action Form will be completed and filed in the employee's personnel file. Suspension may be a consideration dependent upon the policy violated and the gravity of the violation.
- **Termination:** A supervisor may terminate an employee with or without taking any of the prior actions. A Termination Slip will show "Discharged", and the employee will not be eligible for employment with PPM for a minimum of 90 days.
 - **Immediate Termination** – May result when the nature of the violation(s) or when repeated violation(s) make retention of the violator unacceptable.
 - **Willful disregard for serious hazards** may result in immediate termination. If at any time an employee is unsure of safety conditions or procedures, stop immediately, and contact your direct supervisor.

VIOLATION OF SAFETY RULES THAT COULD RESULT IN SERIOUS INJURY OR FATALITY: An employee's failure to follow known safety rules when the violation could result in a serious disabling injury or death may result in immediate dismissal from the site with ineligibility to return to work on any PPM controlled worksite for a minimum period of 6 months. For example, failure to use fall protection equipment when required can result in immediate dismissal.

NOTE: If a supervisor knowingly places an individual at risk for injury, serious or other, the supervisor shall be subject to disciplinary action up to and including termination.

All terminations for "cause" will be reported to the Local Union the employee is working under. All employees terminated for cause will not be eligible for re-hire for 90 days.

CAUSE FOR TERMINATION

The following are some examples of conduct which may result in immediate termination:

- Refusal or failure to perform job assignments or to comply with directions or instructions, including refusal or failure to cooperate in any investigation regarding worker's injured on the job.
- Deliberately damaging or interfering with job site operations, equipment, or processes.
- Safety Violations



DIVING OPERATIONS SAFETY POLICY

All dive operations conducted for Pacific Pile & Marine must include the following elements:

DIVE OPERATIONS PLAN

Dive Operations Plan serves as an overview of all tasks to be performed, dive modes and equipment, site conditions, and any other actions unique to the proposed work. The plan will contain the following:

- a. Date of dive plan submission.
- b. Name and contact information for diving supervisor preparing the dive plan.
- c. Names and duties of on-site dive team members, including diving supervisor.
- d. List of diving equipment to be used.
- e. Type of diving platform to be used.
- f. Detailed description of the mission. Identify how work will be divided into separate tasks or phases;
- g. Date(s), time(s), duration, and location of operations.
- h. Diving mode used (SCUBA, SSA, etc.), including a description of the backup air supply.
- i. Nature of work to be performed by the divers, including tools used and materials to be handled or installed.
- j. Anticipated surface and underwater conditions, to include visibility, temperature, currents, etc.
- k. Maximum single dive bottom time for the maximum planned depth of dive for each diver.
- l. Identification of topside assistance or support to the dive team such as crane operator or lock operator.
- m. Means of direct communication between the dive site and the project office.
- n. The dive plan shall include the name of the contractor (and subcontractor if applicable), contract number, and names and contact information for key personnel.

NOTE: The dive plan will be reviewed with the dive crew and site management prior to the work commencing.

EMERGENCY MANAGEMENT PLAN

The Emergency Management Plan must be specific to the location of the actual diving operations and, as a minimum contain the following information:

- a. Location and phone number of nearest operational recompression chamber if not located at the dive site.
- b. Location, directions to and phone number(s) of nearest hospital(s) or available physicians capable of treating dive injuries.
- c. Location and phone number of nearest USCG Rescue Coordination Center, where appropriate.
- d. Description of an emergency victim transport plan including phone numbers of appropriate emergency transport services.
- e. Procedures and phone numbers or other means of communications to activate emergency services at the facility where the work is being performed.

- f. Diver rescue procedures conducted by the dive team, including responsibilities of team members, best location(s) where injured divers may be removed from the water, and best location(s) for performing first aid/ stabilization prior to emergency medical assistance arrival.

JOB HAZARDS ANALYSIS

Identify hazards for various phases of diving activity and plans to mitigate such hazards. This analysis should anticipate and mitigate or prevent the adverse effects of equipment failure, extreme weather/environmental conditions, or other hazardous/unexpected situations. Each JHA will be job specific and address each phase of work, to include the hazards associated with flying after diving.

Supporting documentation to be included in Dive Plan:

Copies of current:

- Physical (1 year)
- CPR/First Aid/AED/BBP (2 years)
- Oxygen Administration training (2 years)
- Current Diver Resume
- Breathing air quality certificate
 - All compressors, transfer pumps or booster pumps used for breathing air service will be subjected to an air quality test every six months. Documentation of the latest test[s] shall be kept on file and available upon request. This includes the requirement to procure air quality certifications from 3rd party vendor supplied HP air.
- Breathing air hose pressure test
 - Each hose assembly will be subjected to an annual pressure test to one-and-one-half times the design working pressure of the system. The pressure test should be maintained [when corrected for temperature] for 10 minutes. Hose fittings should not be covered with electrical, duct tape, or any adhesive when not in use.
- All helmets and masks and their associated diver-carried regulators shall be maintained and inspected in strict compliance with the manufacturer's recommendations.
 - Suitable logs shall be maintained.
- Current pneumofathometer/depth gauge calibration results – OSHA – 1910.430 (g) (2) (6 months)
 - Must be marked with a label, tag, or sticker indicating date of last calibration and date due, which will not interfere with full-scale visibility. Pneumo hose shall be annually pressure-tested for leakage.
- Equipment Logs
 - Entries made in the equipment log shall describe the nature of the work performed, including the dates of modification, repair, or test; the name of the individual performing the work or test; and the particular piece of equipment involved.
- Gas Storage Cylinders
 - Be visually examined externally at least annually for damage and corrosion.

- Be hydrostatically tested every fifth year to the requirements of the code of the manufacturer by an authorized test facility and stamped with the date of the test.
- Have a unique identity with results of all tests being recorded in the equipment log.
- High pressure gas cylinders or tubes shall be labeled as to contents. A record shall be kept in a designated place of the contents and pressure of each cylinder, quad, or bank. These records should be updated daily when the system is in use.
- Bailout Gas Storage Cylinders
 - Be visually examined externally at least annually for damage and corrosion.
 - Be hydrostatically tested every fifth year to the requirements of the code of the manufacturer by an authorized test facility and stamped with the date of the test.
 - Have a unique identity with results of all tests being recorded in the equipment log.
- Surface Diving Decompression Chambers
 - Must have the relief valve pressure setting tested annually and the test recorded in equipment log.
 - Pressure test the chamber and associated piping annually to MAWP, as stamped on the chamber name plate, and recorded in the equipment log.



Electrical Extension Cord and Power Tool Safety

Purpose

The purpose of this program is to provide procedures and guidelines to eliminate all injuries resulting from possible electrical electrocution, malfunctions, improper grounding and/or defective electrical tools and electrical cords. This program applies to all sites, employees and contractors and shall be used on owned premises.

Definitions

Competent Person - one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Ground Fault Circuit Interrupter - a device for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

Responsibilities

Supervisors are designated as competent person(s) for the Temporary Electrical cords and power tool Safety and are responsible for program execution. One or more competent person(s) must be designated to implement and execute the program.

Employees are responsible for following the requirements of this program, to perform visual inspections and to take defective equipment out of service.

Procedures and Guidelines to Eliminate Injuries

The following procedures and guidelines are designed to eliminate all injuries resulting from possible malfunctions, improper ground, and/or defective tools.

Assured Grounding Site Program Requirement

An assured grounding conductor program will be implemented on all PPM sites for electrical equipment that does not fall under the protection of GFCI's. Power distribution cables (Bologna cords)

Ground Fault Circuit Interrupters

All 120-volt, single-phase 15 and 20 ampere receptacle outlets on construction or maintenance sites, which are not part of the permanent wiring of the building or structure, and which are in use by employees, shall have approved ground fault circuit interrupters for personnel protection.

- All hand portable electric tools and extension cords shall use a GFCI.
- Additionally, approved GFCI's shall be used for 240-Volt circuits in the same service as described above.
- GFCI's must be used on all 120 volt, single-phase 15-amp and 20-amp receptacles within 6 feet of a sink, damp areas or on installed outdoor equipment.
- The GFCI must be the first device plugged into a permanent receptacle.
- The GFCI must be tested before each use.

Assured Equipment Grounding Conductor Program

The Assured Equipment Grounding Conductor Program (AEGCP) shall be used for electrical temporary electrical equipment that is not protected by the GFCI program.

This written description of the program shall be kept at the jobsite for inspection and copying by OSHA and any affected employee.

Removing Equipment

Any equipment which has not met the requirements of this program shall be Red Tagged and removed from service immediately. Damaged items shall not be used until repaired and approved by a competent person.

Inspections of Cords and Equipment

Daily Visual inspections – The following shall be visually inspected before each day’s use for external defects (such as deformed or missing pins or insulation damage) and for indication of possible internal damage:

- Cord sets,
- Attachment caps,
- Plug and receptacle of cord sets,
- Any equipment connected by cord and plug (except for cord sets and receptacles which are fixed and not exposed to damage) such as deformed or missing plug, and
- Insulation damage
- Damaged items shall be Red Tagged and not be used until repaired or shall be discarded.

How and When Tests are Performed and What Records are maintained

Electrical equipment that is not protected by GFCI, such as Power Distribution Cords (Bologna Cords) shall be tested for continuity.

Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductors. The equipment grounding conductor shall be connected to its proper terminal.

When tests are performed:

- Before each use.
- Before equipment is returned to service following any repairs.
- Before equipment is used, such as when a cord has been run over.
- At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.

Tests performed as required by this program shall be recorded as to the identity of each receptacle, cord set and cord and plug connected equipment that passed the test and shall indicate the last date tested or interval for which it was tested. This record shall be kept color coding.

All tested cord sets and cord and plug-connected equipment shall be marked, one or both ends, with colored tape to denote the months that the tests were performed. The below color code chart that must be followed for marking.

Month	Color of Tape to Apply to Cords
January, February, March	White
April, May, June	Green
July, August, September	Red
October, November, December	Orange



ERGONOMICS

Purpose

PPM has a responsibility for providing a safe and healthful workplace for their workers. In the workplace, the number and severity of MSDs resulting from physical overexertion, as well as their associated costs, can be substantially reduced by applying ergonomic principals.

PPM understand that by implementing an ergonomic process it has been shown to be effective in reducing the risk of developing MSDs in the construction industry.

Scope

The provisions of the Ergonomics Safety Program shall apply to all employees who perform work on PPM projects. This program has been designed to provide employees with guidance minimize MSDs, and, to provide an overview of the Occupational Safety and Health Administration (OSHA) standards

Introduction

Ergonomics is the study of people and their interaction with the elements of their job or task including equipment, tools, facilities, processes, and environment. It is a multidisciplinary field of study integrating industrial psychology, engineering, medicine, and design.

In a more practical sense, ergonomics is the science of human comfort. When aspects of the work or workplace exceed the body's capabilities, the result is often a musculoskeletal disorder (MSD). To help avoid MSDs, work demands should not exceed the physical capabilities of the worker. MSDs are also known by several other names including:

- CTDs (cumulative trauma disorders)
- RSIs (repetitive stress or repetitive strain injuries)
- RMIs (repetitive motion injuries)
- Overuse syndrome

The most common, recognizable name for MSDs is cumulative trauma disorders or CTDs. Whatever the name used, these injuries belong to a family or group of wear and tear illnesses that can affect muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels or spinal discs of the body. MSDs do not include slips, trips, and falls, cuts, motor vehicle accidents or other similar accidents, although a close look at the reasons for acute injuries often reveals design problems that can be corrected.

Policy

It is the policy of Pacific Pile & Marine to provide all employees with a safe and healthy workplace. A proactive ergonomics program is integrated into our company's written safety and health program. Records documenting the identification, prevention, and control of employee exposure to ergonomic risk factors will be maintained pursuant to all regulations.

This program is a collaborative effort that includes managers, supervisors, and labor. The Ergonomics Program Coordinator is responsible for the program's implementation, management, and recordkeeping requirements.

Ergonomics program

The purpose of an ergonomics program is to apply ergonomic principles to the workplace to reduce the number and severity of MSDs, thus decreasing workers' compensation claims and, where possible, increase productivity, quality, and efficiency. An ergonomically sound work environment maximizes employee comfort while minimizing the risk of undue physical stress.

A proactive approach focuses on making changes when risks have already been identified, as well as

incorporating ergonomics into the design phase of a new facility or process, into purchasing new equipment or tools, and into the contemplation of scheduling changes. Pacific Pile & Marine has such a program which includes the following components:

Management Leadership. The management of Pacific Pile & Marine is committed to the ergonomics process. Management supports the efforts of the Ergonomics Program Coordinator by pledging financial and philosophical support for the identification and control of ergonomic risk factors. Management will support an effective MSD reporting system and will respond promptly to reports. Management will regularly communicate with employees about the program.

Employee Participation. An essential element to the success of the ergonomics program, employees will be solicited for their input and assistance with identifying ergonomic risk factors, worksite evaluations, development and implementation of controls, and training. Employee participation in the program will occur only during company time.

Identification of Problem Jobs. Collecting data that identifies injury and illness trends is called surveillance. Surveillance can be either passive or active. Conducting a records review is an example of passive surveillance, which looks at existing data such as First Aid logs, workers' compensation claims, trips to the medical facility, and absentee records. Active surveillance uses observations, interviews, surveys, questionnaires, checklists, and formal worksite evaluation tools to identify specific high-risk activities. Pacific Pile & Marine will be using both passive and active surveillance to identify problem jobs.

1. Worksite Evaluations.

a. Triggers for a worksite evaluation:

- i. When an employee reports an MSD sign or symptom.
- ii. Jobs, processes, or work activities where work-related ergonomic risk factors have been identified which may cause or aggravate MSDs.
- iii. Any change of jobs, tasks, equipment, tools, processes, scheduling, or changes in work shift hours (for example, going from a traditional 5-day, 8-hour shift to a compressed 4-day, 10-hour shift).
- iv. When a safety walk-through or scheduled inspection or survey has uncovered potential MSD hazards.

b. Work-related risk factors to be considered in the evaluation process include, but are not limited to:

- i. Physical risk factors including force, postures (awkward and static), static loading and sustained exertion, fatigue, repetition, contact stress, extreme temperatures, and vibration.
- ii. Administrative issues including job rotation/enlargement, inadequate staffing, excessive overtime, inadequate or lack of rest breaks, stress from deadlines, lack of training, work pace, work methods, and psychosocial issues.
- iii. Environmental risk factors including noise, lighting, glare, air quality, temperature, humidity, and personal protective equipment and clothing.
- iv. Combination of risk factors such as, but not limited to, highly repetitive, forceful work with no job rotation or precision work done in a dimly lit room.

2. Setting Priorities.

a. Worksite evaluations will be scheduled based upon the following:

- i. Any job, process, operation, or workstation which has contributed to a worker's current MSD,

- ii. A job, process, operation, or workstation that has historically contributed to MSDs, and
 - iii. Specific jobs, processes, operations, or workstations that have the potential to cause MSDs.
3. Worksite Evaluations Methods.
- a. Various methods will be used to evaluate problem jobs including:
 - i. Walk-through and observations
 - ii. Employee interviews Surveys and questionnaires Checklists
 - iii. Detailed worksite evaluations
4. Control of the Ergonomic Risk Factors.
- a. Pacific Pile & Marine will take steps to identify ergonomic risk factors and reduce hazards by using a three-tier hierarchy of control (in order of preference):
 - i. Engineering controls. The most desirable and reliable means to reduce workplace exposure to potentially harmful effects. This is achieved by focusing on the physical modifications of jobs, workstations, tools, equipment, or processes.
 - ii. Administrative controls. This means controlling or preventing workplace exposure to potentially harmful effects by implementing administrative changes such as job rotation, job enlargement, rest/recovery breaks, work pace adjustment, redesign of methods, and worker education.
 - iii. Personal protective equipment (PPE). Although not recognized as an effective means of controlling hazards and do not take the place of engineering or administrative controls, there are acceptable forms of PPE, which include kneepads and anti-vibration gloves.
5. Training.
- a. Training is intended to enhance the ability of managers, supervisors, and employees to recognize work-related ergonomic risk factors and to understand and apply appropriate control strategies. Training in the recognition and control of ergonomic risk factors will be given as follows:
 - i. To all new employees during orientation.
 - ii. To all employees assuming a new job assignment.
 - iii. When new jobs, tasks, tools, equipment, machinery, workstations, or processes are introduced.
 - iv. When high exposure levels to ergonomic risk factors have been identified.
 - b. Training will be provided in one, or a combination, of the following formats:
 - i. Oral presentations
 - ii. Videos
 - iii. Distribution of educational literature
 - iv. Hands-on equipment and work practice demonstrations
 - c. Trainers will be experienced in delivering training programs that address all work and non-work-related risk factors and will be familiar. Training will be provided from one, or a combination, of the sources listed below:
 - i. Internally developed resources
 - ii. The workers' compensation carrier

- iii. An outside consultant
 - d. All training will be documented. All employees will be required to sign a training sign-in roster.
6. Program Evaluation and Follow-Up.
- a. To ensure that issues have been addressed and that new problems have not been created, monitoring and evaluation will be conducted on an on-going basis. The methods include use of individual interviews and checklists to reevaluate the job/task to ensure that risks have been reduced, minimized, or eliminated.



EXCAVATION, TRENCHING AND SHORING

*Complying with
OSHA Safety and Health Regulations for Construction,
Part 1926, Subpart: P*

PURPOSE

The purpose of this policy is to insure all employees of Pacific Pile and Marine have a full understanding of the hazards and preventive measures associated with excavations.

INTRODUCTION

When performing service work for Pacific Pile & Marine (PPM), it may be required to conduct trenching and shoring at an excavation site. This may involve by excavation equipment operation or by hand-digging, assisting with shoring by installing various construction materials designed to withstand ground forces, or just performing general service work that could expose a worker to various hazards such as underground utilities, wall cave-ins, or water intrusion.

The following trenching and shoring policy is implemented by Pacific Pile & Marine in compliance with OSHA Regulation 29 CFR 1926.651, to prevent accidents and injuries to employees associated with excavation work. Since many unknown hazards and complex situations can arise when the earth is opened on a jobsite, formal procedures and proven rules must be always followed by all employees. Subjective judgment or general "rules-of-thumb", are not acceptable methods of determining if an excavation site is "safe". As a minimum requirement, some type of employee protection means will be utilized, whether it is by sloping or shoring walls, using trench boxes, or scaling loose material.

BEFORE EXCAVATING

The job site foreman will fill out an excavation plan prior to work beginning the foreman or immediate Job Supervisor will be responsible for contacting utility companies, or property owner if in a rural setting, 24 hours prior to the start-up of any excavation job to determine, locate, or identify all hidden obstructions like "as-builts", underground pipes, or utility service lines such as sewer, telephone, electric, fuel, or water. **If Utilities are located work will be stopped until project team can determine how to excavate safely without contacting utilities. The use of Vac Truck, pot holing, or other non-machine excavation will be used to ensure utilities not damaged.** They are to be protected by suitable means to ensure that machines, equipment, or personnel are not allowed to contact these lines, whether buried underground, or located overhead.

When operations are underway and any operator encounters parallel or crossing utilities that have not been specifically addressed, (whether damage has occurred or not), all operations shall immediately stop, and the proper utility authorities contacted. All employees shall evacuate to a predetermined safe distance upwind of the damage location and remain there until the damage situation is resolved.

DISTURBED GROUND

If the excavation site is near extremely unstable or previously disturbed soil, or near vibration from other machines/ highways then additional sheeting or bracing may be required to contain nearby unstable soil. Some visible clues to an observer may be distressed soil where fissures or cracks are seen, or if slumping, slaking, spalling of the excavation face occurs, or sudden releases of small amounts of materials are experienced. If underground installations are encountered, they will be protected, supported (by underpinning, bracing) or removed as necessary to ensure the safety of employees.

SAFE ACCESS AND EGRESS

A stairway, ladder, ramp, or other safe means of access and egress shall be in trench excavations that are 4 feet or more in depth and placed so that no employee must travel greater than 25 feet laterally to use it.

- Ladders will be in good usable condition, inspected prior to use, placed on a stable, firm, even surface, extend at least 3 feet above the excavation, and be secured to prevent any movement during employee use.

- Ramps and runway structural members will be designed by a competent person qualified in structural design, built of uniform thickness material, and connected to prevent displacement or separation. They shall be provided with cleats or have the top surface treated to prevent slipping.

When employees are required to crossover an excavation, suitable walkways, or bridges with guardrails (if trench is greater than 4 ft. in depth) will be installed to prevent fall hazards into the trench. If vehicular traffic is required to travel over the excavation, then sufficient means of protection will be provided in the form of a steel bridge-plate, bridge-timbers, or similar construction materials of strength and consistency strong enough to withstand expected loads.

EDGE PROTECTION

All trench-digging operators (by machine or hand) will be always required to utilize one of several methods of trench- edge protection. This can include the use of the following:

- "bumpers" or toe-boards installed along the edges
- color-coded, wooden barricades with flashing lights
- vinyl barricade tape
- vinyl, expandable, orange-colored netting
- other fencing material
- storing tools, machinery, materials as far away as possible
- maintain good housekeeping on the jobsite
- locate the "spoil-bank" no closer than 2 feet to the edge
- maintain sufficient employee access distance to edge

EXPOSURE TO VEHICULAR TRAFFIC

Employees who have the potential to be exposed to vehicular traffic whether out in the public thoroughfares, rural settings or on the jobsite will be provided with a means of identification that may consist of reflectorized clothing, high-visibility garments, or a color-coded warning vest. The Job Crew Leader or Supervisor will ensure that all appropriate flagging, signs, traffic cones, or barricading materials are in good condition and in properly placed positions to adequately warn oncoming traffic.

EXCAVATION EQUIPMENT

Daily inspections of powered excavation equipment shall be conducted by trained, authorized operators. These are the only personnel that Pacific Pile & Marine has approved to operate their excavation equipment. All manufacturers' guidelines for the speed and methods of safe operation will be performed. This equipment is to be shut down completely when or if the operator steps down out of the operation cab. If the operator does not have total view of the operation, a signalman shall be used who knows the standard signals used in construction. No Pacific Pile & Marine employee is ever allowed under a load being handled by powered excavation equipment, derricks, cranes, hoists, come-alongs, or similar load-handling equipment. Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Ropes, chains, cables, or similar materials are to be used as tag lines for the safe on/ off movement of elevated materials.

HAZARDOUS ATMOSPHERES

Pre-job planning, job assessments, or job site-specific orientations will most likely provide information that would indicate the potential for a hazardous (toxic, combustible, reactive) atmosphere that may be present at a Pacific Pile & Marine job- site. No excavations are allowed until an excavation approval form and hot-work permit is obtained from the property owner, and atmospheric tests are conducted. Employees are not allowed to enter a trench deeper than 4 feet until tests are completed.

Controls such as ventilation can be used to eliminate atmospheres with oxygen concentration less than 19.5% or with flammable concentrations greater than 10% of the materials lower explosive limit. Whenever control methods are depended upon to maintain atmospheric concentrations of contaminants within established safe levels, monitoring shall be conducted as often as necessary to indicate safe levels are always present. The use of respirators will require employees to follow the established guidelines found in the Respiratory Policy.

Emergency rescue equipment such as breathing apparatus, safety harness and retrieval line, or a basket stretcher shall be readily available where hazardous atmospheres exist or may reasonably be expected to develop during work in an excavation.

WATER ACCUMULATION

Employees of Pacific Pile & Marine will be protected from hazards associated with water accumulation in a trench using water removal methods such as pumping equipment or a drainage ditch. If continuous water removal is required to safely accomplish the job-task, it will be monitored by a competent person, and an emergency back-up energy source will be made available for use. Frequent inspections will be made by a competent person to determine if the shoring system can maintain increased pressures due to excess water content of the surrounding soil or sudden thaw of frozen ground which could undermine the shoring system.

COMPETENT PERSON

Daily inspections of excavations, adjacent areas, and protective systems shall be made by a competent person for any evidence of cave-ins or slide-offs, indications of failures of any protective systems, hazardous atmospheres, or other hazardous conditions. This shall be performed prior to the start-up of any excavation work, as needed throughout the shift, after any rainstorm, and after any other hazard-increasing occurrence.

Training records of these individuals are maintained by the Company's Corporate Safety Director at the Main Office. Any evidence of a situation that could result in a possible cave-in, failure of a protective system, or occurrence of a hazardous condition shall be made known by the competent person, and all personnel will be removed from the excavation until such precautions can be taken to ensure their safety.

COMPETENT PERSON RESPONSIBILITIES

- Authority to stop unsafe work
- Inspections of excavations daily for indications of:
 - evidence of possible cave-ins, slide-off
 - failure of protective systems
 - hazardous atmospheres
 - other hazardous conditions
- Frequency of inspections:
 - prior to start of work
 - as needed throughout work shift
 - after rainstorms
 - after another hazard increasing occurrence
- Testing for hazardous atmospheres
- Inspection of building materials/ protective equipment
- Monitoring of water removal
- Performing visual/manual soil analysis

SOIL CLASSIFICATIONS

Prior to excavating at a jobsite, a competent person shall categorize soil and rock deposits according to decreasing

order of stability, based on at least one visual and at least one manual analysis. The approved system of classification is as follows:

Stable rock (sometimes difficult to determine without knowing if cracks slope into or away from the trench)

Type A (cohesive soils with an unconfirmed compressive strength of 1.5 tons per square foot or greater) (Examples) clay, silty clay, clay loam, hardpan, cemented soils

Type B (cohesive soil with an unconfirmed compressive strength greater than 0.5 tons per square foot but less than 1.5 tons per square foot) (Examples) angular gravel, silt, silt-loam, previously disturbed soils, dry unstable rock

Type C (cohesive soil with an unconfirmed compressive strength of 0.5 tons per square foot or less) (Examples) granular soils, sand, loamy sand, submerged, soil with seeping water, or soil not otherwise classified

Soil analysis and field tests that can be used to classify cohesive and non-cohesive soils can include but are not limited to:

- pocket penetrometer
- shear vane
- thumb penetration test
- dry-strength test
- ribbon test
- thread test
- wet shake test
- sedimentation test

PROTECTIVE SYSTEM REQUIREMENTS

All Pacific Pile & Marine employees will be protected from cave-ins and slide-off by shields, sloping, benching, or shoring in excavations or trenches greater than four (4) feet in depth. Any protective system used must have the strength to resist all intended or expected loads. Employees must be protected when entering or exiting trench shields and protective systems and are not permitted inside of shields when they are being installed, removed, or moved vertically (they can remain if being moved horizontally without any lifting).

The design of sloping and benching systems must conform to certain configurations and proper angles of repose based on variable observed factors such as soil classification, water conditions, previous disturbances, and job-site characterization (hilly or steep slope). The competent person may seek out further information as presented in the guidelines established in Appendices A & B of OSHA Regulation 1926.651, or tabulated data, charts & tables, or designs prepared by a registered professional engineer.

The function of trench shoring is to control all forces on the excavation face. This can be accomplished using wood timbers & sheeting, screw jacks, hydraulic cylinders, and aluminum or steel trench shields. Hard, compact soils will usually require fewer support members than loose, running soils, but all struts shall be placed in a true horizontal position with ends secured to prevent kick out or slippage.

Lateral spacing will be according to manufacturers' guidelines or professional engineers' specifications. The pressures exerted by unstable soil may require increased strut size or decreased spacing, and very loose soil requires closed sheeting with tight edge-to-edge contact to control water intrusion & ground forces. Installation shall be from a top-down method so that all workers are protected as they enter the trench, and as the trench continues in length. The longer a trench is left unsupported, the greater the chance of a cave-in or slide-off. Removal of shoring systems shall proceed by a bottom-up method so that workers always remain in the protected zone. Bottom and intermediate struts should not be removed until they have been effectively replaced by back-

fill material.

CONCLUSION

Trenching accidents are often the result of a series of related incidents, which separately would cause little harm. Even though there is a competent person on the job site, all PPM employees should act as "job inspectors" to prevent potential incidents from causing bodily injury to workers. A cubic foot of dirt weighs approximately 90 pounds, so when even small accumulations strike or bury a worker, severe consequences can occur. Follow this established program for any excavation more than 4 feet in depth or for any potential hazards or failures listed above during excavation. If hazards are present, or depths are excessive, a registered professional engineer shall design the required support system plan.

Non-compliance by any PPM employee with any part of this described program will result in disciplinary action as outlined in the Company's Disciplinary Program found in this manual.

Excavation / Trenching / Shoring Plan

Project Name: _____ Date: _____

In accordance with WAC 296-155-650 through WAC 296-155-664(1)(1), the following Excavation / Trenching / Shoring Plan is hereby formulated for: _____

Located at the following jobsite address: _____

Designated Competent Person: _____

A. IDENTIFY how regulations apply:

- a. Excavation more than 4 feet deep and (specify)**
 - i. Less than 20 feet deep
 - ii. More than 20 feet deep - professional engineer design required
- b. CONFINED SPACES
 - i. hazardous atmosphere (specify)
 - ii. none
 - iii. toxicity
 - iv. flammability
 - v. oxygen deficiency/excess
 - vi. mechanical
 - vii. electrical
 - viii. corrosive
 - ix. temperature
 - x. noise
 - xi. ionizing radiation

***If hazardous atmosphere exists, must also have a site-specific confined space plan*

B. DETERMINE soil type (specify)

- i. Solid Rock
- ii. A
- iii. B
- iv. C
- v. Unknown
- a. Visual test performed
- b. Manual test performed (specify)
 - i. plasticity
 - ii. dry strength
 - iii. thumb
 - iv. instrument
 - v. drying

C. SELECT method of employee protection SPECIFICATIONS ON-SITE

- a. Sloping and benching systems: WAC 296-155-657(2)
 - i. Option I - 1-1/2H: 1 V (34 degrees measured from H)

- ii. Option 2- design using Appendices A and 8
 - iii. Option 3 - design using other tabulated data
 - iv. Option 4 - design by registered professional engineer
- b. Shoring or shielding systems: WAC 296-155-657(3)
 - i. Option 1 - design using Appendices A, C, or D
 - ii. Option 2- design using manufacturer's tabulated data
 - iii. Option 3-design using other tabulated data
 - iv. Option 4- design by registered professional engineer
- D. INSPECT PRIOR TO opening an excavation, DAILY and AS CONDITIONS CHANGE when employee exposure can be reasonably anticipated, the excavation, adjacent areas, and protective systems:
 - a. Surface encumbrances removed/supported as necessary
 - b. Underground installations located
 - i. Utilities contacted prior to opening
 - ii. Utilities contacted as approach during project
 - iii. Installations protected, supported, removed
 - c. Access/egress
 - i. Structural ramps designed by competent person
 - ii. Maximum employee lateral travel length 25 feet
 - d. Exposure to vehicular traffic protected
 - e. No employee exposure to falling loads
 - f. Warning system for mobile equipment (specify)
 - i. Barricades
 - ii. Hand or mechanical signals
 - iii. Stop/Go
 - g. Hazardous atmospheres
 - h. Hazards associated with water accumulation
 - i. Stability of adjacent structures (specify)
 - i. Shoring
 - ii. Bracing
 - iii. Underpinning
 - iv. Engineer o.k.
 - j. Fall protection (specify)
 - i. Walkways with guardrails
 - ii. Other



FALL PROTECTION POLICY

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart: M

WA L&I DOSH Safety Standards for Construction:

WAC 296-155 Part C-1

OR OSHA Occupational Safety and Health Standards for Construction:

Division 3, Subdivisions E & M

United States Army Corps of Engineers Safety Standards:

EM385-1-1

PURPOSE

To establish the minimum requirements for the application and use of fall protection systems for personnel at Pacific Pile & Marine, LP (PPM).

SCOPE

This standard applies to all personnel walking or working at elevations above a lower level:

At Pacific Pile and Marine, we will concentrate our efforts for fall protection at a four-foot elevation above the next lower level for all projects. PPM shall only purchase fall protection equipment (full body harnesses and shock absorbing lanyards with double-locking snap-hooks) which meets or exceeds all ANSI and ASTM Standards, or OSHA requirements.

FALL PROTECTION CATEGORIES & HIERARCHY

- Primary Fall Protection
 - Primary fall protection systems such as standard guardrails, solid floor with complete standard guardrails and toeboards, patented scaffolding (including bracket type), aerial lifts (boomlift or scissor lift), approved personnel hoist, etc., shall be considered first when addressing fall protection requirements. These systems shall be complete walking/working systems with all required guardrails in place, free of floor holes, and have a safe means of access/egress.
- Fall Restraint System
 - If a primary fall protection system is not practicable then a fall restraint system that prevents a worker from travelling to an edge or work position from which the worker could fall, must be considered. The fall protection competent person shall be responsible to verify that the system is so arranged that a fall to a lower level is not possible. In all cases, employees shall only use fall protection equipment provided by PPM.
 - Safety Monitor Systems shall only be used when the plan has been approved by the Safety Director and the VP of Operations.
- Personal Fall Arrest System
 - At a minimum, this system shall consist of a full body harness with a shock absorber and two lanyards in a “Y” arrangement (twin-legged lanyards) that incorporates a shock absorber pack. The system may also include other fall protection equipment such as rope grabs, self-retracting lifelines (SRL/Yo-Yo), and self-retracting lanyards.
 - In any case, connecting devices shall only be attached to the D-ring of the harness as per manufacturer’s specifications.
 - When working in a leading-edge application (over a rough or sharp edge), only leading edge (LE) fall protection equipment is to be used. D-ring extenders are not to be worn when using leading edge fall protection equipment.
- Work Positioning Devices
 - Work positioning devices are to be attached to D-rings at waist belt location and be supported by an appropriate full body harness. As work positioning devices cannot be used as standalone fall protection systems, positioning lanyards must always be backed up by an approved personal fall arrest system as described above.

REQUIREMENTS

GENERAL DUTY TO USE FALL PROTECTION SYSTEMS

A fall protection system is required when walking or working at levels with an unprotected side or edge, four feet or more above a lower level. This includes, but is not limited to, floors, roofs, ramps, bridges, runways, pipelines, and ladders.

- A guardrail system, fence, barricade, or cover shall be the primary fall protection system utilized for excavation, wells, pits, shafts, holes, skylights, and other openings.

COMPETENT PERSON/QUALIFIED PERSON

A competent person shall be assigned to:

- Recognize fall hazards.
- Warn employees if they are unaware of a fall hazard; or are acting in an unsafe manner.
- Be on same working surface and in visual sight.
- Stay close enough for verbal communication.

PERSONAL FALL ARREST SYSTEMS

- Personal fall arrest systems and their use shall comply with the provisions set forth below. Effective January 1, 1998, body belts are not acceptable as part of a personal fall arrest system.
- Connectors shall be drop forged, pressed, or formed steel, or made of equivalent materials. Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system. D-rings and snaphooks shall be proof-tested to a minimum tensile load of 3,600 pounds (16 kN) without cracking, breaking, or taking permanent deformation.
- Snaphooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snaphook by depression of the snaphook keeper by the connected member or shall be a locking type snaphook designed and used to prevent disengagement of the snaphook by the contact of the snaphook keeper by the connected member. Effective January 1, 1998, only double locking type snaphooks shall be used.
- Unless the snaphook is a locking type and designed for the following connections, snaphooks shall not be engaged:
 - directly to webbing, rope, or wire rope,
 - to each other,
 - to a dee-ring to which another snaphook or other connector is attached,
 - directly to a horizontal lifeline, or
 - to any object which is incompatibly shaped or dimensioned in relation to the snaphook such that unintentional disengagement could occur by the connected object being able to depress the snaphook keeper and release itself.
- Horizontal lifelines shall be designed by an engineer/manufacture, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.

- Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds (22.2 kN).

When vertical lifelines are used, each employee shall be attached to a separate lifeline and all other criteria specified in this paragraph for lifelines have been met. Lifelines shall be protected against being cut or abraded.

- Self-retracting lifelines and lanyards shall automatically limit free fall distance to 2 feet (0.61 m) or less shall be capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kN) applied to the device with the lifeline or lanyard in the fully extended position. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made from synthetic fibers.
- Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as follows:
 - as part of a complete personal fall arrest system which maintains a safety factor of at least two; and
 - under the supervision of a qualified person.
- Personal fall arrest systems, when stopping a fall, shall:
 - limit maximum arresting force on an employee to 1,800 pounds (8 kN) when used with a body harness,
 - be rigged such that an employee can neither free fall more than 6 feet (1.8 m), nor contact any lower level,
 - bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07 m), and,
 - have sufficient strength to withstand twice the potential impact energy of an employee free falling 6 feet (1.8 m), or the free fall distance permitted by the system, whichever is less.

Note:

**If the personal fall arrest system meets the criteria and protocols contained in the section covered under Personal Fall Arrest Systems and the system is being used by an employee having a combined person and tool weight of less than 310 pounds (140 kg), the system shall follow the provisions as listed in the above list.*

**If the system is used by an employee having a combined tool and body weight of 310 pounds (140 kg) or more, then PPM must appropriately modify the criteria and protocols to provide proper protection for such weights, or the system shall not be deemed to follow the requirements as listed above.*

- The attachment point of the body harness shall be in the center of the wearer's back approximately between the shoulder blades, or above the wearer's head. Harnesses and other components shall be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.
- Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection. PPM shall provide for prompt rescue of employees in the event of a fall or shall ensure that employees are able to self-rescue.
- Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service. Personal fall arrest systems shall not be

attached to guardrail systems. When a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.

SPECIFIC WORK ACTIVITIES/CONDITIONS REQUIRING FALL PROTECTION

Operations requiring fall protection include:

- Operating or working from a mobile-elevated work platform or aerial lift device (aerial lifts, scissor lifts, etc.).
- Personnel working on horizontal surfaces with unprotected sides shall be protected from falling by a guardrail system or personal fall arrest system. A warning line may be used in lieu of a guardrail system.
 - In Washington, the warning line must be placed 15 feet back from the leading edge or open hole. This warning line must be supported by stanchions that can withstand a force of at least 16 pounds. The rope, wire, or chain must be rigged and supported in such a way that its lowest point (including sag) is no less than 36 inches from the surface and its highest point is no more than 45 inches from the surface. and must be flagged at no more than six feet intervals with high visibility materials.
 - In other states and jurisdictions, the warning line must be placed 6 feet back from the leading edge or open hole. This warning line must be supported by stanchions that can withstand a force of at least 16 pounds. The rope, wire, or chain must be rigged and supported in such a way that its lowest point (including sag) is no less than 39 inches from the surface and its highest point is no more than 45 inches from the surface. and must be flagged at no more than six feet intervals with high visibility materials.
- Personnel in a hoistway shall be protected from falling four feet or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems (a chain, gate, or guardrail) are removed to facilitate the hoisting operation and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide the equipment/material), that employee shall be protected from fall hazards by a personal fall arrest system.

EQUIPMENT INSPECTION

- All personal fall arrest equipment shall be visually inspected by the user for wear, damage and other deterioration or defects before each use. The harness shall be visually examined for defective conditions of:
 - Stitching becoming loose or tearing or an absence of stitching.
 - Rivets pulling through and are not in place.
 - Buckles that are cracked, distorted, worn, or corroded.
 - Frayed buckle tabs.
 - D-rings that are cracked, distorted, worn, or corroded.
 - Cuts and abrasions on the straps.
- The harness should be clean and flexible. If the harness is dirty or stiff, it should be washed with warm soapy water and hung out to dry. The lanyards and lifelines shall be visually examined for:
 - Frayed or broken strands
 - Abrasions
 - Rot

- General appearance - If the rope or webbing lifelines or lanyards are stiff or dirty, they should be washed in warm soapy water and hung out to dry.
- Properly working locking mechanism on the snap hooks.
- Defective equipment shall not be used and be immediately tagged with a “DO NOT OPERATE OR USE” tag.
- Defective equipment shall be returned to the Safety Department for replacement.

All components of the personal fall arrest equipment (including the full body harness, lanyard, lifeline, etc.) used to stop a fall shall be removed from service and returned to the Safety Department for disposal.

CONTROLLED ACCESS ZONES

Controlled access zones and their use shall conform to the following provisions (for leading edge work only).

- When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.
- When control lines are used, they shall be erected not less than 6 feet and not more than 25 feet from the unprotected or leading edge, except when erecting precast concrete members.
- The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge. The control line shall be connected on each side to a guardrail system or wall.
- The control line shall extend for a distance sufficient for the controlled access zone to enclose all employees performing overhand bricklaying and related work at the working edge and shall be approximately parallel to the working edge. Additional control lines shall be erected at each end to enclose the controlled access zone. Only employees engaged in overhand bricklaying or related work shall be permitted in the controlled access zone.
- Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
 - Each line shall be flagged or otherwise clearly marked at not more than 6-foot intervals with high-visibility material.
 - Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches from the walking/working surface and its highest point is not more than 45 inches from the walking/working surface.
 - Each line shall have a minimum breaking strength of 200 pounds.

COVERS

Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements:

- Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
- All floor opening and floor hole covers must be capable of supporting the maximum potential load but never less than 200 pounds (with a safety factor of 4).
- All covers shall be secured when installed to prevent accidental displacement by the wind, equipment, or employees.

- All covers shall be color coded or they shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard.

Note: This provision does not apply to cast iron manhole covers or steel grates used on streets or roadways.

GUARDRAIL SYSTEM REQUIREMENTS

Guardrail systems and their use shall comply with the following provisions:

- Minimum requirements for standard guardrail systems under various types of construction are specified in the following items:
 - For wood railings, the posts must be of at least two-inch by 4-inch stock (nominal size) spaced not to exceed 8 feet; the top rail must be of at least two-inch by 4-inch stock (nominal size) and each length of lumber must be smooth surfaced throughout the length of the railing. The intermediate rail must be of at least one-inch by 6-inch stock. Other configurations may be used for the top rail when the configuration meets the requirements of the standard.
 - For pipe railings, posts and top and intermediate railings must be at least 1-½ inches nominal OD diameter with posts spaced not more than 8 feet on centers. Other configurations may be used for the top rail when the configuration meets the requirements of the standard.
 - For structural steel railings, posts and top and intermediate rails must be of two-inch by two-inch by 3/8-inch angles or other metal shapes of equivalent bending strength, with posts spaced not more than 8 feet on centers. Other configurations may be used for the top rail when the configuration meets the requirements of the standard.
 - For wire rope railings, the top and intermediate railings must meet the strength factor and deflection of (b)(v) of this subsection. The top railing must be flagged at not more than 6-foot intervals with high-visibility material. Posts must be spaced not more than 8 feet on centers. The rope must be stretched taut and must be between 39 and 45 inches in height at all points. Other configurations may be used for the top rail when the configuration meets the requirements of the standard.
 - The top edge of upper rails, or equivalent guardrail system members, shall be 42 inches plus or minus 3 inches above the walking/working level. Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches (53 cm) high.
 - Midrails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking/working level.
 - Screens and mesh, when used, shall extend from the top rail to the walking/working level and along the entire opening between top rail supports.
 - Intermediate members, when used between posts, shall be not more than 19 inches apart.
 - Other structural members (such as additional midrails and architectural panels) shall be installed such that there are no openings in the guardrail system that are more than 19 inches wide.
 - Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.
 - When the 200-pound test load is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.

- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member.
- Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.
 - The ends of all top rails and midrails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.
- Steel banding and plastic banding shall not be used as top rails or midrails.
- Top rails and midrails shall be at least one-quarter inch nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high-visibility material.
 - When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.
- When guardrail systems are used at holes, they shall be erected on all unprotected sides or edges of the hole.
 - When guardrail systems are used around holes used for the passage of materials, the hole shall have not more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover, or a guardrail system shall be provided along all unprotected sides or edges.
 - When guardrail systems are used around holes which are used as points of access (such as ladderways), they shall be provided with a gate, or be so offset that a person cannot walk directly into the hole.
- Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge.

WORKING NEAR OR ABOVE WATER

Fall protection shall be used when working 4 feet above the surface of the water. If there is an unobstructed fall of 4 feet or less to the water, the employees may be allowed to work without fall protection if the following items are met:

- Employee is wearing an approved PFD (zipped and clipped)
- Water is deeper than ten feet
- Immediate retrieval system is in place. (Safety boat in the water, ring buoy, rescue system, etc.)
- No potential to hit any object in the fall zone or in the water below.
- When working from/in machinery (mechanically operated equipment), aerial lift equipment or other movable work platforms/cranes directly over water AND the depth of the water is at least 10 feet deep, fall protection is not required however, PFDs are required (zipped and clipped). A greater hazard must exist, and this shall be addressed in the Project Specific Fall Protection Work Plan.

When working above water and active fall protection is infeasible or creates a greater hazard, a PFD may be worn (zipped and clipped) in lieu of fall protection up to 25' above the surface of the water, so long as the water is deeper than 10 feet and there are no objects that can be struck in the fall zone or in the water below. The PPM HSE Department must be contacted, before the work starts, if this procedure is to be implemented on any project;

failure to contact the PPM HSE Department in advance may result in project delays. A Project Specific Fall Protection Work Plan must be completed before the work starts. This procedure has been established in accordance with USACE EM385-1-1, 21.O.

LADDER SAFETY

Ladders must be kept in good condition. Each ladder shall be inspected before use for defects including splinters, splits, rail warp, rungs, or steps loose enough to be moved by hand, in secure stepladder spreading devices, and lack of or defective safety feet. Other issues on ladder use include:

- Anyone using ladders, including stepladders, shall stay at least two steps below the top. If this causes excessive reaching, use a longer ladder.
- Fiberglass ladders are recommended for use at PPM; the use of metal and wooden ladders is discouraged. Metal ladders shall not be used for work on electrical equipment or where they may contact electrical equipment. Metal ladders shall have an appropriate warning clearly indicated on them.
- A ladder used to access an upper level has the side rails extended at least 3 feet (0.9 m) above the landing surface if the ladder length permits.
 - If a ladder used to access an upper level is not long enough to obtain a 3-foot side rail extension above the landing surface:
 - Secure the ladder at the top to a rigid support that will not deflect.
 - Provide a grasping device, such as a grab-rail, to assist in mounting and dismounting the ladder.
 - Make sure the ladder deflection under a load would not, by itself, cause it to slip off its support.
 - Make sure, if two or more separate ladders are used to reach an elevated work area, that the ladders are offset with a platform or landing between them.
- The minimum overlap of sections on extension ladders up to 36' is 3'; ladders 36' up to 48' shall overlap 4'; and ladders 48' to 60' shall overlap 5'.
- If the top of an extension or straight ladder does not extend above its support, the ladder shall be placed so that both rails lean squarely against a solid stationary structure.
- Straight ladders shall be placed with the distance of the base of the ladder from the wall equal to one-quarter the length of the ladder. All straight or extension ladders shall be secured at the top and bottom before use.
- If a ladder cannot be placed securely, it must be tied in position and/ or held by another worker in a safe manner.
- If the ladder must be placed in front of a door, at a blind corner, or other such location, the door must be locked or blocked, or a worker must be stationed to ensure safety, and a sign or caution tape placed to warn other workers.
- Ladders shall be faced when ascending or descending and both hands shall be used. Anyone using ladders should keep hips between the rails, stay in close to the rungs, and limit reach to a comfortable arm's length.
- Tools and materials must never be hand-carried up or down a ladder. They must be carried in proper pouches or raised and lowered by a hand line.
- Unless the ladder is otherwise designed, only one worker at a time is permitted on a ladder.

- Work from a ladder in high wind (>25 mph) is not permitted except in extreme emergency, and then only after appropriate precautions are taken.
- If there are any questions about the safe condition and use of ladders, contact the Safety Department.
- Ladder surfaces should be kept free of slip-trip-fall hazards.
- Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use.
- Ladders shall be inspected by a competent person for visible defects daily and after any occurrence that could affect their safe use.
- Ladders will be stored properly. Store ladders in such a way as to prevent sagging. Store in a place where they are protected from the weather, excessive heat, and dampness. Store where they will not be damaged and where they are readily accessible.
- Ladders shall be placed on stable, level surface.
- No standing on the top two rungs or top of step ladders.
- Workers shall not carry anything in their hands while ascending or descending any ladder.
- Ladders shall not be loaded beyond the maximum intended load for which they were built, or beyond the manufacturer's rated capacity.
- Ladders shall be used only for the purpose for which they were designed.

TRAINING

Training is required for personnel who are exposed to fall hazards at walking or working levels six feet or more above a lower level. This training will include:

- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.
- The use and operation of guardrail systems, personal fall arrest systems, warning line systems, and safety monitoring systems.
 - The standards contained in 29 CFR 1926 Subpart M - Fall Protection.

TRAINING PROGRAM

A training program will be provided for each employee who might be exposed to fall hazards. The program will enable each employee to recognize the hazards of falling and will train each employee in the procedures to be followed to minimize these hazards.

- The trainer for fall protection shall be a competent person with experience or knowledge in the following areas:
 - The nature of fall hazards in the work area,
 - The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used,
 - The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used,

- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection, and
- The role of employees in fall protection plans.

Content includes:

- Thorough employee training in the selection and use of personal fall arrest systems is imperative. Employees must be trained in the safe use of the system. This should include the following: application limits; proper anchoring and tie-off techniques; estimation of free fall distance, including determination of deceleration distance, and total fall.
- Distance to prevent striking a lower level, methods of use, and inspection and storage of the system.
- Careless or improper use of the equipment can result in serious injury or death. Of utmost importance is the reduction in strength caused by certain tie-offs (such as using knots, tying around sharp edges, etc.) and maximum permitted free fall distance. Also, to be stressed are the importance of inspections prior to use, the limitations of the equipment, and unique conditions at the worksite which may be important in determining the type of system to use.

RETRAINING

When there is reason to believe that any affected employee who has already been trained does not have the understanding and skill required, then each such employee shall be retrained. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete,
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete,
- Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill, or
- An accident or near miss involving a fall occurs.

CERTIFICATION OF TRAINING

- PPM shall verify compliance by preparing a written certification record.
- The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer.
- If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.
- The latest training certification shall be maintained.

FALL PROTECTION PLAN (Must be completed when a fall hazard of 10 feet or more exists)

The fall protection plan must conform to the following provisions:

- The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the work is being performed and the plan must be maintained up to date. Any changes to the fall protection plan shall be approved by the qualified person.

- A copy of the fall protection plan with all approved changes shall be maintained at the job site. The implementation of the fall protection plan shall be under the supervision of a competent person.
- The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems.
 - For example, the employer shall discuss the extent to which scaffolds, ladders, or work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling.
- The fall protection work plan shall:
 - Identify all fall hazards in the work area,
 - Describe the method of fall arrest or fall restraint to be provided,
 - Describe the proper procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used,
 - Describe the proper procedures for the handling, storage, and securing of tools and materials,
 - Describe the method of providing overhead protection for workers who may be in, or pass through the area below the worksite,
 - Describe the method for prompt, safe removal of injured workers, and
 - Be available on the job site for inspection by the department.
- In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) PPM project supervision shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g., new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.

ACCIDENT INVESTIGATION

As part of the training to employees at the beginning of a project, or when new employees arrive, will be the awareness of what to do in the event of a fall. Employees should address the prompt rescue of the victim until professional help arrives. All accidents that result in injury shall be investigated and reported. After the fall, an investigation shall take place to determine the reasons for the fall. The conditions surrounding the reason for the fall should be looked at carefully to determine if it is safe for the rescuer to help the victim.

DEFINITIONS

Anchorage Point - A secure point of attachment for lifelines, lanyards or deceleration devices typically positioned above head height. Anchorage points must be capable of supporting at least 5000 pounds per employee attached to the point.

Connector - A device which is used to couple (connect) parts of the personal fall arrest system.

Deceleration Device - Any mechanism, such as a rope-grab, especially woven lanyard, tearing lanyard, automatic self-retracting lifeline/lanyard, etc., which serves to dissipate energy during a fall arrest, or otherwise limit the energy imposed on a person during a fall arrest.

Fall Protection System - A guardrail system, fall restraint system, personal fall arrest system, or warning line system.

Full Body Harness - A webbing system with a Dee ring positioned in the center of the upper back straps that is secured about the wearer and designed to spread the shock load (fall/stopping forces) over the thighs, shoulders, and buttocks area.

Guardrail System - A vertical barrier, normally consisting of, but not limited to, an assembly of top rails, midrails, and posts erected to prevent employees from falling to lower levels or into dangerous equipment.

Lanyard - A short, flexible strap or cable used to secure the harness to an anchorage point or grabbing device. Lanyards utilized at PPM shall be manufactured with a shock absorber feature. (The maximum elongation of the shock absorber + the length of the lanyard should be taken into consideration to prevent contact of a lower level.)

Lifeline - A component consisting of a flexible line for connection to an anchorage at one end to hang vertically or horizontally when attached to an anchorage at both ends.

Locking-type Snap hook - The snap hook on the lanyard used to eliminate “roll-out” and requires two separate forces or movements to open the hook.

Personal Fall Arrest System - A system used to arrest a person in a fall from a working level consisting of an anchorage, connectors, full body harness, a lanyard, and/or a deceleration device, and/or lifeline or suitable combination of these. (Personal fall arrest systems shall limit the maximum arresting force on an employee to 1,800 pounds.)

Roll-Out - During a fall, a non-locking snap hook can be depressed by the lanyard strap causing it to inadvertently disengage (open).

Self-Retracting Lifeline - A deceleration device which contains a drum-wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement but, with onset of a fall, will automatically lock the drum, and arrest the fall.

Shock Absorber - A deceleration device designed to reduce or minimize the stopping forces of a fall (i.e., shock-absorbing lanyard). The maximum elongation of a shock absorber shall be 3.5 feet.

Warning Line System - A barrier erected on a roof, not less than six feet from the roof edge, to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail or personal fall arrest systems to protect employees in the area.

REFERENCES

29 CFR 1910.23, Guarding Floor and Wall Openings and Holes

29 CFR 1926, Subpart M, Fall Protection

29 CFR 1926, Subpart L, Scaffolds

ANSI Z359.1, Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components

WAC 296-155-246, Fall Protection Requirements for Construction

WAC 296-876, Safety Standards for Ladders, Portable and Fixed



FATIGUE MANAGEMENT

PURPOSE

As part of Pacific Pile & Marine's Safety and Training's overall commitment to Health and Safety of all employees, contractors, and visitors, we are actively working together to prevent and manage risk associated with fatigue in the workplace.

OBJECTIVES

The objectives of the Zero Harm Safety and Training Fatigue Management Policy are to:

- Ensure adequate opportunity is available for employees, contractors, and visitors sufficient rest before commencing work, through appropriate working time arrangement.
- Monitor and control working hours, including overtime, to provide time arrangements that do not require excessive periods of wakefulness.
- Identify, develop, and implement a fatigue management plan with control strategies to address fatigue related risks within the workplace in consultation with the employees.
- Provide training and education for employees, contractors, their families, to foster a common understanding of fatigue management.
- Develop a culture of shared responsibility for fatigue management.
- Implement an appropriate employee assistance program to assist in managing fatigue.
- Promote a healthy lifestyle, both at work and at home.
- Conduct regular audits to ensure that the elements of this policy are effectively implemented.

TRAINING

All employees will be trained initially at New Hire Orientation and annually thereafter. Training will include the following but not limited to:

- Definitions
- Risk Factors
- Signs and symptoms of fatigue
- Schedule's and job rotation
- Job demands
- Reporting fatigue to supervision
- Environmental Factors
- Non-work-related factors
- Review periods

MANAGEMENT OF FATIGUE

Managers must utilize a risk assessment process in accordance with the Hazard Identification and Risk Management Procedure to identify and manage the risks associated with fatigue. This involves the following steps:

- **STEP 1 – Hazard identification**
Identify the factors which may cause fatigue in the workplace.

- **STEP 2 – Risk assessment: inherent risk**
Assess the risks of injury from fatigue.
- **STEP 3 – Control risks**
Control the risks by implementing the most effective risk control measures reasonably practicable in the circumstances.
- **STEP 4 – Risk assessment with control measures: residual risk**
Re-assess whether the risks of injury from fatigue are adequately controlled.
- **STEP 5 – Monitor and review control measures**
Review risk control measures to ensure they are working as planned.

When undertaking the risk assessment, it is important for managers to ensure workers are consulted at each of step of the process. This encourages everyone to work together to identify fatigue risk factors and implement effective control measures. Consultation also helps to raise awareness about the risks associated with fatigue.

During the risk assessment process, supervisors must ensure workers are physically capable of performing their job function(s), in a safe and healthful manner. Risk factors include drug use (prescription and over-the-counter medications included), fatigue, physical capacity, etc. If it is presumed a worker is incapable of safely performing their duties, the supervisor must interview the employee prior to the start of work.

Employees are cautioned not to use over-the-counter medications, drugs, or anything else that may temporarily increase their mental alertness. These types of products can become habit forming and also decrease mental alertness when the products wear off. Should the employee take prescription or over-the-counter medication that could impair his/her ability to perform work safely, they must first notify their supervisor, prior to the start of their work shift.

WORK SCHEDULING

Control measures for fatigue risks which can be built into the work scheduling may include but not limited to:

- designing working hours and rosters to allow for good sleep opportunity and enough recovery time between workdays or shifts for travelling, eating, washing, and sleeping. Where possible, a minimum of an 8-hour break should be provided between shifts
- ensuring workers have and take adequate and regular breaks to rest, eat, and rehydrate
- avoiding scheduling high-risk work during low body clock periods (i.e. between 2am and 6am)
- establishing plans to manage workload change caused by machinery breakdowns or planned and unplanned absences
- managing overtime and on-call duties
- implementing processes to manage accrued leave balances and requests for leave
- considering future rosters and schedules when approving request for leave and ensuring leave is reflected in rosters

Employees must notify their supervisor if, at any time, they feel they are fatigued to the point of not being able to safely perform their duties; this includes the ability to focus, function, and/or perform work.

WORK CONTROL MEASURES

Control measures to prevent or minimize the risk of fatigue associated with job demands can include:

- ensuring fit-for-purpose plant, machinery and equipment is used at the workplace (e.g. ergonomic furniture, lifting equipment, tools, fatigue mats, etc.)
- redesigning the job to limit periods of excessive mental or physical demands
- considering job rotation to limit a build-up of mental and physical fatigue
- developing contingency plans for potential situations where workers may have to unexpectedly work longer hours, more shifts, or a long sequence of shifts
- planning for expected changes in workflow including anticipated peaks and troughs throughout the year.

REVIEW REQUIREMENTS

Once control measures are implemented, managers should establish mechanisms to monitor and review the controls, to ensure they continue to be effective in managing fatigue. Consideration may be given to implementing trial periods for any new work schedules and encouraging workers to provide feedback on their effectiveness.

Managers need to consider the risks associated with fatigue when determining the frequency of reviews, with high-risk hazards needing more frequent assessments. Control measures should also be reviewed when:

- there are any indication risks are not being controlled
- new tasks, equipment, procedures, rosters, or schedules are introduced
- changes are proposed to the work environment, working hours, schedules, and rosters
- there is an incident due to fatigue at the workplace
- new information regarding fatigue becomes available
- if a health and safety representative requests a review every two years.

Through the commitment to our Fatigue Management Policy, Pacific Pile and Marine will continue towards its goal of providing a safe and healthy workplace for all employees, contractors, and visitors.

This Policy applies to all sites where Pacific Pile and Marine is performing work and covers all our activities and services.



FIRE PROTECTION POLICY

PURPOSE

The purpose of this policy is to ensure that every employee of Pacific Pile & Marine understands the proper use of the various classifications of fire extinguishers, can identify fire types, and where fire extinguishers are to be located.

INTRODUCTION

PPM will ensure that all employees are trained in the proper use of portable fire extinguishers which are provided for incipient (small stage) firefighting purposes only. Various fire suppression cylinder types are located about the Main Office locations, jobsite trailers, and on each Company service vehicle. The fire extinguishers are identified by their red-colored shell or red-painted background color where they are installed, at job-site trailers, and on each company service vehicle.

PREVENTION

The Project Supervisor shall be responsible for developing and implementing a fire protection and prevention program for the project.

Key Elements of Fire Prevention are:

1. Remove all combustibles and cover with fire resistant fabric when welding or burning near combustible materials.
2. When in doubt consult your supervisor.
3. Remove all flammable materials from the project when no longer required.
4. Every effort shall be made to contain any source of ignition, such as welding slag, torches, or other items of this nature. Do not attempt any work involving a source of ignition near a pit, sewer, drain, manhole, trench, or enclosed space where flammable gases may be present.
5. Only approved solvents should be used for cleaning and degreasing. The use of gasoline and similar flammable products for this purpose is prohibited.
6. Flammable and combustible liquids must be handled only in approved, properly labeled safety cans.
7. Place oily rags in approved, covered metal containers.
8. Do not weld or cut on a tank or in an enclosure that has contained gasoline or other flammable or combustible material until it has been purged and tested safe.
9. The use of open fires is prohibited unless specifically authorized by the responsible supervisor.
10. Pacific Pile & Marine's office facilities are designed so that a separate smoking room is not feasible. Additionally, most of our employees are not office workers. Therefore, as an additional and alternate measure the Company has adopted the following smoking policy:
 - 9.1. Smoking shall be prohibited within 50 feet of flammable or combustible materials. All non-smoking signs related to such materials or other fire hazards must be obeyed.
 - 9.2. Smoking is prohibited in the Pacific Pile & Marine office and office trailers.
 - 9.3. The Yard lunchroom, barge lunchrooms and job shacks do not meet the ventilation codes in the regulations.
 - Therefore, the yard lunchroom, barge lunchrooms, and job shacks are officially considered non-smoking areas.

- Therefore, any employee smoking in one of the areas must immediately comply with any request to extinguish smoking materials.
- 9.4. "Production areas" (shop, outdoors, decks, boats, etc.) are excluded from these regulations, except for item #1.

All appropriate first aid and fire equipment shall be properly placed and readily accessible. Project management shall verify that all personnel are qualified to operate the firefighting equipment. Instructions for reporting fires will be posted on each bulletin board. In the event of a fire, assure the safety of all personnel, and then use the appropriate fire-fighting equipment until help arrives.

PROPERTY CONSERVATION

Fire Protection Requirements shall be followed throughout all phases of construction and demolition work. There shall be fire-fighting equipment provided as specified in this section. As fire hazards occur, there shall be no delay in providing necessary protection. The following conditions need to exist throughout the duration of the project.

1. Access to all available fire equipment.
2. Firefighting equipment will be provided by the employer.
3. All firefighting equipment shall be inspected by a competent person and properly maintained.
4. A log of each inspection shall be kept on the project.
5. All equipment shall be maintained in operating condition.
6. Defective equipment shall be immediately replaced.
7. Isolated or potential high-risk projects shall assign, train, and equip a fire-fighting group (fire brigade) to assure adequate protection to life and property.

PORTABLE FIREFIGHTING EQUIPMENT

1. A fire extinguisher, rated not less than 20 lbs. ABC, shall be provided for each 3,000 square feet of protected building area or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.
2. One or more fire extinguisher(s) rated not less than 20 lbs. ABC shall be provided on each floor in multi-story buildings. At least one fire extinguisher shall be located adjacent to each stairway.
3. A fire extinguisher rated not less than 10 lbs. ABC. Shall be provided within 50 feet of:
 - 5 gallons or more of flammable or combustible liquids.
 - 5 lbs. or more of flammable gas (i.e., propane, etc.). This requirement does not apply to the integral tank of motor vehicles.
4. There shall be proper maintenance and inspection for each fire extinguisher on all Pacific Pile & Marine projects.

At a minimum, this program will include:

- The placement of an inspection tag on each fire extinguisher.
- A monthly visual inspection of each fire extinguisher with the inspector's signature.
- An annual inspection and maintenance will be done by an approved agency.
- A regular inspection of seals, release pins, and pressure gauges.

- Immediate removal from service of extinguishers not meeting minimum.
- 5. Carbon tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.
- 6. Only fire extinguisher(s) that have been listed or approved by a nationally recognized testing laboratory shall be used to meet the requirements of this section.
- 7. All employees must be familiar with the location of all fire-fighting equipment in their work area.
- 8. Tampering with firefighting equipment is grounds for discharge.

FIXED FIREFIGHTING EQUIPMENT

Sprinkler Protection

If the facility being constructed includes the installation of an automatic sprinkler protection, the installation shall closely follow the construction. Sprinkler protection should be placed in service as soon as applicable law permit following the completion of each story. During demolition or alterations, existing automatic sprinkler installation shall be retained in service if reasonable.

Standpipes

In all the structures in which standpipes are required, they shall be bought as soon as applicable laws permit. They shall be maintained as construction progresses in such a manner that ensures they are always ready for fire protection uses.

The standpipes shall be provided with Siamese fire department connections on the outside of the structure. The Siamese connections shall be conspicuously located at street level. There shall be at least one standard hose outlet on each floor. It is required that we provide fire hose. The determination of the diameter and length of hose will be mandated by the local fire municipality.

Fire Hydrants

Fire hydrants shall be located on the project jobsite and adjacent area. All fire hydrants on the jobsite shall be accessible. There shall be no storage of materials or equipment within six feet in all directions from the fire hydrant.

Classification of Fire

- Class A: Ordinary combustible materials, such as wood, coal, paper, or fabrics where wetting and cooling are the method of extinguishment.
- Class B: Flammable petroleum products to other flammable liquids where oxygen must be excluded from extinguishment.
- Class C: Fires in or near energized electrical equipment where because use of water would be hazardous, a 'non-conducting' extinguishing agent must be used.

TRAINING

All employees will be trained in the proper use of portable fire extinguishers by qualified personnel. This training will be conducted upon initial hire of employees and annually afterward. All training will be documented and maintained in the employee's safety file. All inspection and maintenance records will be maintained by Pacific Pile and Marine management for the serviceable life of this equipment.

All portable fire extinguishers shall be checked annually by Pacific Pile and Marine for maintenance, and the supervisor responsible for each area of operation will perform visual inspections according to the attached monthly inspection form requirements.

INCIPIENT STAGE - PORTABLE FIREFIGHTING PROCEDURE

Where PPM supplies extinguishers at the workplace the following training procedures should be followed for incipient stage fires:

- Remain calm
- Seek out and remove the closest fire extinguisher from its securing location around occurrence
- Place yourself a safe distance upwind from the fire location
- Pull the securing pin/break-away seal from the top of the handle which prevents accidental operation of the unit
- Aim the spray nozzle at the base of the fire (angle 45 degree)
- Squeeze or depress the trigger handle to test performance
- Sweep from side to side using a steady controlled motion until the fire is extinguished or contents emptied (approximately 8 -25 seconds depending on contents/size).
- Retreat a safe distance from the previous fire location by stepping backwards, never taking your eyes away from a potential re-flash.

If you are unsuccessful at extinguishing the fire and no other portable extinguisher is nearby for use, notify Pacific Pile and Marine management immediately as a fire doubles in size every 10 seconds. Outside professional firefighting services may then be required, and the Emergency Response Plan enacted for evacuation.



FIRST AID AND CPR POLICY

Complying with

OSHA Safety and Health Regulations for Construction Standard

Part 1926, Subpart: D

PURPOSE

The purpose of this policy is to ensure that every employee has been trained to understand the importance of First Aid / CPR on the jobsite, know emergency phone numbers, and action to be taken, in the event of an injury on the jobsite.

INTRODUCTION

OSHA Regulation 29 CFR 1910.151 requires employers to provide prompt medical services and first aid prior to commencement of a project, and for injured or ill workers during their employment. With this directive in mind, the following guidelines are being established, and its procedures will be effectively implemented by trained employees. This program will be submitted prior to the commencement of any project. The Safety Officer will facilitate the implementation of this program.

TRAINED PERSONNEL

There will always be at least one certified First Aid trained person on duty with a valid certificate that can be verified by documenting evidence. PPM First Aid/CPR training will be provided by a contract training resource that meets nationally recognized medical organization criteria, such as the U.S. Bureau of Mines or the American Red Cross, or equivalent. Should, in the event medical assistance is not readily available due to uncontrollable circumstances, this certified First Aid employee will be available to render First Aid.

EMERGENCY CONTACTS

Before work begins at this location, all employees will be made aware of all emergency phone numbers if needed for the transportation of injured personnel. These numbers are conspicuously posted at PPM offices, jobsites, or as communicated by the company owner. In areas where calling 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted. The location of the nearest medical facility or hospital and the route to get there will also be discussed regularly with all employees.

In the event of a serious injury requiring medical attention other than minor First Aid, only qualified, certified personnel will manage the injured person until professional medical help has arrived.

EMERGENCY ACTION

Proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service, shall be provided prior to the commencement of the job. First aid measures are of extreme importance within the first few minutes for a worker that has incurred a serious or incapacitating injury. A primary assessment by an emergency responder will determine the nature and extent of the injury experienced. If you are assigned this responsibility, and before you initiate any action, take note of the immediate surroundings to make sure you don't become a victim yourself!

- Stay calm, take a deep, relaxing breath (possible adrenalin rush)
- Look for mechanisms or forces that caused this incident
- Be aware of environmental limitations (cold, heat, moisture)
- Control outside interference (traffic, crowds, bystanders)
- Check unknown hazards (gas, chemical, electrical, fire, explosion, lack of oxygen, radiation, weapons, etc.)

FIRST AID KITS

PPM's goal is to protect employees and the patient, utilizing disposable barriers consisting of latex disposable gloves, mouth- to-mouth barrier, eye-shield, mouth-covering, and protective clothing if provided. This equipment for bloodborne pathogen protection is located with the First Aid Kits, which are in each service truck and every

jobsite office.

The First Aid Kit consists of the following items and is to be inspected weekly by the Site Supervisor, for items to be replenished. These kits are maintained on a monthly inspection basis by the Site Supervisor. You should notify the Site Supervisor for requisition of supplies. The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item and shall be checked by the employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

As a practical model, the American National Standards Institute's Minimum Requirements for Workplace First Aid Kits (ANSI Z308.1-1998) should be used. These Physician-approved First Aid kits will be easily accessible, maintained in a serviceable condition, and are to be used for no other type of storage, inside or on top of the cabinet. Any additional items needed for jobsite specific requirements, or items needed for environmental concerns will be part of the first aid supplies.

Individual packaging and sealing will be required only for those items which must be kept sterile. Items such as scissors, tweezers, and tubes of ointment with caps or rolls of adhesive tape need not be individually wrapped, sealed, or disposed of after a single use application. Tear-open individual packages of ointments, antiseptics, and the like will be disposed of after one-time use and not stored.

CHEMICAL SPLASH INJURIES

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

Chemical splashes in the eyes

- Immediately wash the eyes with potable water for at least 15 minutes.
- Forcibly hold the eyelids open and tell the injured person to roll his/her eyes while continuously irrigating.
- Do not use any substance other than potable water to wash the eyes.
- Get medical assistance.

Chemical splashes on the skin

- Remove chemical contact with the skin by brushing off dry and water reactive chemicals and removing contaminated clothing and protective equipment that can be removed quickly (1 second or less).
- Flush the splashed area with large amounts of potable water. Never use anything other than water or mild soap and water to clean chemicals from the skin.
- Remove protective eyewear under the emergency shower as quickly as possible when chemicals have entered the eyes. In cases where the eyewear has not been breached by the chemical, remove the protective eyewear after head and face have been thoroughly washed.
- Wash with potable water for 15 minutes or longer.
- Wash any part of the skin that may have had chemical contact or contact with contaminated wash water.
- Remove any clothing which may have encountered the chemical or contaminated wash water under the emergency shower.
- Washing should give special attention to areas that may be missed such as underneath the earlobes, underneath the arms, the crotch, between the toes, the creases at the sides of the nose, a deep cleft in the chin, etc.
- Get medical assistance. Provide Material Safety Data Sheets for the involved chemicals to medical

personnel.

- If the emergency water used for flushing is cold, the injured person should be treated for shock on completion of washing.
- If a splash causes a thermal burn as well chemical burn, be sure to advise the attending medical personnel the nature of the chemical exposure.
- After washing of the victim is completed, rescuers need to wash themselves to prevent injury from diluted chemical washed off from the victim.

CONCLUSION

Employees with known medical conditions or problems should disclose this information to their immediate supervisor so immediate appropriate medical attention can be provided for instances of allergies, seizures, diabetes, cardiovascular conditions, respiratory problems, asthma, etc.

In the absence of a trained medical responder, the above-mentioned guidelines can be implemented by a bystander as opposed to not participating and watching a person lose their life. This State provides for a Good Samaritan Law that protects you from civil liability if you act in good faith to provide care to the level of your training and to the best of your ability.

Actual consent must be stated or displayed by the victim before care can be initiated. Any refusal of care must be respected. A clear, informed victim's decision must be made before you may proceed. If unconscious, confused, or so severely injured that a clear decision cannot be made, then implied consent is assumed, and patient care initiated.

Employee personnel files should list their family, address, phone number, next of kin, and personal physician name and phone number for any needed contact or support. Anticipatory orders from identified physicians should also be on file to cover emergency or routine care for special health problems.



GENERAL WASTE HANDLING

Purpose and Scope

The purpose of this waste management strategy was developed to provide guidance and requirements necessary for efficient, effective, and compliant waste management during Pacific Pile and Marine (PPM) operations.

This procedure applies to all Pacific Pile and Marine, LP employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Pacific Pile and Marine employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

This procedure DOES NOT cover the handling and disposal of hazardous wastes, spill clean-up materials, or any item covered under controlled disposal requirements. Policies and procedures governing hazardous materials are covered in separate PPM programs such as the Spill Prevention Plan, individual vessel SOPEP plans, and Hazardous Waste Operations.

Responsibility

- Primary responsibility for implementation and enforcement of this policy is designated to the President and general partners.
- The Operations Manager shall be responsible for the implementation of the administrative portions of this program, including the notification of subcontractor management, the training of the site supervisors and the onsite personnel review of this plan.
- The site supervisor will be responsible for the implementation of the onsite portions of this program including the training of subcontractor personnel.

Waste Prevention Planning

- In addition to other requirements specified herein it is understood that the PPM comply with the applicable federal, state, and local waste disposal requirements as well as the specific requirements of any jobsite.
- Of the inevitable waste that is generated, the waste materials designated in this specification shall be salvaged for reuse and or recycling where practical and possible. Waste disposal in landfills or incinerators shall be minimized where practical and possible. On new construction projects this means careful recycling of job site waste.
- On demolition projects this also means careful removal for salvage. Prior to the initiation of any work, waste streams shall be identified.
- Project Construction Documents: Pacific Pile and Marine will contractually require all subcontractors to comply with these recycling guidelines. A copy of this "Construction Waste Management Plan" will accompany all subcontractor agreements and require subcontractor participation.
- The "Construction Waste Management Plan" shall be implemented and executed as follows and as on the chart:
 - Salvageable materials will be diverted from disposal where feasible.
 - There will be a designated area at PPM facilities and on construction sites reserved for materials that can be recycled.
 - Areas shall be marked to designate what recycle materials are to be stored there.
 - Hazardous waste will be managed by a licensed hazardous waste vendor.

Communication & Education Plan:

- This Waste Management Plan is present within the corporate plan files at PPM's main office will be present onsite at project locations.
- Each subcontractor will be made aware of the intent of this project with respect to reduction of waste and recycling. Onsite recycling containers and/or areas will be plainly marked.
- The subcontractor will be expected to make sure all their crews comply with the Waste Management Plan.

- All recycling containers/areas will be clearly marked.
- Lists of acceptable/unacceptable materials will be posted at the site.
- All subcontractors will be informed in writing of the importance of non-contamination with other materials or trash.

Motivation Plan:

- The General Contractor will conduct a pre-award meeting for subcontractors. Subcontractors under consideration will be required to attend the meeting to review project goals and requirements with the project team. Attendance will be a prerequisite for award of subcontracts. This document must be acknowledged by all subcontractors.

Generally Expected Waste, Disposal, and Handling:

- The following chart identifies common waste materials, their expected disposal methods, and handling procedures. New items may be added as needed.

Material	Quantity	Disposal Method	Handling Procedure
Clean dimensional wood and pallet wood	Undetermined	Keep separate for reuse by on-site construction if salvageable	Keep separated in designated areas onsite. Remove as general construction debris or as directed on projects by the work stipulations.
Plywood, OSB, particle board	Undetermined	Reuse onsite when possible, landfill or recycle off site.	Keep separated in designated areas onsite. Place in "Trash" container.
Concrete	Undetermined	Recycle when possible.	Keep separated in designated areas onsite.
Metals	Undetermined	Recycle off site when possible. Separate copper wire when possible.	Keep separated in designated areas onsite. Place in "Metals" container. On project sites, defer to the project specifications or client procedures.
Gypsum drywall	Undetermined	Recycle with supplier when possible.	Handle as general construction debris for disposal in municipal waste facilities.
Paint	Undetermined	Reuse onsite when possible	Keep separated in designated areas onsite. Dispose of at Municipal transfer facilities. On project sites, defer to the project specifications or client procedures.

Material	Quantity	Disposal Method	Handling Procedure
Insulation	Undetermined	Landfill.	Handle as general construction debris for disposal in municipal waste facilities.
Flooring	Undetermined	Landfill.	Handle as general construction debris for disposal in municipal waste facilities.
Glass	Undetermined	Glass Bottles: recycle locally.	Keep separated in designated areas onsite. On project sites, defer to the project specifications or client procedures
Plastics	Undetermined	Plastic Bottles: recycle locally; be aware of plastics that are acceptable to recycle facility.	Keep separated in designated areas onsite.
Cardboard	Undetermined	Recycle locally	Keep separated in designated areas onsite.
Paper products	Undetermined	Recycle locally	Keep separated in designated areas onsite.



GREAT CATCH /NEAR-MISS PROGRAM

Background

Near-miss programs measure, as a lagging indicator, injuries, accidents, events, or occurrences that have already transpired. Great catch programs record, as a leading indicator, observations, activities, and actions that result, or may result, in a safer workplace.

Near-Miss Definition

The National Safety Council/OSHA Alliance defines a near miss as “an unplanned event that did not result in injury, illness, or damage—but had the potential to do so.” The council concludes that near misses happen when there’s “a fortunate break in the chain of events” that might have otherwise caused an injury, fatality or damage, and that “a faulty process or management system invariably is the root cause for the increased risk that leads to the near miss.”

Great Catch Definition

A Great Catch is an action-oriented process that implies somebody did something positive to prevent something bad from happening. It goes something like this: “I recognized an unsafe condition, action, defect or flawed piece of equipment and I acted to prevent an event from occurring. I caught it early and prevented something unfortunate from happening.”

Three Common Attributes

First, each program must be easy to use and uncomplicated, so employees will be more inclined to make a report. Next, the programs need to be well-communicated, so employees have absolute certainty the information collected will never result in reprimand—to anyone. Finally, it’s important to do something with the information collected so employees don’t believe their report will go into a black hole, to never again see the light of day.

Why we report near-misses and Great catches:

1. Near-Misses and Great Catches are warning signs that a piece of equipment, or even a policy or a procedure, is not working properly.
2. Reporting these events will enable Pacific Pile & Marine to investigate each occurrence, so everyone can learn from the events and take action to prevent them from happening again.
3. This reporting also helps management find trends and faults within the system.

Implementation

Reporting of near-misses will occur following incidents that do not result in injuries or property damage, but could have caused an injury, illness, or damage. Near-misses shall be reported to the Safety Department on the same day of the occurrence, with a report to be completed and submitted to the Safety Department within 24 hours of the occurrence.

A Great Catch shall be reported to the Safety Department on the same day of the occurrence. A Great Catch must positively impact safety or quality of the work, initiate a crucial conversation that addresses unsafe acts or conditions, and sets behavioral expectations in the following areas:

- Teamwork
- Collaboration
- Safety
- Accountability
- Communication

Each Great Catch report must document specific action that took place to improve safety and culture.

Great Catch Recognition

As Great Catch submissions are received, they will be logged by the Safety Department and presented to the Safety Committee at their meeting, at the end of each month. The Safety Committee will review all submissions and vote for the top 3 Great Catch reports; the top 3 Great Catch reports will be rewarded by the following schedule:

1. PPM Jacket, PPM Hat, & \$100 gift card
2. PPM Sweatshirt, PPM Hat, & \$75 gift card
3. PPM T-Shirt, PPM Hat, & \$50 gift card

On a quarterly basis, the top 9 Great Catches from the previous 3 months will be reviewed by the Safety Committee and the top two Great Catches will be rewarded by the following schedule:

1. Lunch provided to project (BBQ, burgers, etc.) with Project Sponsor and other Senior Leadership onsite.
2. Breakfast provided to project (donuts, bagels, breakfast sandwiches, etc.) with Project Sponsor and other Senior Leadership onsite.



Great Catch Report

Date of Event:

Name of Worker Observed:

Investigated By:

Date Submitted:

Location of Event:

Brief Description of Event:

Contributing Factors:

What changes, modifications, or actions will be implemented?

How will you implement these corrective actions?

Signature: _____ Date: _____

OFFICE USE ONLY:

Date Received:

Logged



Definitions:

Near-Miss: An incident occurred where no property was damaged and no personal injured was sustained, but given a slight shift in time or position, damage and/or injury could have occurred.

Great Catch: An unsafe condition or act was recognized, which left unaddressed, could have resulted in an injury or property damage. This can also be a positive recognition of a good work practice or behavior which helped create a safer workplace.

Procedure:

1. Once a Great Catch has occurred, an unsafe condition, or an unsafe act has been recognized, the individual shall report it to their supervisor.
2. The supervisor will document the Great Catch on HCSS Forms and submit.

3. Please fill out the report in its entirety. The report shall include the following:
 - a. Date of Great Catch and name of worker observed
 - b. Location
 - c. Contributing Factors (critical errors, etc.)
 - d. Implementation changes or corrective action, and procedure for implementing change.



HAND AND POWER TOOLS

Complying with:

OSHA Safety and Health Regulations for Construction:

Part 1926, Subpart: C

PURPOSE

The purpose of this safety policy, hand, and power tools, is to bring an understanding of potential hazards while using hand and power tools to the employees of Pacific Pile & Marine (PPM)

INTRODUCTION

Recognizing the hazards or potential hazards associated with tools and machinery in the workplace is fundamental to safety and health. There are various distinct "motions" or "actions" associated with machinery and each one presents a different hazard.

The hazards associated with rotating, reciprocating and transverse motions are found (1) at the point of operation where work is being performed, or (2) at the points where power and motion are transmitted or transferred from one part of a mechanical linkage to another.

- Rotating - an action that results in motion either clockwise or counterclockwise on its axis. Examples include vehicle engine fans, shop fans, the wheel of a vehicle, and a grinding wheel.
- Reciprocating - an action which results in an alternating backward and forward motion. Examples include certain saws, articulating pistons, piston-type chucks, etc.
- Transverse Motion - an action resulting in a side-to-side motion. Examples include convex polishing machines, windshield wipers, etc.

The hazards associated with cutting include exposure to the actual cutting device or mechanism. Selection of proper personal protective clothing and equipment will help protect you from contact with the shavings, chips, and dusts that are a byproduct of cutting.

- Cutting - an action which results in the division of an object into parts or segments.

The hazards associated with bending, shearing, and punching result when power is applied to a ram to form or trim metal. The greatest hazard exposure is at the point of operation where the dies contact the metal. All employees must avoid the area where closure of the dies and die punch points occur.

- Bending - an action which results in the introduction of a curve or bow to an object.
- Shearing - an action that results in the crossing of cutting edges to separate an object.
- Punching - an action for perforating, indenting or for driving out or in an object inserted in a hole, as a bolt or pin.

POLICY

Following are the general safety policies for the use of a variety of power and hand tools. It is the responsibility of every employee to adhere to these policies whenever operating a power or hand tool, and to ensure they have received all required training prior to using a tool for the first time. Guards shall be always in place and operable while the tool is in use. The guard may not be manipulated in such way that will compromise its integrity or compromise the protection it which intended. Guarding shall meet the requirements set forth in ANSI B15.1.

Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with PPE necessary to protect them from the hazard. Any tool which is not in compliance shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation. The Safety Department will facilitate the implementation of this program.

Power and Hand Tools

- All power and hand tools shall be maintained in a safe condition whether furnished by the employer or the employee.

- Use the right tool for the job - short cuts and improvising may turn a simple task into a long recovery period. Try to anticipate the tools that will be used for a job and have them at hand.
- Cracked handles, mushrooming ends, torn metal all contribute to an unsafe and defective tool. Replace handles on hammers and screwdrivers when they are cracked or arrange to have them replaced. File mushrooming ends on chisels and file or replace tools with bent or jagged pieces that are exposed.
- Use each tool in an appropriate and approved way. Applying pressure in the wrong way or using a tool without proper grounds can lead to serious injury.
- Store and carry tools in a safe manner. Sharp tools can cause injury if stored without guarding or when carried in a pocket.
- Every employee using tools shall, during regular inspections, check for defective or damaged tools and advise replacement or repair.
- Using tools safely can help to avoid unnecessary repair or breakage and ultimate injury.

HACKSAWS

Pressure should only be applied on the forward stroke. Applying too much pressure may result in the blade breaking and injury to the employee. When adjusting the hacksaw, be sure to do so when it is in its frame to prevent breaking or buckling. Do not tighten to the point where pins break off and be sure to install the blades with the teeth forward.

FILES

Never use a file in place of a hammer or pry bar. Grasp file firmly in one hand using the thumb and forefinger of the other hand as a guide. Always inspect files for cracks in the handle to avoid puncturing the hand while in use.

TIN SNIPS

Choose a tool heavy enough to cut material easily with one hand while holding the material being cut with the other hand.

Always check to ensure the jaws of the snip are adequately lubricated. Glove protection is required.

SAWS

Always select the proper saw for the job at hand. A coarse saw with 4-5 teeth per inch should be selected for fast crosscut work on green wood. Select a finer saw for smoother more accurate cutting of dry wood. Store saw in rack when not in use.

HAMMERS

Check handles to ensure they are free from splinters. Heads must be solid. Use a soft-head, plastic-head, wood-head, or rawhide-head hammer when working on hardened steel surfaces. The face of the hammer should always be proportionately larger than head of the tool it is striking (chisel, punch, wedge, etc.). Strike the hammer squarely and always wear eye protection. When using a sledgehammer, choose the proper weight for the job at hand as too light a hammer can bounce off the work creating a hazard and too heavy a hammer can cause physical strain. When prying a nail from wood using a claw hammer, place a block of wood under the hammer head to create additional leverage.

SCREWDRIVERS

Always choose the screwdriver to fit the screw. Choosing a sharp edge bit requires less pressure than a dull, rounded edged bit and will not slip as readily. Never hold the part of the screwdriver doing the work in your hand.

PLIERS

Electrician's pliers must be insulated and anyone performing work with electrician's pliers must wear special work gloves when working on energized lines. Be careful when using side cutting pliers which can cause injuries when short ends of wires are cut, and never use pliers in place of a wrench.

WRENCHES

Always select wrenches that fit the nut properly. Do not use a pipe wrench over single head wrenches as this may lead to injury. Routinely inspect wrenches to ensure that the jaws fit. Doing so will prevent damage to the head of the nut and is less likely to slip and cause injury.

KNIVES

Always maintain a cutting stroke away from the body. Never leave a knife open or laying on tables when not in use. When work is completed, place knife in a sheath or close knife and store properly.

HAND GRINDERS

All grinders with stones or discs must be guarded and be equipped with automatic shut offs. Proper operation and care of grinders includes monitoring where the sparks are thrown (away from others) and care must be taken to not drop or abuse grinders which may cause the stone or disc to become damaged. Ensure that the grinder has been properly lubricated.

ELECTRIC DRILLS

All drills must be double insulated or properly grounded as electric shock is a very real danger when operating a drill.

When operating a drill, care should be taken to clamp the material down so that it does not rotate and strike anyone. Always disconnect the drill prior to changing the drill bit and never place hands between the drill and the materials being drilled.

ELECTRIC SAWS

Routinely check the saw guard to ensure it is in proper placement. Care should be taken to keep the power cord away from the stroke of the saw, so it is not severed. Grounding prongs are never to be removed from the electrical cord as they are there to ensure safe operation.

AIR HOSES

Although air hoses are not typically considered hand tools, they are a major cause of shop injuries. Whenever possible, suspend air hoses over work area. Protect air hoses located on the ground from vehicle damage. Prior to working on an air hose, always shut off the power. Safety check valves are to be installed on all air hoses for automatic shut off, so they do not whip about when they accidentally become disconnected.

AIR GUNS

Air pressure for cleaning purposes must not exceed 30 psi. Air guns have been known to cause death when used improperly. Therefore, extreme caution must be taken when operating an air gun.

- Operation of machinery and equipment shall conform to the standard operating procedures established by the company who manufactures the machinery or equipment. Operation of machinery and equipment that deviates from this is prohibited.
- Operation of power tools shall also conform to standard operating procedures. Operating power tools in a manner that deviates from Standard Operating Procedures is prohibited.
- The safe operation of power tools, machinery and equipment is mandatory. Any use of these power tools,

machinery, or equipment for work they are not intended is strictly prohibited and subject to disciplinary action.

HYDROSTATIC TESTING PROCEDURE

Hydrostatic testing shall be performed as required or requested by client/owner. The applicable code for the item being pressure tested shall be adhered to regarding pressure testing. At no time during the pressure test shall any part of the piping system be subjected to a stress greater than that permitted by the applicable code. Suitable precautions shall be taken in the event of piping system rupture to eliminate hazards to personnel in the proximity of lines being tested.

Equipment that is not to be subjected to the pressure test shall be either disconnected or isolated by a blank or similar means. Valves may be used for this purpose if valve closure is suitable for the proposed test pressure. The Owner shall be aware of the limitations of pressure and temperature for each valve subject to test conditions. Isolated equipment and piping shall be vented. The pressure test equipment shall be inspected prior to use. If any parts of the testing equipment are found to be inoperative or in need of repair, then that item shall be tagged or marked inoperative and not be used.

Hoses or pipe on the pressure side of the test equipment shall be tethered to prevent flailing of lines. The test equipment shall be examined before pressure is applied to ensure that it is tightly connected. Personnel shall inspect and approve the pressure test equipment and the item being pressure tested prior to pressure being applied.



HAZARD COMMUNICATION (HAZCOM)

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1910, Subpart: Z

United Nations Globally Harmonized System

PURPOSE

The purpose of the Hazard Communication Standard is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards are communicated to employers and employees.

SCOPE

As an employer, Pacific Pile & Marine is required to provide sufficient information to enable employees to make informed decisions regarding their willingness to work with substances that have been determined to be hazardous to their health. This information includes details of the chemical make-up of the materials, health effects associated with the materials under a variety of conditions and information regarding the appropriate personal protection equipment necessary to safeguard against detrimental health effects.

RESPONSIBILITIES

Employers must provide information to their employees about the hazardous chemicals to which they may be exposed. As part of this education process, they must:

- Identify and list hazardous chemicals in the workplace,
- Obtain SDS's and labels for each hazardous chemical,
- Develop and implement a site-specific, written hazard communication program including labels, SDS's and employee training, and
- Communicate hazard information to their employees through labels, SDS's and formal training programs.

Employees also have responsibilities under the OSHA Hazard Communication Standard to ensure their own safety and that of their coworkers. Employees should become familiar with the nature of the hazards associated with the chemical products with which they work or are otherwise exposed, as well as how to handle them safely. In general, employees should:

- Be familiar with the location and availability of material safety data sheets (SDS's) and the written hazard communication program,
- Use chemical products in a manner that is consistent with the information set forth on the label and SDS, including but not limited to directions for use, hazard warnings and precautionary measures,
- Follow appropriate work practices when working with hazardous chemical products such as the use of personal protective equipment and ventilation,
- Comply with OSHA regulations and company safety and health policies, and
- Report hazardous conditions to your supervisor.

POLICY

Our Company complies to the OSHA Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200, by compiling a hazardous chemicals list, by using SDS's, by ensuring that containers are labeled and through providing our employees with training. This program applies to all work operations in our Company where employees may be exposed to hazardous substances under normal working conditions or during an emergency. Copies of this program will be available at all sites and updated/revised for site specific conditions.

The Director of HSE, as the acting representative of Pacific Pile & Marine, is responsible for implementation of this program. Additional copies of the program are available in the office. Under this program, employees will be informed of the contents of the Hazard Communication Standard, the hazardous properties of chemicals with which you work, safe handling procedures and measures to take for protection from these chemicals. Additionally,

employees will be informed regarding hazards associated with non-routine tasks, such as the cleaning of reactor vessels and the hazards associated with chemicals in unlabeled pipes.

HAZARDOUS CHEMICALS LIST(S)

The Safety Department will develop and maintain a list of all hazardous chemicals and related work practices used at work. The list of chemicals will be accessible to all employees and will be updated periodically. Safety Data Sheets can also be accessed through TotalSDS

(<https://manager.totalsds.com/ss/safetysearch.html?clientId=CR8N657K8LA7MUJ51LXZ3RHN5XHBM23V>).

SAFETY DATA SHEETS (SDS's)

SDS's provide specific information about the chemicals in use on the job. The Safety Director may maintain in his/her office a binder of SDS's (consisting of an OSHA form 174 or equivalent provided by the supplier) for each of the substances on the list of hazardous chemicals. Or SDS's may be obtained through access to TotalSDS. Additionally, each crew foreman will maintain a SDS book at the jobsite, usually in the jobsite pickup truck for employee use, or the foreman can access TotalSDS.

The Safety Director is responsible for acquiring and updating SDS's which are supplied by the manufacturer. The Safety Director will contact the chemical manufacturer or supplier if additional research is necessary or if an SDS has not been supplied with an initial shipment. The Safety Director must be informed of all new procurements for the Company.

LABELS & OTHER FORMS OF WARNING

The Safety Director will ensure that all hazardous chemicals at the yard and in the field will be properly labeled and updated. Labels should list the chemical identity, the appropriate hazard warnings and the name and address of the manufacturer, importer, or other responsible party. Foremen are responsible for labels on all containers utilized at jobsites. If chemicals are transferred from a labeled container to a portable container that is intended only for immediate use, no labels are required on the portable container. Pipe and piping systems encountered at individual jobsites may not be labeled, but contents will be described by the job foreman in the job-site safety orientation meeting.

NON-ROUTINE TASKS

When required to perform hazardous non-routine tasks (for example cleaning tanks, entering confined spaces, demolishing piping systems) a meeting will be held to inform involved employees regarding the hazardous chemicals that may be found in unmarked pipes and the proper precautions to take to avoid exposure.

TRAINING

Yard, office, and field personnel who work with, or may be exposed to, hazardous chemicals will receive initial information and training on the Hazard Communication Standard and the safe use of the hazardous chemicals. The Safety Coordinator/Manager or Site Superintendent will make sure that before starting work, each employee will attend a health and safety orientation that includes training on the following:

- Operations that involve the use of hazardous chemicals
- Hazardous chemicals present at his or her workplaces.
- Steps the employer has taken to reduce or prevent exposure to hazardous chemicals.
- How to read labels and review SDS's to obtain hazard information such as flammability, carcinogenicity, or specific chemicals.
- Location and availability of the written program, including SDS's and the list of hazardous chemicals.
- Methods and observations that may be used to detect the presence or release of hazardous materials.
- The physical and health hazards of the chemicals in the work area including the likely physical symptoms

or effects of overexposure.

- The symptoms of overexposure.
- How to reduce or prevent exposure to hazardous chemicals through use of control procedures, work practices, and personal protective equipment.
- Procedures to follow if employees are overexposed to hazardous chemicals.

RETRAINING

Workers will be retrained when a chemical is introduced that was not part of the initial training, or a new physical or health hazard is present.

SUBCONTRACTORS / OTHER EMPLOYERS (Multi-Employer Worksites)

Employees of other contractors working at sites where Pacific Pile & Marine is acting as a general or prime contractor will be provided access to SDS files maintained by the job foreman, either in a job trailer or in the foreman's vehicle.

The Pacific Pile & Marine job-site foreman is responsible for notifying the responsible subcontractor supervisor or job foreman of any chemical hazards that may be encountered in the normal course of their work on the premises, the labeling system in use, the protective measures to be taken, the safe handling procedures to be used and the location and availability of SDS's. Each contractor bringing chemicals on-site must provide the Pacific Pile & Marine jobsite foreman with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken when working with these chemicals.

In the event there are specific areas to drive (multi-site) the locations of these routes will be identified. The written Hazard Communication Program will be kept in the jobsite trailer, or if no trailer is on site, each employee will keep a copy.



HAZARDOUS WASTE OPERATIONS EMERGENCY RESPONSE POLICY

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart: D

WA L&I DOSH Safety Standards:

WAC 296-843

PURPOSE

The goals of this emergency response plan are, in order of priority, to protect the lives and health of Pacific Pile & Marine employees and protect and minimize damage to company property in the event of an emergency.

PLAN

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response (HAZWOPER) standard applies to the following:

- cleanup operations required by any governmental body (federal, state, or local) at any uncontrolled hazardous waste site,
- any corrective action involving a first-time cleanup under the Resource Conservation and Recovery Act (RCRA) program,
- any volunteer cleanup operation at either an uncontrolled hazardous waste site or RCRA site,
- operations involving hazardous waste at treatment storage and disposal sites, and
- emergency response operations for release, or substantial release threat, of hazardous substances without regard to location of the hazard. This category is a catch-all regulation. Very broad in scope, on just about any job, process or operation that uses, stores and/or disposes of hazardous substances. Certain requirements must be complied with under the HAZWOPER standard. These requirements include a written emergency response plan to handle any emergencies that may arise before the start of response operations. This plan will be available for employees, their representation, or OSHA to review.

The written Emergency Response Plan must address the following areas:

- pre-emergency planning and coordination with outside responding agencies, i.e., fire, EMS, police, etc.,
- personnel roles, lines of authority and lines of communication,
- emergency recognition and prevention (that constitute an emergency and how to prevent the occurrence),
- safe distances and places of refuge,
- site security and control,
- evacuation routes and procedures,
- decontamination procedures,
- emergency medical treatment and first aid,
- emergency alerts and response,
- personal protective equipment and emergency equipment,
- engineering controls,
- air monitoring, and
- critique of response procedures and follow-up.

OSHA also requires emergency response program personnel be provided with a medical surveillance program. Personnel responding to emergency releases of a hazardous material are required to receive an initial baseline physical, an annual physical, when they exhibit signs or symptoms which may have resulted from such exposure and an additional physical at employment termination.

PRIORITIES

The objectives of this plan are, in order of importance:

1. To evacuate and account for all employees and visitors,
2. To contact local emergency service organizations,
3. To assemble the company's Emergency Response Team (ERT) for implementation of the response plan,
4. Contact pertinent regulatory agencies,
5. Conduct search-and-rescue operations, turnoff utilities, control any hazardous chemical spills, or releases,
6. Prevent further property damage through protective measures or by removing property,
7. Perform cleanup and salvage as needed,
8. Conduct post-incident critique and evaluation,
9. File any applicable reports with regulatory agencies.

RESPONSIBILITIES

Site Management

- Evaluate the number and types of hazards expected, based on experience and general knowledge to plan, and develop Emergency Response Plan specifics,
- Provide training to all employees for their roles in all emergency plans,
- Conduct drills to practice response to emergency situations,
- Conduct an annual drill to practice confined-space rescue,
- All other activities necessary to the development and implementation of an effective Emergency Response Plan,
- Make emergency response team assignments,
- Maintain sufficient inventory of emergency response equipment,
- Ensure maintenance and inspection of emergency response equipment,

First Responders

First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training to objectively demonstrate competency in the following areas:

40-Hour HAZMAT-Trained Personnel

1. Assist in the training of emergency response teams, and
2. Assume active positions on the response teams.

Safety Department

1. Aids in developing and carrying out emergency response plans.

TRAINING

Pacific Pile & Marine will not attempt any hazardous waste operations unless employees have been trained in accordance with the provisions of OSHA Standard 1910.120. Therefore, whenever Pacific Pile & Marine must work on a site that is designated a hazardous waste site, employees will be required to obtain 40-hour HAZWOPER training and be retrained annually. The company will hire a third-party training facility with experience and credentials to demonstrate competency to give this training.

Additionally, all employees will be trained on the procedures contained in this plan. All new hires will have initial training to our Haz-Com compliance program as part of our New Hire Orientation. This training should include all aspects of safe handling of materials in their work area, the use of fire extinguishers, and the appropriate action to be taken in case of a release of materials they work with. They will be re-trained any time employee responsibilities under the plan change or whenever the plan changes. Follow-up training will occur on an as-needed basis, depending on the nature of all products used on site. This training may be site-wide to include all employees or may be specific to an individual crew using a product.

The procedures for how employees will be informed and trained are as follows:

The Site Safety Coordinator/Manager ensures that, before starting work, each new employee of Pacific Pile & Marine attends a health and safety orientation that includes information and training on the following topics:

- Overview of the requirements contained in the Hazard Communication Standard.
- Hazardous chemicals present at his or her workplace.
- Physical and health risks of the hazardous chemical.
- Symptoms of overexposure.
- How to determine the presence or release of hazardous chemicals in his or her work area.
- How to reduce or prevent exposure to hazardous chemicals through use of control procedures, work practices, and personal protective equipment {PPE}.
- Steps the employer has taken to reduce or prevent exposure to hazardous chemicals.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- How to read labels and review MSDSs to obtain hazard information.
- Location of the MSDS file and written Hazard Communication Plan.

Before introducing a new chemical hazard into any work area, each employee in that area will be given information and training as outlined above for the new chemical.

The company will provide copies of all emergency response plans to be kept in employee handbooks and operation manuals and will post copies on employee bulletin boards.

The company also will designate and train enough employees to assist in the safe and orderly evacuation of employees and visitors. These employees will be trained and re-trained as needed. Training will cover:

- Emergency reporting,
- Evacuation routes,
- Alarm systems, and
- Specific assigned duties.

Periodic drills will be held to ensure that all employees know the appropriate action to take in case of an emergency. The company will provide additional training and frequent drills for employees with specific emergency-response duties; and invite local emergency service units to participate in training whenever possible. Internal training will be documented and maintained on file at the corporate office; third party training certification will also be kept on file. Any special PPE will be furnished by Pacific Pile & Marine with appropriate training prior to any work starting.

INCIDENT REPORTING

The objective of the notification procedure is to ensure that appropriate personnel are contacted and their reaction to the incident or situation is preplanned and understood. The senior official at an emergency response is the most senior official on the site that has the responsibility to control operations at the site. After the senior official is notified, if not part of the senior management, then:

Management Notification

If an emergency, or situation that could become an emergency, occurs, inform management immediately.

Field Manager/Project Manager

The Field Manager is to confirm the situation and initiate the actions necessary to combat the emergency, or to contain and clean up any spill, as necessary

Project Manager will give an appraisal of the situation as best as can be determined and the proposed actions to be taken at the scene.

Employee Notification

Employees will be notified verbally or via an emergency alarm.

External Notification

- Call (911 or equivalent) to contact the local fire or police department, emergency medical service or other emergency-response units.
- Chemtrec: 800-424-9300. Chemtrec operates around the clock – 24 hours a day, seven days a week to receive direct dial, toll free, calls from any point in the continental United States.
- In the case of an oil spill on the water, contact the US Coast Guard, in accordance with posted jobsite information and immediately begin booming operations to contain the spill.

Corporate Notification

Contact the CEO, COO, or VP if media coverage of the situation is expected. Also, contact the corporate office as soon as possible of property damages, theft, or property losses.

EVACUATION PROCEDURES

After the senior manager on the scene determines that evacuation is necessary, the evacuation alarm will be implemented. Specific responsibilities are as follows:

- Lead employees from work areas when the evacuation alarm sounds,
- Escort employees to (Designated Assembly Area),
- Account for all employees upon reaching the designated assembly area,
- Notify human resources of any employee not accounted for, and
- Ensure that employees stay in the assembly area.



HEAT STRESS

Complying with:

WA L&I DOSH Safety Standards

WAC 296-62-095: Outdoor Heat Exposure

Cal/OSHA Standards

8 CCR §3395: Heat Illness Prevention in Outdoor Places of Employment

OSHA Standards for General Industry

29 CFR 1910, Subpart: I

OSHA Standards for Construction

29 CFR 1926, Subpart: C

OSHA Standards for Construction

29 CFR 1926, Subpart: E

PURPOSE

To provide a safe and healthful working environment and protect Pacific Pile & Marine (PPM) employees who perform work in an outdoor environment. PPM will evaluate and reduce hazards when employees are exposed to temperature extremes.

POLICY

It is the policy of PPM that all affected employees are required to comply with this Heat-Related Illness policy and are encouraged to actively participate in identifying ways to reduce the risk of experiencing heat-related illness in the workplace.

It is also the policy of PPM HSE dept and Field Supervision to check the workplace for unsafe conditions, monitor the health and safety of employees, and take prompt action in response to any identified heat-related illness hazards.

RESPONSIBILITIES

- The Project Superintendent has overall responsibility for establishing and ensuring compliance with this procedure.
- The Project Safety Manager is responsible for implementing and/or monitoring activities associated with this procedure.
- It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.
- **Managers and Supervisors** need to use the following **P.A.S.T.** steps to prevent heat-related injuries:
 - **Plan**,
 - provide **Access to Water**,
 - provide **Shade** for break areas,
 - and provide proper **Training** to prevent heat-related injuries.
- Although summer heat is the largest cause of heat distress, it may also occur when workers are exposed to confined areas such as pipelines, shipboard spaces with limited ventilation, or any confined area involving welding or cutting. Heat can increase the risk of injuries as it may result in sweaty palms, fogged-up safety glasses, and dizziness. Burns may also occur due to accidental contact with hot surfaces or steam.

PROJECT IMPLEMENTATION

The guidelines discussed in this section are only intended to be used as a means for the initial establishment of a work-rest regimen.

- The field safety and health staff shall evaluate the conditions at a specific operation and make final determinations of the work-rest regimen.
- Intake of fluid shall be increased beyond that which satisfies thirst, and it is important to avoid "fluid debt," which will not be made up if the individual is sweating.
- Two 8 oz glasses of water are recommended before beginning work, then up to 32 oz per hour during the work shift, although fluid replacement at frequent intervals is more effective. **(CAL/OSHA standard calls for one pint of water available per person per hour with electrolyte options.)**

- The best fluid to drink is water; liquids like coffee or soda do not provide efficient hydration and may increase loss of water.
- Projects are required to have electrolyte replacement available.
- Additional salt is usually not needed; moreover, salt tablets should never be taken.
- Replacement fluids should be cool, but not cold. The bodies' best chance to replace fluids is at room temp. Cold water is effective at assisting in cooling the body.
- Breaks should be taken in a cool, shaded location, and any impermeable clothing should be removed.
- Dry clothing and/or towels should be available to help minimize chills when taking breaks.
- Manual labor, other than paperwork or similar light tasks, should not be performed during breaks.

Other heat controls that may be used include:

- Scheduling work at night or during the cooler parts of the day (6 a.m. – 10 a.m. and/or 3p.m. - 7p.m.).
- Erecting a shade over the work area.
- Use of cooling garments, although expensive and logistically difficult to implement.

Work Schedules

- Work schedules providing periodic rest periods should be implemented when employees are exposed to heat stress. Schedules shall be developed based on instrumental measurements of the environment, by assessing temperature, radiant heat, humidity, and wind speed, with the resulting measurement compared to published guidelines, as outlined by NIOSH REL and ACGIH TLV, for Heat Stress. When using this method, allowance must be made for the use of impermeable protective clothing.
- The Project Safety Manager shall determine the potential for heat stress based on planned activities and weather forecasts.
 - If the potential for heat stress exists:
 - **Warning signs of heat exhaustion** are heavy perspiration, fatigue and weakness, muscle and body ache, headache, nausea, rapid heartbeat, confusion, loss of consciousness, and vomiting (with or without loss of consciousness). Heat stress can quickly move to heat stroke, a life-threatening medical emergency, when the body's natural cooling system breaks down and causes the body's core temperature to rise and overheat the brain. Some of the symptoms of heat stroke are immense thirst, severe headaches, disorientation, dry/hot skin (no sweating) and possibly collapse. Workers who are overweight, 65 years of age or older, suffer from heart disease and high blood pressure, and/or take medications that may be affected by extreme heat are at greater risk of heat stress and should seek and follow medical advice.
 - **Hyponatremia** You may suffer an electrolyte imbalance when the amount of a certain electrolyte you lose via urine or sweat is not properly replaced and you consume too much water. For example, you may have a blood-sodium level that falls too low, or hyponatremia.
 - All site workers should be informed of the potential for heat stress during the daily safety meeting. The Project Safety Manager shall determine if any workers are at particular risk for heat stress due to illness, etc. Also, the Project Safety Manager shall assure that enough portable water and

electrolyte drinks are available in the decontamination area, and that a shaded rest area is available at or immediately outside the decontamination area.

- All workers should drink 16 oz of water prior to beginning work, and at least 16 oz during each rest period.
- Additional Means of Prevention.
 - Cooling devices such as vortex tubes or cooling vests can be worn beneath protective garments. If cooling devices are worn, only physiological monitoring is to be used to determine work activity.
 - Means of cooling per Hyperthermia conditions i.e., cool wet towels on key areas neck, armpits, lower abdomen to groin region and behind knees if able. Shade is needed.
 - Checking for profuse sweating or lack of sweating should lead to apt cooling responses, fluid intake or emergency medical attention if paired with temperature increase.
 - All breaks should be taken in a cool, shaded rest area.
 - Employees shall open or remove chemical protective garments during rest periods. See Attachments 1 & 2 for reference clothing types.
 - All employees shall be informed of the importance of adequate rest and proper diet in the prevention of heat stress.
 - i. Employees shall be informed of the harmful effects of excessive caffeine and alcohol consumption in the prevention of heat stress.

TRAINING

Employee training

Training in the following topics will be provided to all employees who may be exposed to a heat-related illness hazard:

- All site workers should be informed of the potential for heat stress during the daily safety meeting. The Project Safety Manager shall determine if any workers are at particular risk for heat stress due to illness, etc. Also, the Project Safety Manager shall assure that enough portable water and electrolyte drinks are available in the decontamination area, and that a shaded rest area is available at or immediately outside the decontamination area.
- The environmental factors that contribute to the risk of heat-related illness.
- Awareness of personal factors that may increase susceptibility to heat illness.
- PPM procedures for identifying, evaluating, and controlling exposure.
- The importance of removing heat-retaining personal protective equipment and clothing such as nonbreathable chemical resistance clothing during all breaks.
- The importance of frequent consumption of small quantities of water, 1 quart or more over the course of an hour may be necessary when the work environment is hot, and employees may be sweating more than usual in the performance of their duties.
- The importance of acclimatization.
- The different types of heat-related illness and the common signs and symptoms of heat-related illness.

- The importance of immediately reporting to PPM project team, directly or through the employee's supervisor, symptoms, or signs of heat illness in themselves, or in coworkers.
- PPM has procedures for responding to symptoms of possible heat-related illness, including how emergency medical services will be provided should they become necessary.
- The purpose and requirements of this standard.
- The worker's right to receive the protections provided by this standard.
- Update training to reflect the requirements for cool-down rest periods and what temperature triggers there are for these preventative and mandatory rest periods; and
- The six main factors involved in causing heat stress include humidity, clothing, air movement, activity level, temperature, and radiant temperature of the surroundings. Adjusting to these factors and/or controlling them reduces the chance of heat stress.

Supervisor training

Prior to assignment, supervisors must have training on the following topics:

- The information required to be provided in employee training above.
- The procedures the supervisor is to follow to implement the applicable provisions in this section.
- The procedures the supervisor is to follow when an employee exhibits signs or symptoms consistent with possible heat-related illness, including emergency response procedures; and
- Procedures for moving employees to a place where they can be reached by an emergency medical service provider, if necessary.

HAZARD EVALUATION

PPM Field Supervision and project team will evaluate the workplace and identify the following heat-related illness hazards daily during the morning meeting:

General Heat Stress Hazard Identification:

- Heat during the months of May, June, July, August, September (longer season in some project areas)
- Reflected heat from metal surfaces e.g., barges, concrete, water reflection
- Radiated heat from equipment, torches, welding, sun heating ambient surfaces
- Heavy clothing and PPE's (HAZMAT, welding gear, chainsaw chaps etc.)
- Specific job duties like confined space work, mechanical equipment, exposed barge deck work, maintenance, general construction.

DEFINITIONS

"Acclimatization" – means the body's gradual adaptation to work in the heat that occurs gradually as a person is exposed to it over a period of seven to 14 days with a substantial amount of adaptation occurring in the first four to five days. Acclimatization is lost after a week away from working in the heat.

"Buddy system"- A system where individuals are paired or teamed up into work groups so each employee can be observed by at least one other member of the group to monitor and report signs and symptoms of heat-related illness.

“Drinking water”-Potable water that is suitable to drink and suitably cool in temperature. Drinking water packaged as a consumer product and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain caffeine are acceptable.

“Environmental factors for heat-related illness”- Working conditions that increase susceptibility for heat-related illness such as air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload light, moderate, or heavy and duration, and personal protective equipment and clothing worn by employees. Measurement of environmental factors is not required by WAC 296-62-095.

“Heat-Related Illness” (HRI) - means a serious medical condition resulting from the body’s inability to cope with a particular heat load, and includes, but not limited to, heat cramps, heat rash, heat exhaustion, heat syncope (fainting), and heat stroke.

“Outdoor environment” – means an environment where work activities are conducted outside of a building shell (generally referring to a ceiling and at least three sides). Environments such as vehicle cabs, sheds, and tents, or other non-permanent structures may be considered an outdoor environment when the environmental factors are not controlled.

“Vapor barrier clothing”- Clothing that significantly inhibits or completely prevents sweat produced by the body from evaporating into the outside air. Such clothing includes encapsulating suits, various forms of chemical resistant suits used for PPE, and other forms of nonbreathable clothing.

“Personal risk factors for heat-related illness” - means factors including, but not limited to, an individual’s age, degree of acclimatization, health, medical condition, water consumption, alcohol consumption, caffeine consumption, nicotine consumption, and use of prescription and non-prescription medications that affect the body’s water retention or other physiological responses to heat.

“Double-layer woven clothing”- Clothing worn in two layers allowing air to reach the skin. For example, woven coveralls are worn on top of regular work clothes.

“Shade”- A blockage of direct sunlight. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use.

ATTACHMENTS

Temperature Measurement Schedule, All States Except Washington State (Attachment 1)

Outdoor Temperature Action Levels, Washington State Only (Attachment 2)

Reference for Heat Stress (Heat Stress Toolbox Talk)

ATTACHMENT 1 –TEMPERATURE MEASUREMENT SCHEDULE

All States, Except Washington State

FREQUENCY OF MEASUREMENT		
AMBIENT TEMPERATURE (° F)	NORMAL WORK CLOTHING *	IMPERMEABLE WORK CLOTHING
70° F – 80° F	N/A	90 MIN
80° F – 85° F	120 MIN	60 MIN
85° F – 90° F	90 MIN	30 MIN
< 90° F	60 MIN	15 MIN

* Normal work clothing is cotton coveralls or other cotton clothing with long sleeves and pants.

NOTE: Individuals with pre-existing medical conditions or restrictions contraindicating exposure to elevated environmental heat are precluded from assignments that involve exposure to high temperatures.

Healthy individuals will vary significantly in their tolerance to heat; and heat tolerance can be affected by minor illnesses (cold, flu), and by prescription and over-the-counter medications.

The heart rate measure is only a part of the overall situation to be considered; other objective and subjective symptoms of heat stress, such as: extreme fatigue, nausea, disorientation, lightheadedness, and breathlessness, must be fully considered when evaluating the adequacy of control measures.

The heart rate measure will provide guidance that can be significantly different for each member of a field team, based on their acclimatization, physical fitness, and heat tolerance. If it is critical that all team members use the same work/break schedule, the schedule that accommodates the least heat-tolerant team member should be observed.

**ATTACHMENT 2 – OUTDOOR ACTION LEVELS
WASHINGTON STATE ONLY**

OUTDOOR TEMPERATURE ACTION LEVELS	
Type of Clothing	Work in Direct Sun
All other clothing	89° F
Double-layer woven clothes (e.g., cotton coveralls, jackets, and sweatshirts)	77° F
Nonbreathable clothing including vapor barrier clothing or PPE such as chemical resistance suits	52° F

Note: There is no requirements to maintain temperature records. The temperatures in Table 1 were developed based on Washington State data and are not applicable to other states.

ATTACHMENT 3 - REFERENCE FOR HEAT STRESS

HEAT STRESS TOOLBOX TALK

Every year, dozens of workers die and thousands more become ill while working in extreme heat or humid conditions. More than 40 percent of heat-related worker deaths occur in the construction industry, but workers in every field are susceptible. There are a range of heat illnesses, and they can affect anyone, regardless of age, gender, or physical condition. It is impossible to predict who will be affected and how someone may respond to heat stress because everyone reacts differently. However, once a worker experiences heat exhaustion or heat stroke once they become more likely to have it again also increasing the odds of severity with every occurrence.

Types of Heat Stress & Symptoms

- Heat Cramps / Heat Stress – Early, most mild stage of heat stress. If you start experiencing these symptoms take a break, cool down and hydrate to prevent it from becoming heat exhaustion or stroke.
 - Cramping
 - Muscle Spasms
- Heat Exhaustion – Although these symptoms may seem moderate, exhaustion can quickly turn into heat stroke before employees have time to react. If you or a coworker is experiencing exhaustion, stop work immediately, loosen tight clothing and boots, move to a cool area and hydrate. Do not return to work until symptoms cease.
 - Headaches
 - Excessive Sweating
 - Rapid Heartbeat
 - Dizziness
 - Weakness / Fatigue
 - Nausea / Vomiting
 - Thirst
- Heat Stroke - The most severe response to hot weather conditions; the body is no longer able to control its internal temperature. This can lead to permanent disability or death. If a worker is experiencing these symptoms, it is a medical emergency! CALL 911 IMMEDIATELY!
 - Confusion
 - Loss of coordination
 - Hot / Dry skin (stopped sweating)
 - Seizures
 - Passing Out / Loss of Consciousness
 - Slurred speech

How to “Beat the Heat”

- Drink plenty of water (4 glasses per hour is recommended).
- Don’t consume too much salt; salt tablets are unnecessary, unless prescribed by your doctor.
- Limit consumption of caffeine, alcohol (the night before), and sugared sodas. All of these will increase dehydration.
- Avoid hot, heavy meals.
- Use sunscreen of 15 SPF or more.
- Wear light-colored, loose-fitting clothing made of breathable material, if possible.
- Take breaks in shaded and cool areas.
- It can take 4 to 14 days to acclimate your body to heat.
- Schedule work (if possible) to accommodate for weather. Try to do the most physical work during the coolest portion of the day.
- Alternate tasks between strenuous and easy.
- Talk to your doctor about any medication you’re taking, and potential heat related reactions.



HOT WORK, WELDING, & CUTTING

Complying with

OSHA Welding, Cutting, and Brazing Operations

29 CFR 1910 Subpart Q and 1926 Subpart J

Purpose

This policy provides safety and health instructions regarding gas and electric welding, cutting, brazing, or similar flame or spark-producing operations to protect personnel and property against heat, evolved gases and fumes, electrical shock, and radiation. It is designed to prevent any fires that may result from Hot Work processes. The following instructions and work practices have been established in accordance with the requirements of *29 CFR 1910 Subpart Q and 1926 Subpart J*.

Scope

For the purposes of this policy, "hot work" is defined as any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to, grinding; cutting, brazing, soldering; and welding. This policy applies to all personnel who are involved with construction and maintenance activities and/or who may be involved in "hot work" activities. This procedure shall apply to all employees responsible for planning, supervising, and conducting welding and cutting operations.

RESPONSIBILITIES

A. Management shall:

1. Designate an individual, or individuals, responsible for authorizing welding and cutting operations.
2. Designate approved welding/cutting areas at their facility or construction site.
3. Advise all personnel about flammable materials or hazardous conditions of which they may not be aware and select cutting/welding trained personnel who understand the risks involved.
4. Employees performing hot work (and their supervisors) are required to be suitably trained in the safe operation of the equipment.

B. Safety Coordinator shall:

1. Provide guidance to employees and supervisors in the implementation of this policy.
2. Ensure all work areas and equipment used for welding/cutting operations are inspected for compliance with the requirements of this procedure.

C. Welding Supervisors shall:

1. Ensure that this policy is adhered to during all welding and cutting operations.
2. Ensure designated areas are established for welding, cutting, brazing, torch soldering and grinding operations where the potential fire danger is limited.
3. Ensure that welding/cutting operations are performed in designated areas by trained and authorized personnel. Ensure an approved Hot Work Permit is obtained.
4. Approve hot work permits for welding and cutting operations in non-designated areas.
5. Maintain hot work permit records onsite.
6. Ensure the precautions listed on the Hot Work Permit are understood by the person(s) performing the permitted cutting, welding, or brazing operations.
7. Maintain cutting or welding equipment in a safe operating condition.
8. Ensure that individuals working under their direction are trained and understand the applicable provisions of the hot work program and that all requirements of any hot work permit are fulfilled before work is performed.

9. Ensure properly trained fire watches are assigned when required by the Hot Work Permit.
10. Ensure all workers are advised about flammable materials or hazardous conditions of which they may not be aware in areas where they will be working.
11. Ensure workers are informed of the expectation that they will follow all OSHA requirements, including obtaining a hot work permit, if applicable to the job being performed.

D. Welders shall:

1. Perform welding and cutting operations in designated areas.
2. Obtain an approved hot work permit prior to performing welding or cutting operations in non-designated areas.
3. Report any injury, including suspected flash burns, to their supervisor.
4. Obtain written approval for hot work to be conducted from their supervisors.
5. Ensure that conditions are safe and hazard free before commencing the hot work.
6. Be prepared to contact their supervisors should conditions change or warrant reassessment during the hot work project.
7. Use appropriate personal protective equipment (PPE) while performing hot work (welding helmets, gloves, jackets, etc.).
8. Complete the appropriate section(s) of the hot work permit.
9. Return the completed hot work permit to the Office.

E. Fire Watchers shall:

1. Be trained in the use of fire extinguishing equipment.
2. Watch for fires in all exposed areas and extinguish them within the capacity of equipment available.
3. Maintain a fire watch for at least 30 minutes, up to 1 hour, after completion of welding or cutting operations.
4. Report any injury, including suspected flash burns, to their supervisor.
5. Be aware of the inherent hazards involved in the hot work.
6. Ensure that safe conditions are maintained during the hot work.
7. Ensure that appropriate fire extinguishers are readily available.
8. Know how to report a fire or other emergency.
9. Use the appropriate PPE.
10. Complete the appropriate section of the hot work permit.

Procedure Review

The Welding and Cutting Procedure will be reviewed annually to ensure compliance with regulatory mandates and improve, as necessary, the guidance included in the procedure. Employee understanding of and compliance with this procedure will be evaluated at least annually by management.

Recordkeeping

- A. Copies of open permits must be maintained at the jobsite and in the supervisor's office.

- B. All completed hot work permits shall be kept at the jobsite (hard copy or electronic) until the project is complete.

Training

Supervisors and all employees performing hot work or acting as the firewatcher must be trained to conduct hot work activities. The training should contain at a minimum the following:

- A. Hazard recognition, evaluation, and control,
- B. The use of fire extinguishing equipment (fire watch),
- C. Fire protection; and safe work practices,
- D. How fires can be prevented and what makes hot work fires more severe, and
- E. explain PPM's hot work policy, procedures, and responsibilities.

General Information

- A. Supervisors and workers performing welding, cutting, and/or brazing operations shall be trained in hazard recognition, evaluation, and control; fire protection; and safe work practices; and shall adhere to requirements in this procedure.
- B. Welding/Cutting Areas: Whenever possible, welding and/or cutting operations should be performed in areas that are isolated and designated for such uses. Welding or cutting must not be performed in the following areas:
 - 1. In the presence of explosive atmospheres,
 - 2. In areas near the storage of quantities of exposed, ignitable materials, or
 - 3. In areas not authorized by management or by a hot work permit.
- C. Whenever welding operations are interrupted for a substantial period (e.g., lunch or overnight) or completed, "hot" metal areas must be identified, and the equipment must be shut off with any valves closed.
- D. Equipment: Personnel are required to use approved welding, cutting, and grinding equipment and follow the manufacturer's instructions. Such equipment shall always be maintained in safe working order. Personnel shall report any equipment defect or safety hazard to a supervisor, and the use of such equipment must be discontinued until it is repaired by qualified personnel or replaced.
- E. Site Preparation: Prior to beginning welding or cutting operations, workers must:
 - 1. Check that all equipment is in good working condition,
 - 2. Check the work area (35' radius) to ensure that no fire hazards including oily or greasy materials are present,
 - 3. Remove all combustible materials within 35' not necessary for the operation. Any combustible material that cannot be removed, such as wood platforms, should be covered with a flame-resistant material,
 - 4. Inform workers in the immediate area and display warning signs at the worksite to alert others of the potential hazards,
 - 5. Install welding shields/curtains to protect other workers from the sparks and intense light associated with welding/cutting operations; and
 - 6. When performing welding, cutting, and/or brazing operations in areas on or around Acutely

- F. Ventilation: Cutting or welding operations must be performed in areas with adequate ventilation to keep fumes and gases within safe limits.
 - 1. Local exhaust ventilation must be used when potentially hazardous materials are being worked on. (Examples of potentially hazardous materials include, but are not limited to, chromium, fluorides, zinc, beryllium, cadmium, lead, and mercury).
 - 2. Adequate exhaust ventilation must be used when using inert-gas welding, plasma-arc cutting or carbon-arc cutting.
 - 3. The metal surface shall be free of all chlorinated solvents during any welding or cutting operations.
- G. During Hot Work:
 - 1. Appropriate fire extinguishing equipment shall be maintained near the hot work for its entire duration, plus 60 minutes after completion of work.
 - 2. Store acetylene and other fuel cylinders in a secure and upright position.
 - 3. Place hoses so that they will not be crushed or damaged.
- H. After Hot Work
 - 1. The fire watch will remain at the site for at least 30 minutes, up to 1 hour, following the completion of the hot work.
 - 2. Fire extinguishing equipment must remain accessible in the area until the fire watch is secured.
 - 3. Completion of the appropriate section(s) of the hot work permit and the return of the completed form to the Project Office.
- I. Personal Protective Equipment: Approved personal protective equipment (PPE) shall be worn by all employees performing or assisting in welding and/or cutting operations.
 - 1. Examples of PPE include eye protection, helmets, and hand shields, flame resistant gloves, limb/body protection, and respiratory protection.
 - 2. While performing overhead or vertical welding, personnel must wear leather personal protective equipment (shoulder, head, and ear covers).
 - 3. All welders should wear flame-resistant clothing, gauntlet gloves, and shirts with sleeves of sufficient length and construction to protect the arms from heat, UV radiation, and sparks.
 - 4. Wool and leather clothing are preferred because they are more resistant to deterioration and flame than cotton or synthetics. Synthetic fiber clothing should not be worn unless it is specifically manufactured to be fire retardant.
 - 5. Clothing should be kept reasonably free of oil or grease.
 - 6. Sleeves and collars should be kept buttoned and high boots should be worn under pant legs (or leggings worn) to prevent hot metal slag or sparks from contacting the shin.
 - 7. Personnel must wear respiratory protection when ventilation is not sufficient to prevent exposure above permissible limits. (When performing cutting or welding operations involving coatings which generate toxic substances upon heating, or working with materials that contain beryllium, cadmium, lead, or mercury, personnel must wear powered air-purifying or supplied-air respirators).
 - 8. Workers welding on metal alloys should wear work uniforms, coveralls, or similar full-body coverings that are laundered each day. Lockers or other closed areas should be provided to store work and

street clothing separately.

9. Other personnel in welding/cutting areas not protected by noncombustible or flameproof screens or shields must wear appropriate goggles.
- J. Confined Space Operations: Proper precautions must be taken by personnel who are required to perform welding or cutting operations in a confined space area. Refer to the Confined Space Pre-Entry Procedure and contact the Entry Supervisor prior to performing welding or cutting operations in a confined space.
- K. Prior to welding tanks, cylinders, or other containers, supervisory personnel must complete a hot work permit and shall verify that such containers do not contain, or have not contained, any flammable, toxic, or explosive materials. If containers have contained flammable, toxic, or explosive materials, they must be emptied, flushed, or otherwise purged and sampled prior to welding.
- L. Fire Protection: Fire protection equipment, such as appropriate fire extinguishers, must always be maintained ready for use that welding or cutting operations are being performed.
 1. If welding is to be performed in areas where a fire hazard may exist, fire watch practices must be established and implemented.
 2. When performing welding or cutting operations on coated surfaces that are highly flammable (determined by a flammability test), the coating must be stripped from the area to prevent ignition.
- M. All surfaces covered with toxic preservatives, including coatings which generate toxic substances upon heating, must be stripped for a distance of at least 4 inches from the area of heat application.
- N. Personnel performing welding and cutting operations must be made aware of the risks involved in the operations and shall obtain approval from District prior to performing such operations.
- O. If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.
- P. If all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag and to protect the immovable fire hazards.

Fire Suppression and Protection

- A. Suitable fire protection equipment must always be maintained and ready for use when welding or cutting operations are being performed. If hot work is to be performed, supervisory personnel must complete a hot work permit.
- B. A Fire watch is required when welding or cutting is performed where:
 1. Combustibles are closer than 35' to the point of operation, or where there are appreciable combustibles easily ignited by sparks.
 2. Wall, floor, or other openings within 35' radius that expose combustible materials.
 3. Combustible materials are adjacent to the opposite side of metal walls, partitions, ceilings, or roofs and are likely to be ignited by conduction or radiation.
 4. Worker cannot see path of sparks.
- C. If required, duties of the Fire Watch include:
 1. Using fire extinguishing equipment to extinguish fires within the capacity of equipment available,
 2. Sounding an alarm in the event of a fire,
 3. Watching for fires in all exposed areas,

4. Maintaining a fire watch for at least 1/2 hour (30 minutes) after completion of welding or cutting operations, and
5. Reporting any injuries, including suspected flash burns, to their supervisor.

Hot Work Permit

Prior to performing welding/cutting operations in the following circumstances, a hot work permit must be completed and approved by the appropriate supervisor prior to starting hot work.

- A. In locations that have been designated as welding locations.
- B. In confined spaces.
- C. Welding or cutting tanks, cylinders, or other containers.
- D. In areas where a fire hazard may exist (example: weeds, wood products, fabrics, etc.).
- E. In areas included in the Process Safety Management Program (if applicable).
- F. In areas where combustibles are closer than 35' to the point of operation.
- G. In areas where combustible materials are adjacent to the opposite side of metal walls, partitions, ceilings, or roofs and areas likely to be ignited by conduction or radiation.

Copies of open permits must be maintained at the jobsite and in the supervisor's office. Closed permits shall be maintained (hard copy or electronic) at the jobsite for duration of the project.

Oxygen-Fuel Gas Welding and Cutting

- A. Prior to beginning welding or cutting operations, workers must check that the cylinders, regulators, backflow prevention device, flame arrestors, hoses, clamps, and torches are in good working condition.
- B. Oil or grease must not come into contact with oxygen cylinders, valves, regulators or other fittings. Do not handle oxygen cylinders or apparatus with oily hands or gloves, or greasy materials. Do not let oxygen contact oily or greasy surfaces or clothes or enter a fuel oil or other storage tank.
- C. Fuel gas and oxidizers must pass through a pressure-reducing regulator prior to being used. Pressure reducing regulators must only be used at or below the rated pressures and must be specific to the type of gas being used. Prior to connecting a pressure regulator, cylinder valves should be "cracked" to clear the dust or dirt that might otherwise enter the regulator. This procedure shall be performed away from other welding work or sparks.
- D. Prior to removing a regulator from a cylinder, personnel must close all cylinder valves, and release the gas from the regulator.
- E. Personnel must follow the manufacturer's operating procedures for lighting the torch.

Generally accepted practices for startup and shut down are as follows:

1. Start Up

- a. Open the oxygen valve on the torch handle and adjust the oxygen regulator to the desired delivery range.
- b. Close the torch handle oxygen valve.
- c. Open the fuel valve on the torch handle and adjust the fuel regulator to the required delivery range.
- d. Close the torch fuel control valve.

- e. Hold the torch in one hand and the spark lighter in the other. Open the torch fuel valve approximately one-half turn and ignite the gas.
- f. Point the torch away from people and combustible materials.
- g. Keep opening the fuel valve until the flame stops smoking and bring the flame back to the tip.
- h. Open the torch oxygen valve until a bright neutral flame is reached.

2. Shut Down

- a. First shut off the oxygen,
 - b. then the fuel gas.
 - c. Drain the gas pressures from the system.
- F. Cylinders must be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them, or fire-resistant shields must be provided.

Care of Compressed Gas Cylinders

- A. Compressed gas cylinders shall be legibly marked identifying the contents.
- B. Compressed gas cylinders shall be stored and transported in the following manner:
 - 1. Valve end must be up.
 - 2. Cylinders must always be chained or otherwise secured to prevent them from falling over.
 - 3. Outside storage areas must be protected from direct sunlight, external heat sources, electric arcs, or high temperatures.
 - 4. Inside storage areas must be well-protected, well-ventilated, and in a dry location at least 20 feet from highly combustible materials.
 - 5. Cylinders containing flammable gases will be stored at least 20 feet from oxygen cylinders. or by a non-combustible barrier at least 5 feet high, having a fire resistance rating of at least ½ hour.
 - 6. Cylinders will not be exposed to physical damage or tampering by unauthorized persons.
 - 7. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards, or inside the cabs or passenger areas of vehicles.
 - 8. Valve protection devices must be in place when cylinders are not in use, and during storage and transport. Valve protection devices **must not** be used for lifting cylinders.
 - 9. All empty cylinders will be handled and stored as if they were still pressurized.
- C. If cylinders are found to have leaky valves or fittings which cannot be stopped by closing the valve, the cylinders shall be taken outdoors, away from sources of ignition, and slowly emptied. Never put other workers at risk. If the leak is large, do not attempt to move the cylinder, evacuate all personnel from the area and notify your supervisor.
- D. Pressurized cylinders must not be taken into confined spaces.

Electric Arc Welding and Cutting

- A. Prior to beginning welding or cutting operations, workers must:
 - 1. Check that the machine, all electrode holders, and cable can carry the maximum current, are properly insulated and grounded, and have been maintained in good working condition.

2. Check that any cable splices have been performed with insulating quality equal to that of the cable, and that there are no splices within 10 feet of the electrode.
 3. The area must be free of chlorinated solvent vapors within 50 feet of the exposed arc; surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.
- B. When arc welding is performed in wet or high humidity conditions, personnel must use additional protection against electric shock (e.g., rubber pads or boots).
 - C. To protect workers or other personnel from the arc rays, noncombustible or flameproof screens or shields shall be used, or personnel in the area shall wear appropriate goggles.
 - D. Manual electrode holders must be specific to welding and cutting, and capable of handling the maximum current required for the operation. All current carrying parts gripped by the user must be insulated against the maximum voltage to ground.
 - E. Arc welding and cutting cables must be insulated, flexible, capable of handling the maximum current required by the operation, considering the duty cycles, and must not have bare or worn conductors. Cables must be free of repair or splice from 10' of the electrode holder(s) unless insulated connectors or splices with insulating quality equal to that of the cable are provided. Exposed metal parts must be insulated.
 - F. Ground return cables must have current carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting unit. Do not use electrical conduits or structures or pipelines containing gas or flammable liquids as part of the grounding circuit system.
 - G. Arc welding and cutting machine frames must be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuit resistance must be low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.
 - H. When machines are not in use, the power supply switch shall be shut off and the electrodes removed, and the holders placed to prevent employee injury.

Inert Gas Metal Arc Welding

When performing inert-gas metal-arc welding, extreme caution shall be used; inert gases can easily displace oxygen. The following safeguards must be followed.

- A. The area must be free of chlorinated solvent vapors within 50 feet of exposed arc; surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.
- B. Employees exposed to radiation must have their skin completely covered.
- C. If welding on stainless steel, personnel must be protected by local exhaust ventilation, by wearing powered air purifying respirators, or by supplied-air respirators.

Resistance Welding

- A. Prior to performing resistance welding operations, personnel must inspect the machine to ensure:
 1. All machine guards are in position and in proper working condition; and
 2. Emergency stop button is in working condition.
- B. Resistance welding equipment must be periodically inspected by qualified personnel, and a certification record maintained. The record shall include the date of the inspection, the signature of the person who performed the inspection, and the serial number or other equipment identification.

Appendix A Definitions

Adequate Ventilation	A ventilation flow, which allows fresh air to circulate to replace contaminated air, which is simultaneously removed.
Combustible Substance	Any substance which, after ignition, will continue to burn in air.
Fire Watch	Person(s) assigned to work with welders to watch for fires resulting from welding, cutting, and brazing operations.
Hot Work Permit	An approval form required prior to performing welding or cutting operations.
Ignitable Material	Any material that can burn.
Local Exhaust Ventilation	A ventilation system that captures and removes the contaminants at the point they are being produced before they escape into the worksite.

Instructions for Completing the HOT WORK PERMIT

Applicability:

This Permit is required for all construction, maintenance, and repair activities involving open flame or producing heat or sparks.

Definitions:

Type A Hot Work: Any open flame or heat producing work that results in slag, sparks, or fire brands, such as welding, torch cutting, abrasive cutting, grinding or similar activities.

Type B Hot Work: Open flame work performed on non-combustible materials not resulting in sparks such as brazing and soldering.

Type C Hot Work: Any open flame operation not classified as Type A or B. Any open flame or heat producing activity performed on combustible materials such as torch applied roofing. This class of work is quite variable and may present an extreme risk of fire.

Fire Watch: A person(s) to be continuously present (including during breaks and meal periods), continuously alert, has line of sight of Hot Work activities, and is prepared to instantly respond to any indications of fire. In some cases, the Fire Watch may have other duties.

Process:

1. Survey the area of work to assess the risk of fire resulting from the proposed Hot Work and develop a work plan to mitigate risks. (Don't forget to ask the question: Are there other ways to accomplish the work to eliminate the use of open flame or spark producing activities? If "YES", evaluate cost and schedule impacts of changing the work plan.)

The work plan may be written, at the discretion of the superintendent. It should include:

- Removal of combustible materials for a radius of 35 feet or if impractical, protection of any combustibles within 35' of the work, including those areas on the opposite sides of interior walls.
 - Provisions for continuous fire watch, including fire extinguishers and necessary training.
 - Provisions for intermittent fire monitoring after open flame and spark producing activities.
2. Physically survey the area of work prior to the start of open flame or spark producing activity.
 3. Complete the Hot Work Permit Form. One Permit is required per hot work activity/per shift/per location. The Permit will become invalid if the conditions of work change.
 4. Do the work:
 - Post signs and put protective measures in place. Maintain protective measures throughout the work, include continuous and uninterrupted Fire Watch.
 - Continue Fire Watch until _____ 30 minutes or _____ 1-hour after completion of Type A & C Hot Work activities. Fire Watch may be discontinued for Type B Hot Work when the material is cold to the touch.
 - At end of the Fire Watch period complete the Fire Watch Closeout signature block and close out form verifying that the hot work is complete and return to project office.
 5. Perform Fire Monitoring:
 - Start at the completion of Fire Watch and continue for designated time (if no Fire Watch is required, then Fire Monitoring shall start at the completion of Hot Work activities and continue for the designated time).
 - At completion of Fire Monitoring, complete the Fire Monitoring Closeout signature block and return the form to the jobsite office.

In the Event of a Fire or Other Emergency:

1. Call 911 (or other site-specific emergency #) to report the location & nature of the emergency and to summon assistance.
2. In case of a fire, activate the fire notification procedure to evacuate the building, then, attempt to extinguish the fire ONLY if there is no immediate personal danger, otherwise evacuate the area immediately.

HOT WORK PERMIT

To be completed by the Person performing Hot Work:

Date:	Duration of Open Flame or Spark Producing Activity
Job Name:	Start Date & Time:
Contact:	End Date & Time:
Phone:	Location:

Work Description: *Type A:* Grinding Welding Torch Cutting

Type B: Brazing & Soldering

Type C: Pipe Thawing Other Open Flame Operation (describe).....

SAFETY MEASURES TAKEN: Identify those measures or precautions that apply to the requested Hot Work Permit

Yes N/A GENERAL

- ..Fire extinguishers are provided (by the one performing the work) and immediately accessible in the Hot Work area.
- ..All Hot Work equipment, including welders, torches, cylinders, hoses, etc. are in good repair. Welders are certified for the operations planned.

FLAMMABLE ENVIRONMENTS

- ..Flammable vapors eliminated from the atmosphere of the work.

COMBUSTIBLES

- ..Are any flammable/combustible materials or construction directly under or within 35' of Hot Work area?
...If "YES," provide necessary protection.
- ..Combustible materials or construction within 35' of welding/ torch cutting operations are being:
 Removed Shielded Protected from welding operations.
- ..Combustible floors wetted down or protected with fire-resistive sheets.
- ..Openings in floors or walls protected with fire resistive sheets or tarps.

WORK ON WALLS & CEILINGS

- ..Construction is non-combustible and without combustible coverings or insulation.
- ..Combustibles moved from both sides of walls and from exposed areas above and below the work.

WORK ON ENCLOSED EQUIPMENT AND SPACES

- ..Enclosed equipment cleaned of combustibles.
- ..Containers and enclosed equipment purged of flammable liquids and vapors.
- ..Pressurized vessels, piping and equipment removed from service, isolated and vented.

PROTECTION OF OCCUPANTS & PASSERSBY:

- ..Warning signs and barriers placed as necessary to inform and protect other personnel in the work area.
- ..Ultraviolet protection screens provided for welding and acetylene cutting operations.

FIRE WATCH:

- ..Fire watch will be provided from start of open flame work to not less than:
 30 minutes after hot work ceases for Type A & C Hot Work or
 until the work is cold to the touch for Type B Hot Work.
Fire Watch is continuous including during coffee & lunchbreaks, and after-shift end.
- Fire Watch is knowledgeable and proficient in use of fire extinguishers.
- Fire Watch is knowledgeable of PPM or site emergency procedures.

Fire Watch Closeout:

The Hot Work area and adjacent areas to which sparks and heat might have spread, were inspected, during the fire watch period and were found free of any indication of fire.

Date & Time Completed: Signed

Fire Monitoring Closeout:

Work area was monitored for a period of _____ following Hot Work and the area found to be free of any indication of fire.

Date & Time Completed: Signed

This page shall be posted in the HOT WORK area for its duration.

WARNING!

HOT WORK IN PROGRESS

WATCH FOR FIRE!

IN CASE OF EMERGENCY, Call 911

This page shall be posted in the HOT WORK area for its duration.



HYDROGEN SULFIDE (H₂S) POLICY

Complying with

OSHA Safety and Health Regulations for Construction, Standard Number:

29 CFR 1926, Subpart D

OSHA Safety and Health Regulations for General Industry, Standard Number:

29 CFR 1910, Subpart Z

PURPOSE

To ensure that all Pacific Pile and Marine (PPM) employees have the training to understand the dangers of exposure and characteristics of hydrogen sulfide (H₂S), and the first aid requirements in the event there is contact with (H₂S).

INTRODUCTION

This program applies to all work operations at Pacific Pile and Marine where employees could be exposed to deadly airborne concentrations of hydrogen sulfide gas (H₂S) as part of their job duties when performing work at a jobsite. Since work operations can have the potential to place workers nearby refinery hydrocarbon processing operations, pump stations, or pipeline work, exposure potential can exist, and the following written program is provided for employee safety and health protection.

Pacific Pile and Marine employees will be familiar and comply with the requirements of any Host employer's hydrogen sulfide exposure control program when such work operations require our employees to be exposed as part of their job duties.

PHYSICAL/ CHEMICAL CHARACTERISTICS

H₂S is a highly toxic, poisonous gas, which is deadly to humans, and has no visible color. It is soluble in hydrocarbons and water at a ratio of 4:1, and highly corrosive to certain metals due to either hydrogen embrittlement or sulfide stress cracking. H₂S is flammable when mixed with air at a temperature of 500 degrees F, and the lower flammability limit is 4.3% while the upper flammability limit is 46% by volume in air.

When ignited, H₂S produces Sulfur Dioxide (SO₂) which is extremely hazardous and may leave victims disabled with pneumonia or respiratory damage.

Hydrogen Sulfide gas is 20% heavier than air and can be dispersed great distances with only a slight breeze. As a result, unidentified locations about refineries or industrial settings could indicate detectable levels of H₂S. These may include low lying areas such as: utility vaults, pits, ditches, trenches, confined spaces, inside tanks/vessels, or poorly ventilated areas. Specific work operations can include oil-drilling, recycling drilling mud, exposure to water from sour crude wells, pipeline/well blowouts, hydrocarbon tank gauging, performing field maintenance on pipelines, or working on or near tank batteries and wells.

PERSONAL DETECTION

Hydrogen Sulfide (H₂S), also known as Sulfureted Hydrogen, Hydrosulfuric Acid, Sour Gas, Sulfur Hydride, Rotten-Egg Gas, or Sour Crude can be easily detected due to a strong odor of rotten eggs, or to others, a sweet, offensive, sickening odor. Although it can be detected at a low concentration of 1 ppm, this early warning property should not be depended upon as an accurate indicator of its presence. Hydrogen sulfide detection by your nose may not occur as a concentration of this gas between 100 and 150 ppm and can deaden your sense of smell.

HEALTH EFFECTS

Hydrogen Sulfide gas is a rapid-acting systemic poison which causes respiratory paralysis and asphyxia at high concentrations, because on the central nervous and respiratory systems. It can irritate the eyes, skin, and respiratory tract at low concentrations. Exposures to this gas can interfere with cellular respiration and cause death in an individual's cells that are deprived of oxygen. At a concentration greater than 700 ppm, inhalation of H₂S may cause coma and/or death after a single breath.

It is important to note here that each individual person may be affected differently by different concentration levels of H₂S. Some individuals are more sensitive to H₂S and will be affected by a smaller concentration, and others may be less sensitive and can tolerate higher concentrations without experiencing adverse health effects. If you should smell the presence of H₂S or hear warnings from monitor alarms, then immediately evacuate this

area and notify the host-facility operator or Pacific Pile and Marine Management. Do not re-enter this area without proper respiratory protection and Operator permission.

LOCATIONS AND SIGNAGE

Locations where potentially high concentrations of H₂S gas may be identified exist throughout refineries, industrial settings, waste treatment facilities, or petrochemical facilities as it can be found naturally in crude oil or produced as a byproduct of oil refining. (Other locations may be in sewers, cesspools, or stagnant water, as H₂S is also formed by the decay of organic materials, recycled drilling mud, water from sour crude wells, blowouts, tank work (in refinery locations), or field maintenance on tank batteries, wells, etc.) Process areas of most refineries/plants have been identified using fixed or portable detection methods, and are usually indicated by a sign that is yellow with black print that states:

HIGH LEVELS OF H₂S MAY BE PRESENT "CAUTION"

MONITORING

Identification of hydrogen sulfide concentrations is the responsibility of the Host-facility operator, who may rely on the use of fixed detector systems, the use of a hand-held bellows pump or syringe-draw instrument that utilizes colorimetric tubes, or direct-reading gas monitoring equipment. Personal battery-operated, electronic single-gas detectors may be required to be worn by personnel or can be made available for use upon request of the host facility operator. The exposure limit is set to alarm at a concentration of 10 ppm, Per 1926, and 20 PPM for 1910.

EMERGENCY ESCAPE/ CONTINGENCY PLANS

Emergency escape equipment is usually placed in several different locations about most refineries' process units, consisting of self-contained breathing apparatus (SCBA) or airline respirator with escape SCBA located in high-density plastic storage boxes. Either this type of respiratory equipment or a positive pressure supplied air- line respirator with an emergency escape breathing canister is approved for work to be performed in concentrations exceeding the 10-ppm exposure limit.

Most Host-facility contingency plans are explained in detail to ALL employees at site-specific contractor orientations. Evacuation is generally initiated by a warning alarm sound, or personal detection of an H₂S release. All affected employees would then refrain from breathing in potentially contaminated air, check the current wind direction, move crosswind out of the immediate area, and then proceed to a primary or secondary evacuation point for a headcount.

All special precautions to be taken when performing work inside of a confined space are listed in the Company's Confined Space Entry Policy. All Pacific Pile and Marine employees will be trained in the requirements outlined in OSHA regulation 29 CFR 1910.146(g) prior to any confined space entry work being performed.

FIRST AID

First aid needs will depend on the concentration level of contaminant H₂S. Do not immediately rush to the aid of an affected coworker unless properly trained and without proper PPE protection. Signs and

symptoms of an exposure may be respiratory paralysis by inhalation, burning sensation of the eyes due to contact, or skin irritation.

- Inhalation - remove victim to fresh air immediately. If not breathing, administer mouth-to-mouth artificial respiration until medical assistance arrives or victim is deceased. If breathing is restored but slow and labored, administer 100% oxygen by canister mask as H₂S is rapidly detoxified by the body. Maintain normal body temperature. Transportation to medical services should follow immediately.
- Eye or skin contact- should be treated by a 15-minute wash/flush at a safety shower/eye-wash station.

Remove any clothing if liquid hydrogen sulfide penetrates the clothing to expose the skin for flushing with water. If irritation or discomfort persists, transportation to medical services should follow immediately.

- Rescue will only be performed by trained rescue personnel who are wearing appropriate PPE for this emergency. If an exposed person has been overcome, notify the Host-facility employer's designated rescue service or personnel. Do not become a casualty yourself.

NON-COMPLIANCE

Non-compliance by any Pacific Pile and Marine employee, with any part of this described program will result in disciplinary action as outlined in the Company's Disciplinary Program.



INCIDENT INVESTIGATION & REPORTING PROCEDURES

PURPOSE

To establish the requirements for investigating and notification of near misses, and incidents resulting in injury or illness, property damage, fire environmental release, or business interruption.

SCOPE

This procedure is applicable to Pacific Pile and Marine projects and facilities.

DEFINITIONS

Incident – An unplanned event that result in injury or illness to personnel; damage to or loss of property, equipment, and/or material; or degradation of environmental quality.

Fatality - An incident which causes the loss of life.

Catastrophe – A fatality of hospitalization involving three or more employees.

Lost workday injury or illness – A recordable injury or illness that results in days away from work at the direction of a medical professional or requires medical attention beyond basic first aid as defined in 29 CFR 1904.7.

Near Miss – An unplanned event that could have resulted in either equipment, property, or personal injury.

RCA – Root Cause Analysis. Root Cause Analysis is a system that seeks to identify the origin of a problem. It uses a specific set of steps, with associated tools, to find the primary cause of the near miss, incident, or loss.

RESPONSIBILITY

When an activity is defined for a certain position in this procedure, a designee may perform the responsibility.

Director of HSE

- The Director has the overall responsibility for the implementation of this procedure and is responsible for supporting it and for ensuring that all project / facility entities actively participate.
- The Director is responsible for providing personnel, and other resources necessary to effectively carry out this procedure.
- The Director and the management team will lead by example, modeling the behavior expected from all employees performing work.
- The Director is responsible for ensuring those investigations and appropriate notifications are conducted for all work-related Lost Workday and Recordable injury / illness cases.
- Manager/Project Engineers are responsible for prompt follow-up of supervisory reports of any near misses, incidents, damages, or injuries.
- Managers and Project Engineers shall actively participate in investigations into events.
- Supervisor – Supervision will be thoroughly familiar with this procedure with their individual responsibilities regarding its implementation and enforcement. Training in Investigative methods shall be provided to designated supervisors through the HSE department.
- Labor personnel and craft are responsible for reporting all near misses, or incident, regardless of injury or damage, immediately.
- The Director is responsible for initiating and investigative team in the case of fatal of catastrophic accidents and notifying regulatory agencies.

FIELD REPORTING

All near misses or incidents in the field must immediately be reported to file supervisors upon occurrence.

Incidents resulting in injury, damage to property, or impact to work must be reported to the HSE department and Project Management by the end of that shift.

All spills, whether to water or ground, must be reported to the HSE department immediately.

Incidents resulting in Catastrophic Injuries or Fatalities must be reported to the Director immediately.

ROOT CAUSE ANALYSIS PROCESS

- **Step One: Define the Event**
 - Identify the incident.
 - Identify the specific symptoms.
- **Step Two: Collect Data**
 - What evidence is present at the scene?
 - Collect photos, witness statements.
 - Superintendents are issued company smartphones which are to be used as the initial information gathering tool at the scene of an incident (i.e., photographs, GPS location of incidents). Follow on investigations will utilize smart phone cameras, GPS devices and other accessories such as tape measurers; all of which are present in PPM offices.
 - Have there been indicators of this event previously?
 - What is the impact of the event?
 - When applicable, photograph damaged equipment, incident sites, and injuries.

Analyze the situation fully before moving to look at contributory factors to the problem. To maximize the effectiveness of the RCA, gather all affiliated individuals that understand the operation or task as well as the processes involved in the incident.

- **Step Three: Identify Possible Causal Factors**
 - Define the sequence of events leading to the occurrence.
 - Identify the conditions under which the event occurred.
 - Identify known indicators leading up to the event.

Use these tools to help identify causal factors:

- **5 Whys** – Ask "Why?" until you get to the root of the event or occurrence.
- **Cause and Effect Diagrams** – Create a chart of all the possible causal factors, to see where the trouble may have begun.
- **Step Four: Identify the Root Cause(s)**
 - Why does the causal factor exist?
 - What is the real reason the problem occurred?

Use the same tools you used to identify the causal factors (in Step Three) to look at the roots of each factor. These tools are designed to encourage you to dig deeper at each level of cause and effect.

- **Step Five: Recommend and Implement Solutions**
 - What can be done to prevent the occurrence from happening again?
 - How will the solution be implemented?
 - Who will be responsible for it?
 - What are the risks of implementing the solution?
 - Communicate findings companywide.

DOCUMENTATION

Field Supervisors at the Main Shop and Yard locations as well as on all field efforts shall have access to PPM documentation for Near Misses, Accidents with and without Injuries, as well as Equipment/Property Damage reports through HCSS (both web and app based). Field Supervisors should also prepare witness statement documentation and attach it to the initial event reports.

Initial field documentation is to be completed at the Superintendent/Foreman level in HCSS for the PPM HSE Department and Responsible Project Manager to review.

Near miss incidents, injuries, and equipment/property damage, are reviewed by the HSE department and the findings presented during the weekly Operations Meeting. All incidents, injuries, and equipment/property damage events are additionally followed up on with various methods including, employee re-training, technical redesign, change in work procedures, or change in PPE.

Accident and Incident Reports are subject to full RCA review conducted by the HSE Department, the responsible Project Manager, and/or the project superintendent/foreman and third-party resources may participate in the investigation.

Results of the formal investigation are made a part of the HSE/HR Incident file. The findings are presented within the next scheduled operations meeting, and then disseminated through the organization in the following week's Safety Meeting by paraphrasing the incident.

Incidents resulting in loss of life, catastrophic injuries, or catastrophic damage to equipment and/or property shall be subject to immediate comprehensive investigation by the HSE Director in conjunction with representatives of PPM's insurers, as well as governing State and Federal authorities.

REGULATORY REPORTING

The PPM Environmental and Safety Director shall have the responsibility for reporting all injuries and losses to either the governing regulatory authority, PPM's underwriters, or, as required, both.

Accidents or injuries occurring on a client site shall be reported to the site owner within 8 hours or sooner as required by contract.

Fatalities, spills to water, catastrophic losses, shall be reported within 8 hours or sooner as required by law to regulatory agencies.

Within the State of Alaska, all spills to either land or water must be reported to the Alaska Department of Environmental Conservation. Injuries and Industrial Illnesses classified as state claims must be reported to the State of Alaska Department of Labor, Department of Occupational Safety and Health. Claims or Injuries over water must be reported to Federal OSHA Region X.

Within the State of Washington, spills must be reported to the State of Washington Department of Ecology. Injuries must be reported the Washington State Department of Labor, Division of Occupational Safety and Health.

All spills to water must additionally be reported to the National Response Center at 1- 800-424-8802.

Recordable injuries as well as losses of over \$1000 shall be reported within 7 days after final determination of the investigations. Initial reports shall be made to PPM's insurance carrier(s), and where applicable, governing regulatory agencies.

Purpose

The purpose of this document is to detail the required steps following an incident to ensure the appropriate reporting notifications have been made to all required PPM and/or PPMCC personnel. This may extend to Subcontractors, Local/State/Federal/Provincial agencies, or other regulatory bodies.

Incident Reporting Procedure

1. Ensure the scene of incident is controlled and there is no further risk of harm to people, facilities, or the environment.
 - a. Activate first-aid and/or emergency response procedures if required, the first priority is care of people.
2. The scene of the incident shall be preserved in the condition found to ensure any evidence required to assist investigation is maintained.
 - a. All spills to environment shall be contained and/or remediated to reduce impact to persons and resources.
3. The area supervisor shall immediately report and provide a brief description of the incident to their immediate supervisor, project management, and/or HSE Department.
4. Site Safety & Health Supervisor (SSHS) must be contacted if not already aware of the incident (this may or may not be a member of the HSE Department, depending on the project).
5. Notification must then be made to the appropriate HSE Department contact for the project.

PPM/PPMCC Director of HSE: Matt Rolf (360) 708-2050

PPM HSE Manager: Carolyn Nelson (206) 485-6561

Brandon Moran (206) 889-8781

PPMCC HSE Manager: Sean Abbott (250) 268-4363

PPMCC HSE Coordinator: Fenley Fearon (780) 278-4176

Jeff Kowalik (250) 713-1658

6. The HSE Department or Project Supervisor (i.e. Project Manager/Superintendent) will lead the preliminary investigation with all involved in the incident; the following basic facts shall be gathered.

PPM / PPMCC PIN - A preliminary incident notification (PIN) shall be completed by the PPM Site Safety & Health Supervisor (SSHS) for distribution within the first 2 hours of the incident.

- a. The following template must be used to ensure consistency in incident reporting.

Company:	
Trade:	
Date / Time of Incident:	
Date / Time Reported:	
Location of Incident:	
Brief Description and Immediate Actions:	

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7. Internal PIN shall be distributed to the following for notification and review.
 - To** - Project Manager, Project/Field Engineer(s), Superintendent, Foreman, HSE Department Representative(s)
 - Cc** - Matt Rolf – mattr@pacificpile.com, Jim Davidson – jimd@pacificpile.com, Area Manager (AK – Chris Lundfelt – chrisl@pacificpile.com or WA – Matthew Miller – matthewm@pacificpile.com or Canada – Simon Munneke – simonm@pacificpile.com), Any Required Subcontractors (If Necessary), Equipment Department – equipment@pacificpile.com (If Equipment Damage Occurred).
8. Once an internal PIN has been approved and sent, an external PIN shall be sent to required parties within the appropriate timeframes.
 - a. **Project Owner** – Project team list as defined by each project.
 - b. **Health & Safety Regulators** – All notifications shall be sent by the appropriate HSE Department.
 - c. **Environmental Regulators** - As soon as practicable to the appropriate regulatory agency.
9. Preliminary incident investigation shall be completed, and report generated as required in HCSS Safety.
 - a. Using HCSS Safety, open the Incident Reporting tab to record investigation details.
 - i. Who was involved? (Company and Trade)
 - ii. When did it happen? (Actual date / time, reported date / time)
 - iii. Where did it happen? (Location on project)
 - iv. What happened? (Details matter)
 - v. How did it happen? (Don't make assumptions, gather facts first)
 - vi. Immediate Actions? (Are there any actions we can take to correct a hazard immediately)
 - vii. Include pictures of the location, damage, injured party(ies), work area, tools, etc. (Pictures tell a thousand words; we should see no less than 3 pictures in any incident).
10. In HCSS Field > Forms, use the Incident Review Form and follow the prompts in the Incident Stand Down and employee sign in sheet. This should include info from the Incident Investigation.
11. Final incident report to be completed and reviewed by PPM/PPMCC HSE Department(s), Project Manager, and Area Manager prior to submission to internal and external parties.
12. Final incident report to be sent to required internal parties by PPM/PPMCC HSE Department(s) for final review and approval.
13. Approved final incident report to be sent to required external parties by PPM/PPMCC Project Management within required timeframes.



**PRELIMINARY INCIDENT NOTIFICATION
(PIN) FORM**

Document No :

Revision:

No 0

Date Revised:

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USE THIS FORM TO REPORT ALL INCIDENTS (INJURY/ILLNESS, EQUIPMENT DAMAGE, ENVIRONMENTAL, TRAFFIC ACCIDENT, PROPERTY DAMAGE, PERSON OVERBOARD, ETC.) WITHIN THE FIRST 2 HOURS OF THE INCIDENT.

Company:	
Project Name / Number:	
Trade: (Employee or Subcontractor):	
Date / Time of Incident:	
Date / Time Reported:	
Location of Incident:	
Brief Description and Immediate Actions:	



JOB/ACTIVITY/TASK HAZARD ANALYSIS (JHA/AHA/THA) & CONTROL

PURPOSE

To identify, control, and/or eliminate potential or actual hazards in a job, activity, or task.

SCOPE

This procedure is applicable to Pacific Pile and Marine projects and facilities.

DEFINITIONS

Activity – An organizational unit for performing a specific function (in this policy, used synonymously with Job & Task).

Hazard – A scenario in the environment with an exposure caused by a trigger, resulting in a [potential] exposure, and any other contributing factors.

Job – A piece of work, especially a specific task done as part of the routine of one's occupation (in this policy, used synonymously with Activity & Task).

Task – An assigned piece of work often to be finished within a certain time (in this policy, used synonymously with Activity & Job).

RESPONSIBILITY

Identifying and controlling hazards is a high priority and everyone's responsibility. It must be an ongoing process of continual improvement. All employees must identify hazards, correct the hazard if possible, and report the hazards they encounter. Steps can be taken to reduce the risk of injury through hazard control only if hazards are identified. Every employee needs to take part in this process; in doing so, we will be able to obtain maximum workplace safety.

The purpose of our Pre-Operations Hazard Assessment is to identify, control or eliminate potential or actual dangers in a job or task.

Factors to be considered when doing a Hazard Assessment include:

- Accident frequency and severity: jobs where accidents occur frequently or where they occur infrequently but result in disabling injuries.
- Potential for severe injuries or illnesses: the consequences of an accident, hazardous condition, or exposure to harmful substances are potentially severe.
- Newly established jobs: due to lack of experience in these jobs, hazards may not be evident or anticipated.
- Modified jobs: new hazards may be associated with changes in job procedures.
- Infrequently performed jobs: workers may be at greater risk when undertaking non-routine jobs, and a Job Hazard Analysis provides means of reviewing hazards.

Each field superintendent that those in their charge complete at least one JHA/AHA/THA per day, per job, activity, or task, not to exceed one (1) 24-hour period.

PROCESS

Job Hazard Assessment & Control Process

- Step 1: Identify the jobs/tasks performed by the company in the workplace daily:
 - The workplace consists of: People, materials, environment, tools & equipment.

- Step 2: Identify the health and safety hazards involved in completing the jobs/tasks; this must be completed for each task that is being completed:
 - Health and Safety hazards include chemical, biological, physical & ergonomic.
- Step 3: Assess the level of risk for each hazard:
 - This includes Severity & probability.
- Step 4: Prioritize jobs/tasks according to level or risk:
 - Prioritizing ranks items on a “worst first basis”.
 - Critical items to be reviewed first.
- Step 5: Identify the appropriate control measures (Control Measures may not be used in combination with one another):
 - Elimination
 - Company Rules
 - Substitution
 - Preventative Maintenance Program
 - Engineering
 - Orientations
 - Administrative
 - Field Level Hazard Assessment - May also be used with Work Plans
 - PPE Administrative Controls
 - Toolbox/Tailgate Meetings
 - Assignment of Responsibilities
 - Investigations
 - Company OHS Policies
 - Inspections
 - Safe Work Practices
 - Education & Training
 - JHA's/AHA's
 - Audits
 - Hazard reporting review & follow-up system

Step 6: Implement Control Measures

Step 7: Monitor effectiveness of the Job Hazard Assessment & Control Process in HCSS Manager

Hazard Priority Ranking Scale

Risk Assessment Code Matrix						
		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Severity:

1. Catastrophic (e.g., causing death, widespread occupational illness)
2. Critical (e.g., severe injury, serious illness, property, and equipment damage)
3. Marginal (e.g., non-serious injury, illness, or damage)
4. Negligible

Probability (think in terms of risk assessment):

- Frequent (likely to occur immediately or soon)
- Likely (likely to occur eventually)
- Occasional (could occur at some point)
- Seldom (potential to occur but seldom does)
- Unlikely (unlikely to occur)



LADDERS

Complying with:

OSHA Safety and Health Regulations for Construction:

Part 1926, Subpart: X

PURPOSE

To establish the minimum requirements for ladder safety for all personnel at Pacific Pile and Marine (PPM).

SCOPE

This policy applies to all ladders intended to be utilized within the PPM organization. Ladder definitions, General Requirements, and rules for ladder safety make up this policy.

GENERAL REQUIREMENTS

A stairway or ladder shall be provided at all personnel points of access where there is a break in elevation of 19 inches (48 cm) or more, and no ramp, runway, sloped embankment, or personnel hoist is provided.

Employees shall not use any spiral stairways that will not be a permanent part of the structure on which construction work is being performed.

A double-cleated ladder or two or more separate ladders shall be provided when ladders are the only mean of access or exit from a working area for 25 or more employees, or when a ladder is to serve simultaneous two-way traffic. When a building or structure has only one point of access between levels, that point of access shall be kept clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of access is restricted, a second point of access shall be provided and used.

When a building or structure has two or more points of access between levels, at least one point of access shall be kept clear to permit free passage of employees.

Employers shall provide and install all stairway and ladder fall protection systems required by this subpart and shall comply with all other pertinent requirements of this subpart before employees begin the work that necessitates the installation and use of stairways, ladders, and their respective fall protection systems.

LADDERS

The following requirements apply to all ladders as indicated, including job-made ladders. All Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced when the ladder is in position for use.

Each Ladder shall be capable of supporting the following loads without failure:

Each self-supporting portable ladder:

- Shall be capable of supporting at least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load. The ability of a ladder to sustain the loads indicated in this paragraph shall be determined by applying or transmitting the requisite load to the ladder in a downward vertical direction. Ladders built and tested in conformance of the General Requirements listed in Section 3 will be deemed to meet this requirement.
- Each portable ladder that is not self-supporting: Shall be capable of supporting at least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladders shall sustain at least 3.3 times the maximum intended load. The ability of a ladder to sustain the loads indicated in this paragraph shall be determined by applying or transmitting the requisite load to the ladder in a downward vertical direction when the ladder is placed at an angle of 75 1/2 degrees from the horizontal. Ladders built and tested in conformance of the General Requirements listed in Section 3 will be deemed to meet this requirement.
- Each Fixed ladder: Shall be capable of supporting at least two loads of 250 pounds (114 kg) each, concentrated between any two consecutive attachments (the number and position of additional concentrated loads of 250 pounds (114 kg) each, determined from anticipated usage of the ladder, shall also be included), plus anticipated loads

- caused by ice buildup, winds, rigging, and impact loads resulting from the use of ladder safety devices. Each step or rung shall be capable of supporting a single concentrated load of at least 250 pounds (114 kg) applied in the middle of the step or rung. Ladders built and tested in conformance of the General Requirements listed in Section 3 will be deemed to meet this requirement.
- The rungs and steps of fixed metal ladders manufactured after March 15, 1991, shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping. The rungs and steps of portable metal ladders shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.
- Ladders shall not be tied or fastened together to provide longer sections unless they are specifically designed for such use.
- A metal spreader or locking device shall be provided on each stepladder to hold the front and back sections in an open position when the ladder is being used.

USE OF LADDERS

The following requirements apply to the use of all ladders, including job-made ladders, except as otherwise indicated:

When portable ladders are used for access to an upper landing surface,

- the ladder side rails shall extend at least 3 feet (.9 m) above the upper landing surface to which the ladder is used to gain access.
- Or, when such an extension is not possible because of the ladder's length, then the ladder shall be secured at its top to a rigid support that will not deflect, and a grasping device, such as a grabrail, shall be provided to assist employees in mounting and dismounting the ladder.
- In no case shall the extension be such that ladder deflection under a load would, by itself, cause the ladder to slip off its support.

Ladders shall be maintained free of oil, grease, and other slipping hazards. Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity. Ladders shall be used only for the purpose for which they were designed.

Non-self-supporting ladders shall be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).

Wood job-made ladders with spliced side rails shall be used at an angle such that the horizontal distance is one-eighth the working length of the ladder.

Fixed ladders shall be used at a pitch no greater than 90 degrees from the horizontal, as measured to the back side of the ladder.

Ladders shall be used only on stable and level surfaces unless secured to prevent accidental displacement.

Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Slip-resistant feet shall not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces including, but not limited to, flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery.

Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder.

The area around the top and bottom of ladders shall be kept clear.

The top of a non-self-supporting ladder shall be placed with the two rails supported equally unless it is equipped with a single support attachment.

Ladders shall not be moved, shifted, or extended while occupied. The top or top step of a stepladder shall not be used as a step.

Ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized electrical equipment, except as provided in 1926.951(c)(1) of this part.

Cross-bracing on the rear section of stepladders shall not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.

Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

Portable ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired.

Fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, shall be withdrawn from service until repaired. The requirement to withdraw a defective ladder from service is satisfied if the ladder is either:

- Immediately tagged with "Do Not Use" or similar language,
- Marked in a manner that readily identifies it as defective,
- Or blocked (such as with a plywood attachment that spans several rungs).

Ladder repairs shall restore the ladder to a condition meeting its original design criteria before the ladder is returned to use.

Single-rail ladders shall not be used.

When ascending or descending a ladder, the user shall face the ladder.

Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder. An employee shall not carry any object or load that could cause the employee to lose balance and fall.

TRAINING REQUIREMENTS

The employer shall provide a training program for each employee using ladders and stairways, as necessary.

The program shall enable each employee to recognize hazards related to ladders and stairways and shall train each employee in the procedures to be followed to minimize these hazards.

The employer shall ensure that each employee has been trained by a competent person in the following areas, as applicable:

- The nature of fall hazards in the work area,
- The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used,
- The proper construction, use, placement, and care in handling of all stairways and ladders,
- The maximum intended load-carrying capacities of ladders, and
- The standards contained in this subpart.

Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this section.



LEAD AWARENESS

Complying with:

OSHA Safety and Health Regulations for Construction:

Part 1926, Subpart: D

PURPOSE

The purpose of this procedure is to identify the controls and actions necessary to prevent adverse health effects to employees from occupational exposure to lead, and to ensure that PPM lead exposure management practices meet regulatory requirements.

SCOPE

This procedure applies to PPM operations where employees may be exposed to lead while working with lead containing materials during routine maintenance or emergency situations. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers PPM employees and contractors and shall be used on owned premises, or when

an operator's program doesn't exist or is less stringent.

RESPONSIBILITIES

Managers and Supervisors

- In coordination with the Safety Department, develop and implement written project/task specific lead exposure management procedures prior to the start of activities to reduce exposure to or below the permissible limits.
- Ensure personnel are aware of work that has the potential of exposure to lead.
- Ensure individuals responsible for monitoring areas of exposure are properly trained.
- Ensure personnel receive documented medical surveillance.
- Ensure that all affected employees receive initial and annual lead management training.
- Inform the Safety Manager of upcoming work involving lead-containing materials, allowing the Safety Manager to provide any necessary monitoring.
- Ensure employees have the appropriate personal protective equipment (PPE) and are properly trained in its use and care, including respiratory protection, full body disposable clothing and gloves, when the Action Level is expected to be met or exceeded.
- Ensure employees comply with the lead exposure management procedure.

Safety Department

- Coordinate air sampling and monitoring activities, ensuring monitoring equipment is in proper working order and, as necessary, modifying the lead exposure management procedures to reflect exposure monitoring data.
- Maintain the lead exposure management procedure, notifying management of any regulatory changes and ensuring compliance with federal and state requirements.
- Coordinate initial and annual refresher training activities.
- Coordinate the medical surveillance program for employees exposed to lead above the Action Level for more than 30 days per year.
- Coordinate waste management and disposal activities; ensuring waste with lead containing materials is disposed of only at an approved facility.

Affected Employees

- Comply with the lead exposure management procedure, consulting with the supervisor or Safety Manager to ensure the proper PPE is used when required.
- Comply with the medical surveillance program.
- Attend initial and annual refresher training.
- Wear respiratory protection equipment and other specified PPE as required by the project/task specific control program.
- Maintain respiratory protection equipment in good working order, notifying the supervisor or Safety Manager of any problems prior to starting work.
- Review material safety data sheets or consult with the supervisor to identify any container with lead-containing material.
- Leave the work area to wash if skin irritation is noted or if PPE has been compromised.

PROCEDURE

Written Compliance Program

- Each worksite shall develop and implement written project/task site specific lead exposure management procedures prior to the start of activities to reduce exposure to or below the permissible limits if exposure is possible.
- The procedure shall include engineering controls, work practices, PPE, documentation of air sampling, including the source of lead, a description of each lead related task in which lead is emitted should be outlined and all employees shall be trained prior to work beginning.
- The program shall be revised and updated at least every 6 months.

Permissible Exposure Limits

- Per OSHA regulation, employees shall not be exposed to greater than 50 micrograms per cubic meter of air ($50 \mu\text{g}/\text{m}^3$), time-weighted average, during an 8-hour workday. This permissible exposure limit (PEL) includes the use of respiratory protection. If an employee is exposed more than 8 hours in any one workday, the maximum PEL ($\mu\text{g}/\text{m}^3$) shall be calculated by using the following formula:
- $400/\text{hours worked in the day}$
- For example: $400/12 \text{ hours} = 33.33 \mu\text{g}/\text{m}^3$
- If respirators are used to supplement engineering and/or work practice controls, the respirator's protection factor may be used to determine compliance with the PEL.

Exposure (Air) Monitoring

- Exposure is defined in this section to be any employee who is not wearing a respirator to meet the Action
- Level and monitoring requirements in this section
- Initial air samples shall be representative of the employee's regular, daily exposure to lead.
- Initial breathing air sampling results:

- If the initial monitoring is less than the Action Level, monitoring need not be repeated unless there has been a production, process, control, or personnel change which may result in new or additional exposure to lead
- If the initial determination or subsequent monitoring reveals employee exposure to be at or above the Action Level but below the PEL, monitoring must be performed at least every six (6) months, with the cycle continuing until two (2) samples taken at least seven (7) days apart are below the action level
- If the initial determination exceeds the PEL, monitoring will be performed quarterly until two (2) samples taken at least seven (7) days apart are below the PEL but above the Action Level, and the monitoring frequency described above will be used
- Within 15 working days after the receipt of the results of any monitoring PPM shall notify all affected employees of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.
- Whenever the results indicate that the exposure, without regard to respirators, exceeds the permissible exposure limit, PPM shall include in the written notice a statement that the permissible exposure limit was exceeded, and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

CONTROL MEASURES

Engineering Controls

- If an employee is exposed to lead above the PEL for 30 or more days in a year, engineering controls, including administrative controls, will be implemented to reduce the exposure to or below the permissible exposure. If such controls are not feasible PPM must demonstrate and document the reasons.
- Respiratory protection will be used if engineering and administrative controls are not effective in reducing the exposure to or below the PEL
- If air is re-circulated back into the workplace, the system must be equipped with a HEPA (high efficiency particulate air) and backup filter, and a system to monitor the lead level will be installed.
- When using mechanical means to remove lead-containing paints or coatings, use equipment which is equipped with a HEPA collection system.
- Whenever possible, use a wet system to reduce airborne dust
- Whenever possible, substitute lead material with non-lead material

Administrative Controls

- Administrative controls will include job rotation schedules to reduce employee PEL exposure.
- When exposure to lead is at or above the PEL PPM shall provide lunchrooms, decontamination, changing, shower, and hygiene facilities.
- Regulated access signs will demarcate the lead exposure regulated work areas. Signs should not be removed or defaced. The signs will read as follows:

WARNING LEAD WORK AREA POISON

NO SMOKING OR EATING

Personal Protective Equipment

- Respirators shall be used during the period required to install or implement control if engineering and work practices are insufficient as well as for emergency use.
- PPE will be selected based on its ability to prevent absorption, inhalation and ingestion and will be provided to employees at no cost.
- PPE will reflect the needs of the employee based on work conditions, amount and duration of exposure and other known environmental factors.
- If respirators are required, they will be NIOSH certified and all employees will follow the PPM Respiratory Protection Program.
- An employee may choose a NIOSH certified powered, air purifying respirator (PAPR) at no extra cost to the employee. The respirator shall be used during the period necessary to install or implement engineering or work practice controls.
- Gloves, hats, vented goggles, shoes, or disposable shoe covers shall be provided at no cost. Protective clothing shall be clean and dry. Protective clothing shall be cleaned, laundered, repair and replaced as necessary and disposable clothing shall be identified and handled properly.

Medical Surveillance

- A baseline blood sample shall be obtained prior to any lead exposure.
- Employees who are or may be exposed above the Action Level for more than 30 days per year will be included in a medical surveillance program which is performed by or under the supervision of a licensed physician at no cost to the employee.
- Any employee with elevated blood levels shall be temporarily removed.
- Blood sampling and monitoring will occur at least every 6 months to each affected employee until two consecutive blood samples and analysis are acceptable.
- Employees shall be notified in writing within 5 days of blood sampling results when lead levels are not acceptable.
- Blood sampling shall occur on a monthly during a removal period of each employee removed from exposure to lead due to an elevated blood lead level.
- Whenever the results of a blood lead level test indicate that an employee's blood lead level exceeds the level for medical removal PPM shall provide a second (follow-up) blood sampling test within two weeks after PPM receives the results of the first blood sampling test.

Medical Removal

- Employees will be removed from exposure to lead when an exposure meets or exceeds the Action Level on each occasion that a periodic and follow-up blood sampling test indicates that blood lead level is at or above 60 µg/100 g of whole blood.
- An employee will be removed from exposure to lead when the average of the last three (3) blood sampling tests indicates the employee's blood level is at or above 50 µg/100 g of whole blood (the employee need not be removed if the last blood sampling test shows blood-lead level to be at or below 40 µg/100 g of whole blood).

- If the employee's blood lead level does not decline adequately with 18 months of removal, the employee will be offered a medical examination to determine if the employee may be returned to his or her former job status.
- Medical Removal Protection requirements of 1910.1025(k)(2) shall be followed.

Recordkeeping

- Medical surveillance records shall be maintained for 30 years after termination of employment.
- Exposure monitoring records shall be maintained for 30 years after completion of the project.
- Exposure and medical monitoring records shall be made available to affected employees or their representatives and to regulatory agencies upon request.

TRAINING

Training shall be provided to employees who have the potential to exposure of lead prior to the time of initial assignment and annually thereafter. All affected employees are required to attend training programs. Training will include the following:

- Distribute a copy of the content of the lead standard and Appendices A and B of the regulation and is readily available for employees,
- Content of any compliance plan in effect,
- Access to information and training records,
- Specific operations where lead exposure is or could result in being above the action level,
- Engineering controls and work practices associated with the job,
- Purpose, proper selection, fitting, use, and limitations of respirators,
- Purpose and description of the medical surveillance program, which will include potential health effects, (including there could be adverse effects on reproductive systems) and the medical removal program, and
- Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

Training records shall be provided upon request all materials relating to the employee information and training program to regulatory agencies.



Leading Indicators

PURPOSE

Use Leading Indicators and Metrics to proactively eliminate hazards and improve safety. Most Safety Metrics, including site safety inspections, safety meetings, JHAs, and incident reporting, will be tracked on a weekly basis and reviewed during the weekly Operations Meeting.

Begin with Leading Indicators as follows:

SITE SAFETY INSPECTIONS

Reports that identify and eliminate hazards as well reward exemplary behavior:

- Site Staff Safety Inspection expectations:
 - Superintendent(s) – 1 per week
 - Foreman – 1 per week
 - Field/Project Engineer(s) – 1 per week
 - Project Manager(s) – 2 per month
- Reports shall be conducted in HCSS Safety. This will be tracked so each staff member is held accountable by project leadership to help improve safety on the project.
- If more than one member of the team conducts an inspection with another team member, they each shall turn in separate reports looking at different conditions and hazards. This is a great way for senior staff to help less experienced staff in their efforts to improve safety.
- Site Safety Inspections conducted by the HSE Department should be considered above and beyond that of the project team.
- Inspections are required to be conducted regardless of project location. If the project team is conducting work at a Company Yard or other facility, that does not exclude them from the responsibility of conducting and documenting their inspection(s) each week.

Closure of Hazards Noted:

- It is the goal to close every hazard noted on an inspection within 24 hours and in most cases for the person performing the inspections to address hazardous conditions on the spot with a person responsible to correction the condition. The inspection report remains open until all noted conditions are corrected.
- Timely closure of inspection items noted reduces the continual risk of incident and injury occurrence.
- Known, open hazards expose the Company to potential Serious and Willful OSHA, and other jurisdictional entity, citations.

SAFETY MEETINGS

Crew leader-crew safety meetings are to be held at the beginning of each project, and at least weekly thereafter, to

- review any site safety inspections since the last safety meeting,
- review hazards in need of correction,
- evaluation of any incident investigations to determine if the cause of the unsafe acts or conditions involved were properly identified and corrected.

- Attendance and subjects of all meetings must be documented.
- Subcontractors and their employees, with permission from PPM project management approval, may elect to fulfill this requirement by attending a project-wide meeting run by the PPM project team.

All crew leader-crew safety meetings are to be conducted and documented through HCSS Safety. Safety meetings are required to be conducted regardless of project location. If the project team is conducting work at a Company Yard or other facility, that does not exclude them from the responsibility of conducting and documenting their meeting(s) each week.

TRAINING

Site Safety Training to prepare staff to understand safety standards and how to address conditions:

- A Safety Training Matrix is to be maintained at the project level.
- Safety Training records are also tracked in HCSS Skills, but it is imperative that the project knows which workers have up to date training and which do not. It is the responsibility of both the worker and the supervisor to be knowledgeable of current training statuses.
- If a member (or members) of a project team requires specific training, coordination with the HSE Department will be made in advance. Delays in coordination may result in project schedule delays.
- Below is a list of topics to be used as a guide but is not all encompassing. Contact the HSE Department for more information.

Aerial Lifts	Flagging	Personal Protective Equipment
Asbestos Awareness	Forklift Operator	Respiratory Protection
Boom Lift/Aerial Lift Safety (Operator)	Hazard Awareness and Identification	Rigging I (General)
Carcinogens	HAZCOM (GHS)	Rigging II (Rigger)
Compressed Air & Gas Safety	HAZWOPER	Safety Leadership
Confined Space I (Entrant/Attendant/Supervisor)	Hearing Conservation	Scaffolding I (General)
Confined Space II (Competent Person)	Hot Work	Scaffolding II (Erection & Dismantling)
Crane Assembly/Disassembly	Incident Investigation	Scaffolding III (Competent Person)
Cranes and Derricks	Incident Reporting	Signaling (Cranes, etc.)
Disciplinary Procedures	Laser Safety	Silica
Electrical Safety	Lead	Spill Prevention
Emergency Planning	LOTO	Steel Erection
Emergency Response	Observations, Audits, and Inspections	Subcontractor Safety
Excavation & Trenching	OSHA 10	Substance Abuse Training
Fall Prevention	OSHA 30	Supervisor Training
Fire Extinguisher	Pile Driving	Vehicle Use
Fire Prevention / Protection	Power Actuated Tools (Certification)	Working Over Water
First Aid/CPR/AED/Bloodborne Pathogens	Power, Hand & Machine Tool Safety	Workplace Violence

DAILY HUDDLES / STRETCH & FLEX

Daily Safety Huddle and Stretch and Flex Participation to plan work and raise safety awareness as well as to reduce soft tissue injuries. Both Daily Safety Huddles and Stretch and Flex Participation are required activities by project team members and subcontractors.

- Use this time to
 - Effectively warm up for the upcoming work.
 - Discuss tasks for the day among each crew.
 - Discuss any safety concerns appropriate to the project.

JOB HAZARD ANALYSIS

Job Hazard Analysis (JHA) quality review to improve planning and overall safety.

- JHA's shall be reviewed on a weekly basis for quality and completeness.
- Follow-up shall occur at the beginning of each week to identify improvements to be made in coming week's work.



LOCKOUT / TAGOUT

Complying with:

OSHA Safety and Health Regulations for Construction:

Part 1926, Subpart: K

PURPOSE

The purpose of this program is to establish procedures for affixing appropriate lockout/tagout equipment to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy to prevent injury or incident.

SCOPE

This program covers the servicing and maintenance of machines and equipment where the unexpected energization or startup of the machine or equipment, or the release of stored energy could cause an incident. This program establishes minimum performance requirements for the control of such hazardous energy. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers PPM employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

DEFINITIONS

Affected employee - An employee whose job requires them to operate or use a machine or equipment on which servicing, and maintenance is being performed under lockout/tagout, or whose job requires the employee to work in an area in which such servicing or maintenance is being performed.

Authorized employee - A person that performs lockout/tagout procedures on machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes authorized when that employee's duties include performing servicing or maintenance covered under this program.

Capable of being locked out - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized - Connected to an energy source or containing residual or stored energy.

Energy isolating device - A mechanical device that physically prevents the transmission or release of energy including, but not limited to, the following:

- A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors and no pole can be operated independently, a line valve, a block and any similar device used to block or isolate energy.
- Push buttons, selector switches and other control circuit type devices are not isolating devices.

Lockout - The placement of a lockout device on an energy isolating device in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device - A device that utilizes a positive means, such as either a key or combination type lock, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal operation - The utilization of a machine or equipment to perform its intended operation. **Potential Energy Sources** - Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, gravity, steam, thermal, tension or other energy sources.

Servicing and/or maintenance - Workplace activities such as constructing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines and equipment, where the employee may be exposed to an unexpected energization or startup of the equipment or release of a hazardous energy source.

Setting up - Any work performed to prepare a machine or equipment for performing its normal operation.

Tagout - The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until tagout device is removed.

RESPONSIBILITIES

Managers and Supervisors

Responsible to control and enforce this plan and to see that all their employees and contractors that are affected by lockout/tagout procedures, have the knowledge and understanding required for safe application, usage, and removal of all energy controls and devices.

Ensure employees are trained and comply with the requirements of this program.

Employees

Employees who are affected by this program are required to attend training on an annual basis.

Are required to follow the provisions of this program.

PROCEDURE

General

Only an authorized employee or employees performing the servicing or maintenance shall perform lockout or tagout.

Devices

Lockout Device - If an energy source can be locked out a device that utilizes a lock to hold an energy isolating device in a safe position shall be used. Each site shall have the same type of lock as specified by PPM.

Tagout Device – If an energy source cannot be locked out with a lockout device then a tagout device shall be used. Tagout devices are a warning only level of protection and shall be weather and chemical resistant, standardized in color with clear written warning of hazardous energy, i.e. Do Not Operate, Do Not Start, Do Not Energize, etc. Each site shall have the same style of tags specified by PPM.

Specific Energy Control Procedures

Each manager or supervisor is responsible for developing specific step-by-step shutdown and startup procedures for a particular machine or piece of equipment in their respective area.

A written, step-by-step isolation procedure for shutdown and startup shall be prepared for each type of machine or piece of equipment.

This procedure shall include:

- Equipment number if assigned.
- Equipment location.
- Energy Source(s) (i.e., electrical, hydraulic, gas pressure, etc.)

- Location of isolating controls (i.e., breaker switches, valves, etc.)
- Quantity of isolating controls
- Quantity of locks required to isolate the equipment
- Other hardware required to isolate the equipment (i.e., chains, valve covers, blocks, etc.)
- List any residual energy required to be dissipated before work begins.

Specific Sequence for Application of Energy Control

Notification

Authorized employees must notify all other affected employees of the application and removal of lockout/tagout devices. Notification shall be given before the controls are applied and before they are removed from the machine or equipment.

Preparation for Shutdown

Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled and the methods or means to control the energy.

Machine or Equipment Shutdown

The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees because of the equipment stoppage.

Machine or Equipment Isolation

All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source.

Lockout/Tagout Devices and Application

Each authorized employee shall have the proper number of locks and devices to be able to perform proper lockout/tagout procedures for machines or equipment that they may be working on.

- Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.
- Lockout and tagout devices shall include name of individual placing device. Devices shall indicate the identity of the employee applying the device.
- Lockout devices shall be affixed in a manner to hold the energy isolating devices in a safe or off position.
- Tagout devices shall be affixed in a manner that will clearly indicate that the operation or movement of isolating devices from the safe or off position.
- Tagout devices used with energy isolating devices with the capability of being locked out shall be fastened at the same point at which the lock would have been attached. If a tag cannot be directly attached to the energy isolation device, it shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
 - Each energy source shall be locked out completely isolating the equipment.
 - Isolating machines or equipment shall include, but are not limited to:
 - Pumps, compressors, generators, electric distribution, storage tanks, etc.

- Each type of equipment to be isolated shall have specific procedures for isolation, i.e. for compressors: suction, discharge, power, starting, fuel, dumps shall be closed, locked, and tagged out properly. The blow-down valve shall be opened, locked, and tagged out properly. (NOTE): If compressor has a side stream hooked up, the side stream shall be closed, locked, and tagged out properly.

Stored Energy and the Possibility of Reaccumulation

Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.

If there is a possibility of re-accumulation of stored energy, verification of isolation shall be continued until the servicing or maintenance operation is completed, or until the possibility of such accumulation no longer exists.

Verification of Isolation

Prior to starting work on machines or equipment that have been locked or tagged out; the authorized employee shall verify that isolation and de-energization of the machine or equipment have been accomplished.

Procedures for Handling Multiple Groups of Workers Involved in a Group Lockout

A crew of authorized employees may use a group lockout or tagout device. This will afford the group of employees a level of protection equal to that provided by a personal lockout or tagout device. Procedures include:

- A pre-task meeting shall be conducted to review the lockout procedures and other information as required for safe work to continue – all crafts and effected departments shall be involved.
- An authorized employee will isolate the equipment and ascertain the exposure status of individual group members.
- All workers will then place their individual locks on the device's group lockout or tagout device after they have verified the procedure.
- An authorized employee has primary responsibility for a set number of employees working under the protection of a group lockout or tagout device. The authorized employee should ascertain the exposure status of individual group members. Each PPM employee or contractor shall attach a personal lockout or tagout device to the group's device while he/she is working and then removes it when finished.
- During shift change or personnel changes, there are specific procedures to ensure the continuity of lockout or tagout procedures. These include:
 - In the event shift or personnel changes occur during maintenance and/or repair activities, the designated PPM employee in charge shall take the necessary steps to maintain the continuity of the lockout/tagout protection. This includes maintaining that all provisions in this procedure are adhered to and the transfer of lockout/tagout devices between authorized employees is accomplished.
- No work shall be allowed to proceed following personnel or shift change unless these requirements are met. The job supervisor must observe that all personnel or shift change locks or tags are properly transferred during the process.
- Before the last outgoing person can leave, they must remove their lock (or warning tag) and the incoming PPM person shall affix their lock or (warning tag) to prevent the lock out device or tag warning device from ever not being locked or warning if a lock out device is not practicable.
 - This also applies to all group lockout tagout situations.
 - This also applies to all contract personnel working on PPM or client projects.

- If any outgoing person leaves the site and their lock/tag is still attached, then follow
- Removal of Locks guidelines below.

Release from Lockout/Tagout

When servicing or maintenance is completed or when Lockout / Tagout devices must be temporarily removed, the equipment requires testing and the machine or equipment is ready for testing or to return to normal operating conditions, the following steps shall be taken, in this order:

1. Check the machine or equipment and the immediate area surrounding the machine or equipment to ensure that all nonessential items such as tools have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all personnel have been safely positioned or removed from the area.
 - a. Remove the Lockout/Tagout device
 - b. Energize and proceed with testing
 - c. Deenergize and reapply control methods including Lockout / Tagout devices
3. Document the procedure by use of the completed isolation log and provide to supervisor for filing.

Removal of Locks

The authorized employee who applied the lock shall be the one to remove their lock. However, after all work has been completed, certain conditions may arise which prohibit this person from being present to remove the lock.

The following procedures shall be followed to allow for the removal of a lock that another person has applied:

- Every effort shall be made to contact the authorized employee who applied the lock to obtain the key(s).
- If the key(s) cannot be made available, the employee who requests removal of the lock shall contact their supervisor.
- The supervisor shall verify that every effort was made to contact the original authorized employee who applied the lock and to obtain the key(s).
- The employee removing the lock shall note on the Service Report that the lock(s) were removed with permission by supervisor.
- All reasonable efforts will be made by supervisor to notify that employee their lock has been removed, ensuring that the authorized employee has this knowledge before they return to work.
 - If the equipment is client owned, the supervisor or employee requesting to remove the lock(s)
 - shall contact the client to get the lock removed. Clients must remove their lock(s).
 - NOTE: PPM employees shall not remove any client locks.

Contractors

Contractors performing lockout procedures on PPM property shall comply with this procedure. Contractors shall supply their own locks. PPM shall initially lockout PPM machines and equipment before the contractor will be allowed to apply their own lock in addition to PPM's.

Periodic Inspections of the Energy Control Procedure

Periodic inspections of the energy control procedure are conducted and documented at least annually to ensure procedures and requirements are being followed. Periodic inspections of the energy control procedure must be

conducted at least annually to ensure that the procedure is being followed.

The PPM Safety Manager or their designee performs the inspection (it must be someone other than those using the lockout/tagout in progress). The inspector will produce a certified review of the inspection including date, equipment, employees, and the inspection shall be documented. They will verify that:

- Each authorized and/or affected employee has been trained as required.
- Any new equipment added has specific lockout procedures developed and documented.
- Current procedures are adequate for performing complete isolation of equipment and resulting in a zero-energy state.
- A copy of the audit maintained on file at the manager's/supervisor's office.

EMPLOYEE TRAINING

The training must include recognition of hazardous energy source, type, and magnitude of energy available, methods and means necessary for energy isolation and control.

Each authorized employee shall receive adequate training.

All affected employees are instructed in the purpose and use of the energy control procedure.

Any other employees whose work operations are or may be in an area where energy control procedures may be utilized are instructed in the purpose and use of the energy control procedure.

Additional training includes:

- The purpose and use of energy control procedures.
- When tagout systems are used, employees shall also be trained in the following limitations of tags:
 - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
 - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated in any way.
 - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, to be effective.
 - Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
 - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
 - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

Retraining

Retraining shall be conducted whenever a periodic inspection reveals, or whenever PPM has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced.

The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

Training Documentation

PPM shall certify that employee training has been accomplished and is being kept up to date. All training and/or retraining must be documented, signed, and certified.

ANNUAL REVIEW

The Lockout/Tagout Program will be reviewed by the EHS Officer / Professional. The annual review will include current training and any documents associated with this program. When new tasks, procedures, and/or positions are added or modified/revised which affect LOTO, this program will be updated immediately to reflect these changes.

PERFORMING MAINTENANCE

The OSHA standard also recognizes that there are times when lockout devices must be temporarily removed to perform maintenance while equipment is in operation. Examples of these types of tasks would be to check the position of components after adjustments have been made, repositioning of components for cleaning, troubleshooting, etc. In these cases, alternative controls must be documented.

- Trouble shooting electrical controls:
 - Electrical control troubleshooting is a task that must be performed by a qualified electrical maintenance employee or electrical contractor. This type of work must also take extra steps to ensure no employees (including the technician) are in the area when energizing or positioning take place. If access must be made to the machine to assist in trouble shooting, then alternative controls process must be in place. Once the work falls out of scope of troubleshooting (i.e., transitioning from jogging a cylinder to entering the machine to remove a part) then LOTO steps must take place.
- Temporary removal or bypass of lockout devices for means of repositioning:
 - Tasks which require removal or bypass of lockout/tagout for means of repositioning can be completed without alternative controls, given that no access to the machine is needed. Once access to the machine is needed the alternative controls process must be in place

SPECIFIC EQUIPMENT LOCKOUT PROCEDURES

Project Name / Number:

Equipment No.:

Energy Source:

Procedure for Shutdown and Isolation:

(List number of steps required to isolate machine or equipment - write N/A on lines not used or add additional steps if necessary)

STEP NO.

1.

2.

3.

4.

5.

6.

7.

8.

Additional Information:

Prepared By:

Date:

(This procedure to be communicated to all authorized and affected employees and kept on file at location of machine or equipment)

SAMPLE TAG



White letters in a Red oval

Field of Red and White diagonal stripes

ISOLATION LOG

Date of Isolation:

Description of Work:

List of Equipment out of Service:

Necessary Requirements of Clear Isolation:

Authorized Employee Signature: _____

Person Continuing Work Signature: _____

Locks/Tags for GROUP LOCKOUT or Multiple Locks/Tags

Lock # or Tag	Date Installed	Date Removed	Print Name (for Group Lockout)	Signature

(If additional space is needed, please attach an additional page)

Main Information

Date *



Job *

Recorder (or employee you are visiting) *

Lockout / Tagout Verification

Site Location/Job name *

Date *



Name of person verifying LOTO *

Verification questions

Has there been a change in job assignments, machines, equipment or processes?

III NO

If so, have employees been re-trained when job assignments, machines, equipment or processes have changed?

III NO

Are the locks uniquely identified, uniquely keyed, and only used for the purpose of LOTO?

III NO

Does the tag used with the lock identify the worker servicing the machine or equipment?

III NO

Have equipment and machine-specific LOTO procedures been documented in writing?

III NO

Does the employee know where the written LOTO procedures are located?

III NO

Does the employee notify affected employees and all other employees in the area before starting the LOTO procedure?

III NO

Can the employee identify all hazardous energy sources and associated hazards for the equipment or machine to be locked out?

III NO

Does the employee follow the proper LOTO procedures for de-energizing the equipment or machine?

III NO

Does the employee demonstrate the proper steps for placement, removal and transfer of LOTO devices?

III NO

Does the employee use the proper methods to verify the equipment or machine was de-energized?

III NO

Before releasing the machine or equipment from LOTO, does the employee inspect the machine or equipment to ensure it is operationally intact?

III NO

Does the employee ensure that all employees are safely positioned before re-energizing?

III NO

Were all affected employees and all other employees in the area notified that LOTO devices have been removed?

III NO

If there was a NO answer to any of these questions, was the employee re-trained in LOTO procedures?


III NO

Signature section

Signature of authorized person doing LOTO verification. *

Date and Time *



 Submit Form



NOISE EXPOSURE HEARING CONSERVATION

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart: D

PURPOSE

The objective of Pacific Pile & Marine's Hearing Conservation Program is to minimize occupational hearing loss by providing hearing protection, training, and annual hearing tests to all persons working in areas or with equipment that have noise levels equal to or exceeding an eight-hour time-weighted average (TWA) sound limit of 85 dbA (decibels measured on the A scale of a sound level meter).

Permanent hearing loss is a proven result of prolonged exposure to high noise levels. An easy manner of determining a noise level more than the threshold is to determine whether a conversation is possible at normal voice levels. If not, then the threshold has probably been exceeded and you should be wearing earplugs. What is less easy, is determining whether the average exposure, over an eight-hour shift, is being exceeded. This is especially true because Pacific Pile & Marine's work, unlike that in a factory, is constantly changing from day to day, as well as during work shifts. Therefore, whenever employees work in a situation where the noise level prevents conversation at normal speech levels, employees must wear ear protection.

GENERAL

Certain tasks during the working day expose employees to industrial noise levels more than 85 dB. It is possible that noise exceeds this level when averaged over an eight-hour period. An employee working under these conditions shall be incorporated into the Hearing Conservation Program.

RESPONSIBILITIES

Management

- Use engineering and administrative controls to limit employee exposure.
- Provide adequate hearing protection for employees.
- Post signs and warnings in all high noise areas.
- Conduct noise surveys annually or when new equipment is needed.
- Conduct annual hearing test for all employees.
- Conduct hearing conservation training for all new employees.
- Conduct annual hearing conservation training for all employees.

Employees

- Use company-issue approved hearing protection in designated high noise areas.
- Request new hearing protection when needed.
- Exercise proper care of issued hearing protection.

EXPOSURE AREAS

Exposure to such noise levels may occur anywhere at the yard except within the office. Exposure may also occur at any active jobsite.

When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

If the variations in noise level involve maximal intervals of 1 second or less, it is to be considered continuous.

AUDIOMETRIC EXAM

Employees subject to the Hearing Conservation Program who have time-weighted average (TWA) noise exposures of 85 dbA or greater for an eight (8) hour work shift will be required to have both a baseline and annual audiogram. The audiograms will be conducted by a Health Service with no cost to the employee. Test results shall be available for employee review.

The baseline audiogram will be given to an employee within six (6) months of employment with Pacific Pile & Marine and before any exposure to high noise levels. For baseline tests, employees will be instructed to avoid unprotected exposure to high noise levels at least 14 hours before testing is done.

Annual audiograms will be performed within one year from the date of the previous audiogram. It is the responsibility of the individual or Pacific Pile & Marine to schedule the annual audiogram.

If an annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be retested within thirty (30) days of the annual audiogram. If the retest confirms the occurrence of a standard threshold shift, the employee will be notified in writing within twenty-one (21) days of the confirmation. Employees who do experience a standard threshold shift will be refitted with hearing protection and provided more training on the effects of noise. Also, if necessary, a medical evaluation may be required.

HEARING PROTECTOR ATTENUATOR

Pacific Pile & Marine shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels. Employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary.

EAR PROTECTION

Management, supervisors, and employees shall properly wear the prescribed hearing protection while working or traveling through any area that is designated as a high noise area. Failure to do so shall result in disciplinary action.

Hearing protection will be provided at no cost to employees who perform tasks designated as having a high noise exposure and replaced, as necessary. It is the supervisor's responsibility to require employees to wear hearing protection when noise levels reach or exceed 85 dbA. Those employees will have the opportunity to choose from at least two different types of hearing protection.

Personal stereo headsets or earbuds are not approved for hearing protection and are not permitted in any operating area of company property or project sites.

Signage is required in areas that necessitate hearing protection. It is the responsibility of the Superintendent to provide signage to the appropriate areas.

Preformed earplugs and earmuffs should be washed periodically and stored in a clean area. Foam inserts should be discarded after each use.

Hands should be washed before handling preformed earplugs and foam inserts to prevent contaminants from being placed in the ear.

TRAINING

Affected employees will be required to attend training concerning the proper usage and wearing of hearing protection. The training will be conducted by a designated representative, within a month of hire and annually thereafter.

All employees exposed to industrial noise levels more than the program threshold shall be given annual training in hearing conservation. The training shall include:

- Review of the OSHA hearing protection standard,

- The effects of noise on hearing, temporary threshold shift and permanent threshold shift,
- Purposes of hearing protection, including use, fitting and advantages/disadvantages of various types, care of protectors, and attenuation characteristics,
- Explanation of the purpose of audiometric testing,
- Locations within company/site where hearing protection is required, and protection is found.

RECORDS

Pacific Pile & Marine will retain files of audiometric test results and of training programs as required. The records may also be accessed by the Assistant Secretary and the Director.

NOISE LEVEL MONITORING

Noise levels and employee exposure will be periodically monitored at the workplace. Monitoring will be conducted by a Responsible Person, such as Safety Officer or Superintendent. Monitoring will be performed with the use of sound level meters.

Monitoring will also be conducted whenever there is a change in equipment, process or controls that affect the noise levels. This includes the addition or removal of machinery or substitution of new equipment in place of that previously used, to reduce the sound levels at or below 85 dbA. The responsible supervisor must inform the Safety Officer when these types of changes are instituted. As necessary, the PPE will be updated to stay consistent with work processes. Monitoring will continue during elevated sound level events to assure workers have the proper hearing protection required.

TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)

Duration per day, hours	Sound level dbA slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

Footnote (1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n)$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.



PANDEMIC PREPAREDNESS

Purpose

Pacific Pile & Marine, LP strives to provide a safe and healthy workplace for all employees. This pandemic preparedness policy outlines our overall response to a pandemic flu outbreak and our emergency- preparedness and business continuity plan. It outlines specific steps PPM takes to safeguard employees' health and well-being during a flu pandemic while ensuring PPM's ability to maintain essential operations and continue providing essential services to our customers. In addition, it provides guidance on how we intend to respond to specific operational and human resource issues in the event of a pandemic. PPM's Pandemic Preparedness plan is implemented through our Safety, Operations, and Human Resources departments.

Definitions

- **Pandemic Flu**

According to the federal Centers for Disease Control, the Occupational Safety and Health Administration, and other organizations that monitor public health threats, influenza or flu is caused by a variety of influenza A viruses. These viruses can cause different diseases: COVID-19 (coronavirus), Avian (or Bird) flu, H1N1 (Swine flu), pandemic influenza, and seasonal flu.

Pandemic influenza can occur when mutating flu viruses become transmissible to humans, who generally lack any natural immunity to fight off the viruses' adverse health effects. Because infected humans are so contagious, they become the primary vehicle for pandemic influenza's spread. The more humans who become contagious, the more widespread the disease becomes and the more rapid the spread is. Generally, pandemic influenza occurs in waves, with each new group of infected people in turn infecting others. Each such wave of infection can last as long as eight weeks, resulting in steadily increasing numbers of infections, and the disease itself can take 12 months to 18 months to run its course through the population. Subsequently, the viruses sparking pandemic influenza "settle" and thereafter can cause a type of seasonal flu (also known as "human flu") that produces the symptoms and illness many of us experience during annual "flu season."

Pandemic influenza poses the most serious global threats to public health and our economy. It conceivably can cost billions of dollars in productivity losses resulting from absenteeism, payouts of sick leave or workers' compensation, and lost sales; disrupt transportation and communication services on which we all depend; and impede delivery of necessary goods and services. Inability to predict when such a disease might strike and with what severity makes it incumbent on PPM to consider how our business might be affected and to articulate what needs to be done to respond to an outbreak.

- **Fully vaccinated is typically defined by the following:**

- 2 weeks after their second dose in a 2-dose series, such as the Pfizer or Moderna vaccines, or
- 2 weeks after a single-dose vaccine, such as the Johnson & Johnson vaccine.

- **Proof of Vaccination Status:**

- The employee submits their vaccination card, or a picture thereof, to a Pacific Pile & Marine representative (Director of HSE or Business/HR Manager), that indicates they are fully vaccinated (see definition above).

- **Log(s):**

- Pacific Pile & Marine maintains a log of fully vaccinated employees.
- If an employee has not submitted their vaccination record(s), they will not be considered fully vaccinated and will be required to continue wearing a mask or face covering and maintain physical distancing.

- **Mask or face covering:**
 - Covers the mouth and nose,
 - Must be multiple plies, and
 - Must be a disposable or cloth ear loop type (*as provided or other).
 - Neck gaiters, bandanas, and handkerchiefs are not acceptable face coverings.

Identification of Essential Personnel

PPM has identified and designated as essential personnel certain employees whose jobs are vitally important to our continued operation in emergencies. We expect only designated essential personnel to be available for work during an influenza pandemic. We acknowledge, however, that even essential personnel might become ill and unavailable to work or not be able to reach our worksite because of conditions beyond their own or our control. Consequently, PPM and its subsidiaries, affiliates, and industry partners have devised and agreed on back-up arrangements under which designated personnel in locations outside our respective areas are trained and equipped to fulfill the duties of unavailable essential employees. In addition, we have equipped our most essential personnel with all the resources, including computers and cell phones, that essential employees need to work remotely during emergencies.

Remote Work Locations

PPM acknowledges that during an influenza pandemic, local, state, or federal authorities might prohibit or severely curtail individuals' access to and use of public services and public transportation; close or prevent access to buildings or public highways; isolate or quarantine buildings' occupants; and prevent inter- or intrastate delivery of goods and services. We cannot predict and have no control over such authorities' actions and acknowledge our legal duty to comply with outside authorities' directives.

We are prepared to continue key “bare bones” operations from several remote work locations, including essential employees' home offices. We have designated a secure access through which essential personnel can communicate with each other and outside authorities.

Job Office or Job site Visits

When an employee is visiting or dedicated to a job site that employee must adhere to any additional screening, or further standards imposed by the owner/operator of such facilities. This may include proof of vaccination, required masks, and social distancing. If any such restrictions are imminent, please attach the regulations to this document and submit them along with the Site-Specific Safety Plan. The plan will be referenced at the job kickoff meeting to inform persons involved with the project. This will also be used as the first job safety meeting before any work is started and employees will sign onto the plan via HCSS.

Infection-Control Measures

PPM takes several steps to minimize to the extent practicable exposure to and spread of infection in the workplace, which is an ideal site for contagion because of workers' proximity to one another. As appropriate, PPM recommends measures that employees can take to protect themselves outside the workplace and encourages all workers to discuss their specific needs with a family physician or other appropriate health or wellness professional.

Ill employees

PPM expects employees who contract the flu or have been exposed to infected family members or others with whom employees have been in contact to stay home and seek medical attention as necessary and appropriate. PPM expects such workers to notify their supervisor as soon as possible of exposure or illness. The Decision Tree shall be referenced when determining whether a worker shall be sent home or be referred to a medical

practitioner for treatment.

Post COVID-19 Return Policy

Any Employee who tests positive for COVID-19 or are symptomatic for COVID-19 may not enter or perform any work or services in person in PPM Offices or job sites until a minimum 5 days until after symptoms appeared, and with two conditions 1) fever free for 24 hours prior to return and 2) symptoms resolving.

Mandatory employee training

All employees are at risk of exposure to flu viruses, both in and outside the workplace; therefore, PPM requires all employees to attend initial or refresher training to become informed about what to do when an outbreak occurs.

Training, which is customized for our business and conducted by representatives from our Safety and/or Operations Departments, addresses information summarized in this document and, more specifically, such issues as availability of flu shots; symptoms and health effects of influenza, treatment, and sources to contact for appropriate medical care; steps to take if exposure is suspected; company representatives to whom to report known or suspected exposures, and procedures for reporting exposure to co-workers, family members, friends, or others who are ill with flu; proper hygiene in the workplace; and communications. Supervisors and HR/Safety are responsible for recording and maintaining documentation on every employee's participation in required training.

Personal protective equipment

PPM maintains adequate supplies of recommended personal protective equipment, such as face masks, eye protection, etc., which PPM may require workers to use. We urge all employees to speak with their personal physician about types and proper use of personal-protection equipment in the home.

Masks and Face Coverings Requirements

Pacific Pile & Marine will provide face coverings to employees, at no cost, as needed. Employees may choose to continue wearing face coverings at their own discretion, provided it does not create a safety or security issue. Any face coverings worn on a voluntary basis must cover the nose and mouth at all times, be multiple plies, be disposable or cloth type, and neck gaiters, bandanas, or handkerchiefs are not acceptable.

Facilities maintenance

PPM's supervisors must regularly inspect the workplace for signs of equipment in need of replacement or repair; coordinate closely with cleaning and waste-removal contractors to maintain our facilities; and approves the use of improved equipment or cleaning methods to guard against the spread of infection in the workplace.

During a pandemic, all surfaces in work areas shall be cleaned on a regular basis, no less than once per day, with disinfecting wipes or disinfectant spray and freshly laundered towels/rags. All equipment/tools shall also be wiped down on a routine basis, no less than once per day, with disinfecting wipes or disinfectant spray and freshly laundered towels/rags.

Supervisors will also maintain hand-washing stations or anti-septic hand cleansers/towelettes, along with other hygiene items, including, but not limited to, face masks, faceshields, eye protection, nitrile gloves, etc.

Physical Distancing

Workers who are fully vaccinated with proof of vaccination status should maintain at least 6' of distance away from other workers [when physically possible] when inside, in meetings, riding in vehicles for business purposes, in shared spaces such as hallways, conference rooms, foyers, etc., in the main office, jobsites, job offices, etc., and as listed in guidance documents within a given jurisdiction (i.e., in schools, on public transportation, in healthcare

settings) during a pandemic.

Workers who are not fully vaccinated shall continue to stay at least 6' apart from other workers to the extent practical. Workspaces have been modified to increase physical distance to 6' or impermeable barriers have been added to separate personnel. Duties that cannot be performed safely while maintaining 6' distancing will use reasonable alternative methods.

During "Stay at Home" orders from local, state, or federal governments, remain in your designated housing location except for travel to the project site or essential locations such as the grocery store, gas station, or to seek emergency medical care. Do not visit any public spaces, including, but not limited to pools, meetings rooms, fitness centers or restaurants/bars. Do not allow visitors in or out of your housing location (residence, hotel, other rented lodging, etc.) other than a physician, healthcare provider, or individual authorized to enter your designated quarantine location. Maintain your 6' social distancing at all times, clean surfaces regularly, comply with all rules or protocols related to your quarantine as set forth by your hotel or rented lodging.

If you become symptomatic contact your supervisor immediately and follow the required protocol discussed above for ill employees; follow jobsite rules for distancing, cleaning, and work practices.

Visitors

Visitors will be limited to only those necessary for the work.

Owner/Client Approval

Site-specific project policies may still exist and have requirements in excess of Pacific Pile & Marine policies.

**Pacific Pile & Marine Superintendents reserve the right to exceed these requirements on their jobsite as they deem necessary.*

Employee Leave and Pay

In the event of pandemic influenza, PPM will grant all nonessential personnel immediate administrative leave. Employees on administrative leave can use accrued PTO. Depending on the circumstances of the leave, employees may also be able to access compensation through applicable state agencies.

PPM monitors emergency conditions daily to determine how long administrative leave must continue and, following consultation with outside authorities, advises employees when to expect to return to work.

Family and Medical Leave

PPM may place eligible employees on family and medical leave who fall ill with the flu or must be absent from work to care for an infected family member. PPM requires such employees to notify HR as soon as possible if family and medical leave is needed.

PPM requires all employees certify that they have received, read, and fully understand PPM's family and medical leave policy and its use in a flu outbreak. (See PPM's related Family and Medical Leave Act Policy).

Business Travel

PPM makes all reasonable efforts to eliminate the need for travel by taking advantage of technology that allows us to communicate or otherwise operate electronically. Generally, in the event of an influenza pandemic, travel on PPM's behalf is immediately suspended and limited to a select group of essential personnel who have obtained required travel authorizations from PPM and, if necessary, outside authorities.

Emergency Contact Information

Employees are required to notify their immediate supervisor and Human Resources of any change in emergency-contact information within two weeks of the change. When providing such information, employees, especially

those who have children or care for elderly relatives, should identify individuals on whom they can depend on if the employees themselves become sick at work and must be isolated and quarantined.

Special needs and accommodations

PPM urges such employees to confidentially self-identify to Human Resources/Safety Departments so that we are aware of and can prepare for you to receive any special medical expertise you might require if you become severely ill on the job. The Human Resources and Safety Departments maintain the confidentiality of any information you provide, making it available solely on a need-to-know basis.

Reporting

If a confirmed case of COVID-19 is reported, PPM will notify employees that had close contact with the positive worker in writing within one (1) business day without disclosing the positive worker's identity. Confirmed outbreaks of ten (10) or more employees at the workplace with more than 50 employees will be reported to L&I within 24 hours.

If a confirmed case of COVID-19 is reported, the company will determine if it meets the criteria for recordability and reportability under OSHA's Recordkeeping rule. OSHA requires construction employers to record work related injuries and illnesses that meet certain severity criteria on the OSHA 300 log, as well as complete the OSHA form 301 or equivalent upon the occurrence of these injuries. For purposes of COVID-19, OSHA also requires employers to report to OSHA any work-related illness that:

- 1) results in a fatality, or
- 2) results in the inpatient hospitalization of one or more employees. Inpatient hospitalization is defined as a formal admission to the inpatient service hospital or clinic for care or treatment.

OSHA has decided that COVID-19 should not be excluded from coverage of the rule - like the common cold or the seasonal flu - and, thus, OSHA is considering it an illness. However, OSHA has stated that only confirmed cases of COVID-19 should be considered an illness under the rules. Thus, if an employee simply comes to work with symptoms consistent with COVID-19 but is not a confirmed diagnosis, the recordability analysis is not necessarily triggered at that time.

If an employee has a confirmed case of COVID-19, the company will conduct an assessment of any workplace exposures to determine if the case is work related work. Work-relatedness is presumed for illnesses that result from events or exposures in the work environment unless it meets certain exceptions. One of those exceptions is that the illness involves signs or symptoms that surface at work but result solely from a non-work-related event or exposure that occurs outside of the work environment. Thus, if an employee developed COVID-19 solely from an exposure outside of the work environment, it would ***not*** be work-related, and thus not recorded.

The Company's assessment will consider the work environment itself, the type of performed, the risk of person-to-person transmission given the work environment, and other factors such as community spread. Further, if an employee has a confirmed case of COVID-19 that is considered work-related, the Company will report the case to OSHA if it results in a fatality within 30 days or an inpatient hospitalization within 24 hours of the exposure incident.

Work-related COVID-19 hospitalizations and fatalities will be reported to DOSH.

Communications

Outside authorities

PPM and its Emergency Operations Team partner with local, state, and federal emergency response and health agencies to ensure legal compliance with emergency response protocols to which PPM is subject and to coordinate efforts to maintain safety and security in and outside the workplace.

In the event of a conflict between directives issued by PPM and directives issued by local, state, or federal authorities, such as the federal Department of Homeland Security, PPM directs all employees to obey all orders issued under local, state, or federal law.

Action Escalation

PPM's Emergency Operations Team, which is responsible for ensuring our company's ability to continue operating in emergencies, has devised a system under which essential personnel can be directed to take specific actions at a specific time based on a series of alerts (“Warning”, for example, or “Full Shutdown”) that consider the seriousness of conditions at hand. PPM trains all essential personnel in the use and understanding of this communications system. In an emergency, PPM may consult with outside authorities to coordinate dissemination of instructions or other important information as quickly as possible to all employees.

Pandemic Flu Resources List

PPM maintains a list of the names, telephone numbers, and emails of key PPM representatives and designated essential personnel who are available to answer your questions. The categorized list of key internal and external contacts and all appropriate media through which PPM communicates with employees also is available in our Corporate Crisis Management Plan.

Employee Assistance Program Services

PPM's employee assistance program (EAP) services remain available to you to the extent practicable and reasonable during an influenza outbreak. PPM has contracted with our EAP provider to make available to you a team of crisis-management specialists with medical backgrounds. Our provider partners with PPM and local authorities as appropriate to ensure the reasonable availability and continued provision of critical information (such as where to go to obtain medical assistance for yourself or ill family members), respite care, use of personal-protection equipment, psychological and emotional support during a pandemic, including assistance and support following the death of an infected family member.

Availability of Business Continuity Plan

PPM's Emergency Preparedness and Business Continuity Plan is the result of many hours of discussion and planning with industry partners, public health experts, and other appropriate parties. PPM regularly reviews and shares this plan (and any updates to the plan) with PPM's affiliates and industry partners, insurers, designated first-responders, local health care facilities, and local, state, and federal government authorities, all of whom play a role in ensuring your safety and well-being in an emergency.



PERSONAL PROTECTIVE EQUIPMENT ASSESSMENT POLICY

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart: C

Purpose

The purpose of the Personal Protective Equipment section is to set forth the procedures for the use, care, and maintenance of personal protective equipment required to be used by employees for the prevention of injuries.

Scope

This policy applies to all PPM employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers PPM employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

Key Responsibilities

Safety Department

- Assists in the selection of appropriate PPE. If a task exposes an employee to hazards which cannot be eliminated through engineering or administrative controls, the HSE Manager assists the supervisor and project manager to identify and select PPE suitable for the specific task performed, conditions present, and frequency and duration of exposure. Employees need to give feedback to the supervisor about the fit, comfort, and suitability of the PPE being selected. Employees are provided reasons for selection of PPE.
- Assists supervisor and site managers in assuring all PPE obtained meets regulatory and this procedure's requirements.
- Performs Worksite Hazard Assessments - The hazard assessment must indicate a determination if hazards are present or are likely to be present, which necessitate the use of PPE. Sources of hazards include but are not limited to hazards from impact/motion, high/low temperatures, chemicals, materials, radiation, falling objects, sharp objects, rolling or pinching objects, electrical hazards, and workplace layout. Certifies in writing the tasks evaluated, hazards found, and PPE required to protect employees against hazards and ensures exposed employees are made aware of hazards and required PPE before they are assigned to the hazardous task. Certificate shall include certifier's name, signature, dates, and identification of assessment documents.

Managers and Supervisors

- Supervisors and managers shall regularly monitor employees for correct use and care of PPE and obtain follow-up training if required to ensure each employee has adequate skill, knowledge, and ability to use PPE.
- Supervisors and managers shall enforce PPE safety rules following the guidance of the PPM
- progressive disciplinary procedures and ensure Required PPE Poster is posted properly.

Employees

- Complying with the correct use and care of PPE.
- Reporting changes in exposure to hazardous conditions that might require a follow-up assessment of the task for PPE.
- Reporting and replacing defective or damaged PPE, which shall not be used.
- Wearing of required PPE is a condition of employment.

Procedure

General

- Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.
- Employee-owned equipment is NOT permitted, except for safety toe footwear and prescription safety glasses. PPM is still responsible for the assurance of its adequacy, maintenance, and sanitation of those two items.
- All PPE issued shall be at no cost to the employee. All employees will know and follow the procedures outlined in this Program.

Eye Protection

- Employees must use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids or chemical gases or vapors. Eye and Face PPE must comply with ANSI Standard Z87.1-2003 (Z87+), Occupational and Educational Personal
- Safety Glasses
 - Safety glasses, with side shields, that meet ANSI Z-87.1-2003 standards with “high Impact lenses” are required to be worn by all employees, subcontractors, and visitors while on PPM property, always, as described below:
 - At field locations, in shops, and warehouses, except in approved, designated, striped safety zones.
 - In all yard work zones, by everyone when in the vicinity of loading or unloading equipment, performing mechanic or maintenance work, test stand operations, operating equipment such as forklifts, welding, or any type of work which has the potential to inflict an eye injury.
 - In any office, restroom, or any other building while performing any type of work where a potential eye injury may be present.
 - Visitors will be provided with visitor glasses. In the absence of approved prescription safety glasses, “Over the Glass” type safety glasses or goggles, must be worn over the non-safety glasses until approved prescription safety glasses are obtained.
 - Workers assisting welders must wear absorbent safety glasses that protect the wearer from ultra-violet (UV) and/or infrared rays (IR). Minimum #4 shade for oxy-acetylene welding and cutting, #10 shade for SMAW or MIG welding, and #12 shade for TIG welding or air carbon arc gouging.
 - Dark shaded lenses (sunglasses) darker than a # 1 shade are prohibited to be worn indoors unless welding or assisting a welder.
 - A doctor must support “exceptions for medical reasons”, in writing, to exempt safety eyewear requirements.
 - Safety glasses are not required inside offices.
 - Parking lots, when traveling from vehicles, to and from office buildings by way of main doors that do not pass-through shops.

- Goggles
 - Chemical splash proof goggles shall be worn when handling or mixing liquid chemicals, solvents, paints, etc., and/or as recommended on the Material Safety Data Sheet of the material being handled.
 - Dust proof goggles shall be worn when blowing equipment down with air or while performing other jobs where safety glasses are not adequate to prevent airborne particles from entering the openings around the lenses and side shields.
- Face Shields
 - Full face shields shall be worn over safety glasses when operating handheld or stationery grinders with abrasive or wire wheels, while chipping paint or concrete or, performing jobs where there is the potential for flying objects striking the face and safety glasses or goggles would not provide adequate protection.

Head Protection

- Employees must wear protective helmets when working in areas where there is a potential for injury to the head from employee-initiated impact or impact from falling or other moving objects. Helmets must comply with ANSI Standard Z89.1-1997 Class E, American National Standard for Industrial Head Protection for Type II head protection or be equally effective.
 - Employees must wear protective hard hats or helmets when working in areas where there is a potential for injury to the head from falling objects.
 - Hardhats are to be worn at all field, shop, and warehouse locations, or where deemed necessary as per each location's PPE Hazard Assessment.
 - Hardhats shall not be altered in any way.
 - Do not paint or apply unauthorized stickers, name plates, etc.
 - Do not drill, cut, bend, or apply heat.
 - Do not alter the suspension system.
 - Hardhats shall be inspected by the employee regularly for cracks, chips, scratches, signs of heat exposure (sun cracks), etc.
 - Defective hardhats shall be replaced immediately.
 - Hardhats shall not be placed in rear windows of vehicles where they will be exposed to the sun or become projectiles during an accident.
 - A supply of hardhats shall be available for visitors.
 - PPM shall provide hardhats.
 - Employees will be trained in the use, care, and maintenance of head protection equipment.

Hearing Protection

- Hearing protection is required to be worn by all employees, subcontractors, and visitors while in posted "High Noise" areas. Refer to the PPM Hearing Conservation Program for more information.
 - Warning signs shall be posted in areas known or suspected to have noise levels exceeding 85 dBA either constantly or intermittently.
 - When signs are not posted, employees shall wear hearing protection when noise caused by

machinery, tools, etc., prevents normal conversations to be heard clearly.

- Rule of thumb: If you must raise your voice to be heard, when arm's length away from another person, hearing protection is needed.
- Types
 - Molded Inserts (ear plugs)
 - Canal Caps (head band type)
 - Muff, either headband or hard hat mounted Earmuffs and earplugs shall be provided to the employee in sizes and configurations that will be comfortable to the employee.
- Care and Maintenance
 - Inspect hearing protection prior to each use.
 - Hearing protection must be kept clean to prevent ear infections.
 - Most earplugs used today are disposable and must be discarded when they become dirty, greasy, or cracked.
 - Earmuffs that have deteriorated foam inserts, cracked seals or are defective must be replaced.
- Fit
 - Due to individual differences, not everyone can wear the same type of hearing protection. A variety of styles may have to be tried before one is found to be comfortable and provide adequate protection.
 - Employees shall be instructed how to obtain the proper fit.

Hand Protection

- Gloves
 - Gloves are required to be worn when performing work, which may expose the hands to extreme temperatures, cuts and abrasions, or exposure to chemicals.
 - Welding
 - Welding gloves made of leather or other heat resistant materials shall be worn when performing arc welding or oxy/gas cutting.
 - Chemical
 - Impervious (chemical resistant) gloves shall be worn when handling chemicals that specify gloves as personal protection equipment when handling.
 - Refer to the specific chemical's Material Safety Data Sheet for the correct glove type.
 - Persons assigned to working with chemicals, i.e., solvent vats, shall be issued their own individual gloves for hygiene purposes.
 - Chemical gloves shall be periodically air tested for pinholes by twisting the cuff tightly, apply low air pressure to expand the glove, and then submersing in water to check for bubbles.
 - Leather
 - Leather gloves should be worn when working with sharp materials or when handling rigging equipment.

- Cloth
 - Cloth gloves should be worn when handling objects or materials, which could cause blisters, splinters, cuts, etc.
- Heat Resistant
 - Heat resistant gloves shall be worn when handling hot bearings, races, or other materials or objects that have been heated beyond ambient temperatures.
- Insulated
 - Insulated gloves shall be worn to prevent frostbite in extreme cold climates.
- Glove Inspections
 - Gloves shall be inspected before each use for holes, tears, and worn areas.
 - Defective gloves shall be discarded immediately. Exception: machinists are exempted from wearing gloves while working with rotating machinery.

Foot Protection

Safety footwear shall be worn by all employees with regularly assigned duties at field locations, in shops and warehouses.

- Office workers and visitors who enter these areas on an infrequent basis will not be required to wear foot protection provided they stay clear of the work being performed.
- If required to be near the work, the work will be stopped while visiting the area or safety footwear will be worn.
- Shops, Field Locations, Warehouses and Parts Departments: Leather or equivalent boots, either lace up or pull on, shall be worn.
- The boot must provide ankle protection and have soles designed to protect from punctures with defined heels for climbing ladders.
- Metatarsal guards will be worn when duties present a hazard of equipment or material crushing the foot.
- All safety footwear must meet ANSI Z41-1999 standards.
- Client locations may require safety footwear to be worn by everyone; check with the superintendent/project manager for client requirements before visiting field locations.

Fall Protection

Personal fall protection is required when performing certain elevated jobs more than four (4) feet. Consult the PPM Fall Protection Program.

Electrical Protection

Consult the PPM Electrical Safety Program.

Worksite Hazard Assessment

A written hazard assessment shall be performed. During the hazard assessment a determination if hazards are present or are likely to be present, this necessitates the use of PPE. The following sample hazard sources will be identified:

- High or low temperatures; Chemical exposures (use MSDS for guidance)

- Flying particles, molten metal or other eye, face, or skin hazards
- Falling objects or potential for dropping objects; employee falling from a height of 6' or more
- Sharp objects
- Rolling or pinching that could crush the hands or feet
- Electrical hazards.

Where these hazards could cause injury to employees, personal protective equipment must be selected to substantially eliminate the injury potential. Employees will be notified for the selection and reason.

The results of this assessment shall be communicated to each affected employee and kept at the main office.

Selected/identified PPE shall be fitted to each affected employee. Fitting, including proper donning, doffing, clean and maintenance of PPE is addressed in the Training section. Exemptions for use of PPE must be supported by the PPE hazard assessment.

Monitoring

Supervisors and site managers monitor worksite tasks for changes in, or the introduction of new hazards. If new hazards are discovered, they advise the HSE Manager who then conducts a hazard assessment for appropriate PPE. The HSE Manager monitors the effectiveness of the PPE Procedure and makes recommendations to management to improve the procedure.

Training

Employees who require or may need to wear PPE shall be properly trained and PPE must be fitted to each affected employee. Training shall include:

- When PPE is necessary.
- What PPE is necessary.
- How to properly don, doff, adjust, and wear PPE.
- The limitations of PPE.
- Useful life and disposal of PPE.
- How to clean and maintain PPE in a sanitary and reliable condition.
- Reporting and replacing defective or damaged PPE, which shall NOT be used.

Documentation

Training shall be documented, and records kept at the main office. The training certification shall include:

- Name of employee(s) trained,
- The dates of training, and
- The certification subjects.

Person Overboard Drill Report

PROJECT PARTICULARS

Project / Location:	Supervisor:
Project Number:	Date:
Specific Work Area:	Time:

PRIOR TO DRILL

	Yes	No
Has an audio signal been determined to notify personnel of a person overboard and have all personnel been trained?		
Has Trigon Operations / Construction been notified of scheduled drill?		
Has the emergency rescue boat been identified and in the immediate area?		
Are "emergency plans/procedures" posted and understood by all personnel?		

DURING THE DRILL TIMELINE

Time	Description
	Rescue dummy overboard
	Rescue dummy discovered / crew alerted
	Rescue boat docks at crew access point / drill ends

AFTER THE DRILL

	Yes	No
Did all audio signals work properly?		
Did the spotter keep eyes and finger pointed to the "Person Overboard" at all times?		
Did the spotter raise alarm to notify others in the immediate area of a "PERSON OVERBOARD"?		
Was the "Person Overboard" safely brought back onto vessel?		
Was a communication system applied during the person overboard?		
Comments:		

OPPORTUNITIES FOR IMPROVEMENT

	Person Assigned	Due Date
1.		
2.		
3.		
4.		
5.		



PILE DRIVING

Pile Driving Procedures

Prior to Driving Pile

- All piling operations shall be preceded by:
 - A written JHA,
 - detailed written Task Hazard Assessment,
 - a completed daily Checklist for Pile Driving –Trenching/Excavation adequate employee training, and
 - Relevant toolbox talk discussions regarding potential hazards and safe procedures.
- A work danger zone shall be clearly delineated around the pile driving operation.
 - This danger zone is required to protect other employees from the hazards of falling objects.
 - Pile drivers are the only employees allowed in the danger zone.
 - During the actual pile driving operation the danger zone shall be maintained under the supervision of a competent person.
- A blocking device capable of supporting the weight of the hammer shall be used when an employee is to work under the hammer.
- A method of securing long piles or batter piles in the leads shall be in place to prevent them from falling out.
- Before any hoisting is to take place, a designated signal person shall be identified.
- All personnel shall remain clear when pile is being lofted into leads.
- Taglines shall be used for controlling unguided piles and free hanging hammers.
- Hoisting of piling shall be done with hooks, shackles, or positive rigging to prevent unintended disengagement.
- Precautions shall be taken to ensure that objects (tools, materials, and equipment) are secured against wind and unintended displacement when working from heights.
- Leads shall be equipped with a ladder and fall protection attachment points ensuring adequate protective devices are in place.
- Employees shall not ride the hammer or leads.
- 20" walkways shall be provided for all work areas.
- A driving head or bonnet shall be used to bell the head of the pile and hold it in the leads.
- When driving batter piles, shall be in place to stabilize the leads.
- Hammers shall be lowered to the bottom of the leads when the pile driver is being moved.

Pile Handling

Piles shall be unloaded in a controlled manner so that personnel are not exposed to the hazard of rolling or falling piles.

- A site-specific handling plan shall be in place before delivery of pile.

Personal Protective Equipment

During all pile driving operations, the following personal protective devices shall be worn without fail:

- Hard hats,
- Safety glasses,
- Hearing protection,
- Proper type of gloves,
- Fall protection appropriate for climbing the leads.

Daily Checklist for Pile Driving (part of dual form)

Daily Checklist for Pile Driving	Daily Trenching/Excavation Visual Inspection
DATE: _____ JOB #: _____ LOCATION: _____	DATE: _____ JOB #: _____ LOCATION: _____
TIME: _____ <input type="checkbox"/> AM <input type="checkbox"/> PM INSPECTED BY: _____ <small>(Competent Person)</small>	TIME: _____ <input type="checkbox"/> AM <input type="checkbox"/> PM INSPECTED BY: _____ <small>(Competent Person)</small>
1 Has the THA (Task Hazard Assessment) been reviewed with the crew? <input type="checkbox"/> YES <input type="checkbox"/> NO 2 Work danger zone is clearly delineated around pile driving operation? <input type="checkbox"/> YES <input type="checkbox"/> NO 3 Crane is level and soil conditions are good under each out-rigger or track? <input type="checkbox"/> YES <input type="checkbox"/> NO 4 Crane swing protection radius is up? <input type="checkbox"/> YES <input type="checkbox"/> NO 5 Power lines, overhead obstructions and utilities (USA) are identified? <input type="checkbox"/> YES <input type="checkbox"/> NO 6 All fall protection, including what is attached to leads has been inspected? <input type="checkbox"/> YES <input type="checkbox"/> NO 7 Inspected bolts, guides, welds, rigging on the hammer, primary & follower? 7a An additional visual inspection for cracks has been made? <input type="checkbox"/> YES <input type="checkbox"/> NO 8 Daily inspections for support equipment have been completed? <input type="checkbox"/> YES <input type="checkbox"/> NO 9 A spill kit is on-site? <input type="checkbox"/> YES <input type="checkbox"/> NO 10 Pinch points have been identified in the THA (Task Hazard Assessment)? <input type="checkbox"/> YES <input type="checkbox"/> NO 11 Holes are covered and uneven ground has been leveled out? <input type="checkbox"/> YES <input type="checkbox"/> NO 12 Rigging has been inspected and capacity tags are in place and legible? <input type="checkbox"/> YES <input type="checkbox"/> NO 13 Unused rigging has been properly stored? <input type="checkbox"/> YES <input type="checkbox"/> NO 14 A fire extinguisher is present and in working order? <input type="checkbox"/> YES <input type="checkbox"/> NO 15 All vehicles, company and personal, are safely parked? <input type="checkbox"/> YES <input type="checkbox"/> NO 16 Rebar caps are on pile rebar dowels and extra caps are available? <input type="checkbox"/> YES <input type="checkbox"/> NO 17 Housekeeping is complete - the work area is clear and unobstructed? <input type="checkbox"/> YES <input type="checkbox"/> NO 18 Is hearing protection being utilized? <input type="checkbox"/> YES <input type="checkbox"/> NO	1 Is the utility log updated? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DOESNT APPLY 2 Trench/excavation dimensions? _____ x _____ x _____ <small>Max depth Width at Bottom Length</small> 3 What is initial soil classification? <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> ROCK 4 What methods of protection? <input type="checkbox"/> ENGINEER <input type="checkbox"/> SHORE <input type="checkbox"/> SLOPE <input type="checkbox"/> BENCH 5 What is condition of shores? <input type="checkbox"/> OK <input type="checkbox"/> NA <input type="checkbox"/> CORRECTIONS NEEDED Corrective Measures: _____ 6 What is the angle of the slope? <input type="checkbox"/> 3/4:1 <input type="checkbox"/> 1:1 <input type="checkbox"/> 1-1/2:1 <input type="checkbox"/> VERTICAL 90° 7 What is the condition of slope? <input type="checkbox"/> OK <input type="checkbox"/> N/A <input type="checkbox"/> CORRECTIONS NEEDED Corrective Measures: _____ 8 Are fissures present? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CORRECTIONS NEEDED Corrective Measures: _____ 9 What is method of access? _____ 10 Is ground water present? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CORRECTIONS NEEDED Corrective Measures: _____ 11 Are overhead power lines in area? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DOESNT APPLY 12 Is there public traffic? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DOESNT APPLY 13 Is traffic protection in place? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DOESNT APPLY 14 Any issues affecting the trench? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CORRECTIONS NEEDED Corrective Measures: _____ 15 Spoils at least 2 ft from edge? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DOESNT APPLY 16 Hazardous atmospheres potential? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CORRECTIONS NEEDED Corrective Measures: _____
CORRECTIVE ACTIONS OR INSPECTION ISSUES RELATED TO THIS OPERATION:	

Pile Extraction

Definitions

Extracting – Pulling to withdraw previously installed pile from the ground.

Vibratory Hammer – A pile driving or extracting machine which is mechanically connected to a pile that drives or extracts the pile through the soil by vibration.

Requirements

- A calibrated LMI or another approved calibrated device shall be always used.
- A vibratory hammer shall be used for all dry pulling operations.
 - Exception: If a vibratory hammer cannot be used then an alternative method shall be developed, approved, and implemented by the project manager and qualified engineer.
- An analysis shall be performed on the attachment point to determine structural integrity of sheet pile to determine if it will handle the load applied.
- An approved connection detail shall be developed then approved by a qualified engineer.
- At any time is the boom is shock loaded the operation must cease and the boom welds inspected.

Procedure

The following procedure shall be followed while extracting sheet pile.

- Review and understand the operator manual before operating the vibratory hammer and power unit.
- Conduct a pre-operations inspection on the crane, rigging, vibratory hammer, hoses, and power supply before use.
- Never allow anyone under a load.
- Attach the vibratory hammer to the main block of the crane; use suitable rigging for the load being lifted and the line pull.
- Use a tag line to control the vibratory hammer; do not use the hydraulic hoses to control the load, this will damage the hoses and connections.
- Lower the vibratory hammer onto the pile and attach it with the jaws.
- Lower the auxiliary line of the crane and then attach it to the pile with a suitable choker.
 - If the pile has a lifting eye or one can be fabricated, attach the choker to pile with a locking/bolt type shackle and cotter pin. This will prevent the shackle pin from spinning out due to the vibration.
- Keep the choker connection loose between the pile and the auxiliary line.
- With the vibratory hammer running, extract the pile and retain slack in the auxiliary line choker.
 - The auxiliary line must follow the main line of the crane.
- Check to ensure all personnel and equipment are out of the way.
- Once the pile is out of the ground, check if shackle and pin are in place then cable up the auxiliary line to remove the slack from the choker. This will cause the rigging to tighten on the pile.
- Once the foot of the pile is resting on the ground against the support, with the auxiliary line and rigging tightened, release the jaws of the vibratory hammer transferring the load to the auxiliary line.
- Lower the pile to the ground.
- With the pile on the ground and before any employee is permitted to or removes the rigging; make sure the hammer is out of the way so it will not create a crush hazard for the employees.
- Remove the rigging from the pile.

Duty Cycle Operations

If a crane is equipped with an anti-two-blocking device it shall be operational and shall not be disabled when the crane is performing a lift, except under the following conditions requiring approval by the project manager:

The crane is involved in duty cycle operations. Duty cycle operations are:

- Driving pile,
- Extracting or driving pile with a vibratory hammer
- Using clam shell bucket, or
- Using a drag line.

Lifts During Duty Cycle

When the crane performing duty cycle operations performs a lift such as lifting a piece of material or equipment for the duty cycle operation, the following procedure must be in place.

- An orange-colored warning device (warning flag, warning tape, or warning ball) is properly secured to the hoist line at eight (8) feet above the block or ball.
- An orange line shall be painted on the line to mark when the block or ball is 8 feet from the sheave.
- The signal person acts as a spotter to alert the crane operator with a "STOP" signal when the warning device approaches the boom tip.
- The crane operator ceases hoisting functions when so alerted.
- While the non-duty cycle lift is underway, the signal person shall
 - Not stand under the load,
 - Have no duties other than as a signal person, and
 - Comply with standard hand signals.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

Complying with:

OSHA Safety and Health Regulations for Construction Standard:

Part 1910, Subpart: N

WA L&I DOSH Safety Standards:

WAC 296-863 Safety Standards for Forklifts and Other Powered Industrial Trucks

PURPOSE

In accordance with the powered industrial truck standard found in 29 CFR 1910.178, this program is designed to ensure the safe operation of forklifts and industrial trucks at Pacific Pile & Marine (PPM).

RESPONSIBILITIES

Safety Department

The Safety Department has ultimate responsibility for implementation of this program. The Safety Department will be responsible for planning for training, evaluation, and authorization of industrial truck drivers.

Supervisor(s)

Each Supervisor is responsible for implementation of this plan and complying with all federal, state, and local regulations on industrial truck safety.

Supervisors will ensure industrial truck training and evaluation. Supervisors will also be required to participate as trainers and assess the driving skills of the employees prior to authorization to operate industrial trucks. The use of authorized third-party trainer may be used, e.g., qualified by the Oklahoma Safety Council, etc. Each Supervisor will be responsible for seeing that only trained and authorized employees can operate industrial trucks (Attachment 1).

Driver Responsibilities

Each employee must comply with company rules for operating the equipment, must be trained and certified prior to operating each specific type of equipment.

MAINTENANCE DEPARTMENT

- The maintenance department must perform the following:
- Maintain all industrial trucks according to manufacturer's recommendations.
- Contract with outside vendors, if needed, to perform service on the equipment.
- Keep a maintenance log that lists:
 - Repairs needed for each industrial truck, and
 - Repairs completed for each industrial truck.

MAINTENANCE, FUELING, INSPECTION AND REPAIR

The following rules apply to maintenance, fueling, and repair.

- All industrial trucks must be kept clean and free of excess dirt, oil, and grease.
- Designated employees have been selected to inspect equipment at the beginning of each shift and immediately report any maintenance problems or malfunctions to their Supervisor (Attachment 2).
- Do not operate industrial trucks in need of repair until repairs are completed. The equipment must be labeled or tagged: OUT OF SERVICE, DO NOT USE.
- After repairs are completed, industrial trucks must be tested to assure safe operation.
- Never change an industrial trucks fuel tank near a fire, spark, or other source of ignition. Always seek assistance when exchanging an empty propane tank with a full propane tank.
- Equipment is provided to safely flush spilled battery acid.

- Eyewash equipment is maintained in all charging areas.
- The following are prohibited in the fueling and charging areas:
 - Eating
 - Smoking
 - Open flames
 - Sparks

RULES FOR INDUSTRIAL TRUCK SAFETY

Because of the hazards involved in the operation of an industrial truck, not only for the operator but also the pedestrian, the following safety rules will be enforced:

- Anyone who operates an industrial truck, even on an occasional basis, is required to be properly trained and evaluated prior to initial use. Training will be classroom instruction and “hands on” industrial truck operation. See the OPERATOR TRAINING REQUIREMENTS Section for specific training requirements.
- Always inspect the industrial truck before using it or daily (condition of fork apparatus, hydraulic cylinder, Hydraulic lines, etc.). Should a defect be found during this inspection, immediately place an Out of Order tag on the industrial truck, notify maintenance and use an acceptable industrial truck. Checklists are located at the maintenance shop. If the equipment is to be used around the clock by multiple shifts, the inspection should be done at the beginning of each shift.
- Always travel with forks in lowered position. Do not travel with a load in the raised position. Do not raise or lower a load while moving.
- Keep hands, arms, and legs inside the industrial truck always.
- Drive slowly, avoid sharp turns, look in the direction of travel and alert pedestrians of your presents before passing them. The operator will keep a clear view of the path of travel. At corners or when vision is obscured, the operator will slow down and sound the horn.
- If a load blocks the operator’s view, equipment will be driven backwards.
- Loaded industrial trucks and material handling equipment will be driven with the load upgrade when traveling on an upgrade or decline of more than 10%.
- When industrial trucks are used to remove materials from truck trailers, employees must set the brakes on the trailer and place wheel chocks under the rear wheels and support the trailer, as necessary.
- Dock boards or bridges will be properly secured before they are driven upon.
- Know your industrial trucks load capacity. Do not overload the industrial truck.
- Stay clear of dock edges, ramps, restricted areas, and elevated platforms.
- Do not lift or ride anyone on forks.
- Know the capacity of racks or other structures where loads are being placed. Do not overload these structures. Before placing a load in a rack or other structure or on top of a previous load, be sure the load will have a solid and level base to adequately support the load.
- Never restrict an Exit or access to an energy source with a placement of a load.
- An overhead guard must be used to protect the operator from falling objects unless operating

conditions do not permit doing so.

- The industrial truck will always be operated at a speed of ten miles per hour or less to ensure safe stopping.
- When more than one industrial truck is being operated, at least three truck lengths will be maintained between them.
- Special precautions apply to industrial trucks that are unattended. Equipment will be considered unattended whenever:
 - The operator is 25 feet or more away; or
 - The industrial truck is not in view.
- When equipment is left unattended, the operator must:
 - Put the equipment into neutral
 - Forks parallel to and touching the floor
 - Set the emergency brake
 - Turn the power off
 - Ensure the industrial truck does not block an exit or energy control panel
 - Block the wheels (if the equipment is parked on an incline).

OPERATOR TRAINING REQUIREMENTS

Formal instruction includes lecture, discussion, interactive computer learning of necessary, help videos, and written materials to help the student. Practical training will include demonstrations by the instructor and exercises for the student. The students will be critiqued on their performance.

PPM will ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation requirements. PPM will certify all authorized employees regarding competency on all types of equipment. All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.

- To make sure that each potential operator of a powered industrial truck is qualified to do so, the PPM has implemented a detailed training and evaluation plan. Training will consist of formal instruction, practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace. During training, performance and oral and/or written tests will be given to measure the skill and knowledge of the operator. Training practice will include the actual operation or simulated performance of all operating tasks such as load handling, maneuvering, traveling, stopping starting, and other activities under the conditions which will be encountered in the use of the truck. Personnel with the knowledge and experience to train operators and judge their performance will conduct all Training and evaluations. Personnel who have not been trained to operate powered industrial trucks may operate a truck for the purposes of training only, and only under the direct supervision of the trainer. This training should be conducted in an area away from other trucks, obstacles, and pedestrians.
- The training program will include the following truck-related topics:
 - Operating instructions, warnings, and precautions for the types of truck the operator will be

- authorized to operate,
- Differences between the truck and the automobile,
- Truck controls and instrumentation: where they are located, what they do, and how they work,
- Significance of nameplate data, including rated capacity, warnings, and instructions affixed to the truck,
- Braking method and characteristics, with and without load,
- Engine or motor operation,
- Steering and maneuvering,
- Visibility (including restrictions due to loading),
- Fork and attachment adaptation, operation, and use limitations,
- Vehicle capacity, load handling capabilities, forks, attachments,
- Vehicle stability with and without load, with and without attachments,
- Any vehicle inspection and maintenance that the operator will be required to perform,
- Refueling and/or charging and recharging of batteries,
- Operating limitations,
- Guards and protective devices for the specific type of truck,
- Any other operating instructions, warning, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
- The training program will include the following workplace-related topics:
 - Surface condition of the operations
 - Composition of loads to be carried and load stability,
 - Load handling techniques, lifting, lowering, picking up, placing, tilting,
 - Areas where the truck may be operated near other powered industrial trucks, other vehicles, or pedestrians,
 - Narrow aisles, hazardous classified places, and other restricted places,
 - Ramps and other sloped surfaces, with and without loads,
 - Operation near edge of dock or edge of improved surface,
 - Traveling, with and without loads, turning corners,
 - Parking and shutdown procedures,
 - Trailers, railcars, and dockboards (including the use of wheel chocks, jacks, and other securing devices),
 - Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust,
 - Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

- Refresher training will be provided whenever:
 - The operator has been observed to operate the vehicle in an unsafe manner,
 - The operator has been involved in an accident or near-miss occurs,
 - An operator has received an evaluation that reveals that the operator is not operating the truck safely,
 - The operator is assigned to drive a different type of truck, or
 - A condition in the workplace changes in a manner that could affect safe operation of the truck.
- An evaluation of each powered industrial truck operator's performance will be conducted at least once every three years.
- Avoidance of duplicative training. If an operator has previously received appropriate training to the truck and working conditions encountered, additional training is not required if the operator has been evaluated and found competent to operate the truck safely.
- Certification: PPM will certify that each operator has been trained and evaluated. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person (s) performing the training or evaluation.



PROCESS SAFETY MANAGEMENT & CONTRACTOR RESPONSIBILITIES

Complying with

OSHA Safety and Health Regulations for General Industry

Part 1910, Subpart H

OSHA Safety and Health Regulations for Construction Standard:

Part 1926, Subpart D

Purpose

Since 1990, OSHA established requirements for the management of hazards associated with processes using highly hazardous chemicals to help assure safe and healthful workplaces. The intent of this written program is to make Pacific Pile and Marine (PPM) and all employees aware of their responsibilities when performing work at jobsites such as refineries to prevent or minimize consequences of catastrophic releases of toxic, reactive flammable or explosive chemicals.

Introduction

While performing assigned work operations for PPM on site at contract job locations, employees have the potential to be involved in an unexpected catastrophic release of toxic, reactive, or flammable liquids and gases involving highly hazardous chemicals that may not have been properly controlled.

Training

All PPM, employees will be initially trained and certified in safe inspection-work practices, hazard communication and assessment, accident/ incident reporting, the emergency action plan, or other requirements necessary to perform their job, prior to job assignment. In addition, ongoing safety training during each employee's tenure to include hands-on training or pre-job safety meetings will be routinely conducted, and each employee will be required to attend a site-specific orientation at host-facility jobsite as required by that facility's training guidelines.

Documented training will be conducted by certified training institutions, host-facility operators, and/or by PPM management. Written or oral testing methods will demonstrate that each employee has received and understood this information. Documentation will be in the Company's Corporate Office Safety Training Files.

Process Hazards Overviews

Each host -facility operator will inform or make available all information concerning each process unit's known potential fire, explosion, or toxic release hazards related to the assigned process unit and contract inspection work to be performed. This is usually presented in the form of a process hazard overview developed for each specific process unit. An employee or foreman of PPM will advise the facility operator of any hazards found or any hazards that are common in the work to be performed.

A review of MSDS chemical information would reveal chemical:

- Toxicity
- Permissible Exposure Limits
- Physical data
- Reactivity data
- Corrosivity data
- Thermal/ Chemical stability data
- Incompatible chemicals, etc.

A review of information on the process technology would include:

- Simplified process-flow/block-flow diagrams
- Process chemistry

- Maximum intended inventory
- Process deviation consequences
- Safe upper/lower limits (pressure, temperature, flow, etc.)

A review of information on the process equipment would include

- Materials of construction
- Piping and instrument designs
- Electrical classification
- Relief system and design
- Ventilation system and design
- Design codes and standards

Trade-Secret Information

If any of the above-mentioned process safety or other information that is shared by the host facility operator is deemed to be confidential or of a trade-secret nature, all PPM employees will respect the concerns of the host-facility operator by maintaining the confidentiality of the trade-secret information presented.

Safe Work Practices

When approved to be on the jobsite of a host-facility, all assigned PPM employees will abide

by that operator's established safe work practice guidelines for lockout/ tag-out, confined space entry, and hot-work. The initiation of each of these activities is strictly forbidden until receiving an authorized work permit from the host-facility operator to conduct such operations.

The acting PPM supervisor will then take this opportunity to inform the host facility operator of any unique hazards that have the potential to incur as a direct result of any contracted work services to be performed.

While any work operations are performed, if any PPM employee observes an emergency or immediate operational concern, it will be reported to the host-facility staff as quickly as possible.

Even though PPM predominantly performs operations on deactivated/decontaminated/de-energized equipment, occasional "on-stream" work may occur, such as barge work, heavy crane lifting, or equipment transfers, however, opening process equipment, piping, and control over entrances to a facility will not occur.

- Lock-out/Tag-out work practices are not normally performed by PPM employees while at host-facilities, therefore they are "affected" workers. They have been taught to recognize lock-out-tag-out equipment and respect its purpose, as well as to never attempt to re-energize any de-energized equipment. The Job-Crew Leader or Supervisor will typically install a group LOTO tag onto a physical-restraining lockout device put into place by a host-facility operator, to indicate that work is being performed that may be directly or indirectly affected by this device.
- Confined Space Entry work if necessary, will be done under the direct supervision of the host facility officer. Each employee is trained to fulfill their established roles and responsibilities whether assigned to be an entrant, attendant, or entry supervisor.
- Hot Work practices will be allowed only when permitted by the host-facility operator, PPM employees do not perform this type of work activity. If equipment that hot work permits must be obtained through the host facility operator, and No hot work will be performed until the permit is approved and reviewed. The work permit must document that fire prevention and protection requirements are in place before

work begins.

Emergency Action Plan

When on site at a host-facility and an emergency event occurs (such as an uncontrolled release of a hazardous material), all PPM employees will follow the host-facility guidelines for evacuation from the endangered operation area, which they have been apprised of prior to work/job commencement. At a minimum, the following guidelines should be followed to protect the safety, health, and wellbeing of all employees:

- Upon hearing an audible alarm sound or by verbal command, all work shall stop immediately, and employees shall evacuate in an orderly fashion to a predetermined assembly point designated by the facility operator.
- Based on the current windspeed direction, employees will exit the affected area at a cross or right-angle direction and then proceed upwind to either the identified primary or secondary evacuation location (rally or muster point).
- Employees will disengage any ignition sources they are authorized to be operating and leave all work tools and personal belongings behind.
- Employees shall know the locations of safety shower/eyewash stations for any immediate decontamination needs.
- Once a work area has been left due to evacuation, employees are not to return until the "all clear" signal has been given.
- Notification of the host-facility operation staff, or immediate PPM supervisor will be made by dialing/ contacting the emergency call numbers posted at the jobsite.
- A headcount will be performed by the job supervisor and compare this roster to the daily attendance roster or the work permit roster.
- This emergency action plan will be reviewed by the acting job supervisor or job-crew leader with all assigned employees at the beginning of each new job-site assignment, whenever an employee's responsibilities or designated duties under this plan change, or whenever this plan itself changes.
- All accidents, injuries, and near-miss incidents will be reported to PPM management and the host-facility operator immediately. First aid will be provided, or emergency services will be contacted based upon initial employee needs observed.
- An accident/ incident investigation will be initiated within 48 hours and all documentation pertaining to this investigation, corrective action and resolutions will be maintained for a period of five years.

Conclusion

Non-compliance by any PPM employee, with any part of this described program will result in disciplinary action as outlined in the Company's Disciplinary Program.



RESPIRATORY PROTECTION POLICY

Complying with:

OSHA Safety and Health Regulations for Construction

Part 1926, Subpart: E

PURPOSE

It is the intention of Pacific Pile & Marine to provide a respirator protection program that meets or exceeds all federal standards. PPM will attempt to engineer potential harmful vapors and oxygen deficient atmosphere exposure hazards out of the work environment. If engineering control measures are not feasible or during emergency situations with high exposure, then respirators shall be provided which are applicable and suitable for purpose intended.

SCOPE

This program applies to all PPM projects and operations.

RESPIRATORY PROGRAM ADMINISTRATOR

Overall responsibility for the respiratory protection program is assigned to the PPM Safety Department to ensure that specific requirements are followed. The Administrator must be knowledgeable of the complexity of the program, able to conduct evaluations and have the proper training.

This assignment is made, however, with the understanding that individual supervisors will have to implement and enforce major portions of the program. It is understood that the Program Administrator will report performance problems to the appropriate manager for resolution. The person who will have responsibility for administering all the aspects of this program will be the Project Manager or their designee.

The responsibilities of the Program Administrator will include, but are not limited to:

- Conducting an annual written evaluation of the program. The program evaluation should be completed no later than December 31, of each year.
- Ensuring an adequate supply of respirators, cartridges, and repair/replacement parts. The Program Administrator may delegate this duty but will retain overall responsibility. The person(s) to whom this duty has been delegated is the Project Manager and/or Field Supervisor.
- Identifying hazards and ensuring only NIOSH certified respirators must be selected and provided based on those hazards and factors affecting performance.
- Ensuring that all respirator users have been trained in the use, selection and limitations of the type of respirators they will be using prior to the first time the respirator must be used. While the duty of conducting the training may be delegated, the Program Administrator retains final responsibility for seeing that all employees are appropriately trained.
- Ensuring that all respirator users have been medically evaluated and found fit to use the type of respirators that will be required in their job. The medical evaluation must be completed prior to assigning any employee to a task that requires use of a respirator.
- Ensuring that all respirator users are fit-tested at least annually and more often if other federal requirements apply.
- Ensuring that respirators are individually issued, are cleaned, and sanitized on a regular basis, and respirators are stored in a clean and accessible location. This duty may also be delegated but the Program Administrator retains final responsibility for seeing that it is done.
- Ensuring that respirators are selected based on the hazard that will be encountered. This program describes the basic respirators that will be used at this site and the tasks for which they will be required. In special circumstances, the Program Administrator will contact the corporate health and safety staff for guidance in selecting the correct respirator.

- Ensuring that employee exposure is monitored to assure correct respirator type is used. Exposure monitoring may be delegated to others; however, the Program Administrator has final responsibility of monitoring completion and to request assistance when necessary.
- Ensuring surveillance of employees who wear respirators shall leave the area to wash, change cartridges or if they detect break through or resistance.
- Ensuring that the elements of the Respiratory Protection Program for the selection, use, cleaning/maintenance, storage, and fit-testing of respirators are followed.
- Ensuring that respirator parts are not exchanged between brands of respirators.
- Ensuring medical evaluations, respirators and required training are provided at no cost to the employee.

MEDICAL REQUIREMENTS

4.1 General

PPM shall provide a medical evaluation to determine the employee's ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace. PPM may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

4.2 Medical Evaluation Procedures

PPM shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation shall obtain the information requested by the Medical Questionnaire. The medical evaluation prior to fit-testing will be confidential, conducted during normal working hours, be at a convenient time and location, be understandable and the employee will be given a chance to discuss the results with the PLHCP.

4.3 Supplemental Information for the PLHCP

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee,
- The duration and frequency of respirator use (including use for rescue and escape),
- The expected physical work effort,
- Additional protective clothing and equipment to be worn, and
- Temperature and humidity extremes that may be encountered.

PPM shall provide the PLHCP with a copy of the PPM Respiratory Protection Program.

Note: When PPM replaces a PLHCP, PPM must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically re-evaluated solely because a new PLHCP has been selected.

4.4 Medical Determination

In determining the employee's ability to use a respirator, PPM shall obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether the employee is medically able to use the respirator,
- The need, if any, for follow-up medical evaluations, and
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

All recommendations are to be sent to PPM's Safety Department.

Additional Medical Evaluations

At a minimum, PPM shall provide additional medical evaluations that comply with the requirements of this program if:

- An employee reports medical signs or symptoms that are related to the ability to use a respirator,
- A PLHCP, supervisor, or the respirator Program Administrator informs PPM that an employee needs to be re-evaluated,
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation, or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

WORKSITE PROCEDURES

Each work site where respirators are required to protect the health of the worker shall have work site procedures that follow the guidelines of this program. Specific procedures may also be required by our client which will be followed. The following areas shall be included:

- Identification of specific hazard requiring respiratory protection.
- The selection of the appropriate respiratory protection equipment based on the specific hazard and concentration levels, characteristics, etc. Specific brand and models of respiratory equipment to be used shall be identified in the procedures.
- Verification that each user of respiratory protection is qualified (medical approval, current fit test, annual training and demonstrates competency).

RESPIRATOR SELECTION CRITERIA

The selection of the respiratory equipment is based on the hazards the employee is exposed to. PPM shall:

- Perform hazard identification,
- Select and provide respirators based on those hazards and factors affecting performance,
- Establish brands and models to be used, and
- Estimate exposures and contaminant information.

Hazard Identification

Common respiratory hazards that will be encountered include dust, fumes, gases, chemical particles, and oxygen deficiency.

Characteristics of Hazardous Operation or Process

- Hot operations: welding, chemical reactions, soldering, melting, melding, and burning.
- Liquid operations: painting, degreasing, dipping, spraying, brushing, coating, etching, cleaning, plating, mixing, galvanizing, and chemical reactions.
- Solid operations: pouring, mixing, separations, extraction, crushing, conveying, loading, bagging, and demolition.
- Pressurized spraying: cleaning parts, applying pesticides, degreasing, sand blasting, and painting.
- Shaping operations: cutting, grinding, filing, milling, melding, sawing, and drilling.

Gaseous Contaminants

- Inert gases (helium, argon, etc.), which do not metabolize in the body but displace air to produce an oxygen deficiency.
- Acid gases (SO₂, H₂S, HCl, etc.) which are acids or produce acids by reaction with water.
- Alkaline gases (NH₃, etc.), which are alkalis or produce alkalis by reaction with water.
- Organic gases (butane, acetone, etc.), which exist as true gases or vapors from organic liquids.
- Organometallic gases (tetraethyl lead, organo-phosphates, etc.), which have metals attached to organic groups.

Particulate contaminants

- Dusts are mechanically generated solid particulates (0.5 to 10 µm)
- Fumes are solid condensation particles of small diameter (0.1 to 1.0 µm)
- Mists are liquid particulate matter (5 to 100 µm)
- Smoke is chemically generated particulates (solid and liquid) of organic origins (0.01 to 0.3 µm)

Selection of Respirator

The following factors shall be considered when selecting the proper respirator:

Concentration and Type of Contaminant

The concentration and type of contaminant will determine the model and type of respirator and cartridges/filters or filters to be used. The concentration is based on a sampling of the atmosphere.

Location of Hazardous Area

(Confined Space, nearby contaminants, etc.)

Worker Activity

(Extreme heat, cold, welding hood requirement, etc.)

Types of Respirators

- *Air-purifying respirators* can be either full-face or half masks with mechanical or chemical cartridges to filter dusts, mists, fumes, vapors, or gases.
- *Powered air-purifying respirators* use a blower to pass the contaminated air through a filter. The purified air is then delivered into a mask or hood. They filter dusts, mists, fumes, vapors, and gases, just like

ordinary air-purifying respirators.

- Air-purifying respirators cannot be used in oxygen-deficient atmospheres, which can result when another gas displaces the oxygen or consumption of oxygen by a chemical reaction occurs. Oxygen levels below 19.5% or above 23.5% require either a source of supplied air or supplied-air respirator protection. Levels below 16% are unsafe and could cause death. To determine the proper cartridge for air-purifying respirators contact the PPM Safety Manager or a qualified on-site safety representative of the client. You should also consult the Material Safety Data Sheet of the substance that needs to be filtered.

All cartridges are assigned a color designating the type of contaminant they will filter:

White:	Acid gas
Black:	Organic vapors
Green:	Ammonia gas
Yellow:	Acid gas and organic vapors
Purple:	Radioactive materials
Orange:	Dust, fumes, and mists
Olive:	Other gases and vapors

Once the wearer of the respirator can detect an odor, irritation, or taste of the contaminant, the cartridge should be replaced. All cartridges and/or filters shall be changed at the beginning of each shift.

Supplied-air respirators provide the highest level of protection against highly toxic and unknown materials. Supplied air refers to self-contained breathing apparatuses (SCBAs) and air-line respirators. SCBAs have a limited air supply that is carried by the user, allowing for good mobility and fewer restrictions than air-line respirators.

Air-line respirators have an air hose that is connected to a fresh air supply from a central source. The source can be from a compressed air cylinder or air compressor that provides at least Grade D breathing air.

Emergency Escape Breathing Apparatuses (EEBAs) provide oxygen for 5, 10 or 15 minutes depending on the unit. These are for emergency situations in which an employee must escape from environments immediately dangerous to life or health (IDLH).

SCBA (Self Contained Breathing Apparatus)

PPM does NOT allow employees to work in an Immediately Dangerous to Life and Health (IDLH) environment.

To maintain the NIOSH/MSHA approval of any respirator, mixing parts from other respirator manufacturers is prohibited. This includes airline hoses, valves, gaskets, cartridges, etc. For example, do not use North cartridges or valve gaskets with an MSA product.

Brand and Models

PPM has selected 3M as its preferred NIOSH-certified respirator. Only this brand of respirator shall be used in compliance with the conditions of the certification of its Respiratory Protection Program (fit testing model, no mixing of different manufacturer parts, cartridges, filters, etc.) without approval from the Safety Department.

The specific model will be based on the hazard, concentration of contaminant, oxygen level, work environment and type of work being performed. To aid in the selection process the following will be used to identify the proper North respiratory equipment for the work being performed and hazard that is present.

- NIOSH Pocket Guide to Chemicals

Estimate of Exposures and Contaminant Information

- No employee shall enter an IDLH environment.
- Normal oxygen levels shall be maintained.

No employee shall be exposed to an atmosphere containing concentrations that would exceed the STEL or PEL for the identified atmospheric hazard.

RESPIRATOR FIT TESTING

Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face piece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This section specifies the kinds of fit tests allowed the procedures for conducting them, and how the results of the fit tests must be used.

All respirator users are fit-tested at least annually and more often if other federal requirements apply. Supplied Air Respirators are required to be fit tested as well.

PPM shall ensure that employees using a tight-fitting face piece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this program.

- PPM shall ensure that an employee using a tight-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.
- PPM shall conduct an additional fit test whenever the employee reports, or PPM's PLHCP, supervisor, or Program Administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
- If after passing a QLFT or QNFT, the employee subsequently notifies PPM, Program Administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator face piece and to be retested.
- The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in this section.
- QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. Half face air filtering respirators may be fit tested with irritant smoke while full face air filtering respirators require PortaCount fit testing.
- If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face pieces, or equal to or greater than 500 for tight-fitting full-face pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual face piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator face piece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator face piece.

Quantitative fit testing of these respirators shall be accomplished by modifying the face piece to allow sampling inside the face piece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate face piece, or by using a

sampling adapter designed to temporarily provide a means of sampling air from inside the face piece.

Any modifications to the respirator face piece for fit testing shall be completely removed, and the face piece restored to NIOSH-approved configuration before that face piece can be used in the workplace.

Fit Test Procedures

The requirements in this section apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

The test subject shall be allowed to pick the most acceptable respirator from enough respirator sizes so that the respirator is acceptable to, and correctly fits, the user.

Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.

The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

The test subject shall be instructed to hold each chosen face piece up to the face and eliminate those that obviously do not give an acceptable fit.

The more acceptable face pieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the following points:

- If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
- Position of the mask on the nose
- Room for eye protection
- Room to talk
- Position of mask on face and cheeks

The following criteria shall be used to help determine the adequacy of the respirator fit:

- Chin properly placed,
- Adequate strap tension, not overly tightened,
- Fit across nose bridge,
- Respirator of proper size to span distance from nose to chin,
- Tendency of respirator to slip,
- Self-observation in mirror to evaluate fit and respirator position. Use the Fit Test form.

User Seal Check

Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. The test subject shall conduct a user seal check, either the negative or positive pressure seal checks described below:

Positive Pressure Check

Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators, this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

Negative Pressure Check

Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, moustache, or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed,

including glasses.

If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

Test Exercises

Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. If due to medical or health conditions the employee cannot perform the test exercises the fit test shall not be performed and the employee not allowed to use a respirator until all elements of the fit test can be achieved.

The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

The following test exercises are to be performed for all fit testing methods prescribed in this procedure:

- Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
- Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

- Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- Talking. The subject shall talk out loud slowly and loud enough to be heard clearly by the test conductor. The subject shall read from the Rainbow Passage:
 - “When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.” Continue to read for one minute.
- Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
- Jogging in place. The test subject shall jog in place being careful to be aware of their surroundings.
- Normal breathing. Same as exercise (1).

QUALITATIVE FIT TEST (QLFT) PROTOCOLS

General

PPM shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment, and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order. PPM shall ensure that QLFT equipment is kept clean and well maintained to operate within the parameters for which it was designed.

Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the “smoke” produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

General Requirements and Precautions

The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

Only stannic chloride smoke tubes shall be used for this protocol. No form of test enclosure or hood for the test subject shall be used.

The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

The person to be tested must demonstrate their ability to detect a weak concentration of the irritant smoke.

- The test operator shall break both ends of a ventilation smoke tube containing stannic chloride and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
- The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
- The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall *carefully direct a small amount* of the irritant smoke in the test subject's direction to determine that he/she can detect it.

IRRITANT SMOKE FIT TEST PROCEDURE

- The person being fit tested shall don the respirator without assistance and perform the required user seal check(s).
 - The test subject shall be instructed to keep his/her eyes closed if wearing a half face respirator.
- The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
- If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
- The exercises identified in the Test Exercises of this procedure shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator six inches from the face.
- If the person being fit tested reports detecting the irritant smoke at any time, the test is failed.
- The person being retested must repeat the entire sensitivity check and fit test procedure.
- Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
- If a response is produced during this second sensitivity check, then the fit test is passed. The glass tube shall be disposed of properly.

Quantitative Fit Test (QNFT) Protocols

Using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a face piece to quantify the respirator have been demonstrated to be acceptable to OSHA.

PPM shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.

PPM shall ensure that QNFT equipment is kept clean and is maintained and calibrated according to the manufacturer's instructions to operate at the parameters for which it was designed.

PortaCount Fit Test Requirements

- Check the respirator to make sure the respirator is fitted with a high-efficiency filter and that the sampling probe and line are properly attached to the face piece.
- Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the
- respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.
- Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.
- Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause.
- If leakage is from a poorly fitting face piece, try another size of the same model respirator, or another model of respirator.
- Follow the manufacturer's instructions for operating the PortaCount and proceed with the test.
- The test subject shall be instructed to perform the exercises in Test Exercises section of this procedure.

After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

PortaCount Test Instrument

The PortaCount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether the test was successful. If the test was a Pass, the fit test is over. Since the pass or fail criterion of the PortaCount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance.

A record of the test needs to be sent to the Safety Manager and kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

USE, MAINTENANCE, & CARE OF RESPIRATORS

This section requires PPM to provide for the use, cleaning and disinfecting, storage, inspection, and repair of respirators used by employees. Appendix B - Respirator Cleaning Procedures (Mandatory) shall be followed.

Use

- Items that can affect the face to mask seal are prohibited. This includes facial hair, glasses, clothing, etc.
- Each time a respirator is put on a positive and negative pressure check shall be performed.

Cleaning and Disinfecting Requirements

PPM shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. PPM shall ensure that respirators are cleaned and disinfected using the procedures in this Respiratory Protection Program, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected by the employee as often as necessary to be maintained in a sanitary condition,
- Respirators used in fit testing and training shall be cleaned and disinfected after each use by the Safety Manager or designated person.
- Each person who is assigned a cartridge respirator is responsible for seeing that the respirator is cleaned, inspected, and properly stored.

Cleaning Procedures

- Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- Wash components in warm water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm, preferably running water. Drain.
- When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in commercially available cleansers of equivalent disinfectant quality. Another alternative is to use wipes containing alcohol that are intended for use with respirators.
- Rinse components thoroughly in clean, warm, preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- Components should be hand-dried with a clean lint-free cloth or air dried. Reassemble face piece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.

Storage and Inspection

- Respiratory equipment shall be stored in a manner to protect it from damage, contamination, temperature extreme, etc.
- Respiratory equipment intended for emergency use shall be stored in an area that is readily accessible and be clearly marked.

PPM shall ensure that respirators are inspected as follows:

- All respirators used in routine situations shall be inspected by the employee before each use and during cleaning,
- A check by the employee of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters, or filters, and
- A check of elastomeric parts for pliability and signs of deterioration,
- Emergency respiratory equipment will be inspected at least monthly, and before and after each use.
- Escape only respiratory equipment will be inspected before being carried into workplace.

Breathing Air Quality and Use

PPM shall ensure that compressed air accords with the following specifications:

- Compressed breathing air shall meet at least the requirements for Type 1-Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
 - Oxygen content (v/v) of 19.5-23.5%,
 - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less,
 - Carbon monoxide (CO) content of 10 ppm or less,
 - Carbon dioxide content of 1,000 ppm or less, and
 - Lack of noticeable odor.
- PPM shall ensure that oxygen is not used in compressed air units.
- PPM shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.
- PPM shall ensure that cylinders used to supply breathing air to respirators meet DOT requirements and that:
 - Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178),
 - Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1--Grade D breathing air, and
 - The moisture content in the cylinder does not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure.
- PPM shall ensure that compressors used to supply breathing air to respirators are constructed and situated to:
 - Prevent entry of contaminated air into the air-supply system,
 - Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature,
 - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.
- Have a tag containing the most recent change date and the signature of the person authorized by PPM to perform the change. The tag shall be maintained at the compressor.
- For compressors that are not oil-lubricated, PPM shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
- For oil-lubricated compressors, PPM shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
- PPM shall ensure that breathing air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

Repairs

PPM shall ensure that respirators that fail an inspection or are otherwise found to be defective are immediately removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator,
- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and

Voluntary Use

If an employee chooses to voluntarily wear a respirator when not required by this Program (contaminants do not meet protection standards, odors, etc.) they will be advised of the following in their training:

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for employees.

However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the employee. Sometimes, employees may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

WORKPLACE MONITORING

A program of monitoring potential employee exposures has been implemented through the corporate health and safety department. Project personnel may also be assigned with the task of conducting air monitoring. Direct-reading instruments will also be used in the characterization of potential exposures. All the data collected is used to determine the appropriateness of the respiratory equipment.

RECORDKEEPING

PPM will establish and retain written information regarding medical evaluations, fit testing, and the respirator program. Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020. PPM shall provide the employee with an opportunity to discuss the

questionnaire and examination results with the PLHCP.

Records will be treated confidentially and maintained on file in the PPM corporate office by the Safety Department.

PROGRAM EVALUATION

PPM shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

PPM shall regularly consult employees required to use respirators to assess the employees' views on this program's effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed and verified include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance),
- Appropriate respirator selection for the hazards to which the employee is exposed,
- Proper respirator use under the workplace conditions the employee encounters, and
- Proper respirator maintenance.

TRAINING

All employees will receive respirator training during their initial health and safety training class and on at least an annual basis, if required for their job classification. Training shall address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance & storage, medical signs and symptoms of effective use and general requirements of the OSHA standard. The training must be provided before requiring the employee to use the respirator.

Retraining

Retraining shall be administered annually, and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete,
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill, or
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.



Personal Protective Equipment

1. Safety glasses shall be worn at all times. Prescription glasses must be ANSI Z87.1 approved with side shields.
2. Hard Hats shall be worn at all times.
3. Task appropriate gloves shall be worn whenever performing work unless working around moving parts.
4. PFDs shall be worn when working above or near water, Zipped and Clipped at all times.
5. Faceshields shall be used when performing work such as, grinding, chipping, blowing with air-hose, high pressure water or any other work that has the potential for flying debris.
6. Hearing protection must be worn when noise exceeds 85 dBA.
7. Protective footwear (with ankle high protection) shall be worn by all employees.

Fall Protection

1. A Fall Protection Work Plan must be developed for all work requiring fall protection systems.
2. Employees must have a fall protection system (handrail, personal fall arrest, etc.) when walking or working at levels with an unprotected side, edge, or hole four (4ft) or above a lower level.
3. Employees shall be tied-off 100% of the time when working in manlifts unless working over water and approved by HSE Department.
4. Fall protection will be used when working 4ft above open water if there is a physical hazard that exists at a lower level above or on the water. *Alternative options are available, but the PPM HSE Department must be contacted, before the work starts, if they are to be implemented on any project; failure to contact the PPM HSE Department in advance may result in project delays.

Electrical Safety

1. Power tools and electrical cords must be inspected prior to each use.
2. Damaged tools and cords must be red tagged and removed from service immediately.
3. Ground Fault Circuit Interrupters (GFCIs) shall be used with all tools and electrical cords to protect employees. (GFCI will be plugged in at the source).

Cutting & Welding

1. Employees must use (at minimum) number four (4) shade goggles, or safety glasses, and a faceshield when using a cutting torch.
2. Employees shall wear the proper leather gloves when using a cutting torch (Welding Gloves).
3. When cutting overhead, employees must wear protective leathers on chest and arms for proper protections against slag and sparks; and faceshield to protect their face.
4. When welding, employees will wear approved welding hood, welding gloves, and proper leather protection.
5. All flammable and combustible material will be at least 35 feet from torch cutting and welding operations, or otherwise protected.
6. At minimum, a 10lb fire extinguisher will be within 10 feet of all torch-cutting and welding operations.
7. Welding screens must be used to prevent other employees and public from receiving flash burns when necessary.

Rigging/Sling Safety

1. All slings and rigging components shall be inspected before each use. Damaged rigging material will be removed from service immediately.
2. Only qualified and trained employees will rig material to be hoisted by cranes or forklifts.
3. Only qualified and trained employees will signal cranes or forklifts that are hoisting material.



SAFETY INSPECTIONS

Pacific Pile & Marine requires that the entire project management team, including subcontractors, participate in weekly site safety inspections. Safety Inspections should not only include the physical condition of the project, but also the work methods that are being utilized by the workers as this is often a leading cause of injury. The frequency requirement of site safety inspections by the project management team is further described in the Section: "Leading Indicators".

Any identified physical hazards or work methods in need of improvement should be noted on an inspection report. Hazards that cannot be corrected immediately or are serious in nature require a hazard correction notice to be issued to the supervisor for the work area or crew. It is important that these hazard correction notices get closed out; this means the hazard corrected, the correction documented and verified, and the notice filed.

Subcontractors are expected to inspect their own work areas for safety hazards on a frequent and regular basis, and no less than once per week. Each project should develop a system that appropriately addresses the needs of their specific site; for example, some project teams will gather a supervisor from each subcontractor and walk the project every Monday morning. Some project teams will request each subcontractor to elect or appoint one representative from their crews to form a site-specific safety committee. Regardless of the method selected, it is imperative that the projects receive comprehensive safety inspections frequently and regularly.

A record of each inspection shall be documented using an inspection checklist in HCSS Safety and all inspections should be reviewed weekly during the toolbox safety meetings.

Regulations regarding construction safety inspections:

FEDERAL OSHA 29 CFR 1926.20(b)(2)

- Frequent and regular inspections of the jobsites, materials, and equipment to be made by competent persons designated by the employers are required.

WASHINGTON DOSH 296-155-110(9)

- Documented walk-around safety inspection shall be performed at the beginning of each job and at least weekly thereafter and the walk-around inspection shall be conducted jointly by one member of management and one employee, elected by the employees, as their authorized representative. The inspection must be documented, and records must be maintained until the completion of the job.

ALASKA OSHA 29 CFR 1926.20(b)(2)

- Frequent and regular inspections of the jobsites, materials, and equipment to be made by competent persons designated by the employers are required.

Site Inspection forms can be found in the safety folder.



SCAFFOLDS

Complying with:

OSHA Safety and Health Regulations for Construction:

Part 1926, Subpart: L

PURPOSE

This program is designed for the safety of Pacific Pile & Marine employees when working on or around scaffolding. This program complies with CFR 29. 1926.450 to 1926.454.

TRAINING

PPM trains every employee to scaffold user certification level who performs work while on a scaffold. The training is conducted by a "competent person" so designated by PPM and qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. Each employee is given a competency test and must pass with an 80% before being allowed to use a scaffold. The training includes the following areas, as applicable:

- The nature of any electrical hazards, fall hazards and falling object hazards in the work area,
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used,
- The proper use of the scaffold, and the proper handling of materials on the scaffold,
- The maximum intended load and the load-carrying capacities of the scaffolds used, and
- Any other pertinent requirements of this subpart.

RECOGNITION OF HAZARD TRAINING

PPM trains every employee who is involved in erecting, dismantling, repairing, maintaining, or inspecting a scaffold. All employees performing this type of work will be trained to the level of competent person. This training will be a minimum of 10-hours of training using the scaffold institute curriculum and pass a competency test by a score of 80% or better. Employees are trained by a "competent person" to recognize any hazards associated with the work in question. The training includes the following topics, as applicable:

- The nature of scaffold hazards,
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question,
- The design criteria, maximum intended load-carrying capacity and intended use of the scaffold,
- Any other pertinent requirements of this Subpart.

INSPECTION

Only a PPM employee who is designated, as a "competent person" will ensure scaffolds are safe prior to and during their use. A scaffold is a precise structure and even small miscalculations can result in serious injury. Preplanning and site evaluation are important. A "competent person" should first inspect the ground where the scaffold will be erected and ask the following questions. Is the surface level? Are there holes or other open areas? Will power lines under the scaffold create a problem? What is the needed weight capacity?

The scaffold should be level and plumb. A base or a mud seal should support scaffold legs. If a mud seal is used, it should extend all the way across the scaffold, extend 9 inches beyond the centerline, and be attached to the scaffold leg. Blocks, bricks, or boards should never be used to elevate a scaffold leg.

A "competent person" should always inspect all parts of the scaffold before using them as well as periodically throughout the shift. Clamps, bolts, and planks should be examined. Planks that are warped, coated with a slippery substance, cracked, splintered, or otherwise defective should not be used. Only stamped scaffold grade boards should be used. Mixing different types of scaffold beams and braces should be avoided unless prior

approval by a "competent person" is obtained.

TAGS

Any defective part(s) of a scaffold should be conspicuously tagged and set-aside by or per the directions of a "competent person". PPM employees are instructed in the identification and compliance of tags. Examples of mandatory tags are provided to all employees.

Tags shall be placed at eye level on the scaffold latter. Tags will include the following information:

- Competent person approved by
- Date
- Built by
- Specification of duty light, medium, heavy
- Removal authorization & date
- Special precaution
- Comments

NO employee shall use a scaffold that is tagged DO NOT USE. The lower portion is red (DO NOT USE) section can only be removed and put in service by a competent person.

MODIFICATIONS

Alterations or modifications to a scaffold should not be performed except by a "competent person". Modifications by non-qualified employees or scaffold user qualified may create a hazard. Disciplinary action up to and including termination may be taken against non-certified employees and scaffold users making modifications to scaffolding.

RETRAINING

When PPM has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, PPM retrains the employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not been previously trained, or
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained, or
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the retraining effectively.

GENERAL RULES FOR SCAFFOLDING

The potential hazards associated with scaffolds are numerous. They range from a worker falling off the scaffolding, to equipment or tools falling and injuring someone below. By following the rules listed below, many of these hazards can be eliminated.

- Concentrate. Focus on your safety and the safety of others. Fooling around can result in injury.
- Practice good housekeeping. Tools or other debris left in the walkway could be a trip hazard or be accidentally kicked from the scaffold, fall, and injure someone below.

- Keep both feet on the scaffolding when working.
- Do not use ladders or other elevation devices on a scaffold. Also, do not lean a ladder against the scaffold. This puts unnecessary pressure on the scaffold.
- Do not lean over the guardrails or put undue pressure on them.
- Do not work on a scaffold that has ice or other slippery substance on it.
- Always wear hard hats when working around scaffolding. Objects could fall from above and cause an injury.
- Do not climb cross braces or jump from scaffold to scaffold.
- Do not drop items from the scaffold. Use a hoist to raise or lower them.
- Keep your hands free of tools, etc. when climbing a scaffold. Always maintain three points of contact.
- When a scaffold is more than 10-feet high and no guardrails are present, use a harness. Always inspect the harness first for undue wear and tear. A harness must limit the fall to 6 feet. Also, check the hook and lanyard in the back. When tying off, pick an anchor that is solid, Conduit, venting, and small piping are not acceptable anchors, and must be able to support 5000 lbs. per worker. Do not use part of the scaffold as an anchor point unless the scaffold is tied down or has independent support lines.
- Do not alter the scaffold unless the supervisor or other "competent person" gives prior approval.
- Always be aware of the scaffold's load capacity. Tools and equipment should be evenly distributed on a scaffold. When offloading an item from a crane, always do it over a vertical support.
- If you notice damaged planks, other structural defects, or anything that will affect the integrity of the scaffold, report them immediately to your supervisor or other "competent person".
- Exit the scaffold in the event of high winds or an electrical storm.

ERECTING

Only "competent person" certified employees are permitted to erect scaffolding.

Caution should be exercised when erecting and dismantling a scaffold. Additional caution should be taken because not all the safeguards and controls will be in place. This makes the scaffold less stable than when completed. Scaffold safety begins from the ground level. If mistakes are made at lower levels of a scaffold, they will compound each time an additional level is added.

Size and spacing are important factors when building a scaffold. The following should apply to all scaffolding projects:

- A scaffold must be greater than 10-feet away from an uninsulated power line or an insulated power line having 50,000 volts or more.
- A scaffold must be built within 14 inches of the work area unless front guardrails or proper fall protection is used.
- When the height to width ratio is greater than 1:4, guys or ties must be in place. Guys and ties must be placed when horizontal members support both inner and outer legs. They must also be at each end and no more than 30 feet apart.
- Do not attach ties to small piping, conduit, etc. Attach only to solid, stable structures.
- Walkways must be fully planked unless they are only being used as a walkway or during erecting and

dismantling the scaffold.

- Spacing between planks and between planks and uprights cannot exceed 1 inch.
- Planks on the walkway should overlap 12-inches and the overlap should occur over a vertical support.
- Scaffolds more than 2-feet apart must be accessible by a ladder or other proper device.
- The bottom rung on a ladder cannot be more than 24-inches in height.
- If scaffold is taller than 35-feet, rest intervals must be in place every 30-feet.
- Guardrails must be in place if the scaffold height is greater than 10-feet unless workers are using fall protection. The top guardrail must be between 38 and 45 inches in height. The mid railing should be 1/2 the height of the top rail. The posts must be placed at least every 10-feet.
- If a scaffold is enclosed, tie wire must be in place every 13-feet vertically and every 15-feet horizontally.
- The ties must be able to withstand 1500 lbs. of pressure and tension.

DISMANTLING

Only "competent person" certified employees are permitted to dismantle scaffolding. Safely dismantling a scaffold is also important. The following rules should always be applied when dismantling:

- Scaffolds should always be dismantled from the top down.
- When removing a particular piece, be sure that it will not cause another piece to fall.
- Lower scaffolding components with a hoist or by hand-to-hand contact.
- If a scaffold is partially dismantled, barricade off all point of entry so that persons will not be able to access the scaffold.

CONCLUSION

Non-compliance by any PPM employee with any part of this described program will result in disciplinary action as outlined in the Company's Disciplinary Program found in this manual.



Silica, Respirable Crystalline, Program

Complying with:

OSHA Safety & Health Regulations for Construction Standard:

Part 1926, Subpart: Z

PURPOSE

This Respirable Crystalline Silica Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It is intended to meet the requirements of the Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA).

All work involving chipping, cutting, drilling, grinding, or similar activities on materials containing Crystalline Silica can lead to the release of respirable-sized particles of Crystalline Silica (i.e., Respirable Crystalline Silica). Crystalline Silica is a basic component of soil, sand, granite, and many other minerals. Quartz is the most common form of Crystalline Silica. Many materials found on construction sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.

SCOPE

This Respirable Crystalline Silica Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to Respirable Crystalline Silica in construction work, except where employee exposure will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air (25 µg/m³) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

RESPONSIBILITIES

Pacific Pile & Marine firmly believes protecting the health and safety of our employees is everyone's responsibility. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.

Safety Department:

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an employee's exposure will be above 25 µg/m³ as an 8-hour TWA under any foreseeable conditions
- Select and implement into the project's ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping, and others.

NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.
- Ensure that Project Managers, Superintendents, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

- Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.
- Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.
- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

Project Manager:

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.
- Assist the Safety Department in conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.
- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping, and others.
- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.
- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.
- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

Competent Person and/or Site Manager (Superintendent, Foreman, etc.)

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.
- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.
- Notify the Project Manager and/or Safety Department of any deficiencies identified during inspections to coordinate and facilitate prompt corrective action.
- Assist the Project Manager and Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

Employees:

- Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
- Use the assigned PPE in an effective and safe manner.

- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.
- Report any unsafe conditions or acts to the Site Manager and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica illness.

DEFINITIONS

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your Safety Department.

- Action Level means a concentration of airborne Respirable Crystalline Silica of 25 $\mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.
- Competent Person means an individual who can identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.
- Employee Exposure means the exposure to airborne Respirable Crystalline Silica that would occur if the employee were not using a respirator.
- High-Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.
- Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to Respirable Crystalline Silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
- Permissible Exposure Limit (PEL) means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica more than 50 $\mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.
- Physician or Other Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all the health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.
- Respirable Crystalline Silica means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size- selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.
- Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

REQUIREMENTS

Specified Exposure Control Methods

When possible and applicable, PPM will conduct activities with potential Silica exposure to be consistent with OSHA's Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA's Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless PPM has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

The task(s) being performed by PPM identified on OSHA’s Construction Standard Table 1 is/are: Select any of the following that apply:

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours /shift	>4 hours /shift
1	Stationary masonry saws	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	<ul style="list-style-type: none"> Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency. 	None	None
4a	Walk-behind saws when used outdoors	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
6	Rig-mounted core saws or drills	<ul style="list-style-type: none"> Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	<ul style="list-style-type: none"> Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes. 	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours /shift	>4 hours /shift
8	Dowel drilling rigs for concrete for tasks performed outdoors only	<ul style="list-style-type: none"> Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. 	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> Operate from within an enclosed cab and use water for dust suppression on drill bit. 	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
11	Handheld grinders for mortar removal (i.e., tuckpointing)	<ul style="list-style-type: none"> Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	<ul style="list-style-type: none"> Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours /shift	>4 hours /shift
12b	Handheld grinders for uses other than mortar removal when used outdoors	<ul style="list-style-type: none"> Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	None	None
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
13b	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes. 	None	None
14	Small drivable milling machines (less than half-lane)	<ul style="list-style-type: none"> Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions. 	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	<ul style="list-style-type: none"> Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. 	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. 	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions. 	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours /shift	>4 hours /shift
16	Crushing machines	<ul style="list-style-type: none"> Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station. 	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> Operate equipment from within an enclosed cab. 	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions. 	None	None
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> Apply water and/or dust suppressants as necessary to minimize dust emissions. 	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab. 	None	None

When implementing the control measures specified in Table 1, PPM shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust,
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust,
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - Is maintained as free as practicable from settled dust,
 - Has door seals and closing mechanisms that work properly,

- Has gaskets and seals that are in good condition and working properly,
- Is under positive pressure maintained through continuous delivery of fresh air,
- Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better), and
- Has heating and cooling capabilities.
- Where an employee performs more than one task included on OSHA's Construction Standard Table 1 during a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA's Construction Standard Table 1, or where PPM cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

First, PPM will assess the exposure of each employee who is or may reasonably be expected to be exposed to Respirable Crystalline Silica at or above the Action Level in accordance with either the Performance Option or the Scheduled Monitoring Option.

- **Performance Option** – PPM will assess the 8-hour TWA exposure for each employee based on any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica.
- **Scheduled Monitoring Option:**
 - PPM will perform initial monitoring to assess the 8-hour TWA exposure for each employee based on one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, PPM will plan to monitor a representative fraction of these employees. When using representative monitoring, PPM will sample the employee(s) who are expected to have the highest exposure to Respirable Crystalline Silica.
 - If initial monitoring indicates that employee exposures are below the Action Level, PPM will probably discontinue monitoring for those employees whose exposures are represented by such monitoring.
 - Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, PPM will repeat such monitoring within six months of the most recent monitoring.
 - Where the most recent exposure monitoring indicates that employee exposures are above the PEL, PPM will repeat such monitoring within three months of the most recent monitoring.
 - Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the Action Level, PPM will repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the Action Level, at which time PPM will probably discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. PPM will reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the

Action Level, or when PPM has any reason to believe that new or additional exposures at or above the Action Level have occurred.

PPM will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e., a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e., accredited to ANS/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).

Within five working days after completing an exposure assessment, PPM will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

Whenever an exposure assessment indicates that employee exposure is above the PEL, PPM will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Where air monitoring is performed, PPM will provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Respirable Crystalline Silica. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, PPM will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

Once air monitoring has been performed, PPM will determine its method of compliance based on the monitoring data and the hierarchy of controls. PPM will use engineering and work practice controls to reduce and maintain employee exposure to Respirable Crystalline Silica to or below the PEL, unless PPM can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, PPM will nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

In addition to the requirements of this program, PPM will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using Crystalline Silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain Crystalline Silica.

Control Methods

PPM will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to Silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Listed below are control methods to be used when Table 1 is not followed:

Misting/Wetting: Fine water mist or wetting can be applied to the operation for control the exposure to dust. Consideration must be taken to control run-off water and to prevent possible pollution concerns to near-by water ways.

Vacuum System: Direct collection of dust operations with the use of a vacuum system with HEPA-filtration exhausted to the direct air or collection system for disposal.

Direct Ventilation: Direct ventilation of dust generated operation exhausted through a filtration system or collection system.

Respiratory Protection

Where respiratory protection is required by this program, PPM will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1. Situations requiring respiratory protection include:

- Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls,
- Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible, and
- During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

Housekeeping

PPM does not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to Respirable Crystalline Silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.

PPM does not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to Respirable Crystalline Silica unless:

- The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
- No alternative method is feasible.

Written Exposure Control Plan

When employee exposure on a construction project is expected to be at or above the Action Level, a Written Exposure Control Plan (ECP) will be established and implemented. This ECP will contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica,
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task,
- A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica, and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to Respirable Crystalline Silica and their level of exposure, including exposures generated by other employers or sole proprietors.

The written ECP will designate a Competent Person to make frequent and regular inspections of job sites, materials, and equipment to ensure the ECP is implemented.

The written ECP will be reviewed at least annually to evaluate the effectiveness of it and update it as necessary. Having said this, ECP's are project specific and most project durations do not exceed a year. The written ECP will be readily available for examination and copying, upon request, to each employee covered by this program and/or ECP, their designated representatives, and OSHA.

Medical Surveillance

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their Respirable Crystalline Silica exposure. Medical surveillance (i.e. medical

examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

PPM will make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

- A medical and work history, with emphasis on past, present, and anticipated exposure to Respirable Crystalline Silica, dust, and other agents affecting the respiratory system in addition to any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing), history of tuberculosis, and smoking status and history,
- A physical examination with special emphasis on the respiratory system,
- A chest X-ray (a single posteroanterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader,
- A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course,
- Testing for latent tuberculosis infection, and
- Any other tests deemed appropriate by the PLHCP.

PPM will make available medical examinations that include the procedures (except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

PPM will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and the following information:

- A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Respirable Crystalline Silica,
- The employee's former, current, and anticipated levels of occupational exposure to Respirable Crystalline Silica,
- A description of any personal protective equipment (PPE) used or to be used by the employee, including when and for how long the employee has used or will use that equipment, and
- Information from records of employment-related medical examinations previously provided to the employee and currently within the control of PPM.

PPM will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment,
- Any recommended limitations on the employee's use of respirators,
- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica, and

- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

PPM will also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following to protect the employee's privacy:

- The date of the examination,
- A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard, and
- Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion shall also contain either or both of the following:

- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and/or
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

If the PLHCP's written medical opinion indicates that an employee should be examined by a Specialist, PPM will make available a medical examination by a Specialist within 30 days after receiving the PLHCP's written opinion. PPM will ensure that the examining Specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

PPM will ensure that the Specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report will contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment,
- Any recommended limitations on the employee's use of respirators, and
- Any recommended limitations on the employee's exposure to respirable crystalline Silica.

In addition, PPM will obtain a written opinion from the Specialist within 30 days of the medical examination. The written opinion shall contain the following:

- The date of the examination,
- Any recommended limitations on the employee's use of respirators, and
- If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure to Respirable Crystalline Silica.

Hazard Communication

PPM will include Respirable Crystalline Silica in the company's Hazard Communication Program established to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

PPM will ensure that each employee has access to labels on containers of Crystalline Silica and those containers respective Safety Data Sheets (SDS's).

All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard and the Training Section of this program. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

PPM will ensure that each employee with the potential to be exposed at or above the Action Level for Respirable Crystalline Silica can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to Respirable Crystalline Silica,
- Specific tasks in the workplace that could result in exposure to Respirable Crystalline Silica,
- Specific measures PPM has implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used,
- The contents of the OSHA Respirable Crystalline Silica Construction Standard,
- The identity of the Competent Person designated by PPM, and
- The purpose and a description of the company's Medical Surveillance Program.

PPM will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

Recordkeeping

PPM will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica. This record will include at least the following information:

- The date of measurement for each sample taken,
- The task monitored,
- Sampling and analytical methods used,
- Number, duration, and results of samples taken,
- Identity of the laboratory that performed the analysis,
- Type of personal protective equipment (PPE), such as respirators, worn by the employees monitored, and
- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were monitored.

PPM will ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020. Exposure records will be kept for at least 30 years.

The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. This record shall include at least the following information:

- The Crystalline Silica-containing material in question,
- The source of the objective data,
- The testing protocol and results of testing,
- A description of the process, task, or activity on which the objective data were based, and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

PPM will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020. Objective data records will be kept for at least 30 years.

PPM will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

- Name and social security number,
- A copy of the PLHCPs' and/or Specialists' written medical opinions, and
- A copy of the information provided to the PLHCPs and Specialists.

PPM will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends if the employer gives those records to the employee.

PROGRAM EVALUATION

This program will be reviewed and evaluated on an annual basis by the Safety Department unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.



SILICA EXPOSURE CONTROL PLAN

JOB NAME: _____

JOB LOCATION: _____

PROJECT #: _____

Applicability

This Written Exposure Control Plan applies to Pacific Pile & Marine personnel who are potentially exposed to airborne concentrations of respirable crystalline silica because of their work activities or proximity to the work locations where airborne silica is being emitted. This Plan also applies to PPM superintendents, foremen, or safety personnel who may be responsible for overseeing a subcontractor's operations that have the potential to expose personnel to airborne concentrations of silica at or above regulatory and industry action levels and exposure limits.

1.2 Scope (ONLY ADDRESS ACTIVITIES TO BE PERFORMED)

This Plan describes the hazards associated with projects involving potential exposure to airborne concentrations of silica and the issues to be addressed during these projects. These projects include, but are not limited to:

- Use of stationary masonry saws used to cut concrete, tile, concrete masonry block, sheet rock, gypsum fiber roof board, or any other product containing quartz.
- Handheld power saws used to cut concrete, asphalt, concrete masonry block, sheet rock, gypsum fiber roof board, or any other product containing quartz.
- Walk-behind saws used to cut concrete or asphalt.
- Rig-mounted or free-standing core saws or drills (including impact and rotary hammer drills) used to penetrate concrete, concrete masonry block, sheet rock, gypsum fiber roof board, or any other structural component or product containing quartz.
- Jackhammers and handheld powered chipping tools used to demolish or modify concrete, concrete masonry block, or any other structural component or product containing quartz.
- Vehicle mounted hammers or chipping tools used to demolish concrete, concrete masonry block, or any other structural component or product containing quartz.
- Handheld grinders or cut-off wheels used for mortar removal or cutting/grinding of concrete, concrete masonry block, sheet rock, gypsum fiber roof board, or any other structural component or product containing quartz.
- Walk-behind milling machines or bead blasters used for surfacing activities on concrete, concrete masonry block, asphalt, or any other product containing quartz.
- Hand or power tool sanding of painted surfaces. Current latex paint products contain quartz and the painted substrate (sheet rock, concrete masonry block, concrete) contains quartz.
- Drivable asphalt milling machines used to mill asphalt roadways or walkways.
- All housekeeping operations associated with the activities described above.

PPM employees who work in proximity to silica-related operations must be aware of safe work practices and take all necessary precautions associated with avoiding and minimizing airborne silica exposure.

Regulatory Review

Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1153: Respirable Crystalline Silica (Construction Industry) and 29 CFR 1910.1053: Respirable Crystalline Silica (General Industry), contain regulatory requirements specific to respirable crystalline silica. This Written Exposure Control Plan is developed in accordance with the requirements in 29 CFR 1926.1153(g).

Project Planning

Training Requirements

PPM employees who anticipate working on projects where they could be exposed to airborne silica will be provided training in silica hazards in accordance with the PPM program established to comply with the hazard communication standard (29 CFR 1910.1200). Each employee will have access to labels on containers of crystalline silica and safety data sheets and be provided information on the health hazards of silica including cancer, lung effects, immune system effects, and kidney effects. In addition, PPM employees will be provided training and information regarding specific activities identified in this Plan that could result in airborne silica exposure, and the specific engineering controls, work practices and respiratory protection requirements to mitigate the potential airborne silica exposures. This training will provide a discussion of silica hazards, initial exposure determination either by complying with 29 CFR 1926.1153 Table 1 requirements or air monitoring, specific engineering and work practice control measures, personal protective equipment (PPE), and medical surveillance requirements. The training will also identify the PPM competent person for silica exposure identification and determination of control requirements. All PPM employees will be provided with access to a copy of 29 CFR 1926.1153 and be trained on the contents of 29 CFR 1926.1153.

Medical Surveillance Requirements

PPM shall institute medical surveillance for any employees required by this Plan to wear a respirator 30 or more days per year. Initial medical surveillance consists of medical and work history with emphasis on: past, present, and anticipated exposure to silica, dust and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history; a physical examination with emphasis on the respiratory system; a pulmonary function test to include forced vital capacity (FVC) and any other tests deemed appropriate by the Occupational Medicine Provider. Subcontractors are responsible for implementing a medical surveillance program for their employees.

Competent Person Requirements

PPM will identify a competent person to inspect and oversee all activities with potential airborne silica exposure. Subcontractors working on projects within the scope of this Program shall appoint a competent person capable of executing the duties described herein. The competent person must have training in the inspection of work areas and equipment and in the determination of safe working conditions. This person shall have a working knowledge of the 1926.1153 standards, shall be capable of identifying airborne silica hazards, shall determine the need for initial and additional exposure monitoring, shall recommend and implement engineering and work practice controls, shall establish levels of PPE, and shall have the authority to take action to eliminate hazards and correct incidences of noncompliance.

PPM Competent Person Name/Title:

Planning Activities

Projects where anticipated activities involve concrete cutting, grinding, sandblasting, drilling, coring, or other abrasive operations are treated as potential sources for airborne silica exposure. Additionally, existing structures and materials such as sheetrock, any painted surfaces with low volatile organic compounds, tile, brick, or some insulation products may contain silica. Likewise, new material installation may involve silica-containing mortar, paints, or insulation. Where process knowledge indicates the presence of silica, PPM will either implement all controls required by 1926.1153 Table 1- Exposure Control Methods for Selected Construction Operations or conduct an initial determination in accordance with 29 CFR 1926.1153(d)(2).

Project Execution

Safe Work Practices

The requirements of this section are to be followed by all PPM employees, who may be exposed to airborne concentrations of silica at or above the regulatory limits.

Exposure Assessment

PPM will either comply with and implement all controls required by 1926.1153 Table 1- Exposure Control Methods for Selected Construction Operations or conduct an initial determination in accordance with 29 CFR 1926.1153(d)(2).

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours /shift	> 4 hours /shift
1	Stationary masonry saws	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	<ul style="list-style-type: none"> Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency. 	None	None
4a	Walk-behind saws when used outdoors	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
6	Rig-mounted core saws or drills	<ul style="list-style-type: none"> Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours /shift	> 4 hours /shift
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	<ul style="list-style-type: none"> Use drill equipped with commercially available shroud or cowl with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes. 	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	<ul style="list-style-type: none"> Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. 	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> Operate from within an enclosed cab and use water for dust suppression on drill bit. 	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

11	Handheld grinders for mortar removal (i.e., tuckpointing)	<ul style="list-style-type: none"> • Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	<ul style="list-style-type: none"> • Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	<ul style="list-style-type: none"> • Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	None	None
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	<ul style="list-style-type: none"> • Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> • Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
13b	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> • Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes. 	None	None
14	Small drivable milling machines (less than half-lane)	<ul style="list-style-type: none"> • Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions. 	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	<ul style="list-style-type: none"> • Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions. 	None	None

15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> • Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions. 	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> • Use a machine equipped with supplemental water spray designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions. 	None	None
16	Crushing machines	<ul style="list-style-type: none"> • Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station. 	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> • Operate equipment from within an enclosed cab. 	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> • When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions. 	None	None
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> • Apply water and/or dust suppressants as necessary to minimize dust emissions. 	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> • When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab. 	None	None

- An exposure assessment is required when employees may be exposed to airborne silica at or above the action level to determine the extent to which employees are exposed and the appropriate exposure controls required.

- An initial determination of exposure shall be made at the beginning of operations. The determination shall consist of the collection of personal air samples representative of a full shift including at least one sample for each job classification in each work area, either for each shift, or for the shift with the highest exposure level.
- During the initial determination, until such time that actual airborne concentrations are determined, personnel shall be protected by respiratory protection based on task- specific anticipated airborne concentrations of silica as illustrated in Table 2 below:
- During the initial determination, and in addition to the levels of respiratory protection required, personnel shall be provided with protective clothing and equipment, hygiene facilities, and training.
- Whenever a change in equipment, process, controls, or personnel occurs, or a new task has been initiated, an additional exposure assessment is required.
- When an assessment determines that exposure has occurred above the action level but below the PEL, additional monitoring shall be required at least every 6 months. Additional monitoring shall continue until such time that the monitoring results fall below the action level on two separate occasions at least 7 days apart.
- When monitoring yields results above the PEL, then quarterly monitoring is required. In addition, the quarterly monitoring may be suspended when additional monitoring results fall below the action level on two separate occasions at least 7 days apart.
- Where the competent person can clearly demonstrate, in the absence of air monitoring data, that a work activity will not create airborne silica concentrations in excess of the action level, then air monitoring may be unwarranted. Where a negative initial determination is reached without air monitoring, the competent person must develop a written explanation as to why exposures are not expected to exceed the action level.

Communication of Hazards

- Each employee shall be provided training and demonstrate knowledge and understanding of the following:
 - Health hazards associated with exposure to respirable crystalline silica
 - Specific tasks that could result in exposure to respirable crystalline silica
 - Specific measures that are required to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and required use of respiratory protection
 - The contents of the 29 CFR 1926.1153
 - The identity of the competent person
 - Purpose and description of the medical surveillance program
- A written compliance program shall be made available to all affected employees.
- In addition, notification to owners, contractors, and other personnel working in the area shall be made.

Control Methods

- Engineering and work practice controls, including administrative controls, shall be implemented to reduce and maintain employee exposure to silica at or below the PEL, to the extent that such controls are feasible.
- Where all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to or below the PEL, such controls shall be used, nonetheless, to reduce employee exposure to the lowest feasible level (and in conjunction with respiratory protection).
- Respiratory protection shall be selected based on guidance in 1926.1153 Table 1 or based on a Certified Industrial Hygienist's or competent person's assessment of the potential airborne exposure that may be created by the means and methods of work (high energy operations with high airborne dust generation or low energy operations with low dust generation).
- When using mechanical ventilation to control exposure, regularly evaluate the system's ability to effectively control exposure.
- If administrative controls are used to limit exposure, establish and implement a job rotation schedule that includes employee identification as well as the duration and exposure levels at each job or work station where each affected employee is located.
- Maintain all surfaces as free as possible from accumulations of silica. Select methods for cleaning surfaces and floors that minimize the likelihood of silica becoming airborne (such as using a HEPA vacuum).
- If vacuuming is the method selected, specialized vacuums with HEPA filtration are required. Methods to use and empty vacuums in a manner that minimizes the reentry of silica into the workplace shall be described and used. Use of household vacuums with HEPA filters are not allowed at any time for the collection of dust or debris that contains silica.
- Employees shall not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in any areas where exposure to silica is above the PEL (in other words, regulated areas).
- Do not allow employees to leave the workplace wearing any protective clothing or equipment that is required to be worn during their work shift without HEPA vacuum removal of dust.
- Where feasible, install shower facilities and require employees who work in regulated areas to shower at the end of their work shift. Also provide an adequate supply of cleaning agents and clean towels.
- Provide hand washing facilities for use by employees working in regulated areas. Furthermore, require employees to wash their hands and face at the end of the work shift and prior to eating or entering eating facilities, drinking, smoking, or applying cosmetics.
- Eating facilities or areas shall be provided for employees working in regulated areas. These facilities shall be maintained free of silica contamination and shall be readily accessible to those employees.

Personal Protective Equipment (PPE)

Respiratory protection must be used for the following conditions:

- During periods when employee exposure to airborne silica exceeds the PEL
- For work operations where engineering and work-practice controls are not sufficient to reduce employee exposure to or below the PEL
- During periods when an employee requests a respirator

- During periods when respirators are required to provide interim protection while conducting initial exposure assessments
- Powered air-purifying respirators (PAPR) shall be provided to employees who request such a respirator to use where it will provide adequate protection.
- Employees shall be provided, at no cost, protective work clothing and equipment including cotton coveralls or similar full-body clothing, gloves, hats, shoes or disposable shoe coverlets, face shields, vented goggles, or other appropriate PPE.

Housekeeping

- The employer will not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica.
 - Use wet sweeping
 - Use HEPA-Filtered Vacuuming
- The employer will not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica.



SPILL PREVENTION PROGRAM

Response Authority

- The responsibility and authority for initiating a response lies with the highest-ranking company employee at the scene of a spill event
- Upon discovering that a spill event has occurred, the highest-ranking company employee on the scene shall evaluate the size, extent, and seriousness of the spill, then contact the Safety Department (or designee) immediately for all spill incidents.
- The On-Scene Commander will then decide whether to call on the Local Emergency Response team listed in this plan. It is incumbent on that person to call those listed on the crisis team plan until all persons (or alternatives) have been contacted or determined not to be available.
- The local Emergency Response Team is to be contacted for all spills that reach water and for all major spills onto land.
- The Supervisor at the scene shall determine, based on the circumstances, if the Local Emergency Response Team needs to be called upon for medium or minor spills on land.
- This responsibility and authority remain with this person until relieved by a higher-ranking employee

NOTE: The ranking Company employee at the scene has the authority to purchase or procure any labor, contract services, materials and/or support services required to meet the situation

Employee Safety

Before responding to any spill, the safety of all personnel must be assured. Therefore, take the following steps before beginning the response:

Gas or Hydrocarbon Liquid Spills

- Monitor the area for LEL, H₂S, and oxygen (O) to ensure a safe atmosphere
- Determine the potential for fire, and take steps to eliminate any potential so identified
- Assure that all personnel are equipped with the appropriate PPE

Chemical Spills

- Consult the Material Safety Data Sheets (MSDS) for the spilled material to determine the health effects and the requirements for PPE
- Refer to the Pacific Pile and Marine Spill Reporting Procedures

After ensuring the safety of personnel, proceed with the appropriate response to the situation.

Decontamination

At the jobsite, decontamination (or termination) is a critical part of the conclusion on any emergency. Decontamination is a process by which potentially hazardous substances are removed from employees without adversely affecting their health and safety. Specifics on this procedure can be found in the safety plan.

Response to the Spill

Initiate containment of the spilled material

- All spills should be intercepted and contained as close to the release point as possible
- Absorbent booms and other absorbent materials are in the job shop

Ground Spills:

Containment may be by:

- Using absorbent booms or other absorbent materials
- Constructing earthen dams, either by hand or with the use of equipment
- Blocking drainage culverts and inlets to drain systems
- Emphasis should be placed on keeping spilled materials from entering any water source
- If the spill is in a field location, consult the job plans to determine the drainage system that may be affected and the location of the nearest downstream spill control

Chemtrec 800-424-9300

Chemtrec operates around the clock – 24 hours a day, seven days a week to receive direct dial, toll free, calls from any point in the continental United States.

They provide immediate advice for those at the scene. If you notify Chemtrec that you have an emergency, they will respond with serious action by contacting the shipper, EPA, Coast Guard, etc. to control the spill.

Be sure there is a definite emergency if you so define your situation as such.

Chemtrec can provide hazard information warnings and guidance when given the **Identification number** or **name of product** and **nature of the problem**.

It is important to keep the phone line open in emergencies for the job to receive guidance and assistance. The Chemtrec communication facility consists of a teleconferencing bridge, which allows their office to connect experts to your phone, as necessary.

Clean up of Ground Spills

It is important to begin clean-up operations as soon as possible. The sooner clean up begins, the higher will be the recovery amount of spilled material. This increases the recovery percentage and reduces environmental damage. Recovery of any liquid spill material is to be initiated immediately with:

- Vacuum truck
- Absorbent pads or other absorbent materials
- Pumps
- The materials recovered should be returned to the system, if possible, or stored in sealed, leak-proof containers for subsequent handling.
- After recovering any free liquids, flush the affected area with fresh water to increase the recovery. *This technique is particularly effective for partial recovery of highly soluble material or light oils but is not effective on heavy or insoluble materials. **Take care to avoid dispersing the materials across a larger area.***
- Heavy oils and some oils contained in paraffin may be recovered by scooping up the material with hand tools or equipment.
- After recovering heavy oils, subsequent flushing of the affected area with hot water while recovering the spilled material may increase the recovery. Again, avoid spreading the material over a larger area.
- During the winter, snow that is contaminated with spilled material may be stockpiled in a lined, contained area, to be recovered after snow has melted.

- Some spilled material may be made less harmful to the environment if a chemical neutralizer is applied. The MSDS for the material may list appropriate neutralizers for the substance. Consult the Safety Department to identify the proper neutralizer to use. Other clean-up efforts may be used after consulting the Safety Department and other Crisis Team personnel, such as the Operations Department. Removal of contaminated soils without the authorization of the Crisis Team Leader is not allowed.
- **Cleaning of bank areas** can be done with techniques similar for those use for recovery of spills onto land. Neutralizers for chemical spills into water may be used if approved by the Safety Department.

Water Spills

Containment may be by use of:

- Booms
- Absorbent booms
- Earthen pipe dams (with the outlet controlled to allow the water to pass through the pipe subsurface)
- Weirs

These techniques work best for non-soluble materials having a specific gravity less than water (less than 1), which means that the spilled material floats on the surface of the water. Spills of produced water and other materials that are water-soluble cannot be contained with any degree of success.

Clean up of Water Spills

It is important to begin clean-up operations as soon as possible. The sooner clean up begins, the higher will be the recovery amount of spilled material. This increases the recovery percentage and reduces environmental damage. Recovery of any liquid spill material into water is to be initiated immediately with:

- Skimmers
- Skimming pumps
- Absorbent materials
- Vacuum trucks

Spills of soluble materials (such as produced water) into water may only be recovered by damming the discharge involved and recovering all the affected water. This technique is not effective for anything other than a small discharge.

- Use of dispersants for oil spills onto water requires government approval and will not occur without approval from both the Operations Department and the Safety Department
- Other techniques for clean up into water may be identified by the Safety Department

Remediation / Reclamation

Remediation and reclamation of the areas affected by a spill will be initiated after consulting with the appropriate company personnel and the Safety Department. The remediation and reclamation procedures used may be mandated by Government actions or orders.

Disposal

Disposal of waste generated by spill response actions is to be arranged by the Safety Department in conjunction with appropriate Crisis Team members.

Spill Reporting Procedures

Do not report releases that are permitted according to Federal Law

Spills or releases of hazardous substances into the environment may require notification to one or more Federal or State agencies. The release reporting requirements are dependent on the substance release, the location of the release, and the time when the release occurred.

- Spills of petroleum products, which cause sheen on the waters of the US, or exceed 25 gallons, must be considered a reportable spill.
- Spills of hazardous materials or of hazardous waste, which exceed their reportable quantities, are a reportable spill.
- The on-site coordinator should report the release immediately to the PPM Safety Department. The Safety Department will gather information that is immediately available on the release and report this information to the appropriate agencies. If any doubt exists on the report-ability of the release, the release will be reported.
- After the agency notifications have been made, the Operations Department will notify the legal coordinator.

The Safety Department, or designee, and the Project Superintendent are responsible for all required external reports regarding the incident. They will also coordinate on internal reports. Government agency reports must be completed as soon as possible and always within 24 hours of the identified spill. See sample spill report form for recording required information in the Appendix.

Reportable Quantities

The following table is a summary of the volume and reporting levels of spilled materials. A complete list of hazardous chemicals and their reporting levels is available from the Environmental Coordinator or the Safety Department.

Summary of Volumes and Reporting Levels

	<u>Contained</u>	<u>Uncontained</u>
Level I	100 bbl. (4,200 gal)	24 bbl. (1,000 gal)
Level II	100-1,000 bbl. (4,200-42,000 gal)	24-240 bbl. (1,000-10,000 gal)
Level III	Over 1,000 bbl. (over 42,000 gal)	Over 240 bbl. (over 10,000 gal)

Hazardous Substance Release Reporting

We are required to report all chemical spills to the State Environmental Office (the State in which our job is located), the National Response Center and certain other government agencies. The information required to report a spill of hazardous substances is as follows:

- The chemical name or identity of any substance involved in the release. Include the CAS number, if possible.
- Indicate if the substance is on the CERCLA or SARA list, or both.
- Estimate the quantity released. If possible, note both the hazardous constituent and the mixture quantities (if the material is a mixture).

- The time and duration of the release. If it is ongoing, estimate the time that it will stop and the environmental medium or media into which the release occurred.
- Any unknown or anticipated health risks – acute or chronic – associated with the substance and, where appropriate, advice regarding medical attention necessary for exposed individuals. Be cautious – it is better to say that you don't know than to guess.
- The proper precautions to take because of the release, including evacuation.
- The names and telephone numbers of the Pacific Pile and Marine personnel to be contacted for further information. Any clean up, containment, or control activities in progress and a Statement whether outside help will be necessary.
- The location of the release, if possible (Section, Township, Range, County and State).
- Do not delay reporting to gather more information. Penalties have been assessed for delays of as little as two hours. If unable to provide all information, State this, rather than guess.

In case of Spills

Safety Department (or designee)	
Responsibilities:	<ul style="list-style-type: none"> ▪ Assist in directing the immediate control and containment of liquid spills ▪ Responsible for evaluating the incident and directing the reporting requirements for spills ▪ Make all government agency notifications ▪ Provide directions for clean-up, supervise decontamination, establish standards for spill remediation / termination
Team Leader	
Backup	
Responsibilities:	<ul style="list-style-type: none"> ▪ Assign team members and their responsibilities ▪ Center point for all crisis communications ▪ Advises and coordinates with upper management ▪ Fills in for other team members where needed
Corporate Spokesperson	
Backup	
Responsibilities:	<ul style="list-style-type: none"> ▪ Responsible for all communications from PPM to the public (through the media)
Crisis Check List:	<ul style="list-style-type: none"> ▪ Start media log sheets ▪ Anticipate media questions ▪ All Statements must be approved by upper management ▪ Obtain clearance from Operations Department for a news release ▪ Assemble necessary background literature

Technical Spokesperson	
Operations Department/Job Sponsor	
Responsibilities:	<ul style="list-style-type: none"> ▪ What happened? ▪ Where did it happen? ▪ Who is involved? ▪ Should the jobsite be shut down? ▪ Who is needed at the site? ▪ Who will be the temporary spokesperson and how should he/she respond to the media? ▪ Should a consultant be contacted for crisis assistance? ▪ Notify the owner.
Job Sponsor	
Responsibilities:	<ul style="list-style-type: none"> ▪ Notify appropriate government and legal authority ▪ Inform any surrounding areas that may be affected by the incident ▪ Inform other branch offices ▪ Organize information updates for internal audiences
Human Resources	
Responsibilities:	<ul style="list-style-type: none"> ▪ Provides team leader with information on the injured/victim(s) ▪ Conduit to employee base – all locations ▪ Locate psychiatric help
Legal	
Responsibilities:	<ul style="list-style-type: none"> ▪ Advised of all decisions during a crisis
Financial Council	
Responsibilities:	<ul style="list-style-type: none"> ▪ Access to cash and vendors who can help
Government Liaison	
Responsibilities:	<ul style="list-style-type: none"> ▪ A team member should be assigned to become familiar with the various utilities and government agencies such as police, water, sanitation, power, and city engineering
Upper Management	
Responsibilities:	<ul style="list-style-type: none"> ▪ One member must allocate the time to stay on top of the emergency until its conclusion ▪ Personal visit to the family is a must in the event of a fatality ▪ Must approve any media Statement prior to release

Spill Report Form

Information to record and report

SPCC Number _____

Spill Date _____ Time of Spill _____

Person Reporting _____

State and County _____

Quantity (in units) _____

	Spilled	Recovered	Entirely Contained in Firewall	Reaching water	Units
Oil					
Condensate					
Produced Water					
Fresh Water					
Other (specify)					

Spill Field Name _____

Spill Facility or Well Name _____

Well n=Number _____

Section, Township, Range _____

Surface Ownership _____

Cause of Spill _____

Cause Category (select One)

- | | |
|--|--|
| <input type="checkbox"/> Operator error | <input type="checkbox"/> Poor maintenance |
| <input type="checkbox"/> Faulty design of facilities | <input type="checkbox"/> Natural causes |
| <input type="checkbox"/> Corrosion | <input type="checkbox"/> Equipment failure |
| <input type="checkbox"/> Other | |

Ambient Conditions _____

Waterways Affected _____

Resultant Damage _____

Actions taken to prevent future spills _____

Clean up action and/or corrective action _____

Clean up Cost (\$) _____

Third Party Damages: _____

Cost: _____

Description: _____

Cause of Death (if applicable) _____

Date of Penalty _____

Amount of Penalty _____

Fines Paid _____

Date Fine Paid _____

Telephone Reports:

Written Reports Sent:

State Environmental Agency

State Environmental Agency

Location _____

Location _____

Date _____

Date _____

Time _____

Time _____

Person _____

Person _____

National Response Center

National Response Center

Location _____

Location _____

Date _____

Date _____

Time _____

Time _____

Person _____

Person _____

Other Agency

Other Agency

Location _____

Location _____

Date _____

Date _____

Time _____

Time _____

Person _____

Person _____

Bureau of Land Management

Bureau of Land Management

(Federal and Indian Leases)

(Federal and Indian Leases)

Location _____

Location _____

Date _____

Date _____

Time _____

Time _____

Person _____

Person _____

Other Agency (#2)

Other Agency (#2)

Location _____

Location _____

Date _____

Date _____

Time _____

Time _____

Person _____

Person _____

Comments _____



STOP WORK AUTHORITY

Introduction

The Stop Work Authority (SWA) policy establishes the responsibility and authority of any individual to stop work when an unsafe condition or act could result in an undesirable event. In general terms, the SWA process involves a stop, notify, correct, and resume approach for the resolution.

Roles and Responsibilities

Senior Leadership at Pacific Pile and Marine establishes clear expectations and accountability to create the culture necessary to promote SWA. Leadership additionally models SWA behavior to ensure that there is support, *not* reprisal, for using Stop Work Authority. Line Supervisors and superintendents create a culture where SWA is exercised freely, honor SWA requests, resolve issues before operations resume and recognize proactive participation. All company personnel are authorized to Stop Work and support the interventions of others.

The authority and responsibility for all personnel to stop work when necessary is presented to every new PPM employee from management to craft, within the Environmental and Safety New Hire Orientation.

Under this program, the Health, Safety, and Environmental department acts to provide training, documentation, compliance, and support of the Stop Work Authority program.

Initiation of Stop Work Procedures

Task/work stoppage may become necessary under certain conditions to ensure the work environment at PPM remains safe. The following instances may be considered grounds for stopping work:

- Unsafe Conditions
- Significant Near Miss Occurrence
- In the event of an incident or accident
- Emergency situations
- Significant change in workplace conditions
- Change in work scope
- Anytime there is a recognized risk to personnel, property, or the environment

Work Stoppage

- When a person identifies a perceived unsafe condition, act, error, omission, or lack of understanding that could result in an undesirable event, they must immediately initiate a stop work intervention with the person(s) potentially at risk.
- If the affected person(s) is not in immediate risk and the supervisor is readily available, the stop work action should be coordinated through the supervisor. If the supervisor is not readily available or the affected person(s) are at immediate risk, the stop work intervention should be initiated directly with those at risk.
- Stop work interventions should be initiated with a clear explanation to all parties as to the reasoning for the action.
- Notify affected personnel and supervision of the stop work issue. If necessary, stop associated work activities, remove person(s) from the area, stabilize the situation, and make the area as safe as possible.
- Affected parties shall discuss and gain agreement on the stop work issue.
- If determined and agreed that the task or operation is okay to proceed as is (i.e., the stop work initiator

was unaware of certain facts or procedures), work may proceed without a formal determination of an attending supervisor.

- If determined and agreed that the stop work issue is valid, then every attempt should be made to resolve the issue to affected persons' satisfaction prior to starting work.
- If the stop work issue cannot be resolved immediately, work shall be suspended until proper resolution is achieved. When opinions differ regarding the validity of the stop work issue or adequacy of the resolution actions, the person in charge at the location shall make the final determination. Details regarding differences of opinion and resolution actions should be included in the documented report.
- Positive feedback should be given to affected personnel regarding resolution of the stop work issue. Under no circumstances should retribution be directed at any person(s) who exercise in good faith their stop work authority as detailed in this program.
- Superintendents/Project Managers will provide the root cause analysis to the stop work action and identify any potential opportunities for improvement. The Safety Manager will publish the incident details regarding the stop work action to all employees outlining the issue, resolution action, and lessons learned. Management will promptly review all stop work reports to identify any additional investigation or required follow-up.
- Work shall resume only after the issues related to the Stop Work have been addressed, resolved, or the issue is deemed to have been a misunderstanding or miscommunication and resolution is determined by clarification.
- The affected area(s) will be reopened for work by personnel with restart authority. All affected employees and contractors will be notified of what resolution actions were implemented and that work will recommence. In the event an employee still believes it is unsafe, they will be assigned to another job with absolutely no retribution.

Reporting

Stop work interventions should be formally documented and reported to:

- Measure participation
- Determine quality of interventions and follow up
- Trend common issues and identify opportunities for improvement
- Facilitate sharing of learnings
- Contribute to recognition schemes

Reporting is conducted through utilizing the incident reporting processes. All documentation must be forwarded to the HSE Department for review. All reported instances of Stop Work events shall be thoroughly reviewed by HSE management.

When opinions differ regarding the validity of the stop work issue or adequacy of the resolution actions, the person in charge at the location shall make the final determination.

Stop work interventions that identified Health, Environment and Safety concerns should be addressed to the satisfaction of all involved persons prior to the resumption of work. Although most issues can be adequately resolved in a timely manner at the job site, occasionally additional investigation and corrective action may be required to identify and address root causes. Corrective actions should be addressed and followed through to completion.



SUBCONTRACTOR SAFETY MANANGEMENT

OVERVIEW

Pacific Pile and Marine has established procedures to review and require that subcontractor safety programs, training, procedures, and initiatives coordinate with PPM's own standards of safety.

The process is intended to help ensure that, in the event subcontractors are utilized by PPM as part of a work project, each subcontractor's safety programs, OSHA compliance, training, confirmations, documentations and statistical results of previous safety performance are in accordance with requirements of both PPM and general contractor.

Under this program and its associated processes, any subcontractor will be reviewed and qualified by PPM prior to performing work for a general contractor as part of a Company project.

SUBCONTRACTOR HEALTH & SAFETY REQUIREMENTS

1. Pre-qualification by PPM will include review of the subcontractor's:
 - a. Review of the subcontractor's OSHA 300 log for the last three years, or from the date the subcontractor began doing business if this time is less than three years,
 - b. OSHA experience regarding any previous inspections or citations,
 - c. Written safety and health programs as required by PPM and/or the respective host employer or general contractor,
 - d. Written subcontractor procedures for at-work incident, injury, illness, and emergency response, reporting and investigation requirements,
 - e. Workers' compensation insurance EMR (Experience Modification Rating) information,
 - f. Proof of insurance documented by a current certificate of insurance from the subcontractor's insurance agent(s),
 - g. Documentation of required safety training of subcontractor employees that will be assigned to the respective project, including supervisor, competent person training and site safety representative training,
 - h. Documentation of required Operator Qualification (OQ) and other individual qualifications or certifications as may be required by the project, and
 - i. Documentation as may be available to explain the subcontractor's previous safety performance using a statistical method.
2. Review and evaluation will be performed by PPM's Environmental and Safety Director, and/or Project Manager of record for the designated Project.
3. Written materials, submissions, results, and documentations of subcontractor pre-qualification reviews will be maintained by the Contracts Manager in a file for a period to be determined in coordination with PPM's designated legal counsel.

MEASUREMENTS OF WORKPLACE HEALTH & SAFETY RESULTS

1. To manage a process or system, you must be able to measure it. Therefore, PPM measures safety performance and results as a tool toward identifying and eliminating hazards, mitigating risks, and protecting employees and other individuals from workplace injuries and illnesses.
2. For purposes of this program, a safety metric will be considered as any such measurement of safety performance and injury/illness/incident prevention results.

3. Specific safety metrics to be considered during subcontractor pre-qualification will include, but are not limited to, items a. through i. above.
4. Safety metrics will be utilized to help evaluate when, where and how safety programs and initiatives have been successful, and to identify areas that require additional attention.
5. Subcontractor safety performance will be reviewed and evaluated in part through comparisons of the subcontractor's safety metrics with levels of accomplishment as identified by PPM.
6. Subcontractors that evidence safety metrics that are not in accordance with project requirements will not be utilized for that specific project; or they will be utilized in roles and assignments that have lower levels of risk and are acceptable to PPM and host employer or general contractor.
7. All determinations of acceptability of a subcontractor's safety metrics, as requested and reviewed in accordance with this program, will be made by PPM and/or the host employer or general contractor for the respective project.

INCLUSION AND PARTICIPATION OF SUBCONTRACTORS IN PROJECT SAFETY INITIATIVES

1. Subcontractors assigned by PPM to a project will attend initial safety and planning meetings; project safety orientations; incident, injury and illness response planning and coordination meetings.
2. Subcontractor personnel will participate in these, and other such activities as required in preparation for working safely at the project location.
3. Subcontractor personnel will utilize, cooperate with, attend, and support all pertinent components of safety programs and procedures; safety orientation, training, tailgate, and daily meetings; qualification and/or certification requirements; periodic safety meetings and awareness activities; safety inspections; incident reporting and investigation procedures; and other such safety, health and incident prevention initiatives as may be established for all workers at a project location.
4. Subcontractor personnel will participate in and cooperate with Job Hazard Analysis (JHA), Task Hazard Analysis (THA) and Hazard Observations as established for the project workplace.
5. Subcontractors shall submit copies of site safety inspections, safety meetings, and completed work permits (hot work, confined space entry, etc.) at least weekly to PPM site management.

REQUIREMENTS FOR REPORTING HAZARDS, INCIDENTS, INJURIES, & ILLNESSES

1. Subcontractor employees are responsible for reporting any observed near-miss, hazard, or unsafe behavior of another person when there is a potential for causing an incident, chemical release, injury, or illness in the project workplace.
2. First report will be made to the subcontractor's on-site supervisor or to PPM contact person if the supervisor is not readily available. Reporting should be made without delay to help facilitate intervention and preventive measures.
3. Subcontractor supervisors and/or management will forward any such report to their Company contact person so that additional communication can be made and/or actions taken if PPM deems this necessary.
4. Any on-the-job injury or illness that requires medical attention by a physician or professional medical provider will be reported immediately to PPM contact person after the individual(s) requiring treatment are in route to medical care.
5. Subcontractors will investigate near-misses, first aid injuries, and incidents, injuries, or illnesses in the project workplace in accordance with requirements established for the project.

6. Initial reports shall be submitted to PPM site management within 24 hours, with final reports due no later than 7 days from time of initial report of injury.

POST-PROJECT REVIEW OF SUBCONTRACTOR SAFETY PERFORMANCE

1. Upon conclusion of a project, PPM will make a timely review of each subcontractor's safety performance, incident and injury experience, and other factors that will be helpful in evaluating the subcontractor's suitability for future projects.
2. If a subcontractor exits or is terminated from a project that remains in progress, a similar timely review as explained in 1. will be performed.
3. Post-project evaluations will be performed by the PPM Environmental and Safety Director in coordination with Company managers and supervisors who worked with the subcontractor during the specific project under review.



VEHICLE SAFETY

Policy

Company refers to all Pacific Pile & Marine, LP core companies, affiliates and sponsored Joint Ventures (JVs) of Pacific Pile & Marine, LP, and a company vehicle refers to any vehicle that PPM owns, leases, or rents for company use.

It is the policy of PPM to provide and maintain a safe working environment to protect our employees and the citizens of the communities where we conduct business from injury and property loss.

Because the use of an automobile or pick-up is considered as part of the working environment, the Company is committed to heightening the level of safety awareness for employees and dedicated to promoting employees' responsible driving behavior.

This policy applies to all employees who operate vehicles for company business, or who are driving a personal vehicle while performing company business.

PPM has many employees operating company vehicles as part of their job. Safe operation of vehicles is required to prevent accidents that may result in injuries and property loss.

Organization and Responsibilities

1. Company

- a. The company is responsible for maintaining and communicating the vehicle policy to employees who are hired or promoted into positions that may require regular or intermittent operation of a company vehicle.
- b. The company is responsible for maintaining a secure system for retention of data related to driving privileges including:
 - i. Signed vehicle agreements,
 - ii. Data entry of current driver's license information by a designated administrator,
 - iii. Obtaining and retaining copies of personal auto insurance certificates for employees with vehicle allowances, and
 - iv. Reviewing MVR records as needed, no less than annually.
- c. MVR audit requests by corporate DO NOT replace the MVR audits required at time of hire by the hiring location for employees assigned company vehicle driving privileges.

2. Management

- a. Management is responsible for the successful implementation and on-going execution of this program.
 - i. Management shall provide the assistance and resources as necessary to maintain and improve this program.

3. Supervisors

- a. Supervisors will review the vehicle policy to ensure full implementation of procedures and compliance by employees.
 - i. Supervisors are responsible for communicating this policy to employees.
 - ii. Supervisors shall Investigate and report all motor vehicle related incidents within 8 hours and submit associated reports within 24 hours to the Safety Department.

- iii. Supervisors shall take appropriate action to manage “at risk” drivers as defined by this program.
4. Safety Department
- a. The safety department shall issue periodic reports related to vehicle use for management’s review.
 - i. The safety department shall record vehicle incidents by job and individual.
 - ii. Administrators shall manage the distribution of post-incident driver training to employees who were at fault or could have prevented a vehicle incident.
 - iii. The safety department shall retain statistical data as to the percentage of preventable, non-preventable, or “company at fault” vehicle related incidents.
 - iv. The safety department shall request MVR records from the DMV as part of the company’s risk management program, at least annually.
 - v. Corporate safety shall include this policy as part of the company safety – SSSP manual and shall communicate and distribute any changes to this policy.
5. Equipment Department
- a. The appropriate equipment department representative shall issue periodic reports to payroll, or management, upon request
 - b. The equipment department shall help as needed for the annual review of MVR records.
 - c. The equipment department in conjunction with the safety department shall utilize defensive driver programs or other resources as needed to improve driving behaviors following MVR reviews.

Motor Vehicle Record (MVR) Evaluation Schedule

- 1. The company requires annual review of Motor Vehicle Records (MVR) of all employees driving company vehicles except as noted below:
 - a. Category 1 (15-20 points) - MVR evaluation conducted semi-annually
 - b. Category 2 (21-24 points) - MVR Evaluation conducted quarterly
 - i. Driver shall take a defensive driving course within 30 days
 - c. Category 3 (25 points or higher) - Driving privileges of company vehicles revoked
 - i. Only the company President can approve exceptions with approval from the auto insurance carrier.
 - d. Only the insurance carrier with a signed release can request MVR audits on Canadian employees.
- 2. Minimum Criteria for Driver Eligibility

The company has identified specific “at-risk” behaviors that cause accidents, injuries, and property damage. Each current and prospective driver shall meet these standards to qualify for and maintain his/her Company vehicle driving privileges.

A “point” system of measurement will be used, to evaluate risky driving behaviors, and will be based on the most recent 36 months of driving history.

High Risk Driving Behavior Point System

Violation or Conviction	Points	Violation or Conviction	Points
DWI, DUI or refused test	25	Major preventable accident	13
Leaving the scene of an accident	25	Speeding >15 mph above the legal limit	10
Reckless driving	25	Speeding 10-14 above the legal limit	8
Currently Suspended License	25	Following too closely	8
Vehicular homicide	25	Failure to Yield right-of-way	8
Running a stop sign or a red light	15	Speeding <10 mph above the legal limit	5
Passing stopped school bus	13		

Vehicle Use

1. Vehicle Operator Compliance
 - a. All new employees shall sign a “company vehicle agreement” for full time or temporary use of a company vehicle, or personal vehicle use that is subject to a vehicle allowance. The signed agreement demonstrates their acknowledgment of receipt, understanding and willingness to comply with all the provisions related to the company vehicle policy. A copy of the employee’s current, valid driver’s license shall be collected, and sent to payroll for data input.
2. Personal Vehicle Allowance
 - b. Employees who are on a vehicle allowance are required to provide proof of insurance for that vehicle on an annual basis. The equipment department will retain copies of personal insurance coverage. Any loss of insurance coverage must be, immediately reported to PPM.
 - c. All vehicle allowance employees will receive notices requesting copies of applicable insurance coverage.
3. Policy Inception Date
 - d. At the inception of this policy, beginning January 1, 2009, all employees who currently operate a vehicle under one of the conditions listed above shall sign a new copy of company vehicle agreement (revision date June 2020).
4. Company Vehicle Agreement Conditions
 - a. The employee shall not permit anyone, other than an authorized employee of PPM or affiliates, (the “Company”) or other specially authorized persons to use a company vehicle assigned to them. Temporary employees or consultants shall not be permitted to operate company vehicles.
 - i. The employee shall always maintain possession of a valid driver’s license when operating a company vehicle and shall authorize the Company to run random checks on the status of their driver’s license through the Department of Motor Vehicles.

- ii. Any driver of a vehicle with a gross vehicle weight rating greater than 26,000 lbs. GVWR (single vehicle or combination) must possess a valid Commercial Driver's License and follow all DOT regulations.
- b. The employee shall not operate any company use vehicle after using alcohol or any illegal drug and shall not operate any company use vehicle while taking any medicine that would impair his/her ability to drive safely.
- c. The employee shall comply with all state and local laws governing motor vehicles. Any traffic citations the employee receives shall be his/her sole responsibility. The Company must be notified within 24 hours if the employee's driver's license is suspended or revoked.
- d. It is against company policy for any person to ride in the bed of a company pick-up.
- e. If the employee is found to be at fault in a vehicle related incident when driving a company vehicle while not conducting business for the Company, he/she may be responsible for the payment of the deductible for physical damage under the Company's Business Auto Insurance Policy (DEDUCTIBLE AMOUNT \$5,000).
- f. The employee shall immediately notify his/her supervisor if he/she is charged with operating any vehicle while under the influence of alcohol or illegal drugs.
- g. The employee shall not use a company vehicle for personal purposes except for commuting between home and place of work. The employee may use the vehicle for incidental personal use such as a personal errand on the way between business activity and home. Any other personal use of a company vehicle is prohibited except as outlined by written authorization from the immediate supervisor.
- h. The employee shall maintain the appearance and condition of any company vehicle assigned to him/her recognizing that a clean company owned vehicle reflects a positive image of the Company. Modifications to a company vehicle are prohibited except as authorized by the appropriate equipment manager.
- i. The employee shall acknowledge it is his/her responsibility to see that all maintenance recommended by the Company, or the manufacturer is performed. It is the employee's responsibility to make certain that the vehicle is kept in good, safe working condition always. Replacement parts, when required, will be equal to the original parts that come on the vehicle.
- j. *The employee shall conduct daily pre-trip inspections prior to departure to ensure no damage has occurred and the vehicle is maintained in a safe manner.*
- k. *The employee shall complete a monthly inspection log, documenting the date, equipment number, mileage, maintenance items, and any damage. The log shall be submitted to the PPM Equipment Department, equipment@pacificpile.com, once a month, by the end of business on the 7th day of the month.*
 - i. *If the monthly inspection log is not submitted to the PPM Equipment Department by the end of business on the 7th day of the month, the employee forfeits their use of the Company vehicle for the remainder of the month. If the vehicle is required for use during the workday, the employee shall park the vehicle at the PPM main office (700 S. Riverside Dr., Seattle, WA 98108) after their workday and may pick up the vehicle again the following morning; the employee will not be allowed to use the vehicle for commuting purposes between their project and their residence. The vehicle will be returned to the employee, for regular use, on the 1st day of the following month.*

- l. Cost for fuel, maintenance and repairs to a company vehicle may be charged to the Company. All repairs to the vehicle must have prior approval from the Equipment Department.
- m. The employee shall not use a company gas card for fuel for any reason other than business purposes.
- n. Employee shall comply with the Company Vehicle Policy, all car rental agreement requirements, and all applicable state and local laws when driving a rental car and conducting business for the Company.
- o. All vehicles shall be backed in, in a position to allow forward travel after leaving parking location.
- p. If parked on a hill, the parking brake is to be set.
- q. All vehicles over 10,000 lbs. GVWR shall use tire chocks when parking.
- r. Prior to operating any Company vehicle or piece of equipment, the operator must perform a "360° walk-around inspection" of the vehicle and document the inspection in a logbook.
- s. All Company vehicles are to contain a first aid kit, fire extinguisher, and insurance card. Upon receipt of a company vehicle the employee shall confirm the location of these items. If the items cannot be located the employee will notify their immediate supervisor to obtain them.
- t. If the employee's personal vehicle is subject to a vehicle allowance, he/she is required to operate the vehicle in accordance with company policy and shall maintain the minimum statutory insurance for the state in which the vehicle is registered.
- u. The employee shall acknowledge that any vehicle which may be provided to him/her is for the benefit of the Company, and if found in violation of any of the above rules of the vehicle agreement, the Company in its sole discretion can revoke the employee's vehicle privileges. Violation of any of these rules may lead to disciplinary action up to and including termination of employment.
- v. The employee shall sign and date the agreement to confirm he/she has read and accepted all the provisions of the company vehicle policy.
- w. The employee shall provide a copy of his/her current driver's license, any applicable DOT/DMV medical cards, and provide a copy of "evidence of insurance" if granted a personal vehicle allowance.

Vehicle Incident Reporting & Investigation

- 1. Employee Reporting Procedures
 - a. Employees will take the following actions when there are injuries to persons and/or damage to other vehicles or property:
 - i. Secure the names and addresses of drivers and occupants of any vehicle involved, and operator's license numbers and insurance carrier information.
 - ii. Take pictures of the scene from many angles so it is very easy to visualize the incident scene.
 - iii. If traffic control devices were involved, take pictures of them, and describe how they were installed.
 - iv. Any vehicle incident involving injuries or major damage, contact the immediate supervisor as soon as possible.
 - v. If PPM employees are involved in an incident where a fatality occurs, contact the division manager and the safety director.
 - vi. All vehicle incidents using the vehicle incident form located in the glove box.

2. Failure to Report an Incident

- a. All vehicle incidents shall be reported to the appropriate supervisor as soon as possible, and no later than 8 hours following the incident for investigation, documentation, and company review.
- b. Reporting of any damage to a company vehicle is mandatory, regardless of severity. Failure to report an incident will result in disciplinary action up to and including termination.

Cellular Phone Use

Policy

1. Any employee working on company business, either in a company-supplied vehicle or in a privately owned vehicle must comply with all jurisdictional motor vehicle laws. PPM discourages the use of cellular phones while operating a motor vehicle.

Guidelines

1. While current laws do not necessarily prohibit using wireless telephones while operating vehicles in all states, employees shall become familiar with cellular telephone features and follow these steps when using a cellular phone while operating a vehicle.
 - a. Dial while the car is not in motion, such as at a traffic light or stop sign.
 - b. Learn to operate the phone without looking at it.
 - c. Never allow a phone conversation to distract you from driving.
 - d. Keep calls brief.
 - e. While talking keep your head up and your eyes on the road with frequent checks of side/rearview mirrors.
 - f. Use available hands-free device options.
 - g. If you need to write down information or search for information related to the call:
 - i. a safe place to pull over and STOP.
 - ii. Arrange to call back and do your research, while the car is safely stopped.
 - h. Do NOT look up phone numbers, or text while driving!
 - i. Do NOT access emails while driving.



WILDFIRE SMOKE SAFETY

Complying with:

WA L&I DOSH Safety Standards

WAC 296-62-085: Wildfire Smoke

Cal/OSHA Standards

7 CCR §5141.1: Protection from Wildfire Smoke

OR OSHA Standards for General Industry

Division 2, Subdivision Z, 437-002-1081: Protection from Wildfire Smoke

OSHA Standards for

PURPOSE

To provide a safe and healthful working environment and protect Pacific Pile & Marine (PPM) employees who perform work in an outdoor environment. PPM will evaluate and reduce hazards when employees are exposed to temperature extremes.

POLICY

It is the policy of PPM that all affected employees are required to comply with this Wildfire Smoke safety policy and are encouraged to actively participate in identifying ways to reduce the risk of experiencing wildfire smoke-related illness in the workplace.

It is also the policy of PPM Health, Safety & Environmental (HSE) Department and Field Supervision to check the workplace for unsafe conditions, monitor the health and safety of employees, and take prompt action in response to any identified wildfire smoke-related illness hazards.

IMPLEMENTATION

This policy is based on the Washington Administrative Code (WAC) 296-62-085 Wildfire Smoke, but the rules are applicable in other states that Pacific Pile & Marine works as well.

Employees who work outdoors when there is a heightened level of exposure to wildfire smoke and the AQI (Air Quality Index) for

- *PM_{2.5} exceeds 69 in Washington State.*
- *PM_{2.5} exceeds 101 in Oregon.*
- *PM_{2.5} exceeds 151 in California.*

are at risk of experiencing negative health effects from breathing in hazardous chemicals. It is the policy of Pacific Pile & Marine to reduce employee exposure to harmful respiratory hazards when wildfire smoke causes unhealthy air quality by developing employee and supervisor awareness of the health effects of wildfire smoke and proper response. All employees who work outdoors when AQI for PM_{2.5} exceeds 151 are expected to comply with the procedures in this program.

The following workplaces and operations are exempt from this rule:

- Enclosed buildings or structures in which the employer ensures that windows, doors, bays, and other exterior openings are kept closed, except when it is necessary to open doors to enter and exit.
- Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors, and other openings are kept closed except when it is necessary to open doors to enter or exit.
- Employees exposed to a concentration of PM_{2.5} of 20.5 µg/m³ (Washington Air Quality Advisory [WAQA] 101, Air Quality Index [AQI] 69) or more, for a total of one hour or less during a shift.

AIR QUALITY MONITORING AND COMMUNICATION

Pacific Pile & Marine will determine the air quality for exposure to PM_{2.5} before each shift using one of the methods listed in WAC 296-62-08530.

PPM Field Supervision will communicate wildfire smoke hazards of PM_{2.5} is 20.5 µg/m³ (WAQA 101, AQI 69) or more, as needed per toolbox talks, signage, stand downs or radio comms updates. Employees are encouraged to inform their supervisor, site supervision, or safety professional when air quality is worsening, or adverse symptoms are noticed that could be related to wildfire smoke exposure.

TRAINING

PPM Health, Safety and Environmental (HSE) Department will provide training materials to all employees regarding the health effects (including those in sensitive groups), action limits, controls, and accepted measurement/reporting of wildfire smoke concentrations. Employees will be provided training materials in their rights to seek medical treatment for wildfire smoke exposure, the requirements of WAC 296-62-085 through 296-62-08590. This training will also detail the Company plan for tracking and mitigating wildfire smoke exposure, including respirator use and limitations.

Field Supervision and Project Management will be given additional training prior to supervising employees performing work that exposes the worker to PM_{2.5} levels that are 20.5 µg/m³ (AQI 69) or more:

- Annual training and updates provided via toolbox talk meetings, supervisor meetings, etc.
- Company procedures for implementation of this policy
- Employee adverse symptom response and monitoring.
- Procedures for moving or transporting employees to an emergency medical service provider, if necessary.
- How to get medical help for employees in the event of adverse reactions.
- The procedures the supervisor must follow if an employee exhibits adverse symptoms of wildfire smoke exposure, including appropriate emergency response procedures.

CONTROLS

Where the NowCast or Purple Air Monitor PM_{2.5} is 20.5 µg/m³ (WAQA 101, AQI 69) or more, the employer *is encouraged* to implement exposure controls.

Where the NowCast or Purple Air Monitor PM_{2.5} is 55.5 µg/m³ (WAQA 173, AQI 101) or more, the employer **must** implement exposure controls whenever feasible.

Controls include:

- providing enclosed buildings, structures, or vehicles
- providing portable HEPA filters in enclosed areas
- relocating work to a safer air quality location
- changing work schedules
- reducing work intensity
- providing additional rest periods

AQI Index Values	PM _{2.5} Concentration (µg/m ³)	Visibility Index Values (How Far Can You See)
0-50	0.0 – 12.0	More than 15 miles
51 – 100	12.1 – 35.4	5 – 15 miles
101 – 150	35.5 – 55.4	3 – 5 miles
201 – 301	150.5 – 250.4	1 mile
301 & higher	250.5 & higher	Less than 1 mile

RESPIRATORY PROTECTION

- *Washington*
 - At an AQI above 69, employers are encouraged to provide respirators upon request, at no cost to employees.
 - At an AQI above 101, employers are required to provide respirators and encourage their use; engineering and administrative controls shall be implemented when feasible.
 - At an AQI above 500, employees are required to use respirators (N95 or greater). At this level, employees must be provided one of the following types of respiratory protection: a loose-fitting powered air purifying respirator (PAPR), full-facepiece PAPR, full-facepiece air purifying respirator, or another respirator that is at least as effective.
- *Oregon*
 - At an AQI above 101, employers are encouraged to provide respirators upon request, at no cost to employees; engineering and administrative controls shall be implemented when feasible.
 - At an AQI above 201, employers are required to provide respirators and encourage their use.
 - At an AQI above 500, employees are required to use respirators (N95 or greater). At this level, employees must be provided one of the following types of respiratory protection: a loose-fitting powered air purifying respirator (PAPR), full-facepiece PAPR, full-facepiece air purifying respirator, or another respirator that is at least as effective.
- *California*
 - At an AQI above 151, employers are encouraged to provide respirators upon request, at no cost to employees.
 - At an AQI above 500, employees are required to use respirators that will reduce employee exposure to PM_{2.5} to an equivalent of an AQI less than 151. At this level, employees must be provided one of the following types of respiratory protection: a loose-fitting powered air purifying respirator (PAPR), full-facepiece PAPR, full-facepiece air purifying respirator, or another respirator that is at least as effective.

Training for use of respirators shall follow Appendix B of WAC 296-62-08590 and include:

1. The health effects of wildfire smoke.
2. The right to obtain medical treatment without fear of reprisal; on days with AQI above 101 in WA (AQI above 201 in OR, AQI above 500 in CA), a post-shift meeting shall be held to review any potential impacts to employee health.
3. How to obtain the NowCast PM_{2.5}; at least 2 consecutive PM_{2.5} readings must be 20.5 µg/m³ (AQI 69) or more before action is taken.
4. Resources to obtain the air quality data.
5. Requirements of WAC 296-62-085 through 296-62-08590.
6. The company's methods to protect employees from wildfire smoke.
7. The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.
8. How to properly use and care for respirator, including disposable N95 respirator.

PM _{2.5}	AQI	AQI Message	Respirator requirement in October 2022 draft rule.
555 µg/m ³	(NA)	Beyond the AQI	Require APF 25+ respirator program. Fit-test and medical eval, shaving.
500.4 µg/m ³	(500)		Require APF 10 respirator program. Fit-test and medical eval, shaving.
250.5 µg/m ³	(301)	Hazardous	<i>Require N95, no fit-test or medical eval</i>
150.5 µg/m ³	(201)	Very Unhealthy	<i>Require N95, no fit-test or medical eval</i>
55.5 µg/m ³	(151)	Unhealthy	
35.5 µg/m ³	(101)	U.F.S.G.	Provide N95 for voluntary use
12.1 µg/m ³	(51)	Moderate	
0 µg/m ³	(0)	Good	

DEFINITIONS

“Purple Air Monitor” – Pacific Pile & Marine (PPM) will have small air quality monitors on select sites that may not fall easily into a registered area for AQI. These will have to be set up and monitored by personnel in charge of the site. Set warning or period to check and record. This can be our standard for projects in remote or outside nowcast areas.

“Air Quality Index (AQI)” – A unitless index used by the U.S. Environmental Protection Agency (EPA) to communicate air quality for several pollutants, including PM_{2.5}.

“Current PM_{2.5}” – The concentration of PM_{2.5} for the most current hour available, calculated using an hourly average of PM_{2.5} data.

“NIOSH” – The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

“NowCast Air Quality Index (AQI)” – The method used by the U.S. Environmental Protection Agency (EPA) to communicate air quality using color-coded categories. It shows the air quality for the most current hour available by using a calculation that involves multiple hours of past data using the NowCast AQI. The NowCast AQI uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast AQI is generally updated every hour.

“NowCast Washington Air Quality Advisory (WAQA)” – The method used by the Washington State Department of Ecology to communicate air quality using color-coded categories. It shows the air quality for the most current hour available by using a calculation that involves multiple hours of past data using the NowCast WAQA. The NowCast WAQA uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast WAQA is generally updated every hour.

“PM_{2.5}” – Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter (µg/m³).

“Sensitive groups” – People with preexisting health conditions and those who are sensitive to air pollution who are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke.
- People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, flu, or those with, or recovering from COVID-19.
- People with existing heart or circulatory problems, such as irregular heartbeat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke.
- Children under eighteen years old, and adults over age sixty-five.
- Pregnant women.
- People with diabetes.
- People with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician.

“Wildfire Smoke” – Emissions from fires in wildlands or in adjacent developed areas. Wildfire smoke contains a complex mixture of gasses and particulates. Fine particulates such as PM_{2.5} are the primary pollutant in wildfire smoke.

“Wildlands” – Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

REFERENCE

WAC 296-62-08585 Appendix A.

Washington Department of Ecology Website.

Air Quality WA mobile app.

Washington Smoke Information website.

U.S. EPA AirNow website.

U.S. EPA AirNow mobile app.

U.S. Forest Service AirFire website.



WORKING OVER OR NEAR WATER

Personal Flotation Devices

- U.S. Coast Guard approved personal flotation devices (PFDs) are to be provided and worn by employees working on or over water where the danger of drowning exists.
- Life Jackets or Buoyant Work Vests and Ring Buoys

The following requirements are for life jackets or buoyant work vests and ring buoys for work over, on, or adjacent to water.

- Employees working over, on, or adjacent to water, when the danger of drowning exists, shall be provided with U.S. Coast Guard approved life jackets or buoyant work vests. Life jackets or buoyant work vests shall be worn by all employees on floating pontoons, derrick boats, rafts, barges, personnel boats, tugboats, safety boats and other related floating equipment. The life jackets or buoyant work vests must fit properly and be securely fastened when worn.
- Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used.
- Safety boat operators shall require ALL passengers to wear a life jacket or work vest which is securely fastened when they are being transported in the safety boat. The safety boat must also be equipped with one ring buoy and 90 feet of line.
- Safety boat operators shall be instructed to stay clear of floating equipment when they are upstream of the equipment and the water is turbulent.
- Ring buoys with at least 90 feet of line shall be readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.
- At least one ring buoy is to be placed on each piece of floating equipment. A minimum of one ring shall be provided for all equipment up to 40' in length and two rings for floating equipment over 40' in length. On barges or other equipment over 100' in length, or under unusual conditions, additional rings shall be placed as required.
- When fall hazards greater than 4' above the next lower level exist and a personal fall arrest system is utilized, a full body harness must be worn underneath the PFD.

When life jackets or buoyant work vests are required, jobsite supervision should anticipate their needs sufficiently in advance so that approved jackets or vests will be on hand when needed.

Safety Boat Operations

- A lifesaving skiff shall be made immediately available for rescue operation when working over the water. The following is to be utilized as a guideline when safety boats are required for work on, over or adjacent to water.
 - A review should be made concerning water conditions or experience on the body of water as it relates to:
 - Changes in the water levels due to flooding or tidal changes
 - Currents affected by above normal water level
 - Potential for debris and driftwood
 - Water control methods, locks
- Pre-plan the type and size of the safety boat that will be used, including the power source.

Consideration should be given to current flow, potential for abnormal water level, and weather conditions that could affect water conditions. A study of experience on the body of water, data from the Corps of Engineers and Coast Guard would be beneficial in making the decision. The boat should have sufficient freeboard to prevent it from tipping or taking on water easily but not so much as to prevent pulling persons on board. The boat shall have flotation tanks or buoyant material capable of floating the boat and its equipment and crew.

- The safety boat shall be equipped as follows:
 - Motor.
 - Two oars of proper length.
 - One ring buoy (Coast Guard approved) with 90-ft of 3/8-in solid braid polypropylene, or equivalent, line attached.
 - One boat hook.
 - Two (Coast Guard approved) buoyant work vests.

The safety boat operator should be:

- Knowledgeable and familiar with the operations of the safety boat.
- Physically capable of being able to handle an emergency, such as pull a person on board, maneuver the boat with oars, and throw ring buoy to person in water.
- Able to swim.
- Trained in first aid and preferably hold a valid and current first-aid certificate.
- The number of persons assigned to a safety boat shall be determined by management and the Construction Superintendent.
- The use of the safety boat should be restricted to rescue and emergency purposes only.

Water Rescue

The following procedure shall be reviewed with all applicable crews. In addition, water rescue scenarios should be discussed in daily safety huddles to be prepared in the event of such an incident.

- Launch safety boat before work over water.
- Designate the boat attendant(s) and notify all crews.
- All personnel should be familiar with the location of the life rings on the structure/work area.
- Upon observing a worker falling in the water, yell “*Man in the water! Man, in the water!*” and throw a life ring to the individual.
- Supervisor on structure/in work area is to make an announcement on the radio of “*Man in the water! Man, in the water!*” The designated boat attendant will acknowledge the call and ask for the location. If the attendant does not acknowledge, repeat the call until the attendant acknowledges.
- The boat attendant will immediately proceed to the boat and proceed in the boat directly to the location of the employee in the water.
- The boat attendant will, if necessary, throw an additional life ring from the safety boat to the employee.
- The boat attendant will remove the employee from the water and perform first aid as necessary.

- The boat attendant will notify the supervisor of any injuries so that they may be noted to emergency services if necessary. The boat attendant will also notify the supervisor of the location the boat will return to.
- If necessary, the Supervisor will call 911.
- The boat attendant will return the boat to the nearest location where the employee can be safely removed from the boat.
- As soon as the employee is removed from the water, move the employee to a warm environment, if the employee is not seriously injured. In case of a possible head, neck, or back injury, do not move the employee.
- Cover the employee with towels or a blanket to keep the employee warm.
- Emergency medical services, if contacted, will be brought to the employee for proper care and transport.

Other Policies/Procedures

- Use gangplanks for boarding floating pile-drivers and derrick boats or personnel boats. Gangplanks are to be secured against slipping, and handrails are to be provided.
- Sharp sand or other non-slip materials should be placed on docks, decks of barges, and boats in wet or icy weather.
- All gangways, ladders, stairways, and passages must be kept free of ice snow and grease.
- When on small boats, hand or power operated, you must wear a life jacket. Every boat must be equipped with a life jacket for each man on board.
- Life rings are to be kept handy when working from barges, boats or anywhere over the water. At least 90 feet of line should be attached to each ring.
- The distance between each life ring cannot exceed 200 feet.
- Use wire rope for anchoring barges, derrick boats, etc. Allow for tide and swells.
- Be extremely careful when boarding or leaving floating equipment, so that you are not caught between the equipment and dock or other structure.
- Decks of barges, boats, etc., must be kept clean of unnecessary tools and materials. Lines must be coiled, tools stored, and material stacked clear of working spaces.
- Keep all deck hatches covered unless completely enclosed by handrail or guards.
- Remember that currents, tides, etc., cause considerable motion of floating equipment. Be alert for such movement and keep your mind on the work at hand.
- When working on material barges, keep clear of connectors or other workmen above.
- Always provide suitable handrails around much traveled work areas at edge of water on waterborne equipment.
- Do not ride any floating equipment with feet or legs overhanging the vessel.
- Put up required buoys, signs, and lights to warn other vessels in the vicinity of danger areas, particularly including submerged hazards.

APPENDIX K: RAWP TABLE 5-1 EQUIPMENT INVENTORY

RAWP Table 5-1 Equipment Directory							Construction Activities					SMA5 (Season 3 only)	Equipment Specification Location
Category	Name/Description	Make	Model	Engine Tier	Horsepower	Automatic Shutoff Feature	Dredging	Material Placement	Bulkhead Wall	Piling Install/ Removal	Transloading		
Hydraulic Excavators	Mounted on WEB	Hitachi	EX 1200-5	Tier 2	760 HP	X	X	X					Dredging and Excavation Plan
	Mounted on Lash 4	Hitachi	EX 1200-6	Tier 2	760 HP	X	X	X	X				Dredging and Excavation Plan
	Mounted on FlexiFloat Barge	Hitachi	ZX 470	Tier 4	367 HP	X	X	X		X			Dredging and Excavation Plan
	Electric Excavator at Waste Management	SENNEBOGEN	875E	NA	391 kW	X					X		Transloading Plan
	Mounted on Judge Dredge	Hitachi	ZX 270	Tier 3	188 HP	X		x					Material Placement Plan
	50 Ton Long Reach Excavator (70')			TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						X	Dredging and Excavation Plan
	50 Ton Standard Front Excavator			TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						X	Dredging and Excavation Plan
20 Ton Standard Front Excavator			TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						X	Dredging and Excavation Plan	
Cranes	Crawler Crane mounted on FlexiFloat Barge	American	9310	Tier 1	270 HP			X	X				Structures Plan
Vibratory Hammer	Power Unit for Ape 200 Hammer 8300#	CAT	C9	Tier 3	375 HP	NA			X	X			Structures Plan
	Pile Shear	Densco		NA	NA	NA				X			Demolition Plan
TugBoats	Halle H 50' x 18' x 7'	2 x GM	12V-71	Tier 2	800 HP	X	X	X	X				Vessel Management Plan
	Gretchen H 85' x 30' x 9'	3 x Cummins	QSK19	Tier 3	2250 HP	X			X				Vessel Management Plan
	Jennifer H 65' x 22' x 7'	2 x Cat	C18	Tier 2	938 HP	X	X	X	X				Vessel Management Plan
Other Boats	Fog Dog Survey Boat 27'	Cummins	T-330	Tier 2	330 HP		X	X		X			Vessel Management Plan
	Work & Monitoring Skiff #1 16 - 21'	Honda- Gas	BF60	NA	60 HP		X	X	X	X			Vessel Management Plan
	Work & Monitoring Skiff #2 16 - 21'	Honda- Gas	BF60	NA	60 HP		X	X	X	X			Vessel Management Plan
Front End Loaders	Loader #1	John Deere	624	Tier 4	192 HP	X		X					Material Placement Plan
	Loader #2	John Deere	624	Tier 4	192 HP	X		X					Material Placement Plan
Miscellaneous	Powered Street Sweeper	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						X		SWPPP & ESC Plans
	Water Truck	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						X		SWPPP & ESC Plans
Locomotives	Long Haul Locomotive (typical)	EMD	GP22	Tier 4	2,150HP	X					X		Transloading Plan
Trucks	On-road Haul Truck #1 (typical)	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						X		Dredging and Excavation Plan
	10 cy Haul Truck	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)	TBD (SMA 5)						x		Material Placement Plan
Barges	Lash 4 (w/Hitachi 1200-6) 160' x 50' x 12'			N/A	NA		X	X	X	X			Vessel Management Plan
	WEB (w/Hitachi 1200-5) 142' x 58' x 11'			N/A	NA		X	X					Vessel Management Plan
	FlexiFloat (w/Hitachi 470) 80' x 40' x 5'			N/A	NA		X	X	X	X			Vessel Management Plan
	Judge Dredge 22' x 60' x 5'			N/A	NA			X					Vessel Management Plan
	PamTay/Susitna 184' x 50' x 11'			N/A	NA				X				Vessel Management Plan
	Poseidon (hopper barge) 40' x 20' x 7'			N/A	NA		X	X		X			Vessel Management Plan
	KP-1 (flat deck scow) 180' x 50' x 12'			N/A	NA		X		X	X			Vessel Management Plan
	KP-2 (flat deck scow) 180' x 50' x 12'			N/A	NA		X		X	X			Vessel Management Plan
	KP-3 (flat deck scow) 180' x 50' x 12'			N/A	NA		X						Vessel Management Plan
	KP-4 (flat deck scow) 180' x 50' x 12'			N/A	NA		X						Vessel Management Plan
	KP-5 (flat deck scow) 180' x 50' x 12'			N/A	NA		X						Vessel Management Plan
	Porpoise (flat deck scow) 140' x 35' x 8.5'			N/A	NA		X	X		X			Vessel Management Plan
	Cole David (flat deck scow) 110' x 34' x 9'			N/A	NA		X	X		X			Vessel Management Plan
	Kumtux (flat deck scow) 220' x 64' x 16'			N/A	NA			X					Vessel Management Plan
Eglon (flat deck scow) 230' x 64' x 14'			N/A	NA			X		X			Vessel Management Plan	
Buckets	Environmental 5 cy	Young		N/A	NA		X	X		X			Dredging and Excavation Plan
	Rehandle 4 cy	Jewell		N/A	NA		X	X		X			Dredging and Excavation Plan
	Rehandle 2 cy	Young		N/A	NA		X	X		X			Dredging and Excavation Plan
	Hard Digging 3 cy	Young		N/A	NA		X		X				Dredging and Excavation Plan
Survey Equipment	Norbit iWBMS			N/A	NA		Surveying	Surveying					Surveying and Positioning Control Plan
	Applanix Wavemaster II RTK GPS			N/A	NA		Surveying	Surveying					Surveying and Positioning Control Plan

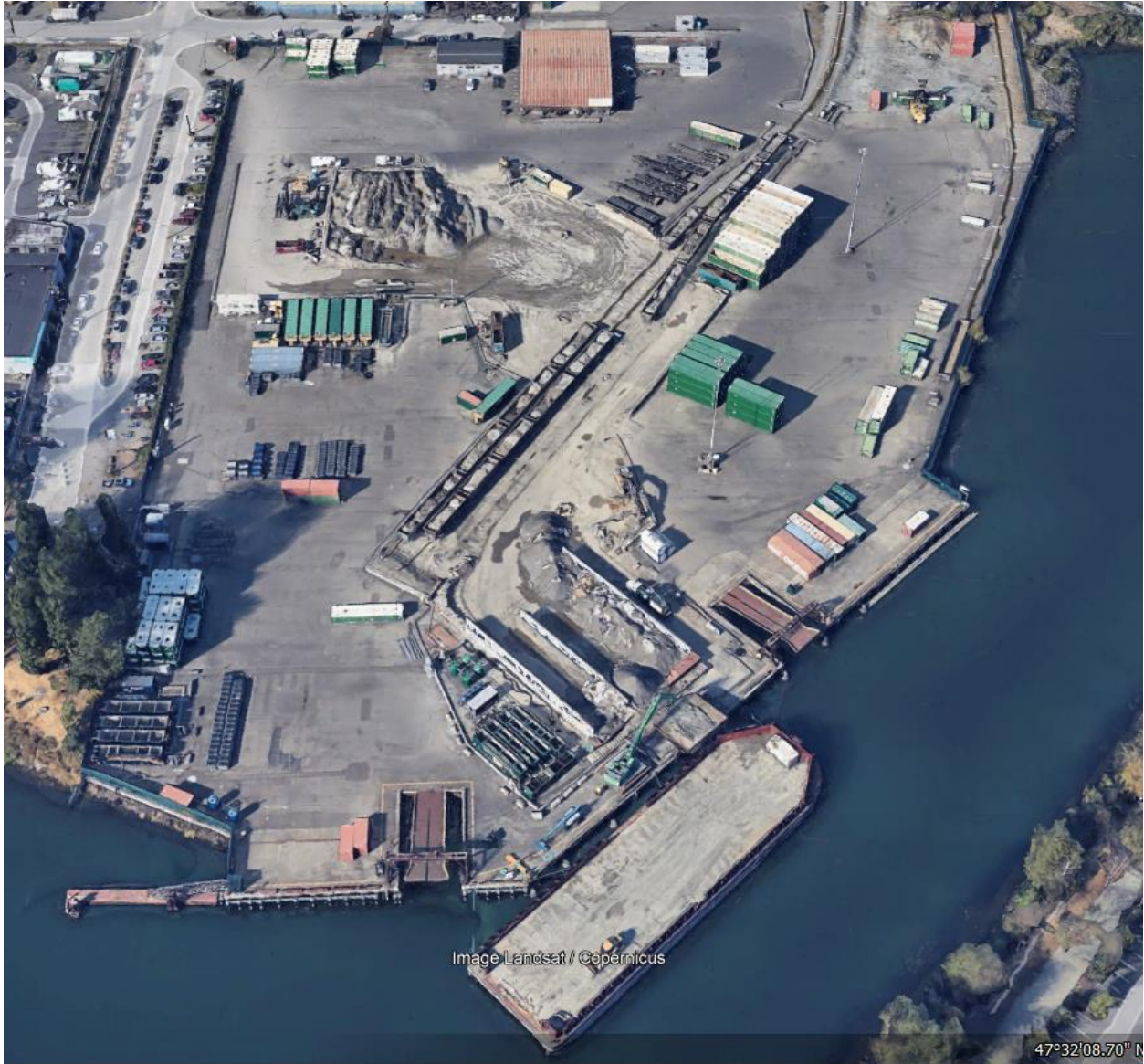
Note: Table 5-1 is meant to allow flexibility, but specific text in appendices reflect current plans.

Equipment replacements are likely during construction. When occurs, PPM required to submit to KC PR (before mobilizing equipment) the equipment spec sheets and certifications. Submittal contents will be KC approved and available to EPA Oversight during Weekly Progress Meeting. Replacements will be documented in the Daily, Weekly, and Construction Season Report.

APPENDIX L: WASTE MANAGEMENT HASP & EMERGENCY ACTION PLAN



Health and Safety Plan
Revision 0
August 23, 2024



Lower Duwamish Waterway
Upper Reach Remediation Action

Prepared By:
Waste Management National Services

Signature Page

ACKNOWLEDGMENT OF REVIEWING THE INFORMATION IN THIS PLAN

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1 BACKGROUND INFORMATION

1.1 Contractor

Waste Management National Services
7400 8th Ave S,
Seattle, WA 98108

1.2 Project Name/Location

Lower Duwamish Waterway
Upper Reach Remedial Action
Contract KC001065

Duwamish Waterway Park river mile (RM) 3.0 to South 102nd Street bridge at RM 5.0

1.3 Project Owner

King County
Department of Natural Resources
Water Treatment Division

Regulatory Project Oversight EPA

1.4 Project Site History

The Duwamish Waterway has been and is also currently used for shipping, recreational use, and fishing. Over the course of many decades, contaminants of concern have been discharged into the waterway causing health and environmental hazards. The US EPA has designated the Lower Duwamish Waterway an EPA Superfund site requiring clean-up action.

2 STATEMENT OF ENVIRONMENTAL HEALTH & SAFETY POLICY

This section outlines the commitment to worker safety and health along with environmental safety on this project. The statements below reflect the commitment of Waste Management National Services (WMNS) to ensure a project free from injuries and harm to the environment. This plan is designed to be used in conjunction with the WMNS Injury Illness & Prevention Plan.

2.1.1 Health & Safety Policy Statement

At WM, safety is a core value and a cornerstone of operational excellence. This philosophy is embedded in the way we work, the decisions we make and the actions we take.

With more than 50,000 employees and over 25,000 trucks on the road every day, we fully recognize our responsibility to protect our employees, our communities and our customers. Our goal is to attain world-class safety and, more importantly, to be among the safest companies in

our industry. Our plan of action is called Mission to Zero (M2Z), which means zero tolerance for unsafe actions, unsafe decisions, unsafe conditions, unsafe equipment and unsafe attitudes.

The cornerstone of M2Z is training, which provides classroom and on-the-job site instruction in safety fundamentals for supervisors, drivers, operators and helpers. Operations Rule Book, Driving Science Series videos and Behavior Based Safety Assessments are just a few of the tools available to our frontline managers to help them to develop our employees. M2Z seeks to enhance understanding, change behaviors and develop company leaders who can make a difference and train and lead others. WM utilizes technology in and on its trucks and equipment to engineer risk out. Brigade Backsense radar devices are installed on all Transfer Station equipment, reducing the risk of backing accidents and improving pedestrian safety. The Pacific NW area utilizes a drone pilot to evaluate operations and yard safety.

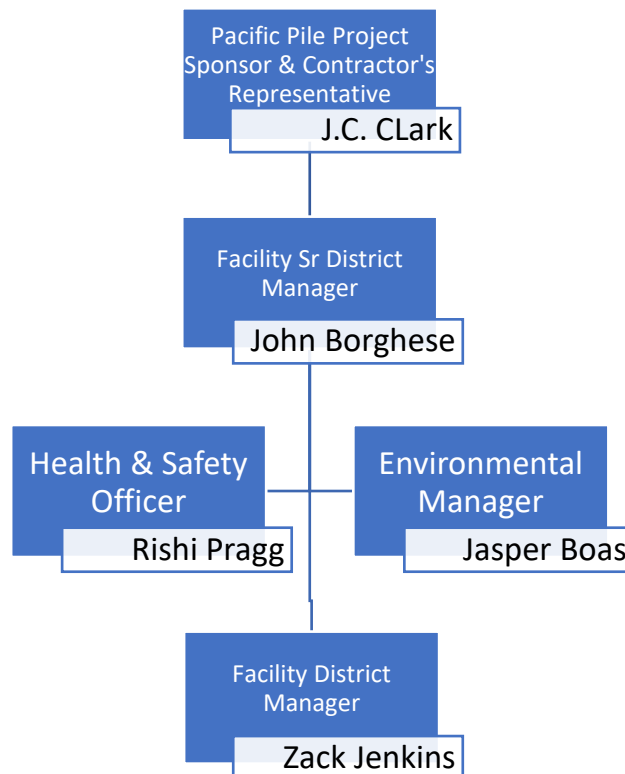
WM sites measure safety performance continually to monitor our progress in achieving the goals of M2Z and reducing incident and injury frequency and severity. Through established safety processes and procedures, we seek to achieve the goals of M2Z, improving our employee and customer satisfaction.

2.1.2 Revisions to the EHASP

Any revisions to this plan must be submitted through Pacific Pile to King County and the EPA within 7 days of revision.

3 RESPONSIBILITIES AND LINES OF AUTHORITY

3.1 Organizational Chart and Communication



3.2 Jobsite Roles and Contact Information

Name	Organization	Role	Phone	Email
Zach Jenkins	WMSS	District Manager	C: [REDACTED]	zjenkins@wm.com
John Borghese	WMSS	Sr. District Manager	C: [REDACTED]	jborghes@wm.com
Jasper Boas	WM	Environmental Protection Manager	C: [REDACTED]	jboas@wm.com
Rishi Pragg	WM	EHS Specialist	C: [REDACTED]	rpragg1@wm.com

3.3 Proposed Subcontractor Contact Information

Name	Organization	Role	Scope of Work	Phone	Email
None					

3.4 Safety and Project Safety Oversight

3.4.1 Project Sponsor & Contractor’s Representative

WMSS is contracted through PPM.

PPM’s Project Sponsor and Contractor’s Representative on this project is Wilbur “JC” Clark. PPM’s Contractor’s Representative is responsible for communications with King County and the Project Representative, oversight of PPM and its subcontractors, and ensuring the safety of all project activities. The Contractor’s Representative is supported by PPM’s Director of Health and Safety, who is responsible for implementing and monitoring all health and safety protocols, and the Project Manager, who oversees project execution and compliance with safety standards.

3.4.2 Project Manager & Emergency Response Coordinator

PPM’s Project Manager (PM) on this project is Matthew Miller. The PM reports to the King County Project Representative and is primarily responsible for ensuring the safety of all construction activities while overseeing the completion of the construction work in accordance with the project plans and specifications, design drawings, and the approved CQCP, or approved changes of the same. The PM is supported by PPM’s Site Superintendent, QC Officer, and

Health and Safety Officer. The PM has the responsibility and authority to direct all hazardous waste operations. The PM's safety-focused responsibilities include, but are not limited to:

- Coordinating with the King County Project Representative and Project Superintendent to ensure construction is conducted in accordance with the plans and specifications, with a primary focus on safety.
- Communicating with the Project Superintendent and Site Health and Safety Officer to ensure that PPM's staff are informed about the approved quality control and health and safety procedures as outlined in the Construction Quality Control Plan and Site Specific Health and Safety Plan (HASP).
- Ensuring that all construction activities adhere to the highest safety standards and that any potential hazards are promptly addressed.
- Coordinating with the field team and labs to ensure that required tests and inspections are conducted safely, reporting is appropriate, and results are accurate.
- Ensuring that PPM's staff performing the tests and inspections are properly trained in safety protocols.
- Verifying that testing and inspection results meet QC requirements and comply with safety standards.
- Informing the General Superintendent and the Project Representative of any new findings or changed conditions that could impact safety.
- Providing QC documentation to the Superintendent and the Project Representative, ensuring it includes all relevant safety information.
- Submitting as-built conditions to the Project Representative, with a focus on documenting compliance with safety plans and procedures.
- PPM's Project Manager has full authority to execute any and all actions necessary to ensure that the construction work complies with the project plans and specifications, and the HASP, prioritizing the safety of all personnel and activities on-site.

3.4.3 Project Superintendent & Spill Prevention and Response Coordinator

Zack Jenkins has been designated as WMSS's Project Superintendent and Spill Prevention and Response Coordinator. The Project Superintendent or his representative will be on-site full-time whenever work is being performed and supports PPM's Project Manager. The Project Superintendent's responsibilities, with a focus on safety, include, but are not limited to:

- Ensuring that all site personnel in the field conduct work in accordance with the facility's Permits, prioritizing safety.
- Ensuring that WMNS's staff follow the approved health and safety procedures as outlined in the Site Specific Health and Safety Plans (HASP).
- Conducting required tests and inspections safely and effectively.
- Recommending and implementing mitigation measures as needed to address water quality, air pollution, odors, noise, or light complaints or criteria exceedances.
- Inspecting assigned job areas to identify and correct unsafe acts or conditions.
- Ensuring adherence to and enforcement of safety requirements.

- Listening to directions and suggestions from employees and management regarding safe and proper work practices.
- Understanding and applying the hierarchy of controls to eliminate hazards, with PPE as a last line of defense.
- Providing and enforcing the use of proper personal protective equipment (PPE) and suitable tools for the job.
- Setting a good example for the crew in terms of safety practices.
- Maintaining orderliness and good housekeeping on the job site.
- Reporting near misses and incidents immediately.
- Investigating all accidents to determine necessary corrective actions.
- Taking corrective action to eliminate or minimize safety hazards promptly.
- Assisting in the completion of accident reports per contract requirements.
- Performing Site Safety Inspections in accordance with WMSS Policy and the Facility's permits.
- Identifying and responding to all safety hazards and managing work crews safely.
- Conducting weekly toolbox safety meetings with personnel to discuss unsafe work practices and conditions identified.
- Reviewing accident investigations and corrective actions implemented with the crew
- Encouraging personnel to make safety suggestions and passing these on to supervision.
- Ensuring that prompt first aid is administered when necessary.

3.4.4 Site Safety and Health Officer

Rishi Pragg has been designated as WMNS's Health and Safety Officer (HSO). The Facility District Manager is primarily responsible for implementing and overseeing WMNS's Health and Safety Plan (HASP). The HSO is responsible for, but are not limited to:

- **Developing and Implementing the HASP:** Rishi will develop the Health and Safety Plan, ensuring it addresses all site-specific hazards. The District Manager or his representative will implement the HASP and verify compliance throughout the project.
- **Training and Communication:** HSO will provide WMNS's staff, and the EPA with the HASP that includes site-specific hazards, ensuring that all employees are trained in appropriate safety techniques relevant to the project. He will share responsibility with the District Manager in communicating initial hazards and controls related to each work plan and lead daily meetings to discuss task and location hazard specifics.
- **On-Site Safety Oversight:** Acting as the on-site Safety Officer, the District Manager or his representative will oversee safety while work is occurring, ensuring that safe work procedures are followed at the job site.
- **Safety Equipment Management:** District Manager or his representative will ensure that proper safety equipment is available at the job site, maintaining Health and Safety documentation, and providing such documentation to PPM Project Representative.
- **Compliance Verification:** District Manager or his representative continuously verifies compliance with the HASP, conducting regular safety inspections, and addressing any safety concerns promptly.

- **Site Safety and Health Officer (SSHO):** Throughout the duration of this project, the District Manager or his representative will serve as the Site Safety and Health Officer responsible for implementing and enforcing the Site-Specific Safety and Environmental Plans. In the event that Rishi is not immediately available.

3.4.5 Subcontractors and Suppliers

WMNS does not expect to employ subcontractors on this project.

3.4.6 Transportation and Disposal Coordinator

The Transportation and Disposal Coordinator for this project is Zach Jenkins (WMNS) or his designee. The Transportation and Disposal Coordinator’s responsibilities, with a focus on safety, include but are not limited to:

- **Waste Management Operations:** Overseeing all stages of waste management, including transloading, transportation, and disposal of dredge material, dredge debris, identified debris, and piling in accordance with Section 35 20 23 (Transloading, Upland Transportation, and Disposal).
- **Implementing Safety Plans:** Managing Waste Management’s own safety plan and operations, ensuring that all activities related to waste management are conducted safely and in compliance with relevant safety regulations.
- **Coordination with Safety Officers:** Coordinating with the PPM Project Superintendent and Health and Safety Officer to ensure that waste management activities do not interfere with other construction operations and maintain a safe work environment.
- **Safety Compliance:** Ensuring that all personnel involved in waste management activities are trained in appropriate safety techniques and procedures, and that they adhere to the Health and Safety Plan (HASP).
- **Monitoring and Reporting:** Monitoring waste management activities to identify and address any safety concerns promptly. Reporting any safety incidents or hazards to the Health and Safety Officer and Project Superintendent.
- **Documentation and Communication:** Maintaining accurate records of all waste management activities, including safety-related documentation. Communicating any safety issues or concerns to the King County Project Representative and PPM’s Project Manager.

3.4.7 Site Personnel

All WMNS site personnel are expected to actively contribute to maintaining a safe work environment. Their safety responsibilities include, but are not limited to:

- **Adhering to all WMNS’s Alcohol, drug, and weapons policies:** Violations of these policies shall be cause for immediate removal of the employee.
- **Understanding and Following Safety Plans:** Familiarize themselves with the Site-Specific Health and Safety Plan (HASP) and adhere to all outlined safety protocols and procedures.

- **Personal Protective Equipment (PPE):** Always wear the required personal protective equipment (PPE) for their specific tasks, including hard hats, safety glasses, gloves, high-visibility vests, and steel-toed boots.
- **Reporting Hazards:** Immediately report any unsafe conditions, hazards, or incidents to their supervisor or the Health and Safety Officer. This includes potential environmental hazards, faulty equipment, or unsafe practices observed on site.
- **Participating in Safety Meetings:** Attend all scheduled safety meetings, toolbox talks, and training sessions to stay informed about safety practices, potential hazards, and updates to safety protocols.
- **Safe Work Practices:** Follow all safe work practices as instructed. This includes using tools and equipment properly, adhering to lifting techniques, and maintaining a clean and organized work area to prevent slips, trips, and falls.
- **Emergency Procedures:** Be aware of and understand the site's emergency response procedures, including the location of first aid kits, emergency exits, and assembly points. Know how to respond in case of an emergency, such as a fire or spill.
- **Encouraging a Safety Culture:** Promote a culture of safety by encouraging peers to follow safety protocols and practices. Provide positive reinforcement for safe behavior and practices.
- **Environmental Awareness:** Ensure that work activities do not negatively impact the environment by following the site's environmental protection measures, such as proper disposal of waste and prevention of pollution.

4 SCOPE OF WORK

WMNS will transload waste materials from PPM Loaded barges to onshore conveyances for delivery of wastes to the Columbia Ridge Landfill and Recycling Center in Arlington OR. Wastes from the Lower Duwamish Waterway Upper Reach cleanup project along with other cleanup and maintenance projects will likely be occurring concurrently.

The Lower Duwamish Waterway Upper Reach is a significant environmental remediation project targeting the northernmost section of the Lower Duwamish Waterway (LDW) in Seattle, Washington.

The cleanup is led by the Lower Duwamish Waterway Group (LDWG), a public-private partnership that includes the Boeing Company, the City of Seattle, and King County. The U.S. Environmental Protection Agency (EPA) is the primary regulatory agency overseeing the project, with support from the Washington State Department of Ecology. King County is the agency administering the contract for remediation activities. (Washington State Department of Ecology) (Lower Duwamish Waterway Group).

The cleanup for the Upper Reach is set to begin in October 2024, will take three construction seasons, and will conclude around April 2027. Each construction season is limited to October through February to protect salmon and other fish during their migration periods (Lower Duwamish Waterway Group) (Seattle Gov).

The Upper Reach of the Lower Duwamish Waterway spans from South 102nd Street to the Duwamish Waterway Park. This five-mile stretch has been heavily contaminated by over a century of industrial activities, resulting in pollutants such as PCBs, arsenic, and other harmful chemicals in the riverbed sediments. The cleanup aims to address these contaminated sediments to reduce environmental and health risks (Washington State Department of Ecology) (Seattle Gov).

5 WORK PLAN

Refer to the Project Remedial Action Work Plan for a detailed project scope of work.

5.1 Season 1 Work Activities:

Site preparation activities, including the barge offload area operation, dredge and debris staging and stockpile area(s), water collection and treatment management practices, Transloading, Transportation, and Disposal of Dredge Materials

5.1.1 Equipment:

- Hydraulic Excavators
- Tugboats
- Barges
- Skiffs
- Environmental Buckets
- Transload Excavator
- Front-End Loaders
- Train Locomotives & Cars

6 EMERGENCY PROCEDURES

The WMNS facility emergency contingency plan is part of the facility's operations plan and permit.

7 SITE CONTROL

The WMNS site access is controlled by 6 foot fencing and automatic gates to prevent unauthorized entry into the site.

Access to the work area will be permitted only to those working directly on the project. All personnel on-site will be required to comply with all sections of this HASP, or work under a separate SSHSP prepared for them.

8 WMNS DUWAMISH RELOAD FACILITY GENERAL OPERATIONS

Waste Management National Services, Inc. (WM) operates the Duwamish Reload Facility, also called the 8th Avenue South Reload Facility or 8ASR (Facility). The Facility is a reload facility for contaminated dredge sediment, industrial wastes, and contaminated upland soil from the Duwamish River and other sites in the Pacific Northwest, including Alaska and Canada. Accepted materials arrive at the Facility from commercially operated barges, as well as trucks,

and is transferred to rail or trucks for transport offsite. Access to the Facility is shown on Figure 5. The Facility is accessed three ways: by truck, rail, and barge. Truck access is via 8th Avenue South or South Othello Street. The Facility perimeter is completely fenced (land-side) to prevent unauthorized vehicle access. Two entrance and exit gates located on 8th Avenue South, and one gate located at the East end of South Othello Street, control access to the Facility. Gates are locked during non-business hours to prevent unauthorized access.

Train operations are handled by the facility. Truck drivers shall follow all Duwamish Reload directions and follow posted procedures. Drivers will stay with their trucks unless otherwise directed.

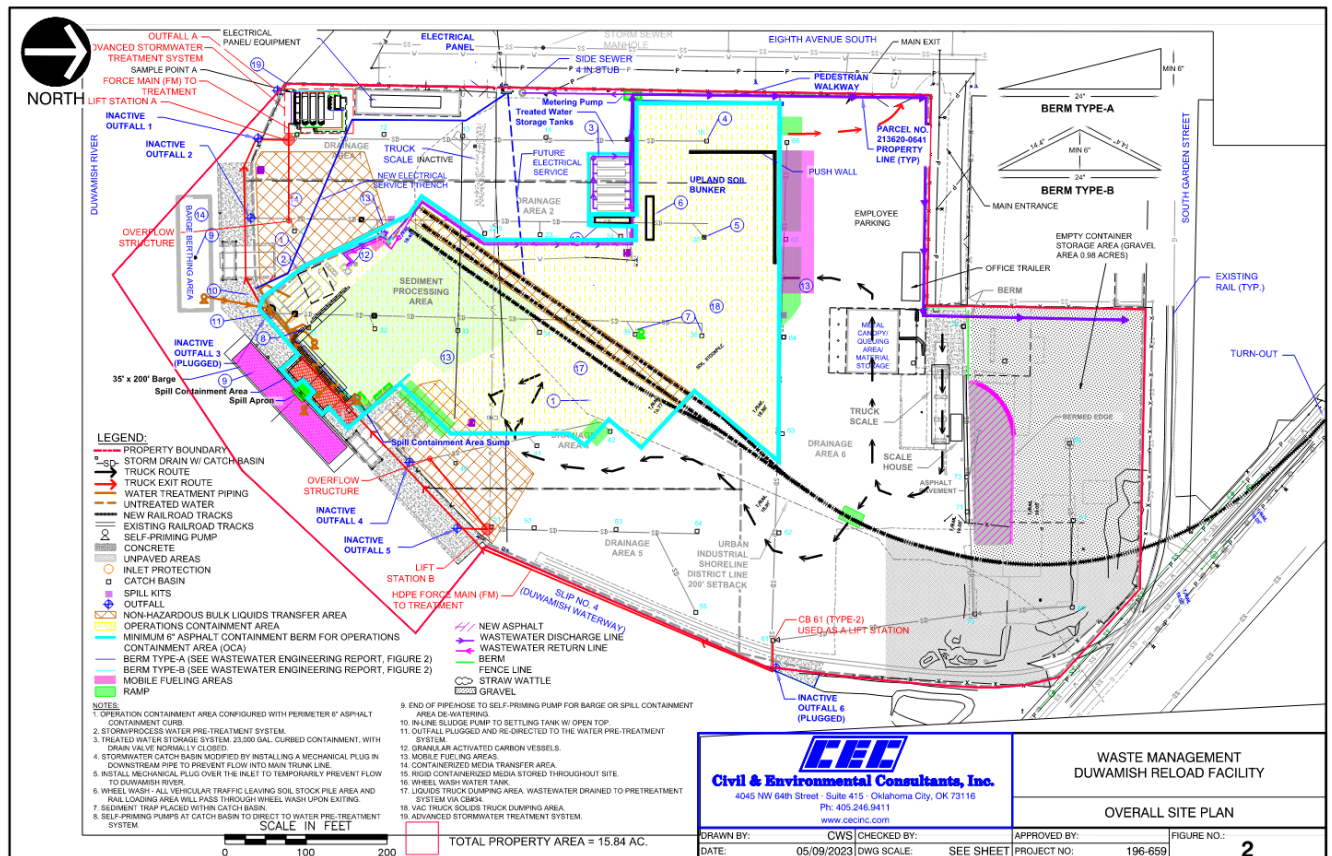


Figure 9-3- DRF Site Layout

The Duwamish Reload Facility decontamination procedures employ maintaining equipment within the Operations Containment Area (OCA). Equipment is broomed and/or washed as necessary. Any wash water is treated through the on-site water pretreatment system and discharged to the King County sewer through the Facility’s Industrial Sewer Discharge permit. The OCA is designated for operations, including equipment cleaning and maintenance. Land-based decontamination berm facilities at the Duwamish Reload Facility ensure that vehicle and equipment washing occurs within the OCA, with wash water collected and pumped to the on-site water pretreatment system before being discharged to the municipal sewer system.

Trucks entering the OCA will exit through a wheel wash system, where water is recycled, and particulates and floatable oils are separated. Accumulated solids are routinely removed and properly disposed of. If the system needs to be emptied for maintenance or repairs, the water will either be transferred to the on-site water pretreatment system or hauled off-site to an authorized treatment facility. Any drip-off or drag-out past the wheel wash will be collected in a nearby plugged catch basin and delivered to the on-site water pretreatment system. Additional details on the Duwamish Reload Facility are included in the Transloading, Upland Transportation, Waste Characterization, and Disposal Plan.

9 PROJECT SPECIFIC CHEMICAL/CONTAMINANT HAZARDS

9.1 Chemical Hazards

The risk of employee exposure to the four human health risk drivers PCBs, carcinogenic polycyclic aromatic hydrocarbons (cPAH), dioxins/furans, and arsenic will be minimized using engineering controls to eliminate or decrease the possibility of exposure to levels under the applicable action level for each. The administrative controls of training, designated areas, signage, restricted access, and limiting time spent in a hazardous materials area.

However, because the excavator bucket/boom will come in contact with contaminated river sediment, personnel at the reload facility that may come in contact with the bucket/boom will wear Level D PPE. Any WMNS employees that will be involved in the decon of equipment or other tasks that would put them in proximity to sediment or an emergency response will be required to wear appropriate PPE for the activity which will be communicated before the task begins by the District Manager or his representative. Based on the JHA for the activities completed at the Facility, Level D PPE will be worn.

Personnel shall be restricted from transit in the swing radius of the excavator during any operation. Communications with the operator of the excavator shall be made using on site radio. No unauthorized personnel shall board either the equipment or the material barges.

Table 9-1: Summary of Hazardous Properties of Chemical and Airborne Hazards

Chemical	Exposure Routes	Symptoms	Target Organs	OEL (STEL)	Odor Threshold (ppm)	LEL (%)	Ionization Potential (eV)
PCBs (Chlorodiphenyls) (42% Cl / 53469-21-9) (54% Cl / 11097-69-1)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, chloracne, liver damage; reproductive effects Potential occupational carcinogen	Skin, eyes, liver, reproductive system	0.001 mg/m ³ TWA _s Skin IDLH / Ca – 5 mg/m ³	N/A	N/A	?
Polycyclic aromatic hydrocarbons (PAHs) – as coal tar pitch volatiles. (Includes benzo(a)pyrene, chrysene, phenanthrene, fluoranthene, pyrene, acenaphthene, methylnaphthalenes, and anthracene)	Skin, eye, inhalation, and ingestion hazard	Direct contact or exposure to the vapors may be irritating to the eyes. Direct contact can be highly irritating to the skin and can cause dermatitis. Exposure to high vapor concentrations may cause headaches, nausea, vomiting, and other symptoms. Includes human carcinogens. Exposure to all routes should be carefully controlled to levels as low as possible. Confirmed animal carcinogen.	Respiratory system, skin, bladder, kidneys	0.2 mg/m ³ TWA _s 0.1 mg/m ³ TWA _s (Cyclohexane-extractable fraction) IDLH / Ca – 80 mg/m ³	Varies	N/A	?
Dioxins/Furans (as 2,3,7,8-Tetrachloro-dibenzo-p-dioxin) - TCDD	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; allergic dermatitis, chloracne; porphyria; gastrointestinal disturbance; possible reproductive, teratogenic effects; In Animals: liver, kidney damage; hemorrhage Potential occupational carcinogen	Eyes, skin, liver, kidneys, reproductive system	Lowest Feasible Concentration (LFC) Proposed OEL of 0.2 ng/m ³ Skin IDLH / Ca - LFC	N/A	?	?
Hydrogen Sulfide (H2S) (7783-06-04) 1 ppm = 1.40 mg/m ³	Inhalation, skin and/or eye contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid; frostbite	Eyes, respiratory system, central nervous system	1 ppm TWA _s (5 ppm) C – 10 ppm (10-min over an 8-hr shift) IDLH - 100 ppm	0.03 ppm	4.0	10.46
Arsenic, and inorganic compounds as (7440-38-2)	Inhalation, skin absorption, skin and/or eye contact, ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin Potential occupational carcinogen	Liver, kidneys, skin, lungs, lymphatic system	Ceiling limit of 0.002 mg/m ³ [15-Minute] IDLH / Ca – 5 mg/m ³	N/A	N/A	N/A
Barium and soluble compounds, as Ba, including Barium chloride (7440-39-3) (10361-37-2)	Inhalation, skin and/or eye contact	Irritation eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse, extrasystoles (heart contractions); hypokalemia (deficiency of potassium in the bloodstream).	Eyes, skin, respiratory system, heart, central nervous system	0.5 mg/m ³ TWA _s IDLH – 50 mg/m ³	N/A	N/A	N/A
Cadmium and compounds, as Cd (7440-43-9)	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea, anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia Potential occupational carcinogen	respiratory system, kidneys, prostate, blood, prostatic & lung cancer	0.005 mg/m ³ TWA _s IDLH / Ca – 9 mg/m ³	N/A	N/A	N/A
Chromium (II) inorganic compounds, as Cr	Inhalation, ingestion, skin and/or eye contact	Irritation eyes; sensitization dermatitis	Eyes, skin	0.5 mg/m ³ TWA _s IDLH – 250 mg/m ³	N/A	N/A	N/A
Chromium (III) inorganic compounds, as Cr (7440-47-3)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes; sensitization dermatitis	Eyes, skin	0.5 mg/m ³ TWA _s (total dust) 0.003 mg/m ³ TWA _s (inhalable fraction) IDLH – 25 mg/m ³	N/A	N/A	N/A

Chemical	Exposure Routes	Symptoms	Target Organs	OEL (STEL)	Odor Threshold (ppm)	LEL (%)	Ionization Potential (eV)
Chromium (VI) inorganic compounds, as Cr (18540-29-9) (1333-82-0 as CrO ₃)	Inhalation, ingestion, skin and/or eye contact	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), eosinophilia, eye injury, conjunctivitis; skin ulcer, sensitization dermatitis Potential occupational carcinogen	Blood, respiratory system, liver, kidneys, eyes, skin, lung cancer	0.0002 mg/m ³ TWA _s IDLH / Ca – 15 mg/m ³	N/A	N/A	N/A
Lead and inorganic compounds, as Pb (7439-92-1)	Inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival (gum) tissue	0.05 mg/m ³ TWA _s IDLH – 100 mg/m ³	N/A	N/A	N/A
Mercury, elemental and inorganic compounds, as Hg (7439-97-6)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, central nervous system, kidneys	0.025 mg/m ³ TWA _s C – 0.1 mg/m ³ Skin IDLH – 10 mg/m ³	N/A	N/A	N/A
Selenium compounds, as Se (7782-49-2)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver; kidneys, blood, spleen	0.2 mg/m ³ TWA _s IDLH – 1 mg/m ³	N/A	N/A	N/A
Silver metal, and soluble compounds, as Ag (7440-22-4)	Inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	0.01 mg/m ³ TWA _s IDLH – 10 mg/m ³	N/A	N/A	N/A

TWA_s – 8-hour time weighted average
 Skin – OEL based primarily on skin exposure hazard
 C – Ceiling Limit
 Ca – potential or confirmed human carcinogen
 IDLH – Immediately Dangerous to Life or Health
 LFC – Lowest Feasible Concentration
 OEL – Occupational Exposure Limit
 STEL – Short Term Exposure Limit
 LEL – Lower Explosive Limit

9.2 Additional Hazardous Chemicals Used

Access to the construction site will be restricted to WMNS, the Owner, the Owners Representatives, authorized regulatory agency, and visitors approved by the District Manager. All personnel on-site will be required to comply with all sections of this HASP.

WMNS employs the following hazardous materials and are stored on Site:

Table 9-2 Summary of Expected Hazardous Materials

Hazardous Material	Intended Use	Estimated Quantity	Location	Secondary Containment
Diesel #2	Equipment & Vehicle Fuel	500 Gallons	Within equipment	NA, all equipment wet fueled as needed by vendor
Biodegradable Hydraulic Fluid	Hydraulic Fluid for Heavy Machinery	100 Gallons	Within equipment and on-site storage connex	Collapsible berm or drum containment pallet.
Motor Oil	Motor Oil for Heavy Machinery	55 Gallons	Within equipment on-site storage connex	Collapsible berm or equivalent.
Antifreeze/Engine Coolant	Engine Coolant	55 Gallons	Within equipment and on-site storage connex	N/A, Equipment will be inspected for leaks daily
Gear Oil	Gear Oil for Heavy Machinery	5-10 Gallons	Within equipment	N/A, Equipment will be inspected for leaks daily.
Paints, Solvents, Etc.	Miscellaneous	10 Gallons	Within on-site tools connex	Collapsible berm or equivalent.

10 MONITORING

Environmental monitoring is not required at the transload facility

11 PHYSICAL HAZARDS

Potential physical hazards associated with this project include heavy equipment operation, excavation hazards, lifting, slips, trips and falls, electrical hazards, fire and or explosion, temperature stress and noise. Refer to Job Safety Analysis for each work task to identify potential hazards and the recommended controls.

- Materials Movement:** All material movement activities within the OCA will be reviewed daily by the District Manager or his representative or more often as needed. While trenching is not expected during transloading operations, personnel will not be allowed to enter any excavation or trench greater than 4 feet that is not benched, shored, or sloped according to soil classification.
- Noise Exposure:** Personnel will be provided with protection against the effects of hazardous noise exposure whenever sound-pressure levels exceed 85 dBA steady-state expressed as a time-weighted average (TWA). It will be assumed that this sound pressure

level is not exceeded if two people can engage in conversation using normal voices at a distance of 3 feet. If sound pressure levels exceed 115 dBA steady-state, personal ear protection equivalent to the combination of earplugs and earmuffs will be required. All equipment shall be equipped with an operational muffler.

- **Slips, Trips, and Falls:** On-site personnel shall have high top high traction soles on steel toe shoes to improve footing and to prevent slips, trips, and falls. Employees will immediately clean up all spills outside of the OCA. All tools not in use should be picked up. During material handling activities, a defined path should be cleared prior to moving all objects. Fall protection and/or restraints will be used by all employees when required by the Job Safety Analysis for the specific task.
- **Heavy Equipment:** Heavy equipment will be checked before use each day by the operator. Equipment operators must be knowledgeable about the safe operation of the equipment. Other personnel will stay out of the immediate vicinity while heavy equipment is operating. All moving equipment will be equipped with back-up alarms. All personnel will wear high visibility safety vests while equipment is operating on the site. Before approaching any equipment, site personnel will make eye contact with the operator. The bucket should be on the ground before approaching.
- **Electrical Hazards:** On-site personnel may have a potential for electrical shock if there is improperly grounded equipment. To mitigate the hazards of electrical shock:
 - All electrical wiring and equipment shall be of a type listed by a nationally recognized testing laboratory for the specific application for which it is to be used.
 - All work shall be performed by personnel familiar with code requirements and qualified for the class of work.
 - Whenever possible, all equipment as well as circuits to be worked on shall be de-energized before work is started and personnel protected by clearance procedures and grounding.
 - All circuits shall be protected against overload.
 - A ground shall be provided for non-current carrying metallic parts of equipment such as blowers, compressors, etc.
- **Lifting:** Employees will utilize proper lifting techniques including lifting with their legs instead of their backs. The buddy system must be used when lifting greater than 50 pounds or when carrying awkward items of any weight. When feasible, equipment will be used to move all items.
- **Hand injuries:** Employees will wear gloves when working with their hands. Employees should use care when moving items and watch for pinch points.
- **Traffic:** Personnel will be protected from traffic at the site by use of appropriate barricading.

WMNS Confidential JHA's are available for review and use in the office.

12 BIOLOGICAL HAZARDS

Biological hazards may be encountered when working on this jobsite. Potential examples along with control measures are listed below:

- Small animals/rodents – Keep clear of small animals and rodents. Many carry diseases such as rabies. If you are bitten by a rodent seek immediate medical attention. Bites can become infected, and vaccines may need to be taken. Report any bites or animal scratches to your supervisor or onsite SSHO immediately.
- Needles – Needles should not be handled at all. Bloodborne diseases as a result of a needlestick can result in a STD, HIV, or other communicable disease exposure. Any needlestick should immediately be reported to your supervisor and the SSHO onsite and medical attention should be received. If needle cleanup is needed, wear proper cut level gloves for puncture protection as well as a retrieval device that is used for retrieving trash. All needles should be disposed of in a proper needle disposal device.
- Human feces – Human feces should be treated like a blood borne hazards, or exposure to contaminated biological fluids. If a need arises that human feces are encountered and must be disposed of, don appropriate PPE of eye protection, rubber gloves, a protective splash apron and rubber boots. Human waste should be disposed of in a plastic bag and disposed of in a proper manner.
- Contaminated biological fluids – Contaminated biological fluids should be treated like an exposure to blood borne hazards. If a need arises that these are encountered and must be disposed of, don appropriate PPE of eye protection, rubber gloves, a protective splash apron and rubber boots. Contaminated biological fluids and cleaning materials should be disposed of in a plastic bag and disposed of in a proper manner.
- Noxious flora and fauna – Many types of plants can be poisonous and can cause allergic reactions when touched. If an allergic reaction or rash occurs after an encounter with flora or vegetation, please notify your supervisor and the SSHO onsite so that appropriate medical attention can be sought if needed.
- Insects – Many insects can cause allergic reactions. When persons who are allergic to certain insects are bitten it can cause a harmful reaction that could prove to be life threatening. All workers who know that they are allergic to bee stings or other bug bites should carry appropriate medication to counter an allergic reaction. In addition, if a person who previously has not had reactions to insect bites experiences an allergic reaction, notify your supervisor and the SSHO immediately. Allergic reactions can be life threatening and should be treated immediately.
- Poisonous spider - All spider bites should be considered poisonous. Even though some might not be immediately life threatening, adverse reactions to the person bitten could be severe. In the case of a spider bite, immediately notify your supervisor and the SSHO and seek medical attention.

Precautions should be taken to avoid direct contact with any animals, irritant plants or insects, needles, or human waste. If a bite, sting, or skin condition should occur, immediate medical attention should be taken.

13 WMNS SITE SPECIFIC HEALTH AND SAFETY PLAN

WMNS has developed a site specific proprietary Health and Safety Program designated as the Standard Safety Health Management System (“SSHMS”) these plans are not available for distribution outside of Waste Management. This plan covers all aspects for site compliance with OSHA 29 CFR 1910 requirements. The WMSS Duwamish Facility follows this plan per company policy. Follows is a general description of the pertinent aspects of these plans for this project.

13.1 PERSONAL PROTECTIVE EQUIPMENT

All personnel at the facility shall be required to follow the WM PPE Matrix for the use of required personal protective equipment. Generally, the following selection and use of PPE are as follows:

1. Uniform
2. Hard Hat
3. High Visibility Class 2 vests or Clothing
4. Steel Toed Boots
5. Gloves (as necessary)
6. Eye Protection (as necessary)
7. Rain Gear (as necessary)

WMNS provides their employees who are assigned work with the appropriate personal protective equipment, as required. No changes to the specified personal protective equipment shall be made without the approval of the project manager in concurrence with the project safety manager.

13.2 Eye Protection

ANSI Z87.1 rated safety glasses are mandatory 100% of the time except when employees are inside a close equipment cab. A face shield or goggles are required when working with chemicals, grinding material, etc.

13.3 Gloves

Company provided work gloves must be worn when handling any type of treated wood, metal with unfinished edges, wire rope and any other sharp or jagged materials, appropriate to the task being performed.

13.4 Hard Hats

All personnel at the jobsite must wear hard hats except while in operating heavy equipment cabs, of a type approved under ANSI Z89.1 or better. Metal hard hats and “bump hats” will not be approved for use.

13.5 Hearing Protection

In accordance with WMNS’s hearing conservation program and OSHA 29 CFR 1910.95 occupational noise exposure. Earplugs or other protection must be used when working in the

vicinity of any noise above the 85db TWA to minimize exposure to noise. This includes common air and electric tools, chain saws, motorized small and large equipment and heavy machinery.

13.6 Life Jackets

When working on or near the water, all employees shall be wearing a U.S. Coast Guard approved Personal Flotation Device. Employees working on floating equipment, barges, boats, skiffs, pontoons, floats within 3 feet of the dock edge or pier bull rails shall wear approved life jackets. Do NOT rip Life Jacket inner lining for storage of files, paint-sticks, or other items. If life jackets become accidentally torn or damaged in any way, return them to your district manager or his representative for replacement.

13.7 Shoes, Boots and Other Foot Gear

All personnel working at the Transload facility shall wear sturdy, heavy-duty work boots that are ankle supporting (min. 6”), have a non-slip sole, have a safety toe, and are in good working condition. Boots made of rubber or similar cleanable material may be worn when working around muddy or liquid materials.

13.8 Respiratory Protection

Due to nature of dredging work and the “wet method” engineering controls, respiratory protection should not be necessary. Employees are not required to wear respirators at the Transload facility.

13.9 Hazardous Materials PPE

The engineering control of “wet methods” precludes airborne dust level, thus no deviations from the WMNS required PPE are required.

13.10 Level D Personal Protective Equipment:

All WNMS employees are required to use PPE in accordance with the WMNS PPE Matrix. The current understanding of the project indicates that Level D PPE will be required.

13.11 Level C Personal Protective Equipment

Level C PPE is not required during transload activities at the facility. should an emergency or unforeseen events occur where Level C PPE is required, WMNS will call an emergency response contractor with training and experience for each case.

13.12 Personal Protective Equipment Training

Workers will be trained on the specific use of personal protective equipment and its limitations through formal presentations, weekly safety meetings, hands-on trainings, etc. Training include associated hazards and the type(s) of PPE required, potential problems and hazards caused by PPE, procedures for the use and care of PPE issued to the worker, how to ensure PPE is in good working order, what to do if the worker finds their PPE is defective or damaged, how to dispose of single use PPE, etc.

13.13 Personnel Decontamination Procedures

Personnel decontamination procedures are not expected to be required at the facility. Should decontamination be required decontamination will be conducted in a manner which minimizes the potential for hazardous skin or inhalation exposure and cross-contamination.

In the event of a Medical Emergency involving direct contact with wastes the following decontamination steps will be followed:

1. If decontamination can be done wash, rinse and/or cut off PPE.
2. If decontamination cannot be done:
3. Wrap the victim in blankets or plastic sheeting to reduce contamination of other personnel.
4. Alert emergency and offsite medical personnel to potential contamination.
5. Instruct emergency and offsite medical personnel about specific decontamination procedures if necessary.

13.14 Management of Decontamination Waste and Disposal of PPE

All solid waste and discarded PPE generated during decontamination will be managed at the Facility with other wastes generated during remedial activities. Wastewater generated from decontamination will be contained and treated through the Wastewater Pretreatment system and/or transferred offsite for final disposal as required for each instance. All decontamination wastewater and material will be managed and disposed of in accordance with applicable federal, state, and local regulations.

13.15 Maintenance and Storage of PPE

All personal protective equipment, when not in use, should be stored properly in a clean, dry place, such as a breakroom, office, or storage area. Reusable PPE should be cleaned on a regular basis and kept in good condition, with the correct replacement parts used by following the manufacturer's replacement schedule(s). If PPE is found to be damaged or defective, it shall be taken out of service immediately.

13.16 Inspection of PPE

Some PPE, i.e. fall protection, etc., shall be inspected in accordance with WMNS policy before each use by the user and annually by a competent person other than the user. Any equipment deemed unsafe for use shall be removed from service and repaired or destroyed.

Personal Protective Equipment will be inspected using both visual and tactile means, paying close attention to the following items:

- **Glasses:** Check for cracks, holes, or deformities in the lenses. When fitting, the glasses should be snug and tight to the forehead and cheeks.
- **Hard hats:** Check for cracked, torn, frayed, or deteriorated suspension systems, brims, or shells.

- **Harnesses:** Check for missing straps, and examine the fabric for torn or frayed fibers, kinks, or knots. If working at heights, test safety harnesses to ensure the webbing is intact.
- **Webbing:** Check for cuts, cracks, tears, abrasion, scorch marks, burns, or chemical attack.

13.17 SANITATION

An adequate supply of potable water is available at the facility, as well as a receptacles for disposal office wastes. Wash water is provided in a hand washing station or sink, for the purpose of general hand washing and not for the cleaning of tools and equipment.

13.18 ILLUMINATION AND LIGHTING

Operations will be conducted during day shift. Lighting will be adequate for all operations. If illumination systems are required, then appropriate quantity and placement should be determined as per site conditions and activities. It is anticipated that during the fall and winter months of work that illumination will need to be on for early mornings and late afternoons. As a result, the following will guide the needs of lighting when work is performed.

Minimum Lighting Intensities in Foot-Candles	
Foot-candles	Area or operation
5	General landside areas such as corridors, exits, stairs, and walkways.
10	Changing rooms, sewer toilets, and eating, drinking, and break areas.
30	First-aid stations, and offices.

13.19 HOT WORK

Hot Work is not expected to occur for this project. WMNS has established a hot work program compliant with all Federal, State, and City of Seattle regulations. All hot work requires the appropriate Hot Work permit to be completed and followed.

If cutting, torching or welding is required employees will ensure work is performed at minimum of 35 feet away from combustible material. A fire extinguisher will be within 10ft of the hot work during the task. After hot work is completed, employee will inspect work area to ensure all sparks are extinguished. Appropriate fire watch will be completed following all hot work.

13.20 HAZARD COMMUNICATION

WMNS tailors its hazard communication program to the facility operations identifying the types of hazards and exposures encountered. The WMNS training program is designed for both new and experienced employees, and to provide training when a new chemical is brought into the workplace. District Manager or his designee is responsible to identify any new chemicals brought on site and has electronic access to SDS' for each such potentially hazardous chemical. If new hazardous substances are brought onto the job site, all employees potentially exposed to the substance will be advised of information in the SDS for the substance.

WM sites utilize 3E for all hazardous material identification, documentation, response assistance, and access to Safety Data Sheets. All hazardous materials are required to be in the site's 3E inventory and updated when products are brought onsite.

Containers into which hazardous chemicals are transferred must be labeled, tagged, or marked with the identity of the hazardous chemical(s) and appropriate hazard warnings. All chemicals and hazardous materials onsite will have proper container labeling per the Hazard Communication Standards to ensure workers are aware of the chemicals they are exposed to. In addition, Safety Data Sheets (SDS) of the onsite materials will be available in 3E.

All employees working onsite have been trained in current Global Harmonization Standards through New Hire Orientation, Weekly Safety Meetings, and refresher training. PPM complies with the OSHA Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200 and 1926.59, onsite chemicals and hazardous materials and the means and methods of cleanup are available in the Total SDS platform. Employees are encouraged to explore the Total SDS platform to familiarize themselves with the sections of the SDS and everyday chemicals.

District Manager or his designee are responsible for labels on all containers utilized at the facility.

14 SITE COMMUNICATION PLAN

In order to handle emergencies effectively, planning is essential. Personnel must be ready to immediately rescue or respond; equipment must be on hand and in good working condition. This section describes the policies and procedures for responding to site emergencies. This section is a general overview of how to communicate onsite, This plan is to be used in conjunction with the facility's Emergency Response Plan.

In an emergency situation, the District Manager or his designee will serve as the liaison with appropriate government officials. The District Manager or his designee will recommend that work be stopped if any operation threatens worker or public health or safety. The District Manager or his designee will assume control and make the necessary decisions to ensure safety of all personnel on-site during an on-site emergency. WMNS will have a representative (District Manager or his designee) who will serve to respond to operational problems and/or emergencies on a 24-hour on-call basis.

The District Manager or his designee will have a working understanding of the emergency procedures, evacuation routes, and the appropriate telephone numbers and will notify local public emergency officials. The District Manager or his designee, with the assistance of the subcontractor supervisor, will account for all personnel during an emergency. On a day-to-day basis, the District Manager or his designee will be constantly alert for indicators of potentially hazardous situations and for signs and symptoms that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

The creation of an evacuation signal is necessary for safe operations. The use of on-site radios will be used in the event of an emergency to signal stop work and immediate evacuation to

support zones. Workers should be cognizant of the reduction of communication abilities in high-noise areas.

Internal communication will be used to:

- Alert team members to emergencies.
- Pass along safety information.
- Communicate changes in the work to be accomplished.
- Maintain site control.

Verbal communication at the site can be impeded by background noise and the use of personal protective equipment. In an emergency, crucial messages must be conveyed quickly and accurately. For effective communication onsite radios will be used.

15 EMERGENCY/CONTINGENCY PLANS

WMNS will follow the emergency response requirement outlined in the Facility's approved Operation Plan. District Manager or his designee is responsible for determining the level of emergency response required for each event. District manager or his designee will determine if the event can be managed by on-site employees or needs to be elevated to be managed by a third party emergency response contractor.

16 TRAINING

At least one WMNS employee on each shift engaged in activities that involve handling, and transporting potentially contaminated soils shall be Hazwoper trained in accordance with WAC 296-843 and 29 CFR 1910.1200 and shall have current certification of such training or participation in an 8-hour refresher course. The District Manager or his designee will have current CPR/First Aid training.

Daily tailgate health and safety huddles will be held. These meetings will include current daily tasks, any new anticipated hazards, controls, recent accidents or near misses and other safety and health information. Project personnel will be given briefings by the District Manager or his designee on a weekly basis to further assist site personnel in conducting their activities safely. A briefing will be provided when changes in work practices must be implemented due to new information made available or if site environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices when conformances with these practices are not being followed or if deficiencies are identified during safety inspections.

16.1 Annual Employee Training Regulatory Knowledge

WMNS follows its individual proprietary SSHMS plans and company policy for employee training. Generally, the following areas are covered by the Facility's plan.

- 29 CFR 1910.120 and the core elements of an occupational safety and health program.
- Site safety and health plan consistent with the requirements of 9 CFR 1910.120(b)(4)(ii).
- Emergency response plan and procedures, consistent with the requirements 29 CFR 1910.38 and 29 CFR 1910.120(l).

- All element consistent with OSHA's hazard communication standard (29 CFR 1910.1200).
- WMNS Lockout/tagout standard consistent with (29 CFR 1910.147)
- Rights and responsibilities of employers and employees under applicable OSHA and EPA laws.
- General safety hazards, such as but not limited to electrical hazards, powered equipment hazards, motor vehicle hazards, walking/working surface hazards, excavation hazards, and hazards associated with working in hot and cold temperature extremes.
- WMNS Confined space entry procedures consistent with 29 CFR 1910.146.
- Work practices to minimize employee risk from site hazards.
- Safe use of engineering controls, equipment, and any new relevant safety technology or safety procedures.
- WMNS's spill control program.
- Proper use and limitations of material handling equipment.
- Procedures for safe and healthful preparation of containers for shipping and transport.
- Methods of communication.
- WMNS PPE Matrix for selection, use, maintenance, and limitations of personal protective equipment,
- Instruction in decontamination if required.
- Sources for additional hazard information, exercises using relevant manuals and hazard coding systems.

17 SITE VISITORS

All site visitors shall receive a site orientation prior to being able to access the site. All visitors shall be escorted while onsite.

18 MEDICAL SURVEILLANCE

Based on the contaminants of concern and the concentrations medical surveillance will be required.

19 SUBCONTRACTOR MANAGMENT

WMNS does not expect to employ subcontractors on this project.

20 HEALTH AND SAFETY MEETINGS

20.1 Daily Huddles

The District Manager or his designee will conduct daily safety tailgate meetings (huddle). Communication of any changes to address any new specific hazards at the facility.

20.2 Weekly Meetings

Once a week, the supervisors and crew will be presented with WMNS's planned safety topic for the week and to discuss any near misses, incidents, injuries and safety hazards specifically associated with the transloading of the wastes. Attendees will be encouraged to share safety

concerns or suggestions. Action items related to safety will be assigned and tracked to ensure timely resolution, reinforcing WMNS's commitment to maintaining a safe work environment.

21 HEALTH AND SAFETY INSPECTIONS

The District Manager or his designee will conduct a monthly site safety inspection and document observations and corrective actions.

Regular operations inspections are completed to ensure the facility is operating in compliance with all permits and authorizations.

22 INCIDENT/ACCIDENT REPORTING AND PROJECT DOCUMENTATION

Employees by WMNS Policy are required to notify the District Manager or his designee immediately of all near miss incidents and all accidents involving personal injury and property damage. A report for each incident occurrence includes but is not limited to the following:

1. Description of the event
2. Description of injuries and treatment required (short term and long term)
3. Description of property damage
4. Facility visits and inspections by other agencies as a result of an incident. Include, purpose of the visit, and any other pertinent information.

All injuries no matter how minor, along with any environmental incident, or otherwise shall be reported immediately to the District Manager or his designee who then shall notify the Pacific Pile & Marine HSE Department (206) 331-3873, as soon as practicable.

The District Manager or his designee will respond to the incident access the scene for safety and designate the correct response how the incident necessitates either medical emergency or non-medical (response outline in ERP). This will include agencies to be contacted if needed. After the initial response a Incident Notification will be communicated to project staff.

Any reporting of fatalities, hospitalizations, amputations, losses of an eye(s), etc. to regulatory agencies shall be conducted by Sr District Manager or his designee.

22.1 Investigation

All incidents will be thoroughly investigated and documented. WMNS's District Manager or his designee will lead the investigation and utilize all resources including the Safety Stand Down process with all present and or affected parties. Hazard communication and updates are paramount to the continued safety of the project staff, crew, and community as a whole.

22.2 HASP Location

Copies of the HASP will be located at the facility in the office.

23 SITE SPECIFIC HAZARDS AND CONTROL MEASURES

WMNS has developed detailed Job Hazard Analysis documents for all activities being completed at the facility. These WMNS JHA's are proprietary and confidential and will be supplied upon request separate from this HASP.

Emergency Action Plan



WM Duwamish Reload
Emergency Management Plan

<Waste Management Duwamish Reload>	
Sub-element Title	Emergency Management Plan
Sub-element No.	
Corporate Issue Date	

Author/Owner	Name and Title	Date
Corporate Owner	Waste Management Safety Services, LLC	10/8/2019
Site Mgmt. Owner/ Site Employee Owner	Zach Jenkins Daniel Weppler	4/7/2023
Field Co-owner(s)	Updated emergency response team	1/25/2022
	Anthony Garland	
	Removed Fly Ash and Kiln Dust Procedures(Not Applicable)	
	Updated Area Safety Manager	4/7/2023



WM Duwamish Reload
Emergency Management Plan

Program: Emergency Action Plan

Facility: 8th Avenue South Reload Facility

Facility Location: 7400 8th Avenue South, Seattle, WA 98108

Date: 4/7/2023 Reviewed By: Zach Jenkins

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WM Duwamish Reload
Emergency Management Plan

EMERGENCY ACTION PLAN AND CONTINGENCY PLAN

Introduction

This plan contains procedures for the 8th Avenue South Reload Facility personnel to follow in the event of an emergency on-site. In addition, a Fire Prevention Plan is included in Section C. *Personnel will be trained by their site management and if there are questions regarding the procedures in these plans, they should contact their site management.*

Emergency Telephone Numbers

EMERGENCY RESPONSE AGENCIES

Ambulance	<u>911</u>
Fire Department	<u>911</u>
Police Department	<u>911</u>
Highway Patrol	<u>911</u>
Non-Emergency Police	206-684-2489
Non-Emergency Fire	<u>206-386-1400</u>

MEDICAL CLINIC:

Concentra Urgent Care
3223 1st Avenue South
Seattle, WA 98134
Phone: 206-624-3651

HOSPITAL:

Harborview Medical Center
325 9th Avenue
Seattle, WA 98104
Phone: 206-744-3000

WMI KEY PERSONNEL:

Primary Emergency Coordinator – Daniel Weppler
Mobile: 206-200-6243

Alternate Emergency Coordinator – Anthony Garland
Mobile: 253-347-0118

District Manager- Zach Jenkins
Mobile- 206-496-7480

Area Safety Manager – Mark Frisco
Mobile: 503-250-2943



WM Duwamish Reload
Emergency Management Plan

OTHER AGENCIES, UTILITIES AND RESPONSE SUPPORT PROVIDERS:

Captain of the Port	206-217-6002
U.S. Coast Guard National Response Center	800-424-8802
Air Quality: Puget Sound Clean Air	206-343-8800
Electric: Seattle City Light	206-684-7400
Environmental: Spill Response Center	800-258-5990
Environmental: City of Seattle Spill Response	206-386-1800
Environmental: Wash. Dept. of Ecology	425-649-7000
Public Health: Seattle-King County Public Health	206-263-9566
Poison Control	800-222-1222

EMERGENCY RESPONSE TEAM

Name	Work #	Cell #	CPR	First Aid	Security	Equip Operation
Anthony Garland		253-347-0118	Yes	Yes	Yes	Yes
Daniel Weppler		206-498-8273	Yes	Yes	Yes	Yes

Emergency Procedures

Evacuation Procedure

Notify site personnel of the evacuation via oral instructions(Also broadcasted over the radio by stating “Emergency, Emergency, Emergency, Please evacuate to primary rally point). Repeat 3 times..

Personnel and visitors should be directed to take the safest route out of the site and reassemble at the “rally point” designated for this site:

Outside the North exit and directly across the street if remaining on the property is not safe.



WM Duwamish Reload *Emergency Management Plan*

A secondary “rally point” is located outside the Othello Street gate if primary rally point cannot be reached safely.

If outside emergency support is required, call the emergency number 911 and report the emergency. Inform the operator that there is an emergency and:

- Caller’s name and location.
- Type of emergency.
- Emergency aid required.

Stay on the line and answer all questions until told to hang up.

Advise a supervisor or the Emergency Coordinator of the situation and notifications made.

The Emergency Coordinator or supervisor in charge will be responsible for:

- Coordinating evacuation of the site including notification of adjacent property owners/tenants as required.
- Coordinating with incoming emergency response personnel.
- Conducting a head count at the designated assembly area or “rally point”.
- Notifying drivers via radio to avoid the site.
- Notifying the Operations/District Manager of the emergency.
- Notifying WMI Safety personnel of the emergency if appropriate and determine if a 24 Hour Report is required.
- Determining when the “all clear” signal can be given to return to the site.

Fire Procedure

Activate the site’s notification system or orally warn personnel on-site and call the emergency number 911 to report the fire. Inform the operator that there is a fire emergency and:

- Caller’s name and location.
- Location of fire.
- If known, materials involved.
- If medical aid is required.

Stay on the line and answer all questions until told to hang up.

If the fire is small (less than 1 cubic yard), can be approached safely with an escape route, and available personnel are trained in the use of the appropriate fire extinguisher, an attempt can be made to put the fire out.

If unable to extinguish the fire, evacuate the site and proceed to the designated re-assembly area or “rally point”.

Advise a supervisor or the Emergency Coordinator of the situation and notifications made.

The Emergency Coordinator or supervisor in charge will be responsible for:

- Coordinating evacuation of the site if required.

WM Duwamish Reload
Emergency Management Plan

- Coordinating with incoming emergency response personnel.
- Conducting a head count at the designated assembly point.
- Notifying drivers to avoid the yard.
- Notifying the Operations/District Manager of the emergency.
- Notifying WMI Safety personnel of the emergency if appropriate and determine if a 24 Hour Report is required.

Medical Emergency Procedure

Get a helper. If you are qualified, begin first aid (e.g. stop bleeding, begin CPR, etc.). Do not move victim unless necessary to prevent further injury.

Call emergency number 911. Inform the operator that there is a medical emergency and:

- Caller's name and location.
- Location of victim.
- Nature and extent of injury/illness.

Stay on the line and answer all questions until you are told to hang up.

Advise a supervisor or the Emergency Coordinator of the situation and notifications made.

Continue necessary first aid and keep victim warm and quiet until help arrives.

The Emergency Coordinator or supervisor in charge will be responsible for:

- Coordinating with incoming emergency response personnel.
- Notifying the Operations/District Manager of the emergency.
- Notifying WMI Safety personnel of the emergency if appropriate and determine if a 24 Hour Report is required.
- Notifying WISHA, OSHA or other regulatory agency if required.

Spill/Release/Emission Response Procedure

Alert personnel in the immediate area. If required, secure facility and evacuate to upwind site or designated reassembly area.

Isolate affected area from incoming traffic and personnel.

If safe and trained in use of required protective equipment, contain spill or block off drains downstream.

If unable to contain or clean-up spill safely, call emergency number 911. Inform operator that there is a spill emergency and:

- Caller's name and location.
- Location of spill.
- If known, materials and volumes involved.

WM Duwamish Reload *Emergency Management Plan*

- Whether medical aid is required.
- Whether fire hazard exists.

Stay on the line and answer all questions until you are told to hang up.

Advise a supervisor or the Emergency Coordinator of the situation and notifications made.

The Emergency Coordinator or supervisor in charge will be responsible for:

- Coordinating with incoming emergency response personnel.
- Notifying the Operations/District Manager of the emergency.
- Notifying WMI Safety personnel of the emergency if appropriate and determine if a 24 Hour Report is required.
- Notifying WMI Environmental Compliance personnel of the emergency if appropriate.
- Determining if regulatory agency reporting is required and making oral and written reports as required.

Earthquake

During the quake:

- Remain calm.
- If indoors, stay there. Hazards and injuries are generally caused by objects that fall due to the shaking. Move quickly away from windows, shelves, cabinets and glass partitions. Get under a desk or table, or sit in an interior doorway or corner. Do not leave the building unless the building is unsafe.
- If outdoors, get into an open area away from structures, power lines and trees.
- If driving, pull over to the side of the road and stop. Avoid overpasses and power lines. Stay inside vehicle until shaking has stopped. Call dispatch for further instructions.
- If in a crowded public place, do not rush for the doors. Crouch and cover head with hands and arms.

After the quake:

- Unless there is an immediate life-threatening emergency, do not attempt to use the telephone.
- Check for gas and water leaks, broken electrical wiring or sewage lines. If there is damage, turn the utility off at the source. Immediately report gas leaks to the utility company. Do not re-open gas valve until the utility company has checked the system. Check for downed power lines and warn others to stay away.
- Check buildings for cracks and damage including the roof and foundation.
- Turn on portable radio for instructions and news reports. Cooperate fully with public safety officials and instructions.
- Do not use vehicles unless there is an emergency. Keep the streets clear for emergency vehicles.



WM Duwamish Reload
Emergency Management Plan

- Be prepared for after shocks.
- Remain calm and lend a hand to others.
- If the site is evacuated, leave a message telling others where personnel can be found.

Bomb Threat (Instructions for CSRs)

Listen while the caller talks and fill out the bomb threat call checklist.

Attempt to determine the location and description of the bomb and time of detonation. Obtain as much information as possible including time of call, background noise, etc.

Notify one of the following personnel:

- Operations Manager
- District Manager

Report bomb threat to local police department.

Evacuation shall be initiated immediately after receiving bomb threat. Do not touch any suspicious items. Report any suspicious items to the Operations Manager and the local police department.

Evacuate the area where any suspicious items are located.

Next Page: Bomb Threat Call Checklist



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Emergency Management Plan

Bomb Threat Call Checklist:

Date: _____ Time: _____ A.M. / P.M.

Call Received by: _____

Exact words of caller: _____

Questions to Ask:

- When will be bomb explode? _____
- Where is the bomb located? _____
- What does the bomb look like? _____
- What kind of bomb is it? _____
- Why did you place the bomb? _____
- What do you hope to accomplish by this action? _____
- What is your name? _____
- Where are you calling from? _____

Voice Characteristics:

- Male _____ Female _____ Child _____ Loud _____ Soft _____ Nasal _____
- Raspy _____ High _____ Low _____ Familiar _____ Pleasant _____
- Other _____

Speech Characteristics:

- Fast _____ Slow _____ Stutter _____ Slurred _____ Intoxicated _____
- Other _____



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Emergency Management Plan

Accent Characteristics:

Local ____ Region ____ Foreign ____

Other _____

Manner of Caller:

Calm ____ Angry ____ Deliberate ____ Emotional ____

Laughing ____ Incoherent ____ Other _____

Background Noises:

Office Machines ____ Street Traffic ____ Factory Machines ____ Music ____

Airplanes ____ Trains ____ Trucks ____ Animals ____

Other _____

Origin of Call:

Internal ____ External ____ Local ____ Long Distance ____

Did caller appear to be familiar with the facility? _____

Number/extension at which call was received: _____

Contacts Made:

Operations/District Manager: Date _____ @ _____ am / pm

Police Department: Date _____ @ _____ am / pm

Fire Department: Date _____ @ _____ am / pm

Other: Date _____ @ _____ am / pm

Other: Date _____ @ _____ am / pm



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Civil Disturbance/Demonstration

Do not become a spectator. Leave the area of the disturbance to avoid injury or arrest.

Lock all doors, gates and windows. Close all drapes and avoid window areas. Do not argue with or agitate the participants.

Remain calm, be courteous and do not do anything to provoke an incident.

Contact the District/Operations Manager and local police department as soon as possible.

If required to protect employees and company property, service may have to be limited and/or access to the building may have to be restricted.

Keep telephone lines open and avoid unnecessary inquiries regarding the incident.

Release of Information to the Public/Media

In the event of an emergency, expect to handle media inquiries. The Operations/District Manager or designated spokesperson will coordinate all media relations. In the event the Operations/District Manager is not available and a spokesperson has not been designated, unauthorized personnel should **not** make any statement to the media. Contact the Waste Management Area office, advise WM Area management of situation and coordinate response to media requests.

Armed Robbery

If confronted by an armed robber, do not argue with the individual.

Give the individual what he wants. Do not block his option to escape.

Remember what you can about the incident including individual's height, weight, length of hair, color of eyes, color of hair, race, distinguishing marks or scars. If a weapon or vehicle is visible, try to remember as much detail about it as possible.

After the incident is over, call the police immediately.

Under no circumstances should any one try to intercede or stop the individuals involved in the incident.

Anti-Terrorism

In The Office:

- Close business.
- If there are customers or visitors in the building, provide for their safety by asking them to stay – not leave. When authorities provide directions to shelter-in-place*, they want everyone to take those steps immediately, where they are, and not drive or walk outdoors.
- Unless there is an imminent threat, ask employees, customers and visitors to call their emergency contact to let them know where they are and that they are safe.
- Turn on call-forwarding or alternative telephone answering systems. Change the recording on voice mail to indicate that the business is closed, and that staff and visitors are remaining in the building until authorities advise it is safe to leave.
- Close and lock all windows, exterior doors, and any other openings to the outside.
- If you are told there is danger of explosion, close window shades, blinds, or curtains.
- Have employees familiar with your building's mechanical systems to turn off all fans, heating and air conditioning systems. Some systems automatically provide for exchange of inside air with outside air – these systems in particular need to be turned off, sealed or disabled.
- Gather essential disaster supplies, such as nonperishable food, bottled water, battery-powered radios, first aid supplies, flashlights, batteries, duct tape, plastic sheeting, and plastic garbage bags.
- Select interior room(s) above the ground floor, with the fewest windows or vents. The room(s) should have adequate space for everyone to be able to sit in. Avoid overcrowding by selecting several rooms if necessary. Large storage closets, utility rooms, pantries, copy and conference rooms without exterior windows will work well. Avoid selecting a room with mechanical equipment like ventilation blowers or pipes, because this equipment may not be able to be sealed from the outdoors.
- It is ideal to have a hard-wired telephone in the room(s) you select. Call emergency contacts and have the phone available if you need to report a life-threatening condition. Cellular telephone equipment may be overwhelmed or damaged during an emergency.
- Use duct tape and plastic sheeting (heavier than food wrap) to seal all cracks around the door(s) and any vents into the room.
- Bring everyone into the room(s). Shut and lock the door(s).
- Write down the names of everyone in the room, and call your business' designated emergency contact to report who is in the room with you, and their affiliation with your business (employee, visitor, customer).
- Keep listening to the radio or television until you are told all is safe or you are told to evacuate. Local officials may call for evacuation in specific areas at greatest risk in your community.

WM Duwamish Reload *Emergency Management Plan*

Emergency Shut Down Procedures

All WM facilities use energy (e.g., electricity, natural gas), and some operate machinery (stored hazardous energy) that may pose hazards to first responders or cause excessive property damage. An appropriate shutdown procedure is vital for protecting lives and reducing property damage. For an emergency shutdown, please follow these steps:

- Ensure all equipment is parked and secured
- Have emergency response binder available for EMS to access specific locations

In A Vehicle - If you are driving a vehicle and hear advice to “shelter-in-place” on the radio, take these steps:

- If you are very close to home, your office, or a public building, go there immediately and go inside. Follow the shelter-in-place recommendations for the place you pick described above.
- If you are unable to get to a home or building quickly and safely, then pull over to the side of the road. Stop your vehicle in the safest place possible. If it is sunny outside, it is preferable to stop under a bridge or in a shady spot, to avoid being overheated.
- Turn off the engine. Close windows and vents.
- If possible, seal the heating/air conditioning vents with duct tape.
- Listen to the radio regularly for updated advice and instructions.
- Stay where you are until you are told it is safe to get back on the road. Be aware that some roads may be closed or traffic detoured. Follow the directions of law enforcement officials.

Local officials on the scene are the best source of information for your particular situation. Following their instructions during and after emergencies regarding sheltering, food, water, and clean up methods is your safest choice.

Remember that instructions to shelter-in-place are usually provided for durations of ***a few hours, not days or weeks.*** There is little danger that the room in which you are taking shelter will run out of oxygen and you will suffocate.

****What shelter-in-place means:***

One of the instructions you may be given in an emergency where hazardous materials may have been released into the atmosphere is to shelter-in-place. This is a precaution aimed to keep you safe while remaining indoors. (This is not the same thing as going to a shelter in case of a storm.) Shelter-in-place means selecting a small, interior room, with no or few windows, and take refuge there. It does not mean sealing off your entire home or office building.

Site Map

A site map of the 8th Avenue South Reload Facility that details the evacuation routes and re-assembly area or “rally-point” from all points on-site is available to you from your site

management. Location of emergency equipment and location(s) of emergency shut off(s) is also shown on map.

ADMINISTRATIVE PROCEDURES

Emergency Reporting

Reporting will be in compliance with federal, state, local and company requirements.

WMI reporting includes:

- Reporting of emergency incidents to the Operations/District Manager as soon as possible.
- Reporting of emergency incidents to Region management.
- Reporting of significant events (including bomb threats) to the WMI Safety/Environmental Compliance representatives.

Hazardous waste regulatory reporting requirements may include:

- If the emergency coordinator determines that the facility has had a release, fire, or explosion involving hazardous waste that could threaten human health, or the environment outside the facility, the emergency coordinator shall report the findings as follows:
- If evacuation may be advisable, the emergency coordinator shall immediately notify the appropriate local authorities and help these local officials decide whether local areas should be evacuated.
- The emergency coordinator shall in every situation, immediately notify the State Office of Emergency Services. This report shall include: name and telephone number of reporter; name and address of facility; time and type of incident; name and quantity of material(s) involved to the extent known; the extent of injuries, if any; and the possible hazards to human health, or the environment, outside the facility.

Training

Training will be in compliance with all federal, state, local and company requirements.

8ASR's training requirements include:

- A minimum of annual training of all employees in their responsibilities during an emergency.
- As required, testing of the plan by key staff.
- Semi-annual drills with all employees (see documentation form).
- Fire hazards of the materials and hazards to which employees are exposed.



WM Duwamish Reload *Emergency Management Plan*

- Location and operation of fire extinguishers.
- Proper and safe handling of gasoline and other petroleum products including cleanup of minor spills.
- Location of Emergency Action Plan, Contingency Plan, and Fire Prevention Plan.
- Location of evacuation routes and re-assembly points for the site.
- All training and drills will be documented and kept on file.

Plan Update and Distribution

The Emergency Management Plan, Contingency Plan, and Fire Prevention Plan will be updated as required.

The Emergency Management Plan, Contingency Plan, and Fire Prevention Plan will also be updated in the event:

- The plan fails in an emergency.
- The list of emergency equipment changes.
- Applicable regulations are revised.
- The emergency coordinator changes.

The Emergency Management Plan, Contingency Plan, and Fire Prevention Plan will be distributed to the following personnel/locations:

- Director of Operations
- District Manager
- Operations Manager
- Shift Supervisors, if any

Emergency Equipment Maintenance and Inspection.

Emergency equipment will be inspected on a monthly basis and deficiencies in supply or operation will be noted and corrected.

Emergency equipment on-site consists of:



WM Duwamish Reload
Emergency Management Plan

- Safety Shower
- Eye Wash Station
- First-Aid Kit
- Hand-Held Radios

Personal protective equipment including:

- Hard hats
- High Visibility Vest
- Ear plugs
- Work boots
- Gloves
- Fire extinguishers
- Shovels
- Absorbent material

Documentation of Semi-Annual Drill

Date Performed _____

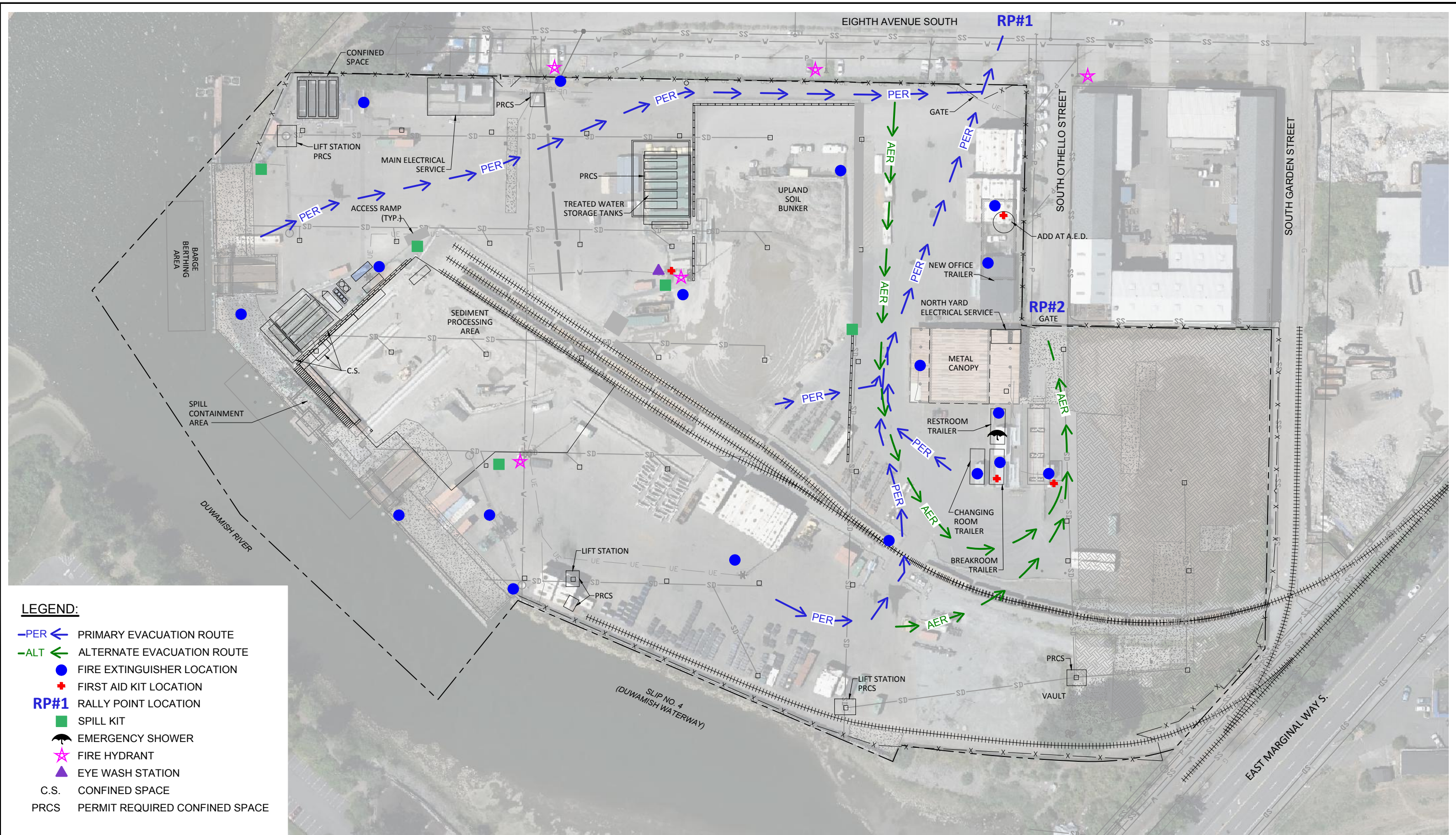
Facility Name _____

Certified By _____ Title _____

Comments _____

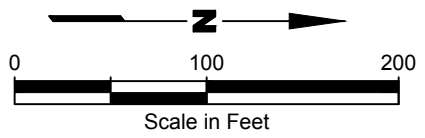


WM Duwamish Reload
Emergency Management Plan



LEGEND:

- ← PER ← PRIMARY EVACUATION ROUTE
- ← ALT ← ALTERNATE EVACUATION ROUTE
- FIRE EXTINGUISHER LOCATION
- + FIRST AID KIT LOCATION
- RP#1 RALLY POINT LOCATION
- SPILL KIT
- EMERGENCY SHOWER
- ★ FIRE HYDRANT
- ▲ EYE WASH STATION
- C.S. CONFINED SPACE
- PRCS PERMIT REQUIRED CONFINED SPACE



Source: ©Bing Imagery, 2022

Waste Management
 Duwamish Reload Facility
 7400 8th Avenue South
 Seattle, Washington

Emergency Site Plan

Site-specific Fire Prevention Plan

Facility Name:	8th Avenue South Reload Facility	
Facility Location:	7400 8th Ave S Seattle, WA 98108	Revision Date: 09/23/2015

Purpose

The purpose of a *Fire Prevention Plan* is to describe fire hazards, control measures, and necessary actions for emergencies. This is in addition to the location's *Emergency Action Plan*.

Fire Prevention Plan

General

(For California, this plan keeps your facility in compliance with Title 8, Section 3220 of the California Code of Regulations.)

This *Fire Prevention Plan* for <8th Avenue South Reload Facility> defines the following.

- Potential fire hazards
- Proper handling and storage procedures for combustible materials
- Potential ignition sources and their control procedures
- Type of fire protection equipment or systems available to control fire hazards

The names and job titles of personnel who are responsible for the maintenance of equipment and systems that are installed to prevent or control ignition of fires and the control of accumulation of flammable or combustible waste materials are:

Title	Name
Maintenance Manager	N/A
District/Site Manager	Nick Harbert
Operations Supervisor	Zach Jenkins

Housekeeping Procedures

Housekeeping procedures that must be followed on-site include the following.

- Avoid accumulating combustible materials.
- Keep flammable and combustible materials away from ignition sources.
- Keep all stairways, fire fighting equipment locations, and exit paths clear.
- Clean up spills/leaks promptly and store contaminated material safely.
- Report spill/leaks promptly to Site Management to ensure that a corrective action is taken.
- Remove all waste at the end of each shift and place it in appropriate waste receptacles.
- Store all oily rags in an approved receptacle for oily rags.
- Store flammables in an approved flammable cabinet that is a minimum of 25 feet from sources of ignition.
- Use correct cleaning agents and avoid the use of flammable/combustible materials for cleaning.

Potential Fire Hazards, Potential Ignition Sources, Proper Handling/Storage Procedures, and Fire Protection Equipment

Tables 1 and 2 list the potential fire hazards, potential ignition sources, proper handling/storage procedures, and fire protection equipment that can control these hazards.

Training

When portable fire extinguishers are provided at a WM facility and are intended for employee use, employees must receive education and training:

- Upon initial employment.
- At least annually thereafter.

The education and training must cover the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

The site's written *Fire Prevention Plan* must also be reviewed with employees. This review must be done at initial assignment and as necessary if/when conditions change.

The *Fire Prevention Plan* must be maintained in an area that is accessible to those employees.

This program is hereby approved:

Name

Signature

Date

TABLE 1

Site Locations with Potential Fire Hazards and Potential Ignition Sources

Location	Potential Fire Hazards	Potential Ignition Sources	Applicable to this location?
Administrative Offices	Combustible materials (e.g., paper, cardboard)	Open flames (e.g., smoking materials)	<input checked="" type="checkbox"/>
	Electrical cords/outlets/wiring	Hot surfaces (e.g., appliances, electrical wiring)	<input checked="" type="checkbox"/>
	Flammable/combustible liquids (e.g., aerosol cans, solvents)		<input checked="" type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

Location	Potential Fire Hazards	Potential Ignition Sources	Applicable to this location?
Storage Shed	Flammable/combustible liquids (e.g., diesel, solvents, product oils)	Open flames (e.g., welding, smoking materials)	<input checked="" type="checkbox"/>
	Combustible materials (e.g., paper, cardboard)	Sparks from friction (e.g., grinding)	<input checked="" type="checkbox"/>
	Electrical cords/outlets/wiring	Hot surfaces (e.g., power tools, electrical wiring)	<input checked="" type="checkbox"/>
	Contaminated materials (e.g., oily rags)	Internal combustion engines (e.g., vehicles, forklifts)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

Location	Potential Fire Hazards	Potential Ignition Sources	Applicable to this location?
Container Shop	Flammable/combustible liquids (e.g., paints, solvents)	Open flames (e.g., welding, smoking materials, etc.)	<input type="checkbox"/>
	Combustible materials (e.g., paper, cardboard)	Sparks from friction (e.g., grinding)	<input type="checkbox"/>
	Electrical cords/outlets/wiring	Hot surfaces (e.g., power tools, electrical wiring)	<input type="checkbox"/>
	Flammable/oxidizing gases (e.g., acetylene, oxygen)	Static electricity	<input type="checkbox"/>
	Open flames (e.g., welding, cutting)	Internal combustion engines (e.g., vehicles, forklifts)	<input type="checkbox"/>
	Contaminated materials (e.g., oily rags)		<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

N/A

Location	Potential Fire Hazards	Potential Ignition Sources	Applicable to this location?
MRF	Flammable/combustible liquids (e.g., diesel, solvents, product oils)	Open flames (e.g., welding, smoking materials)	<input type="checkbox"/>
	Combustible materials (e.g., paper, cardboard)	Sparks from friction (e.g., grinding)	<input type="checkbox"/>
	Electrical cords/outlets/wiring	Hot surfaces (e.g., power tools, electrical wiring)	<input type="checkbox"/>
	Flammable/oxidizing gases (e.g., acetylene, oxygen)	Static electricity	<input type="checkbox"/>
	Open flames (e.g., welding, cutting)	Internal combustion engines (e.g., vehicles, forklifts)	<input type="checkbox"/>
	Contaminated materials (e.g., oily rags)		<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

N/A

Location	Potential Fire Hazards	Potential Ignition Sources	Applicable to this location?
Other Location(s):			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

TABLE 2

Control Procedures and Fire Protection Equipment for Potential Fire Hazards and Potential Ignition Sources

Potential Fire Hazards/Ignition Sources	Control Procedure/Fire protection Equipment
Combustible Materials	Avoid accumulation of combustible materials (e.g., empty boxes, cartons, loose paper).
	Keep combustible materials away from ignition sources, including establishment/enforcement of no smoking/no open flame areas.
	Keep all stairways, firefighting equipment locations, and exit paths clear.
	Remove all waste (e.g., dust, lint, loose paper) at the end of each shift in each work area (including floors, ceilings, walls, ledges, beams, and equipment) and place in the appropriate waste receptacles.
	Maintain fire extinguishing equipment that is capable of handling Class A fires within 75 feet of combustible materials.
	Perform annual maintenance and monthly inspections on fire extinguishing equipment.
	Train personnel in the use of fire extinguishing equipment.

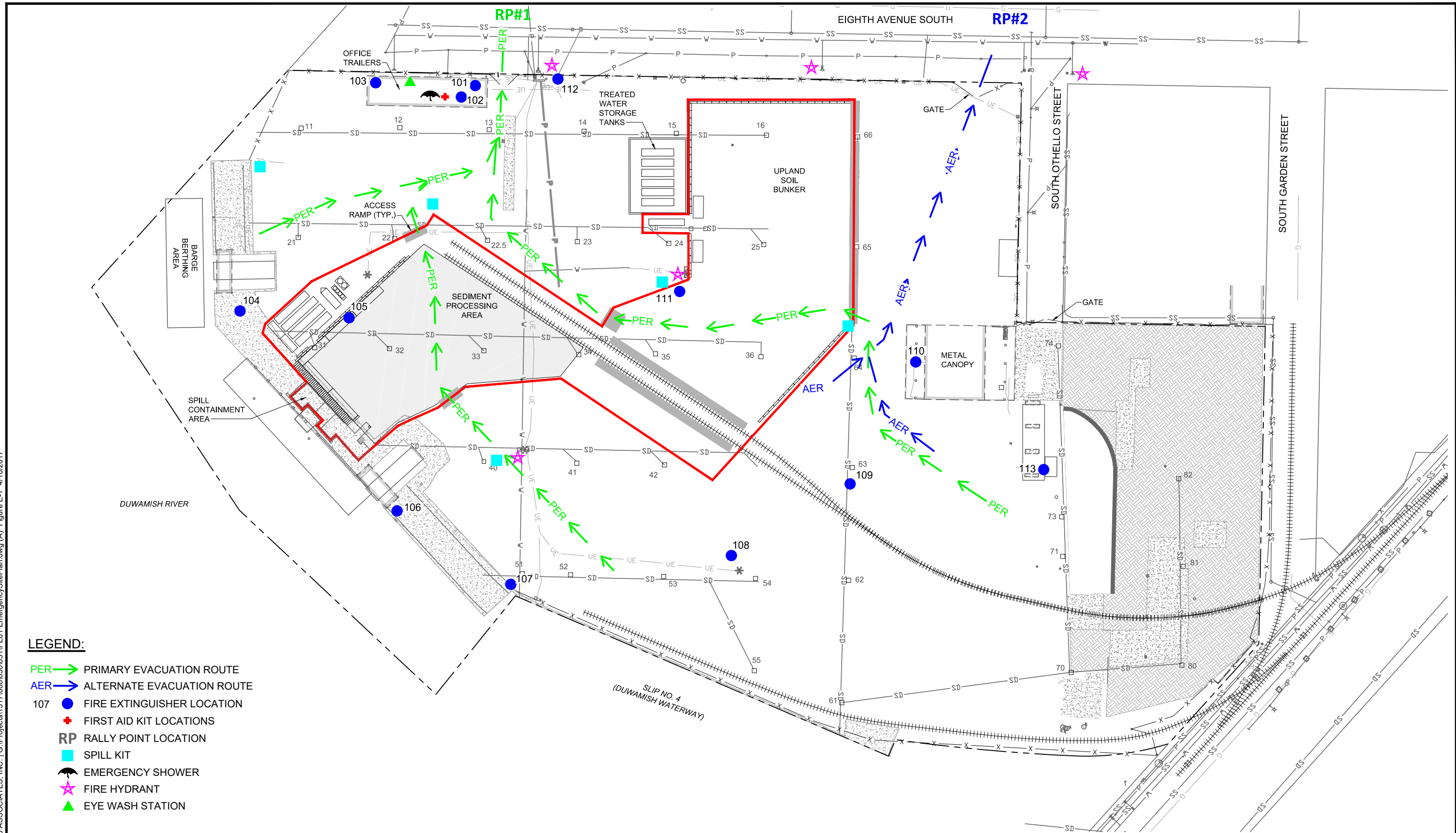
Potential Fire Hazards/Ignition Sources	Control Procedure/Fire protection Equipment
Electrical Cords/ Outlets/Wiring	Inspect power cords for damaged insulation and damaged plugs.
	Discontinue the use of a power cord that gets warm.
	Maintain electrical motors in good operating condition.
	Do not overload motors, cords, or other electrical equipment.
	Maintain fire extinguishing equipment that is capable of handling Class C fires near electrical equipment.
	Perform annual maintenance and monthly inspections on fire extinguishing equipment.
	Train personnel in the use of fire extinguishing equipment.
Flammable/ Combustible liquids	Keep materials in covered containers when not in use.
	Do not transport materials in open containers.
	Store flammable liquids in containers with appropriate warning labels.
	Do not store flammable/combustible liquids near sources of heat/ignition.
	Inert and verify inert atmosphere of containers, piping, and tanks that have contained flammable/combustible liquids prior to exposure to heat/flame.
	Maintain fire extinguishing equipment that is capable of handling Class B fires within 50 feet of flammable/combustible liquids.
	Perform annual maintenance and monthly inspections on fire extinguishing equipment.
	Train personnel in the use of fire extinguishing equipment.
Welding/Cutting	Establish approved areas for cutting and welding.

Potential Fire Hazards/Ignition Sources	Control Procedure/Fire protection Equipment
Operations	Establish approved procedures for a hot work program to restrict cutting/welding in all other areas and a designated individual for approving such cutting/welding.
	Utilize only approved equipment for cutting/welding.
	Train all personnel who perform cutting/welding.
	Verify the training of contractors who perform cutting/welding.
	Provide contractor orientation of potential fire hazards on-site.
	Do not perform cutting/welding within 35 feet of combustible materials.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires near the welding operation.
	Perform annual maintenance and monthly inspections on fire extinguishing equipment.
	Train personnel in the use of fire extinguishing equipment.

Potential Fire Hazards/Ignition Sources	Control Procedure/Fire protection Equipment
Flammable/Oxidizing Gas Cylinders	Do not store cylinders near sources of heat/flame.
	Cylinders that are stored inside buildings will be in a well-protected, well-ventilated, dry location at least 20 feet from highly combustible materials.
	Cylinder storage will be located where passing/falling objects will not damage cylinders.
	Do not store cylinders where they could be subject to tampering by unauthorized personnel.
	Do not store cylinders near elevators, stairs, passageways, or in unventilated enclosures.
	Do not store oxygen cylinders near highly combustible materials such as oil/grease.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires within 75 feet of welding areas.
Open Flames	Keep sources of ignition (including open flames) away from combustible materials.
	Establish and enforce no smoking/no open flame areas.
	Establish and enforce a hot work program.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires near areas with open flames.
Contaminated Materials	Keep sources of ignition away from contaminated materials.
	Store contaminated materials in appropriate waste receptacle (e.g., oily rag container).
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires where contaminated materials are stored.

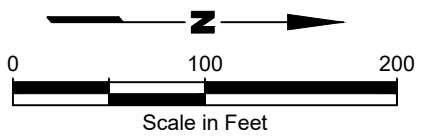
Potential Fire Hazards/Ignition Sources	Control Procedure/Fire protection Equipment
Hot Surfaces	Keep sources of ignition (including hot surfaces) away from combustible materials.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires near areas with hot surfaces.
Sparks from Friction	Keep sources of ignition (including sparks from friction) away from combustible materials.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires near areas where sparks from friction may occur.
Static Electricity	Utilize proper grounding/bonding procedures when moving volatile liquids.
	Verify the continuity of grounds on a regular basis.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires within 50 feet of flammable/combustible liquid storage.
Internal Combustion Engines	Maintain internal combustion engines in good repair.
	Clean up spills/leaks from internal combustion engines promptly and store contaminated material safely.
	Report spills/leaks from internal combustion engines promptly to supervision to assure corrective action is taken.
	Maintain fire extinguishing equipment that is capable of handling Class A, B, and C fires on all vehicles.

LANDAU ASSOCIATES, INC. | G:\Projects\151700605051\FE01_EmergencySitePlan.dwg (A) *Figure E-1* 4/10/2017



LEGEND:

- PER → PRIMARY EVACUATION ROUTE
- AER → ALTERNATE EVACUATION ROUTE
- 107 ● FIRE EXTINGUISHER LOCATION
- FIRST AID KIT LOCATIONS
- RP RALLY POINT LOCATION
- SPILL KIT
- ☔ EMERGENCY SHOWER
- ★ FIRE HYDRANT
- ▲ EYE WASH STATION



Source: Adapted from TETRA TECH 9/3/15

Waste Management
 Duwamish Reload Facility
 7400 8th Avenue South
 Seattle, Washington

Emergency Site Plan



Monthly Visual Fire Extinguisher Inspection Log

(Optional Form – This form may be used in lieu of the inspection tag on the fire extinguisher if the location or conditions prohibit the use of the tag. Each extinguisher must be assigned a unique identification number (ID#). For each month, the person performing the visual inspection will check the appropriate box on this form and then initial and date the column for the month.)

ID #	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Initial												
Date												

Annual Fire Extinguisher and Maintenance Inspection Record

Date of Inspection:	
Inspected By:	
Comments:	

Please attach the documentation from the fire extinguisher vendor to this form.

APPENDIX M: BOYER TOWING SAFETY MANAGEMENT SYSTEM

BOYER TOWING INC.

SAFETY MANGEMENT SYSTEM



BOYER TOWING, INC. SAFETY MANUAL



Document name: INTRODUCTION	Section No.: SM-00	
	Author: Safety Manager	
Controlled by: Safety Manager	Revision date:	Issue 00 1
Approved by: President	1 October 2017	Page 1 of 3

1.0 PURPOSE

The purpose of this manual is to ensure a healthy and safe working environment by implementing and maintaining reasonable and practical operating standards and policies of safety, health and environmental protection in compliance with recognized codes, standards and regulations.

2.0 SCOPE

This manual applies to all Boyer Towing, Inc. employees, in particular marine personnel and Operations and Engineering Department personnel.

Company policies shall take precedence when they are more stringent than other laws and regulations.

3.0 RESPONSIBILITY

The Safety Manager is responsible for maintaining the content and applicability of the sections within this manual.

All Boyer Towing, Inc. employees are responsible for familiarizing themselves and complying with the content of this manual.

4.0 DETAIL

4.1 Aims and Objectives

The instructions set out in this manual are issued to acquaint all employees of Company safety policies, procedures and guidelines. Employees should recognize that the various marine transportation functions performed are inherently dangerous and no such set of instructions can be completely comprehensive, cover every eventuality or ensure a completely safe operation without the support and vigilance of all employees.

Department Managers and vessel Masters should be guided at all times by their primary responsibilities which are for the safety of those entrusted to their care, the safety of the vessel, the safety of life, the safety of the cargo and the protection of the marine environment. All other considerations are secondary to these.

Document name: INTRODUCTION	Section No.: SM-00	
	Author: Safety Manager	
Controlled by: Safety Manager	Revision date:	Issue 00
Approved by: President	1 October 2017	Page 2 of 3

The purpose of these instructions is to provide a framework within which employees can work safely and effectively without inhibiting the use of initiative or discretion when faced with an unusual situation.

4.2 Knowledge of Safety Policy, Procedure and Guidelines

It is the duty of all Department Managers, vessel Masters and Mates to be familiar with the content of this manual. Those instructions relevant to other employees should be brought to their attention by the appropriate supervisor.

4.3 Orientation of New Employees

All newly hired Boyer Towing, Inc. employees shall complete a general company orientation prior to their first work assignment or within a reasonable timeframe. Company orientation training, as detailed in [PM-06-01-4.2](#), includes a review of essential personnel and safety procedures and programs.

All newly hired Boyer Towing, Inc. employees shall also complete functional safety orientation training.

4.4 Periodic Safety Training

After initial orientation/certification, all Boyer Towing, Inc. employees shall complete periodic functional training to review applicable safety procedures and programs as set forth in [PM-06-01-4.3](#).

4.5 Safety Program Responsibilities and Authority

4.5.1 President

The President is responsible for overseeing and supporting all aspects of the Company safety program. The President shall direct appropriate investigations of personnel injuries, shore-based motor vehicle accidents, and vessel accidents/casualties in accordance with Company procedures.

4.5.2 Safety Manager

The Safety Manager is responsible for developing and managing the various processes necessary to support safety management systems on Boyer Towing, Inc. vessels and operate the Company yard facility, in compliance with all safety and environmental regulations at the Federal, State, and local levels. The Safety Manager shall manage various company policies, procedures and safety training programs/manuals to keep current with regulatory agencies. The Safety Manager shall also conduct personnel injury investigations and shall assist in the other investigations as directed by senior management.

Document name: INTRODUCTION	Section No.: SM-00	
	Author: Safety Manager	
Controlled by: Safety Manager	Revision date:	Issue 00
Approved by: President	1 October 2017	Page 3 of 3

4.5.3 Operations and Engineering Management

Operations and Engineering Management are responsible for coordinating vessel and personnel schedules and providing oversight to ensure daily operations at sea and ashore are conducted in compliance with company policies and procedures, and in the safest manner possible. Operations and Engineering Management may assist incident investigations as directed by senior management.

4.5.4 Senior Port Captain

The Senior Port Captain is responsible for overseeing and supporting daily tug/barge operations and marine personnel for all operations. The Senior Port Captain shall conduct accident investigations for incidents on marine vessels and shall assist in the other investigations as directed by senior management.

4.5.5 Vessel Masters

Vessel Masters are responsible for providing appropriate instruction and supervision of crewmembers and oversight to vessel operations to ensure the highest attainable level of safety is achieved. Masters are responsible for taking corrective action for observed safety violations, unsafe equipment, non-conformities and non-compliance with established policies and procedures.

4.5.6 All Employees

All Boyer Towing, Inc. employees are responsible to conduct their work in the safest manner possible while adhering to established safety rules, policies and procedures. All employees should consider themselves safety inspectors at all times and be alert for safety hazards and violations of safety rules and policies. These should be immediately corrected when possible and reported to their immediate supervisor as soon as possible. All injuries, accidents, damage and near-misses must be reported to the immediate supervisor as soon as possible.

5.0 FORMS AND RECORDS

None.

6.0 REFERENCES

Boyer Towing, Inc. *Procedure Manual*

APPENDIX N: MARKER OFFSHORE HASP & EMERGENCY ACTION PLAN



Site-Specific Health and Safety Plan

Lower Duwamish Waterway Upper Reach Remedial Action

Contract KC001065

Revision	Date	Comment
0	August 23, 2024	Original
1	September 4, 2024	Revisions based on KC comments.
2	September 17, 2024	Revisions based on EPA comments
3	September 24, 2024	Minor revisions based on comments

Introduction

This Health and Site Safety Plan (HASP) outlines how health and safety concerns will be addressed and implemented in the project. This document is designed to educate all personnel involved in on-site activities about potential hazards. All on-site personnel and visitors are required to adhere to the guidelines, rules, and procedures detailed in this document and other project-related documents.

The content of this plan will be reviewed with all personnel before commencing work. However, this oversight management does not guarantee the health or safety of individuals entering the site. Due to the nature of the site and the wide range of activities taking place, it may not be possible to identify, assess, and mitigate all potential hazards that may arise. Adherence to this plan's health and safety guidelines will reduce, but not eliminate, the risk of injury at this site.

Location

The project is located on the Duwamish River in Seattle, WA, and runs from about River Miles 2.9 to 5.0. There are 18 sediment management areas (SMA), some subdivided and identified with letters such as 1A. SMA 10 is not included in the project. The survey sites are shown in **Error! Reference source not found.** below.

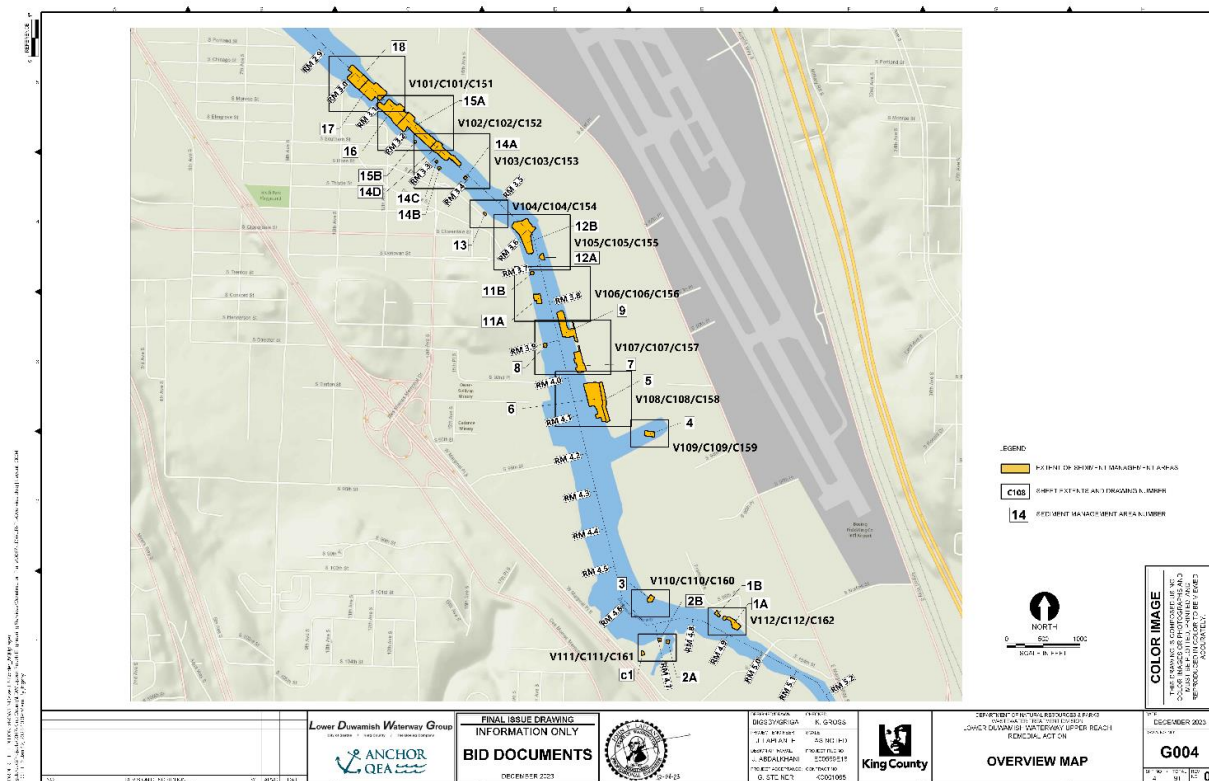


Figure 1. Project Overview Map - Sheet G004 from Contract Drawings Volume 3 of 3 January 2024

Scope of Work

Marker Offshore will perform the 3rd Party Hydrographic Dredge Survey Support of the Lower Duwamish Waterway Upper Reach Project. Surveys will include Pre-Dredge, Progress, and Post-Dredge Hydrographic and vessel-based topographic laser scanning surveys. This HASP is specific to hydrographic and vessel-

based topographic scanning. An amendment will be issued if it is determined that land topographic data collection is required.

The scope of work covered under this HASP includes activities related to:

- Field observations and data collection
- Site Demobilization

Specific activities during these phases are as follows:

- Small boat operations on a 24' or smaller survey vessel.
- Collection of multibeam sonar data using a vessel-mounted sonar
- Collection of topographic scanning data using a vessel-mounted topographic scanner
- Collection of sound velocity casts using a hand-lowered probe

The hazards and mitigations associated with these activities are discussed in the following section.

Hazards and Mitigations

Hydrographic surveying on the Duwamish River presents a range of inherent hazards due to the waterway's unique environmental, industrial, and urban characteristics. Understanding these hazards is crucial for planning and executing surveys safely and effectively. The following have been identified as hazards:

- Small Boat Operations
- Weather Conditions
- Currents and Tides
- Shallow and Variable Depths
- Heavy Vessel Traffic
- Pinch points
- Contact with mechanical equipment
- Driving Vehicles
- Improper lifting techniques
- Slips, trips, and falls on deck
- Heat Stress
- Cold Stress
- Contact with contaminated sediments

Small Boat Operations

The risk of a boating accident will be reduced by ensuring boat operators have a minimum of 5 years of experience, the vessel is in compliance with U.S. Coast Guard rules and regulations, proper vessel maintenance, and that emergency equipment is available onboard (i.e., life vests, life rings, , fire extinguishers, communication equipment, etc.). Other safety precautions that will be taken during boat operations include the following:

- The vessels will have required U.S. Coast Guard safety equipment onboard in good operating condition, including a PFD for each crew member, a first aid kit, fire extinguisher(s), distress flares, a throwable life ring, navigation charts for the work area, running lights, and a horn.
- Vessel operator will have at least five years of experience
- All crew members will be briefed on the location and use of onboard safety equipment.

- A fire extinguisher will be onboard.
- A properly secured life vest will be worn at all times while working on boats, piers, or docks
- VHF Channels 16 (US Coast Guard), 13 (bridge to bridge) and 14 (vessel traffic) will be monitored.
- Crew members will not untie mooring lines until instructed by the vessel operator.
- Crew member members will not jump between the vessel and the dock.
- Docks will be approached slowly
- In case of a severe emergency such as fire or imminent sinking, the vessel will not be abandoned unless no other option is available. The boat will be run aground, or a rescue by another vessel will be attempted. More details can be found in the **Emergency Response** Section.
- If refueling is necessary, the engine will be turned off and allowed to cool before fueling.
- In case of oil spill, absorbent pads will be used to contain the spill. All oil spills will be promptly reported to the National Response Center (1-800-424-8802 or 202- 267-2675).
- Smoking is not permitted onboard the vessels.

Weather Conditions

Weather in the Pacific Northwest can change rapidly, with fog, rain, and low visibility common occurrences, especially in the fall and winter months. These conditions can make navigation and data collection more challenging and pose a risk to physical comfort and safety. The following mitigation steps will be taken:

- Assessing forecasted weather conditions from the National Weather Service Marine Weather Forecast before arriving on site.
- Using online resources, such as wind models from Windy.com to predict favorable survey windows
- Conducting surveys during favorable weather conditions with clear visibility, if possible.
- Using vessels equipped with GPS, navigation lights, foghorn, and other navigation aids to ensure safe, low-visibility operations.
- Equipping personnel with appropriate foul-weather gear.
- Using the 30/30 rule if lightning or thunder occurs. If the time between seeing lightning and hearing thunder is 30 seconds or less, the boat will move near a tall structure such as a bridge and remain there until 30 minutes after the last thunder is heard.

Currents and Tides

The Duwamish River experiences significant tidal influences in addition to river currents, which can lead to strong currents and wave action. The following mitigation steps will be taken:

- Scheduling survey operations during favorable tides and currents, if possible.
- Checking NOAA Tide and Currents for predicted and real-time tide charts before survey.
- Equipping vessel with secondary engine in case of primary engine failure.

Shallow and Variable Depths

The Duwamish River has varying depths, with hazards such as shallow water, floating debris, and submerged objects. These hazards could cause grounding or damage to equipment or personnel. The following mitigation steps will be taken:

- Using shallow draft, highly maneuverable survey vessels.
- Continuous visual scanning for possible submerged or floating debris.
- Using background bathymetric charts.
- Monitoring real-time water depths.

- Maintaining slow vessel speeds when outside the navigation channel
- Using the most recent bathymetric data to reflect current depth conditions.

Pinch Points

Pinch points are a common hazard through all stages of work. To mitigate the hazards, the following steps will be taken:

- Paying close attention to moving parts
- Watching hand and foot placement
- Leaving any safety guards and covers in place

Heavy Vessel Traffic

The Duwamish River is a busy industrial waterway with frequent movements of large commercial vessels, tugs, and barges. This heavy traffic increases the risk of collisions and complicates survey operations. The following mitigation steps will be taken:

- Coordinating with waterfront companies in the project site to coordinate survey windows based on barge loading and docking schedules.
- Monitoring VHF radio to stay informed of and communicate with nearby vessels.
- All crew members will watch for hazards such as approaching vessels or wakes. It will not be assumed that other crew members see such hazards and they will be alerted to any potential risks observed.

Contact with Mechanical Equipment

During this project, contact with mechanical equipment such as hydraulic arm mounts and small boats will occur. These devices have gears and motors with rotating and reciprocating parts that, if left unguarded, could pose a pinch and grab hazard. Boat crew can also be injured by ropes and cables used onboard to set anchors and tie off the vessel. The following steps will be taken to mitigate these hazards.

- Be aware of hand and body placement
- Be aware of surroundings
- Engine cover and guards to remain in place when energized.
- Clear communication when deploying and recovering over the side sonar mount.

Driving Vehicles

Vehicles will be used to drive to and from the jobsite. The following steps will be taken to mitigate hazards associated with driving:

- Maintaining a safe following distance from the car ahead
- Adjusting speed to drive slower in bad weather
- Staying alert and continuously monitoring mirrors and blind spots
- No device use while driving
- Wearing a seat belt
- Using running lights
- Vehicle walk-around and safety check each time before getting in vehicle.

Improper Lifting

Proper lifting techniques will be used when lifting heavy loads, tools, or equipment. Proper lifting techniques include bending the knees, obtaining assistance with loads greater than 50 pounds, and employing mechanical lifting aids.

Noise

Noise levels may exceed 85 decibels (dBs) at some locations. If oversight management personnel must work around these noise sources for most of their shift, they will wear hearing protection, such as ear plugs or muffs.

Slips, trips and falls on deck

Slips, trips, and falls are a hazard in any work environment. The following steps will be taken to mitigate risk:

- Working during daylight hours
- Awareness of surroundings, practicing good housekeeping, watching foot placement
- Using fall protection when at unprotected heights greater than 4 feet relative to deck
- Identifying and marking all potential trip hazards

Heat Stress

Heat stress is a concern where strenuous physical activity or protective clothing can lead to excessive body heat. Prolonged exposure to heat can result in heat-related illnesses such as heat exhaustion, heat cramps, or even heat stroke, which can be life-threatening.

To mitigate heat stress, the following preventive measures will be taken:

- Provide ample hydration
- allowing for regular rest breaks in shaded or cool areas
- scheduling the most physically demanding tasks during cooler parts of the day
- Educating personnel on the symptoms of heat stress and the importance of acclimatization can help in early identification and intervention.
- Personal protective equipment (PPE) will be chosen to minimize heat retention

Emergency Procedures if heat stress is suspected:

- Move the affected individual to a cooler, shaded area immediately.
- Remove any excess clothing and provide cool water to drink.
- Use cool, damp cloths or fans to lower the person's body temperature.
- If symptoms worsen or if heat stroke is suspected (e.g., high body temperature, confusion, loss of consciousness), call emergency services immediately (911).
- If the person is unconscious or not breathing, initiate CPR and continue to cool them down until emergency services arrive.

Cold Stress

Cold stress occurs when the body is unable to maintain its normal temperature due to prolonged exposure to cold environments and can lead to health hazards such as hypothermia. These conditions can be life-threatening if not promptly addressed. To mitigate cold stress, the following measures will be implemented to keep workers warm and dry:

- Providing appropriate clothing and gear, such as insulated, moisture-wicking layers, waterproof outerwear, and thermal gloves and boots.
- Having working heaters on vessels to keep personnel warm.
- Training workers to recognize the early signs of cold stress, such as shivering, numbness, and disorientation, and will be encouraged to look out for each other in these conditions.

Emergency Procedures if hypothermia is suspected:

- Move the affected individual to a warm, dry area immediately.
- Remove wet clothing and replace it with dry, insulated clothing or blankets.
- Provide warm, non-alcoholic beverages if the person is conscious.
- Do not apply direct heat, such as a heating pad, as this could cause burns or shock.
- If the person is unconscious or exhibits severe symptoms (e.g., confusion, slurred speech, weak pulse), call emergency services immediately (911).
- Continue to monitor the individual's vital signs and provide first aid until help arrives.

Contaminated Sediments

Contact with contaminated sediments is unlikely, however may occur during sound velocity casts. During a cast, a sound velocity probe is lowered through the water column to the bottom to profile the sound speed. The following steps will be taken to mitigate the change of contact with contaminated sediments.

- All personnel will have completed 40-hour HAZWOPER training
- Chemical-resistant gloves will be worn during sound velocity casts
- Long Sleeve clothing and long sleeve pants
- Safety Glasses
- Water depth of cast location will be queried prior to deploying the probe
- The line used for casts will have graduated marks to indicate the probe depth
- Probe will be deployed to a depth less than the water depth to avoid contact with the seabed.

If the probe touches the seabed and is recovered with contaminated sediments, the probe will be rinsed in waterway waters before being brought aboard the vessel.

Safety Protocols and Procedures

The following safety protocols and procedures will be followed during all stages. This living document may be updated as new hazards occur or better mitigation methods are identified.

Training

All Marker Offshore personnel will be certified in First Aid, CPR, and AED training. Personnel will also complete 40-hour HAZWOPER training to ensure they are aware of and know how to manage exposure to contaminated sediments.

Personal Protective Equipment (PPE)

The following PPE is required at a minimum for all tasks:

- Safety Toe Work Boots
- Personal Flotation Device (PFD)

PFDs will be properly buckled when on or over the water. Type V hydrostatic PFDs will be checked for operational function at the beginning of each day and maintained in accordance with the manufacturer's recommendations, such as CO2 cartridge replacement and a zipper deployment maintenance schedule.

In addition, the following PPE will be required when performing sound velocity casts and there is potential for contact with contaminated sediments.

- Gloves
- Safety Glasses
- Long Sleeve Shirt and Pants

At the discretion of the Site Safety Officer, the following additional PPE may be required and will be kept readily accessible:

- Hard Hats
- Hearing Protection
- Fall restraint for working at a height over 4 feet above the deck.

First Aid Kit and Emergency Supplies

The Site Safety Officer will be responsible for informing personnel of the location of Emergency equipment.

Emergency equipment on board the survey boat will contain, at a minimum:

- Fire extinguisher
- Flare kit
- Immersion Suits
- VHF radio
- First aid kit
- Horn
- Bilge pump
- Throwable floatation device
- Spare fuel supply
- Flashlights/headlamps

Safe Operating of Vessels and Equipment

The vessel operator will have at least 5 years of experience operating small vessels.

Emergency Response

Personnel

The key personnel, title, role, and contact information for the primary individuals involved in this project are listed below. Two personnel from the below list, one assuming the role of Site Safety Officer/Party Chief and one as a Survey Technician, will be involved in field efforts. Sometimes, a Pacific Pile and Marine employee will operate the vessel, with one Marker personnel performing the survey. The Site Safety and Health Officer is responsible for communicating with the Project and Survey Lead

Table 1. Marker Offshore Personnel

Name	Title	Safety Role	Phone	Email
Christopher Kemp	Principal	Project and Survey Lead	██████████	ckemp@markeroffshore.com
Eric Miller	Lead Hydrographer	Site Safety Officer	██████████	emiller@markeroffshore.com
Lars Lindblad	Project Manager	Alternate Site Safety Officer	██████████	llindblad@markeroffshore.com
Signe Kemp	Project Coordinator	HS&E Manager	██████████	skemp@markeroffshore.com

Incident / Accident Communication Chart with Medical Emergency

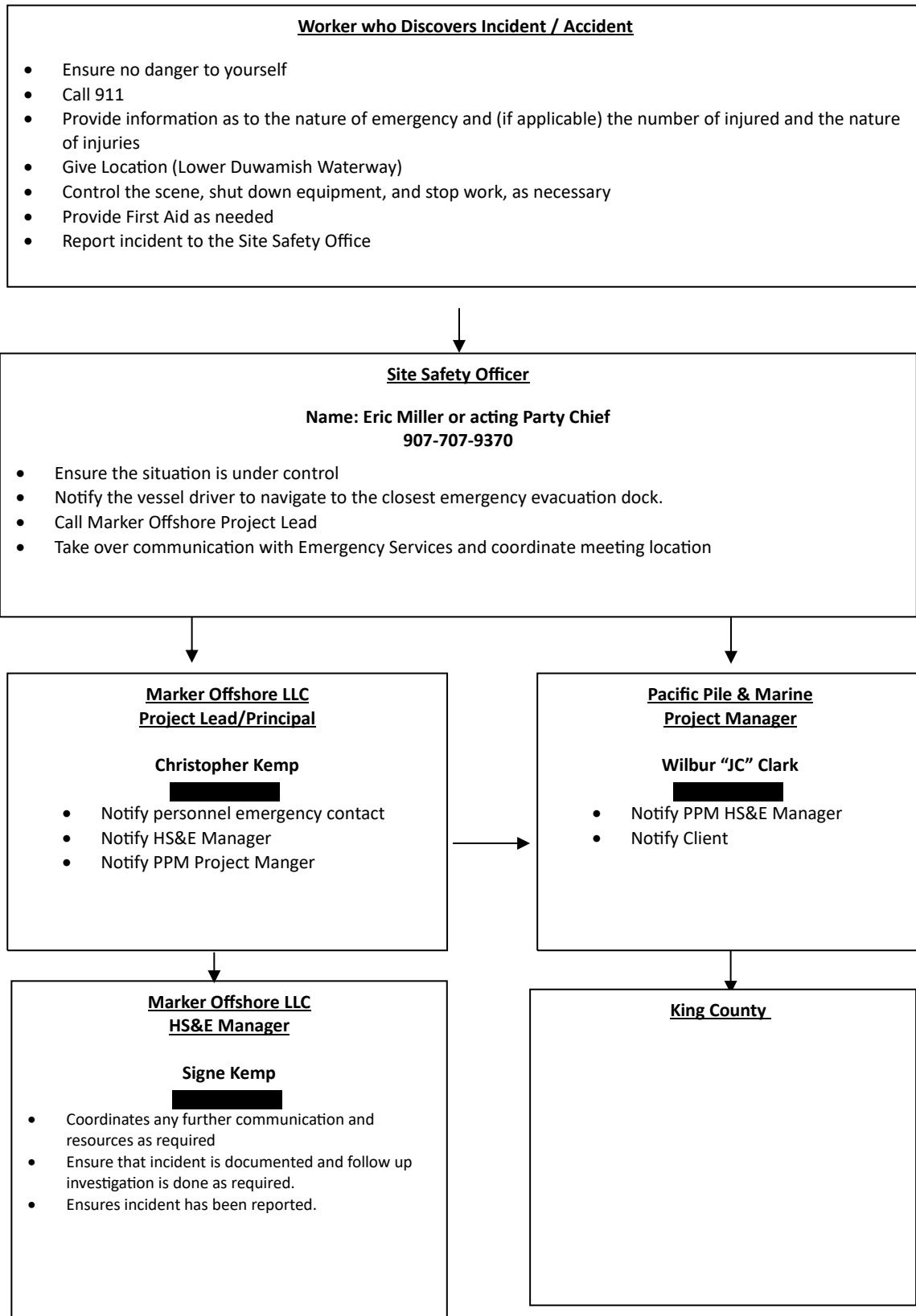


Figure 2. Incident/Accident Communication Chart with Medical Emergency

Incident / Accident Communication Chart with Marine Hazard to Navigation

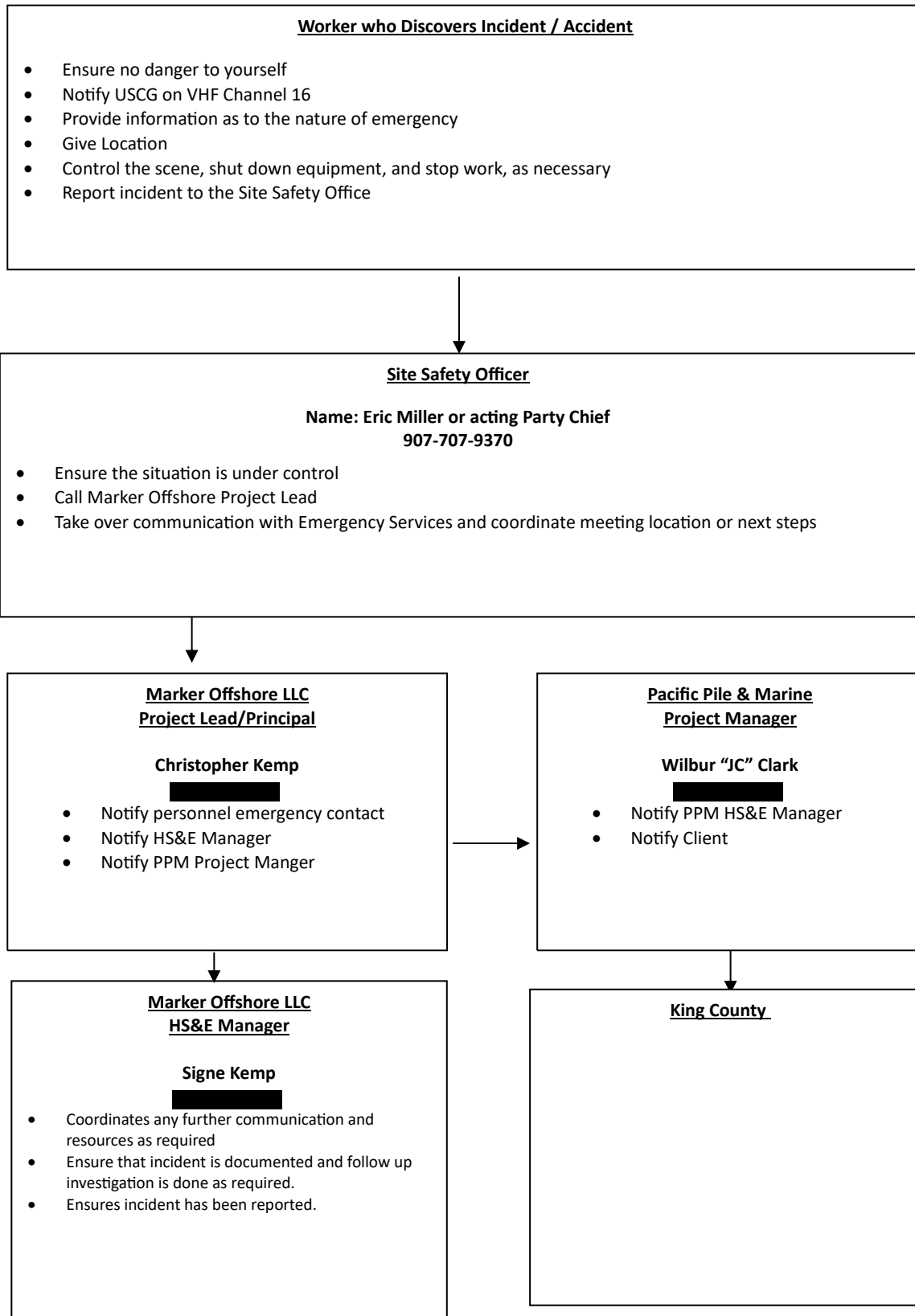


Figure 3. Incident/Accident Communication Chart with Hazard to Navigation

Site Evacuation Plan

In the event of an emergency or accident while on-site, the following procedures will be followed to ensure the safety of all crew members. A summary of emergency evacuation docks and which one will be used depending on work area is given in

. In addition, a summary of nearby emergency services is given in **Error! Reference source not found..**

Assess the Situation

- The employee who discovers the incident will assess the situation for danger to self and the nature and severity of the emergency.

Communication

- The employee who discovers the incident will call 911 and report the nature of the emergency, the number injured (if applicable), and the general location (Lower Duwamish Waterway).
- The employee discovering the injury will notify the Site Safety Officer.
- The Site Safety Officer, who will communicate with the vessel driver, emergency services, and the project lead. Chain of communication will continue as detailed in Figure 2 or Figure 3.

Evacuation Procedure

- Vessel driver will navigate the vessel to dock or shoreline for evacuation. The evacuation dock will be determined based on the work area according to Table 2.

Transfer

- Once docked, carefully transfer the patient off the boat using available assistance, avoiding unnecessary movements that could cause further harm.

Muster Station

- Gather near the closest road to meet emergency services or determine next steps. If necessary, continue first aid to the level of training and wait for Emergency Services to arrive.
 - a. NOTE: If evacuated to PPM's Small Boat Dock, the designated muster station is in front of PPM's shop located at 528 Riverside Drive, Seattle, WA 98108 (Figure 8).

Transport

- Let Emergency Services take over upon arrival and transport injured via ambulance.
- The nearest Hospital is Harborview Medical Center. Routes to the Hospital from each evacuation dock shown in Figure 5 - Figure 7.
- For minor, non-life-threatening injuries, transport to the closest urgent care facility located at:

Concentra Urgent Care at 3223 1st Ave S, Ste C, Seattle, WA 98134

Post Evacuation Procedure

- Record all details of the incident, including date, time, nature of emergency, actions taken, and communication with emergency services.

- Conduct a review of the incident with all personnel involved. Debrief and discuss what occurred, what was done, and how procedures could be improved in the future.
- Ensure all necessary documentation and reports are filed.

Emergency Evacuation Docks and Nearby Emergency Response Facilities

Table 2. Emergency Evacuation Dock

Name	Address	Description	Relevant Work Area
Pacific Pile & Marine Small Boat Dock	528 South Riverside Drive Seattle, WA 98108	Emergency Evacuation Dock	SMA 14-18
South Park Marina	8604 Dallas Ave South Tukwila, WA 98108	Emergency Evacuation Dock	SMA 1-13
Duwamish River (1 st Avenue Bridge) Boat Ramp	108 South River Street Seattle, WA 98108	Emergency Evacuation Dock	Alternate if access to other docks is unavailable



Figure 4. General Project Area and Emergency Evacuation Docks

Table 3. Nearby Emergency Response Facilities

Name	Address	Description
Harborview Medical Center	325 9th Avenue Seattle, WA	Closest Emergency Room
Swedish First Hill Campus Emergency Room	700 Minor Avenue Seattle, WA 98122	Other Nearby Emergency Room
Concentra Urgent Care	3223 1 st Avenue S, Ste C Seattle, WA 98134	Closest Urgent Care
ZoomCare	517 Union Street Seattle, WA 98101	Other Nearby Urgent Care
Seattle Fire Station 26	800 S Cloverdale Street Seattle, WA 98108	Closest Fire Station to the southern shore of Duwamish River
Seattle Fire Station 27	1000 S Myrtle Street Seattle, WA 98108	Closest Fire Station to the northern shore of Duwamish River

Routes to Harborview Medical Center

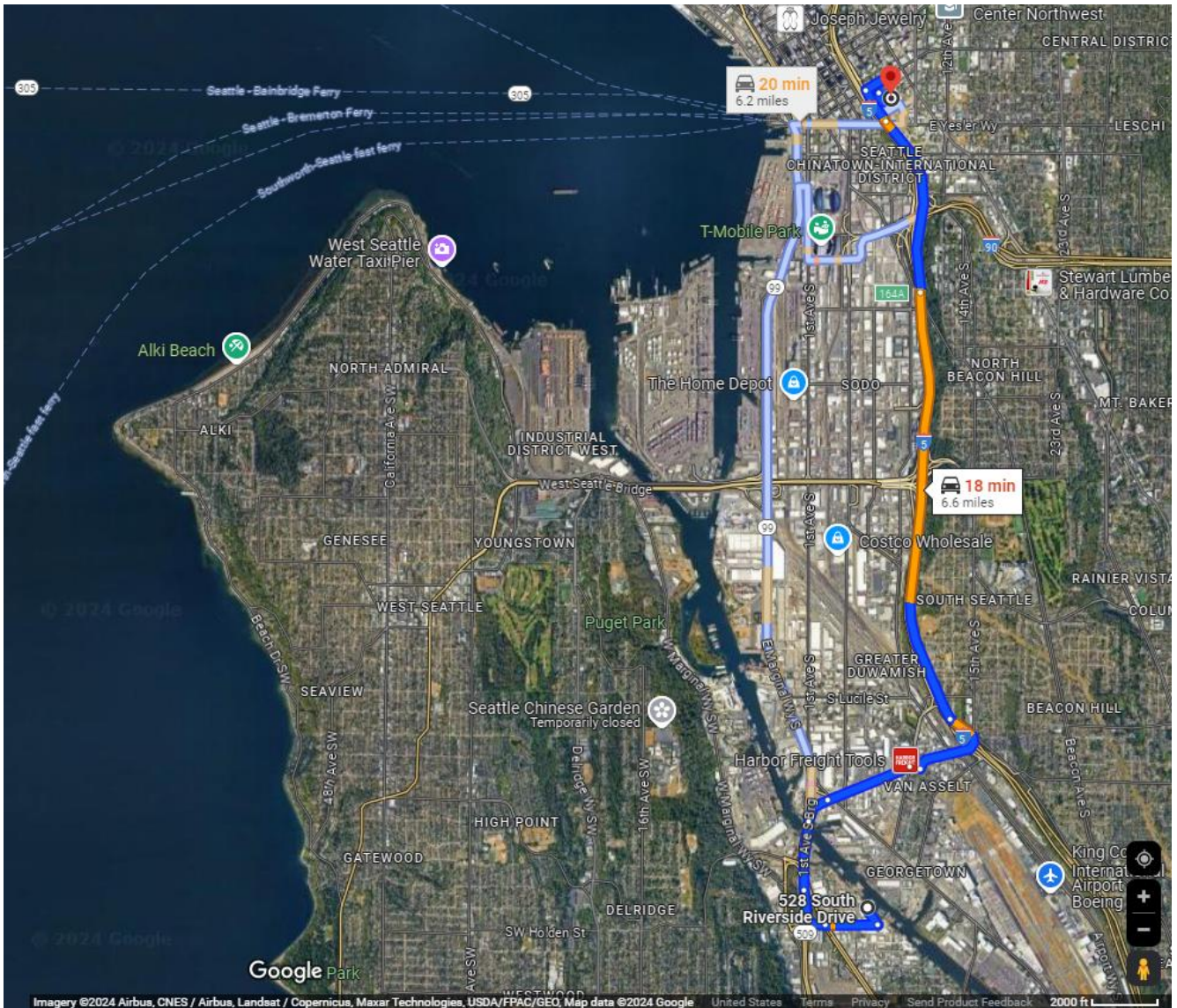


Figure 5. Route to nearest Hospital (Harborview Medical Center) from Pacific Pile and Marine's shop (Evacuation area for SMAs 14-18).

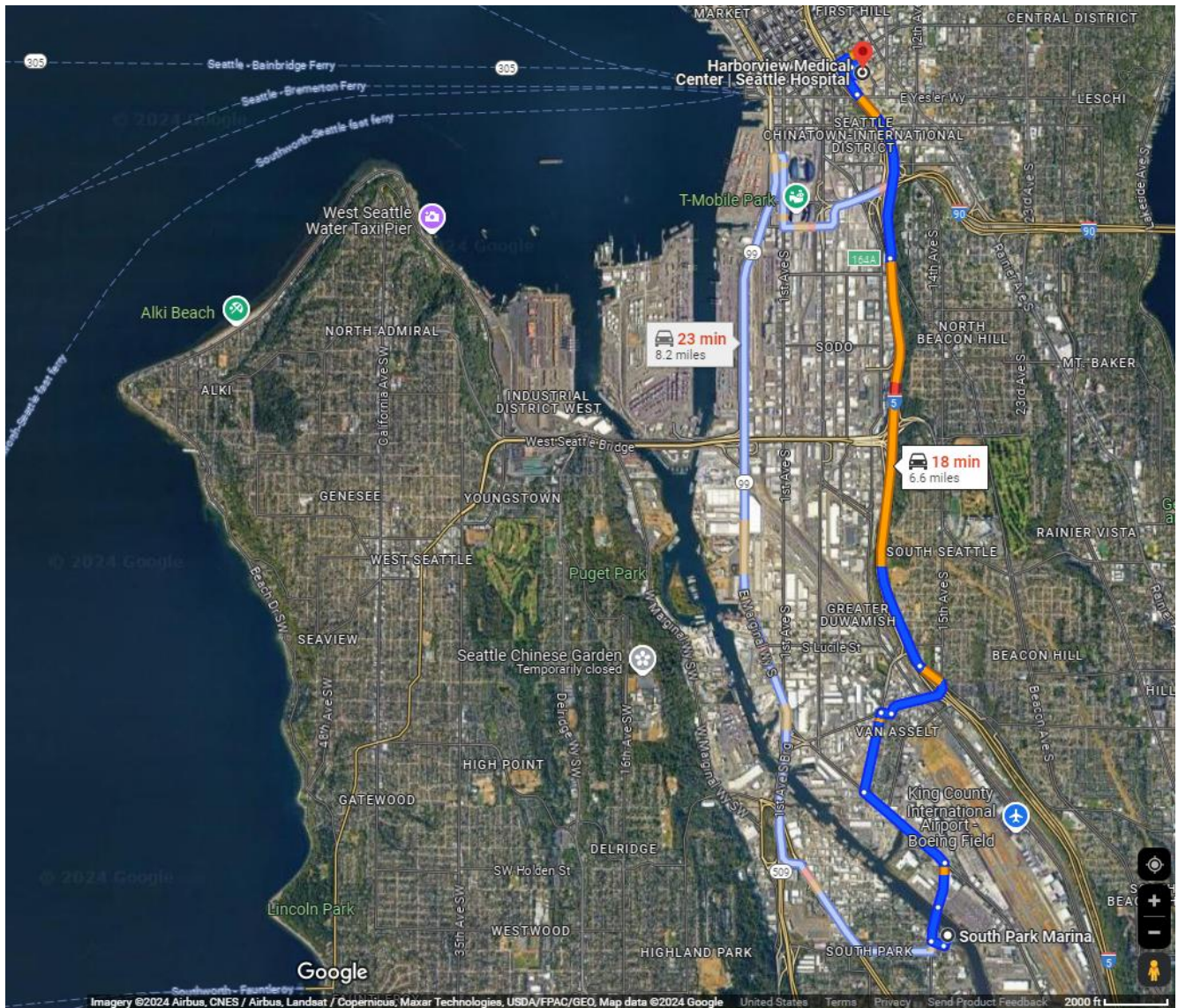


Figure 6. Route to nearest Hospital (Harborview Medical Center) from South Park Marina (Evacuation area for SMAs 1-13).

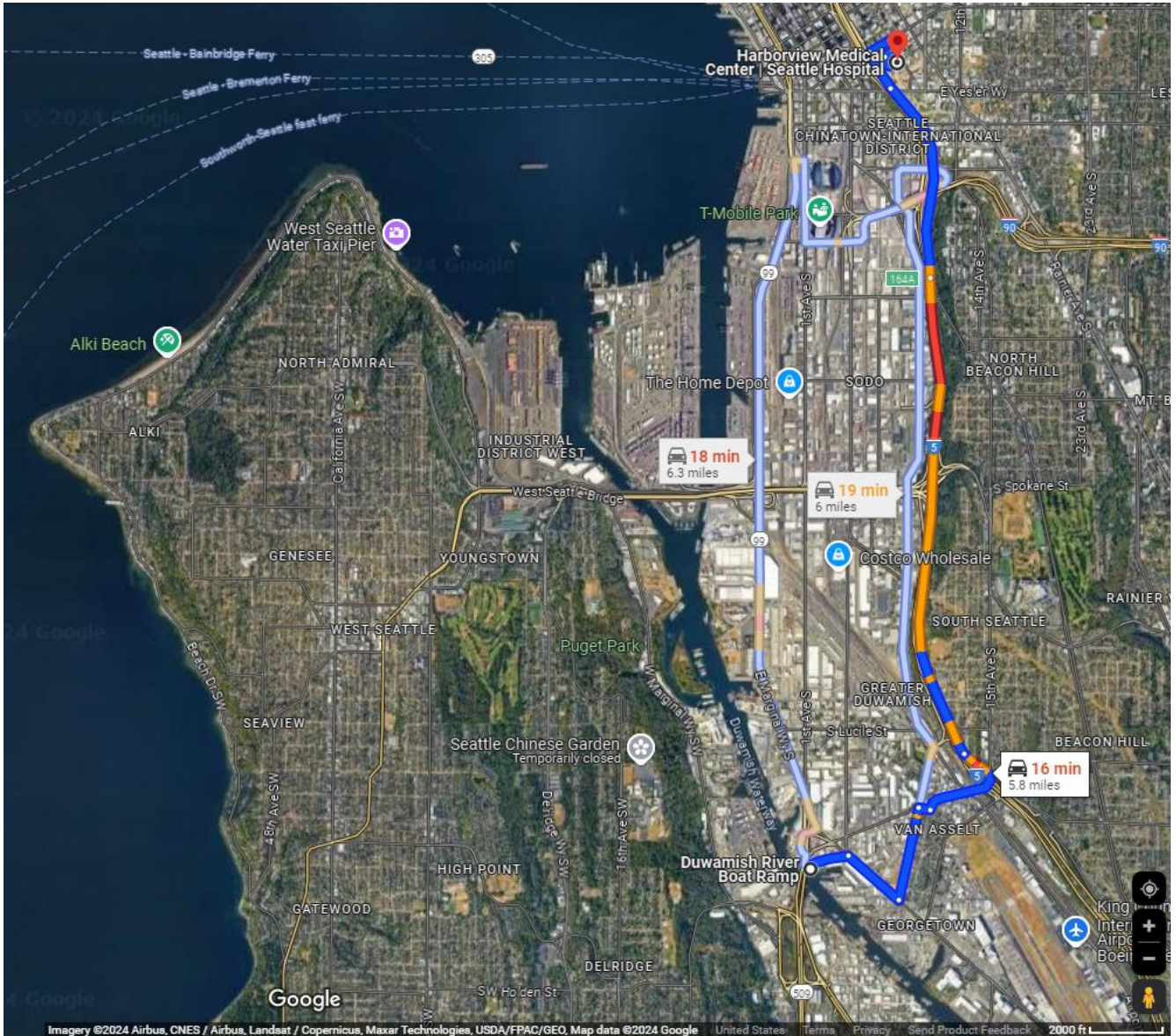


Figure 7. Route to nearest Hospital (Harborview Medical Center) from Duwamish River Boat Ramp (Alternate Evacuation Area).



Figure 8. Primary Muster Location outside of Pacific Pile and Marine's Shop at 528 S Riverside Dr, Seattle WA. Image from Google Street View.

Float Plan and General Emergency Action Plan

The project manager will be informed of the day's float plan and survey activities. The float plan will detail the persons on board, the expected departure time, arrival time, and work location.

In case of an emergency, the Site Safety Officer will call 911 via cell phone or contact USCG via Channel 16, as appropriate.

- Life jackets will always be worn while onboard the vessel.
- Operations will be conducted during daylight hours.
- Emergency equipment on board the survey boat will contain, at a minimum:
 - Fire extinguisher
 - Flare kit
 - VHF radio
 - Bilge pump
 - First aid kit
 - Horn
 - Throwable floatation device
 - Spare fuel supply
 - Flashlights/headlamps

Man Overboard

In the event of a man overboard (MOB), the survey vessel will deploy a throwable flotation device. Before attempting to recover the man overboard, the Site Safety Officer will inform the Project Lead of the situation. Upon Discovering a man overboard, the following steps will be taken.

1. The person who witnesses the person falling overboard keeps their eyes on the person in the water and points at them with an extended arm.
2. This person remains the designated spotter and never removes his sights from the MOB.
3. This person also raises the alarm by shouting “man overboard port/starboard side until the boat operator has been notified or the vessel begins recovery maneuvers.
4. Have others throw life rings, life buoys, life jackets or any other nearby buoyant items toward the MOB. This will help mark the position of the MOB as well as potentially provide flotation.
5. The vessel operator will begin recovery maneuvers with caution to avoid injury to the MOB.
6. Turn the vessel 180 degrees to begin moving nearer the MOB.
7. The vessel operator will maneuver vessel into position, with wind and current in mind, to bring MOB to the starboard stern at the swim step. The engines will be put in neutral, the recovery ladder lowered, and MOB is brought on board.
8. Verify the extent of any injuries and begin procedures to warm up individual and provide first aid.



Figure 9. Man Overboard Recovery Zone at Starboard Swim Step

Abandon Ship Procedures

Due to the immediate proximity of the project site to shore and docks, the vessel will first try to beach itself on the closest land or dock. However, in the unlikely event that the crew must abandon ship into the water, they will take the VHF radio, flare kit, and PLB.. The crew will attempt to maintain communications with the Project Lead and update them on their position if additional assistance from the Coast Guard is needed. Only the Vessel Operator may give the order to abandon ship. Procedures for abandon ship are:

1. Put on all available warm clothing,.
2. Don immersion suits
3. Collect first aid kit.
4. Note the current position.
5. Send out MAYDAY message.
6. Get a safe distance from the sinking vessel.
7. Collect all available flotsam.
8. Keep warm by huddling bodies together.
9. Arrange lookout watches.
10. Use flares when there is a real chance of them being seen.

Fire / Explosion

Each vessel is equipped with hand-held fire extinguishers. All personnel will be familiar with their expected duties during a fire/explosion. The basic procedure in the event of a fire or explosion includes.

Firefighting priorities are:

1. Assess imminent safety to life and abandon ship if necessary.
2. Prevent the fire from spreading
3. Keep the fire away from flammable agents such as fuel tanks, oil reservoirs, or any other substance which would accelerate or aid the spread of the fire.
4. To limit the fire to its area of origin, all closures and generally all ventilation (unless personnel are trapped in the area) will be secured.

Upon discovering a fire, procedures are:

1. Immediately sound the fire alarm, notify the vessel operator and request help.
2. If the fire is small enough, try to extinguish it with hand-held extinguishers, blankets, clothing, or similar items. Then, try to determine the origin of the fire; electrical, chemical, or combustible origins may require different techniques.
3. Confirm no people are trapped or overcome by smoke.
4. If rescue is impossible due to fire or smoke, report immediately to the vessel operator for help.
5. If attempts to extinguish the fire are unsuccessful, seal off all openings feeding air to the area to prevent spreading of the fire.
6. Do not open doors or hatches that may supply air to the fire until adequate equipment is ready.
7. Be aware that smoldering fires develop poisonous gases that are odorless and invisible.
8. When an alarm is sounded, all personnel will immediately report for firefighting/searching efforts and to establish if anyone is missing.
9. Don't let the fire get between you and the escape route.
10. If attempting to extinguish a fire with a portable extinguisher and it fails, leave the area immediately..

After the fire has been extinguished:

1. Assess the situation for property conservation and atmospheric conditions.
2. Investigate the fire's point of origin and source of ignition and examine structural and stability.
3. Clean up the mess associated with the fire and fire-fighting activities.
4. Return to port.

Foundering/ Grounding

The vessel operator and crew will work together to assess the damage and determine a plan to refloat the vessel, taking into consideration any survey gear attached to the hull or potentially affected by the grounding.

Loss of Steering

Loss of Steering recovery varies by situation and is addressed by vessel operator.

Monitoring and Continuous Improvement

The Site Safety and Health Plan is a living document and will be updated as necessary based on project changes, new hazards, or regulatory updates.

Conclusion

Marker Offshore is committed to the safety, health, and environmental protection of all personnel involved in this project. Our top priority is ensuring that every individual operates in a safe and healthy environment, rigorously adhering to established safety protocols and standards. We actively foster a safety-first culture where each team member is encouraged and empowered to identify and report potential hazards without hesitation. This collective responsibility is essential to maintaining a secure work environment, preventing accidents, and protecting the natural surroundings. Through continuous vigilance and collaboration, we strive to uphold the highest safety and environmental stewardship standards on this project.

HASP Acknowledgement Form

I have reviewed the Health and Safety Plan that outlines the field activities for the hydrographic portion of the Lower Duwamish Waterway Upper Reach Remedial Action. I understand and will adhere to the health and safety requirements outlined in this Health and Safety Plan.

_____ Print Name	_____ Signature	_____ Date
_____ Print Name	_____ Signature	_____ Date
_____ Print Name	_____ Signature	_____ Date
_____ Print Name	_____ Signature	_____ Date
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_____ Print Name	_____ Signature	_____ Date

APPENDIX O: HAZWOPER CERTIFICATIONS & SSHO CREDENTIALS



**Professional Resume for John Carlson
Principal, Integrity Safety Services**

Statement of Qualifications

John Carlson has worked in construction and general industry safety as well as ergonomics for the past 35 years. This includes maritime work, heavy industrial and petrochemical work with a heavy emphasis on industrial hygiene activities.. During that time, he has also worked in the environmental field managing Large Quantity Generator programs working on remediation sites, writing Site Safety and Health Plans for hazardous waste sites, acted in the capacity of emergency response spill coordinator, and administered operations for Synthetic Minor Reporting to the local clean air agencies, the Washington State Department of Ecology and the US EPA. Extensive work has also been done on military bases in the capacity of SSO and QCM.

John has administered state fund and self- insured workers compensation programs, safety and health programs and environmental programs in the 11 western states. Additionally, he has worked as a loss control consultant for a nationwide workers compensation insurance carrier providing recommendations and program development for local companies and large multi-state companies. His areas of expertise include, large commercial and industrial construction, general industry which includes manufacturing and food processing, work in shipyard and work in the petrochemical industry and performing industrial hygiene activities in each of these areas.

John has also worked in consulting, providing training, industrial hygiene, ergonomics training, program development and guidance on claims management and workers compensation issues for clients.

While working for the Associated General Contractors of Washington, John oversaw the comprehensive development of a national disaster response program for the construction trades and legislation to protect employers from liability in the event of worker injury while aiding in a national disaster response. He also oversaw the development of the Ergonomics in Construction program that included employee training, risk and task analysis and solutions for risk factors identified. In addition, work was started on a first of its kind Hearing Conservation program for construction in cooperation with the University of Washington.

At the AGC of Washington, John worked with various local, state and federal officials to develop and implement cooperative programs to benefit both private industry and government. At AGC responsibilities also included assisting the membership in the event of accidents, fatalities or significant natural disasters.

Over the past 30 years thousands of students have been trained in all phases of construction safety, asbestos awareness, lead competent person and awareness training, crisis management, risk management and claims management, 40-hour Hazwoper, DOT Hazardous Materials Handling, Environmental Awareness.

Professional Experience

Integrity Safety Services, Principal	2005-Present
Performance Ergonomics (Contract Ergonomist)	2007-Present
Associated General Contractors of Washington, Director of Safety	2002-2006
Argus Pacific, Consulting Department Manager	2001-2002
Fremont Compensation Insurance Group, Loss Control Consultant	1999-2001
Long Painting Company, Corporate Safety Director	1988-1999

Memberships

Safety Committee Member, Associated General Contractors of Washington
American Society of Safety Professionals
Associated General Contractors of Washington
Associated General Contractors of Oregon
Southwest Contractors Association

Presentations

Southwest Washington Contractors Association Safety Talks	2023
Contractor Safety Council Marathon Refinery High Hazard Facility Training Presentation	2023
Contractor Safety Council BP Cherry Point Refinery Safety Talk	2023
Contractor Safety Council Marathon Refinery Safety Talk	2022
Washington Refinery Safety Overview Board Summit HHFT Presentation	2022
Southwest Washington Contractors Association Safety Talks	2022
AGC of Washington Safety Talks	2020
Governors Safety and Health Conference Silica, Beyond Table 1	2019
Construction Safety Day, Labor and Industries Silica Rule Competent Person Training	2019
Oregon Columbia Chapter AGC, Silica Rule Update	2018
Governors Safety and Health Conference OSHA Silica Update	2017
DBM Construction Annual Safety Awards Presentation	2017
AGC of Washington Annual Awards Banquet	2017
WACA MSHA Training Current Issues in Fall Protection	2017
Governors Safety and Health Conference OSHA Silica Update	2016
Safety Days, Construction Ergonomics, Shell Puget Sound Refinery Anacortes, WA	2015
Walsh Construction Co., Annual Meeting	2015
Portland Construction Safety Summit EM385 Corps of Engineers Presentation	2013
Governors Safety and Health Conference Workplace Stretch and Flex	2012
American Society of Safety Engineers EM385 High Hazards Presentation	2012
Roofing Contractors Association Annual Safety Training	2010
Foushee & Associates Annual Safety Banquet and Awards, Hearing in Construction	2008
Washington State Contractors Safety Day	2007
Governors Safety and Health Conference Disaster Response Overview	2006
Washington State Contractors Safety Day	2006
Governors Safety and Health Conference Emergency Response and Skilled Trades	2004
National Disaster Response Summit (FIRST)	2003
AIHA Symposium of Ergonomics	2003
WISHA Advisory Board Ergonomics	2003
Fall Symposium on Ergonomics Dept. of Labor and Industries	2002

Education, Certifications, and Training

DOSH Doctorate of Occ Safety and Health Columbia Southern University (Currently Enrolled)	
MS Occupational Safety & Health Columbia Southern University	
BS Occupational Safety & Health Columbia Southern University	
AAS Occupational Safety & Health Columbia Southern University	
OSHA Outreach Trainer General Industry for 10 and 30 Hour Course	2019
OSHA Maritime Outreach Trainer for 10 and 30 hour Courses	2014

Certified Trainer DOT Drug and Alcohol Collections	2014
Certified Occupational Hearing Conservationist Certification #481440	2013
NIOSH Spirometry	2013
Refinery Safety Overview (RSO) Instructor	2012
DOT Certified Drug and Alcohol Collector	2012
NAVFAC EM-385-1-1 Certification	2011
EPA Certified for Lead Dust Sampling and RRP	2010 to Present
EPA Certified Training Firm for Lead Dust Sampling and RRP	2010 to Present
UW OSHA Outreach Trainer Principles in Ergonomics	2010 to Present
OSHA Construction Outreach Trainer (Authorized to Teach OSHA 30 and 10)	1996 to Present
Master Trainer Medic First Aid	1995 to Present
AHERA Building Inspector	1990 to Present
HAZWOPER 40 Hour and 24-Hour Instructor	1991 to Present
NIOSH 7400 Fiber Counting	2000
EPA Title X Lead Competent Person	1996
SSPC C-3 Lead Paint Removal	1996
SSPC C-1 Fundamentals of Protective Coatings	1997
Lead Inspection and Abatement	1994

