Vancouver Energy
Construction Safety and Health Manual

Plan No. C.07 | Revision 00

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Date: 30 April 2015

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Vancouver Energy
Construction Safety and Health Manual

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
30 April 2015

Prepared for

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Vancouver Energy
Construction Safety and Health Manual

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1. Introduction and Background

Vancouver Energy (Facility) provides transloading services for pipeline quality crude oil from railcars to marine vessels. The Facility is located at 5501 NW Old Lower River Road, Vancouver, Washington; it is situated at the Port of Vancouver USA (Port) on the north bank of the Columbia River at approximately River Mile 103.5. The Facility site is approximately 47.4 acres in size and comprises elements within the following “area” groupings, as illustrated in Figure 1.

- Area 200 – Rail Unloading – located at Terminal 5 of the Port
- Area 300 – Storage – located at Parcel 1A of the Port
- Area 400 – Marine Terminal – located at berths 13 and 14 at the Port
- Area 500 – Transfer Pipelines – located in locations between areas 200, 300, and 400
- Area 600 – West Boiler – located at Terminal 5 of the Port
- Rail Infrastructure – located at Terminal 5 of the Port

The Facility receives an average of four unit trains per day and unloads an average of 360,000 barrels (bbl) of crude oil per day. Six nominal capacity 400,000 bbl tanks are used to store crude oil on site. A transfer pipeline system is used to convey crude oil from Area 200 to Area 300 for storage, and from Area 300 to Area 400 for vessel loading. The transfer pipeline system can also be operated to move crude oil from Area 200 directly to Area 400. The Facility operates 24 hours per day, 7 days per week.

Tesoro Savage Petroleum Terminal LLC (the Certificate Holder) is contracting with Savage Companies to manage construction and commissioning of the Facility. Construction of the Facility is being conducted in accordance with the requirements of approved permits and applicable state and federal regulations.

1.1 Purpose of Plan

This construction safety plan establishes a framework for the compliance of Facility construction activities with requirements of the SCA applicable to health, safety, security, and the general monitoring of construction activities relative to environmental protection (“HSSE”).

1.2 Regulatory Requirements

This plan is implemented so that construction activities are in compliance with the following regulatory requirements.

- Washington Industrial Safety and Health Act (WISHA) Washington Administrative Code (WAC) 296 and Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910
- Maritime Transportation Security Act (MTSA) 33 CFR 191-107

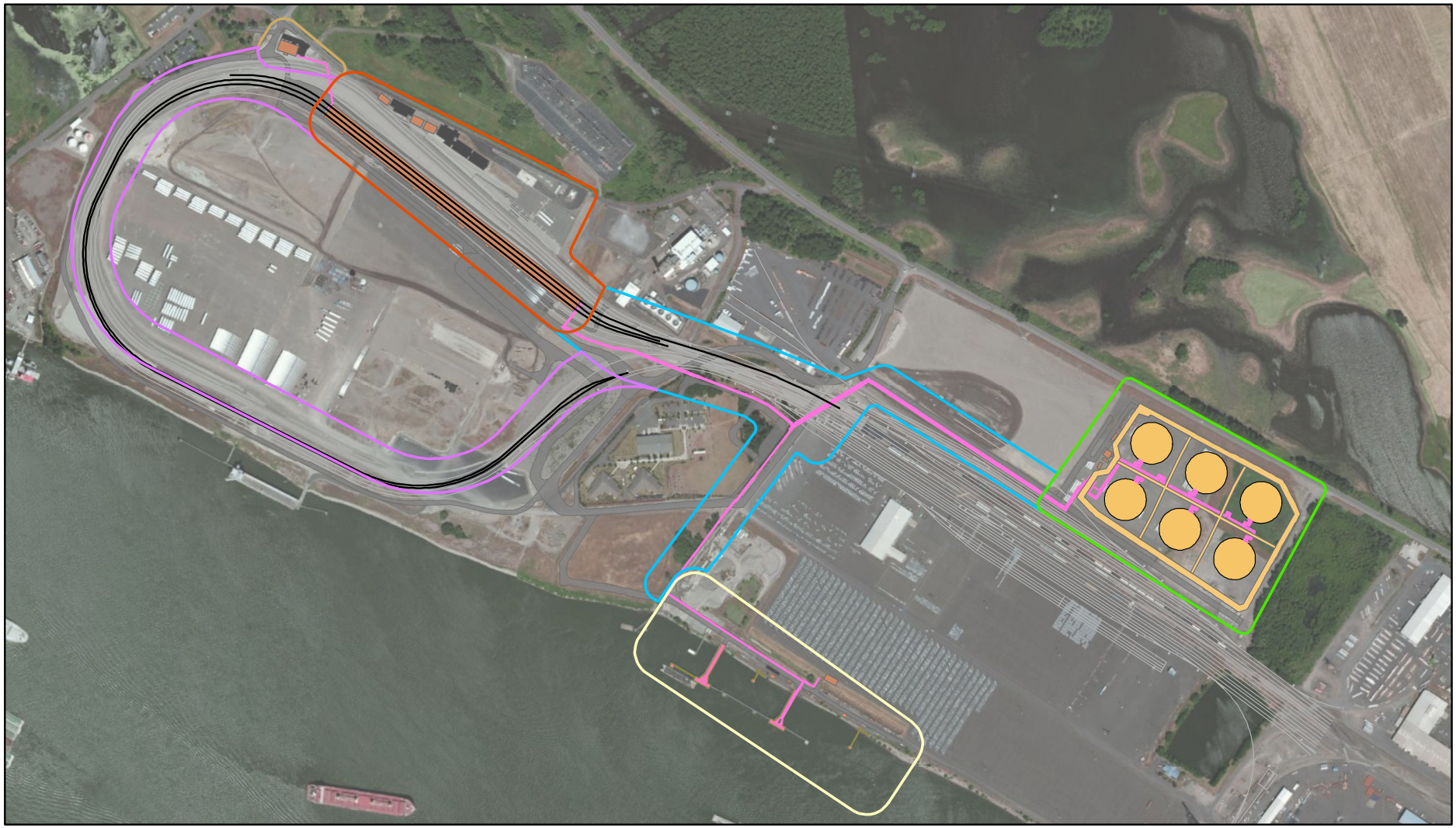


Figure 1 - Site Plan

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Proposed Project Facilities

- Containment Berm
- Rail
- Parking
- Building
- Storage Tank
- Roads
- Marine Terminal
- Pipeline

TSPT Improvement Areas

- 200 - Unloading and Office
- 300 - Storage
- 400 - Marine Terminal
- 500 - Transfer Pipelines
- 600 - West Boiler
- Rail Infrastructure

0 250 500 1,000 Feet

N

Date: April 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

EX-0001-004574-PCE

1.3 Related Documents

The following documents and plans implement detailed environmental protective measures and procedures in addition to the general environmental monitoring procedures presented in this Plan, along with emergency response procedures and coordination.

- Construction Stormwater Pollution Prevention Plan (CSWPPP) – the construction SWPPP describes the site conditions and proposed construction activities in detail and enumerates the mitigation measures and best management practices (BMPs) that apply to each activity. Part of the construction SWPPP deals with managing materials that are or could be hazardous that are used and/or stored on site—paint, petroleum, solvents, etc. In contrast, the contaminated media management plan (CMMP) addresses contaminated media already at the site and how to manage it if encountered (or excavated, etc.).
- Construction Spill Prevention, Control, and Countermeasures Plan (CSPCCP) – the construction SPCCP outlines BMPs, response actions in the event of a release, and notification and reporting procedures. The construction SPCCP also outlines management elements, such as personnel responsibilities, construction site security, site inspections, and training. Finally the construction SPCCP lists spill response equipment and where such equipment is maintained on site.
- Contaminated Media Management Plan (CMMP) – this plan describes measures implemented when construction activity occurs in areas of known soil and groundwater contamination, as well as procedures in the event construction activities discover previously undocumented soil or groundwater contamination.
- Marine Mammal Monitoring and Construction Wildlife Montioring Plans – these plans describe measures implemented to monitor potential impacts to aquatic and terrestrial wildlife resulting from construction activities.
- Operations Facility Safety Program – Section 3.1, Emergency Response Plan.

Finally, because operation of the Facility will occur while portions of the Facility are under construction, the following documents and plans implement measures and procedures relative to operations activities and should be followed by all construction personnel, starting with the commencement of operations startup activities.

- Operations Facility Safety Program – Section 3.1, Emergency Response Plan
- Operations Health and Safety Plan (including site security and emergency response procedures)
- Operations SPCCP
- Operations Oil Spill Contingency Plan
- Oil Facility Handling Manual
- Operations Storm Water Pollution Prevention Plan (OSWPPP)

2. Management of Construction HSSE Activities

2.1 Principles and Goals

The following principles guide the collective Facility team in all Facility construction activities.

- There is no task so important that the time cannot be taken to do it safely.
- People are our most important asset.
- Communication is the key to injury prevention.
- All injuries, property damage, and environmental incidents are preventable.
- Everyone is expected to stop unsafe work.
- Near miss reports are a gift. Elimination of little things prevents larger things from occurring.
- Addressing safety in the planning phase of a job saves time and prevents incidents.
- Effective safety management and leadership are good business.

The Certificate Holder requires that all direct employees and contractors abide by applicable regulations as well as the guidelines described in this Plan.

Our goals are simple:
No accidents
No harm to people
No damage to the environment

2.2 HSSE Organization

The Certificate Holder is contracting with Savage Companies to manage construction and commissioning of the Facility. The Vancouver Energy Team relies upon corporate HSSE expertise, and employs its own Facility Security, Health, Environment, and Quality (SHE&Q) manager. The Facility SHE&Q manager, the, senior project manager, construction teams, and third-party contractor supervisory and safety personnel together form the overall Facility HSSE team. Figure 2 illustrates the construction management organizational chart for the Facility, including the relationship of primary and secondary HSSE functions to construction-site management personnel.

2.2.1 Vancouver Energy Roles and Responsibilities

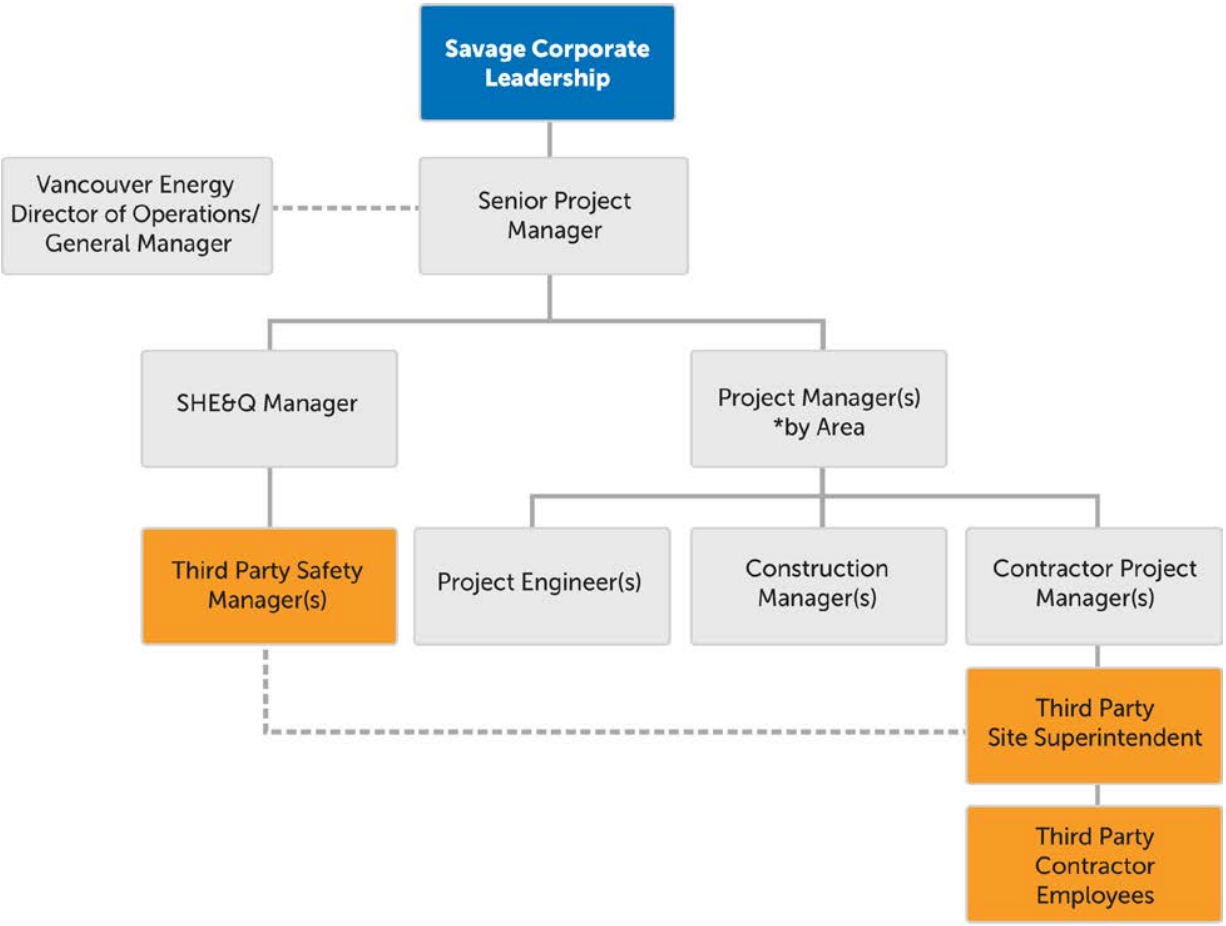
The Certificate Holder is committed to providing sufficient HSSE resources for the duration of the construction of the Facility. Field roles are filled by a combination of Vancouver Energy, Savage, and/or Savage trained contractor safety professionals. Minimum staffing levels are regularly reviewed and may be adjusted based on the quantity and risk of the work being performed. The Certificate Holder employs a dedicated Facility SHE&Q manager whose focus is to lead the development and delivery of construction HSSE requirements in a consistent and effective manner to achieve outstanding HSSE performance. The construction management team (CMT), including the SHE&Q manager, works closely with the contractors to help them interpret the Facility-specific safety requirements.

2.2.1 Contractor Roles and Responsibilities

Each contractor is required to develop a detailed Construction Execution Plan (CEP), with emphasis on safe execution of the work. The CEP is required to include safety staffing levels and address the requirements of this manual, the SCA, permits issued for this Facility, and other applicable Facility plans and regulatory requirements. The CEP is reviewed and agreed during a premobilization review with the contractor's leadership team and the Facility's leadership team.

A contractor safety representative is on site at all times construction work is being performed by the contractor, regardless of the nature of work or crew size. Exceptions may only be approved by the Facility SHE&Q manager in writing in advance.

Figure 2. Construction Management Hierarchy



2.2.2 Team Member Roles and Responsibilities

It is expected that everyone employed at the Facility, regardless of their role, is actively engaged in safety. Personal commitment to uphold the safety values of the Facility is sought from each individual on the Facility team.

All Facility team members must

- Stop work that is unsafe.
- Demonstrate HSSE commitment through their actions.
- Actively participate in HSSE meetings and Risk Review meetings.
- Share lessons learned.
- Work in a manner which prevents accidents, eliminates harm to people, and does not damage the environment.
- Participate actively in the Facility Risk Identification meetings.
- Be aware of the potential environmental aspects and impacts of the construction, commissioning, and operation activities.
- Acquire training as outlined in this plan.

Document field observations.

All team members will

- Start each meeting with a relevant HSSE discussion topic.
- Share lessons learned to aid in raising HSSE awareness.
- Participate in all HSSE-related training.
- Actively report, investigate, and embed learning from safety opportunities and near misses.

Management level staff will

- Lead development of the HSSE Plan.
- Ensure that resources are in place to execute an effective HSSE program (i.e., HSSE organization, permitting, training, equipment, qualified personnel, finance, and time).
- Develop and assign personnel performance objectives for implementing the HSSE Execution Plan.
- Ensure that Facility contractors and suppliers are in alignment with the HSSE goals of the Facility.
- Evaluate and select contractors who adhere to the high HSSE expectations of the Facility.
- Engage contractor leadership to ensure their full participation in the HSSE management of their employees.
- Ensure compliance with Facility HSSE policies.
- Review all new and outstanding HSSE issues and risks, their status, and projected resolution date.
- Actively engage workers in conversations about the risks of the work they are performing and to solicit ideas for minimizing these risks, as well as ideas for improvements to the processes in place to control these risks.

The SHE&Q manager will

- Ensure personal and process safety elements of the Facility, from concept through design, construction and commissioning are given their due attention.
- Coordinate with the business unit on environmental permitting requirements.
- Maintain Facility HSSE records and documentation.
- Compile Facility HSSE scorecard data.
- Monitor and assign responsibility for completion of HSSE action items.
- Maintain relevant environmental documentation and records.
- Conduct HSSE management and technical oversight for Facility's contractors.
- Conduct Facility-specific safety orientations.
- Conduct daily validation of site conditions and review site safety conditions.
- Provide HSSE assurance through field and recordkeeping audits.
- Review risk assessments to ensure they accurately recognize the tasks, hazards, and controls.
- Conduct Industrial Hygiene Audits (HSSE team)
- Verify implementation and execution of this Plan.

2.3 HSSE Systems and Procedures

Multiple proactive safety activities occur through the duration of Facility construction. These include but are not limited to reporting and documentation, investigations, audits, personal protective equipment, training and orientation, communication, hazard communication and task specific procedures. HSSE systems and procedures are described in detail starting with Section 4 of this plan.

During later phases of construction, portions of the Facility will be commissioned and will become operational. As project elements transition from construction to the operations phase, the construction and operation teams coordinate on a regular basis to ensure that health, safety, security, and environmental protections are reevaluated and implemented appropriately for all activities occurring at the Facility site for optimal performance. Section 1.3 of this plan identifies operational plans, which may be implemented concurrently with construction activities depending on the operation activities that are conducted at a specific time.

2.4 Monitoring and Compliance Assurance

2.4.1 Compliance Assurance

A primary role of the SHE&Q manager is compliance assurance. Their regular field presence and intimate knowledge of both the Facility and site HSSE expectations allows for timely and constructive feedback to the workforce. As opportunities are identified, the SHE&Q manager provides coaching and guidance to help bridge any gaps between the Facility's expectations and the performance observed.

The Facility SHE&Q manager coordinates routine audits of key elements of the contractor's safety programs to assure they are being carried out as described. These audits are both formal and informal and include reviews of both field activities and supporting documentation. Safety metrics are tracked and reported, including but not limited to: hours worked, major incident or accident and HIPOs, injuries/illnesses, near misses, environmental incidents.

2.4.2 Stop Work Authority

All Facility team members have the authority to stop work at the location of an activity that is deviating from construction plans and designs in a manner that may be a permit or regulatory non-compliance issue, or that is deemed by the individual team member to be unsafe, an uncontrolled or unmitigated hazard, beyond the level of preparation, outside of training, or has the potential to cause injury or harm to any person or the environment. The activity subject to the stop work order is halted until such time that satisfactory measures are taken to resolve the non-compliance or potential for non-compliance. The following are examples of "stop work" criteria; however, it is noted that additional specific criteria may be documented in other construction-related plans or drawings.

- Failure of BMPs related to construction site stormwater management
- Practices that cause a work hazard or discovery of a unexpected work hazard
- Presence of unidentified hazardous materials as evidenced by significant soil staining, odor, or oil in groundwater
- Unanticipated discovery of archeological resources or human remains

In the event a work stoppage is initiated by a Facility team member, the Facility SHE&Q manager, project manager, and Site Superintendent overseeing the activity are immediately notified. The Facility SHE&Q manager and project manager monitor the implementation of corrective actions. The stop work order is lifted when the Facility SHE&Q manager has determined that compliance has been achieved.

In accordance with notification procedures under other related construction plans, the Facility SHE&Q manager or his/her designee will notify the Port and other local, state and federal agencies as applicable.

2.4.2.1 Safety Observations

Documentation of field safety observations is expected of construction management, third party site superintendents and SHE&Q manager. A schedule is created that pairs Savage and contractor representatives for joint safety tours. The results of these observations are reviewed and the data analyzed to identify trends or specific items needing attention. These results are discussed with the companies involved, as well as shared with the Facility safety team for Facility-wide impact.

2.4.3 Environmental Compliance

To assist construction site management in assessing compliance of ongoing site activities with the requirements of the SCA, associated permits and other applicable state and federal regulations, an environmental checklist has been created (see Section 17, Exhibit C, Environmental Checklist).

2.4.4 General Performance Monitoring of Contractors

HSSE performance and compliance is measured and reviewed on a regular basis during execution. Regular performance reviews of each contractor are conducted, with appropriate senior and line management attendance. Subcontractor performance and compliance should be visible and verified by the Contractors they report to. Contractors are accountable for reporting all incidents incurred by their subcontractors.

3. List of Acronyms and Abbreviations

ASAP: Abnormal Safety Assessment Plan

bbl: oil barrel and barrels

BMPs: best management practices

BNSF: BNSF Railway

Certificate Holder: Tesoro Savage Petroleum Terminal LLC

CFR: Code of Federal Regulations

CMMP: contaminated media management plan

CMT: construction management team

CEP: Construction Execution Plan

U.S. DOT: U.S. Department of Transportation

EFSEC: Energy Facility Site Evaluation Council

Facility: Vancouver Energy

FRA: Federal Railroad Administration

HSSE: health, safety, security, and environmental

HAZOP: hazard and operability

HIPO: high-potential incident

HSSE: health, safety, security, and environment

ISBL: inside battery limit

LOTO: Lock Out Tag Out

MOC: Management of Change

MSDSs: material safety data sheets

MTCA: Model Toxics Control Act

MTSA: Maritime Transportation Safety Act

OSBL: outside battery limit

OSHA: Occupational Safety and Health Administration

OTS: on track safety

Port: Port of Vancouver USA

PPE: personal protection equipment

PSM: process safety management

PSSR: pre-start-up safety review

PTA: pre-task assessment

RO: railroad operations

SCA: Site Certification Agreement

SHE&Q: security, health, environment, and quality

SIMOPS: Simultaneous Operations

SLA: Site Lift Authority

SWPPP: stormwater pollution prevention plan

SPCCP: spill prevention, control, and countermeasures plan

TSCA: Toxic Substances Control Act

TWIC: transportation workers identification credential

WAC: Washington Administrative Code

WISHA: Washington Industrial Safety and Health Act

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4. Incident Investigation

4.1 Purpose

To establish the minimum requirements for Contractors and their subcontractors for the effective investigation of all accidents. WISHA/OSHA do not establish requirements to investigate all accidents or near-misses. Serious incidents, however, must be investigated and reported in accordance with the provisions of 29 CFR 1904 and WAC 296-27 (see Section 5 below).

In addition, Vancouver Energy requires investigations at a minimum for the following circumstances.

1. All injuries or illnesses that are OSHA recordable.
2. Any injury that requires the attention of medical personnel.
3. All property damage accidents or incidents with a total dollar value greater than $1,000.
4. All accidents or incidents involving the public or another employer's employee.
5. All lost-time injuries or illnesses.
6. All accidents or incidents, without injury, which had the potential for serious injury or property damage.

(b) Subcontractors will establish the same procedures and submit any reports generated to the Contractor's Site Superintendent who monitors their work.

All safety events (accidents, injuries, incidents, property or equipment damage, and near misses) and regulatory violations should be promptly reported to supervision, including to the Facility SHE&Q manager and project manager. The Facility SHE&Q manager and project manager may require an investigation of any accident or near miss (including a series of accidents or near misses), no matter how apparently minor, based on their judgment.

4.2 Definitions

ACCIDENT – The National Safety Council defines an accident as an undesired event that results in personal injury or property damage.

INCIDENT – An incident is an unplanned, undesired event that adversely affects completion of a task.

NEAR MISS/CLOSE CALL –This describes incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred.

4.3 Responsibilities

(a) Activity Supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

4.4 Implementation

(a) Accident/Incident Investigation Form. The form to be used can be found at the end of this section.

(b) Accident/Incident Investigation Review Team. The leader of the team is the Senior Project Manager, or his/her designee. The Contractor Site Superintendent and SHE&Q manager are also members. Additional team members may be appointed. The team leader will determine when to convene the investigation review team. At a minimum, the team will convene on all lost time accidents.

(c) The Investigation Process. The initial investigation is to be conducted by the Site Superintendent who monitors the work where the accident/incident occurred. The Site Superintendent may involve other supervisory personnel as appropriate. The investigation should begin as soon after the injured person is cared for. The initial investigation should be completed within 24 hours. The Job Hazard Analysis form (see Attachment 17) should be revised and employees retrained to the extent necessary to reflect the recommendations made by the Accident/Incident Investigation Report (see Attachment 1).

(d) Once the Accident/Incident Investigation Report form is completed, the Superintendent who prepared it is to present the findings to the Accident/Incident Investigation Review Team. The Team will decide if the investigation made is sufficient or if further action is required. The team will also decide what corrective action should be taken to prevent a reoccurrence. The entire process should be completed as quickly as possible to avoid the possibility of someone else being hurt.

(e) A copy of the report is to be retained by the SHE&Q manager. Photographs and other additional documents are also to be retained.

(f) All employees and visitors are encouraged to report hazards and near misses, without fear of retaliation (see Attachment 2).

4.5 Exhibits/Attachments

Accident/Incident Investigation Report Form, Attachment 1

Employee Observation Form, Attachment 2

Attachment 1. Accident/Incident Investigation Report Form

Accident/Incident Investigation Report
PLEASE FILL OUT ALL INFORMATION

Employee Information

Name_____ Empl. No. _____ Trade_____

Project Name_____Project No._____

Drug Test Administered?
☐ Yes ☐ No

Length of service on project_____ Length of service with company_____

Supervisor Information: If subcontractor, indicate company name_____

Foreman_____Empl. No._____

Superintendent_____Empl. No._____

Accidental/Incident Information

Date of Injury_____Time of Injury_____(AM/PM) Date Injury Reported _____

Nature of Injury_____

CAUSE OF INJURY

☐ Fall from height ☐ Fall from same level ☐ Caught in ☐ Caught between
☐ Struck by ☐ Struck against ☐ Dust/debris ☐ Material handling
☐ Power/hand tools ☐ Chemical ☐ Electrical Other_____

BODY PART(S) INJURED

☐ Head ☐ Face ☐ Neck ☐ Eye(s) ☐ Arm ☐ Leg ☐ Knee
☐ Back ☐ Chest ☐ Hand ☐ Foot ☐ Wrist ☐ Ankle ☐ Other_____

If applicable, indicate left or right:

CLASSIFICATION

☐ Sprain ☐ Strain ☐ Contusion ☐ Laceration
☐ Puncture ☐ Fracture ☐ Burn/Irritation ☐ Other_____

Accident/Incident Description (Who, What, When, Where, How)

Describe injury in detail (if additional space is needed, please use the back). _____

_____

_____

_____

_____

Signature_____Date_____Title_____

Attachment 2. Employee Observation Form

UNSAFE CONDITION, FIRST AID AND NEAR MISS INCIDENT REPORT

Workplace Observation

Description of what happened or of the unsafe condition:

_____

_____

_____

_____

_____

Where:

_____

When:

_____

What could have resulted?

_____

_____

What do you think is the cause (direct and root cause)?

_____

_____

_____

_____

What actions did you take to correct the unsafe condition or hazard?

_____

_____

If no action was taken, what do you recommend should be done:

_____

_____

Reported by: _____ **Date:** _____

Reported to: _____ **Date:** _____

Signature: **Date:**

5. Accident Reporting and Documentation

5.1 Purpose

To establish the minimum requirements for the Contractor, and as applicable subcontractors, for effective reporting, recording, and documentation of workplace accidents.

Occupational injuries and illnesses will be reported in accordance with the provisions of 29 CFR 1904 and WAC 296-27).

5.2 Definitions

(a) Work Related. An injury or illness may be work related if it occurs in the work environment. The work environment surrounds the employee wherever he or she may go in official travel, in dispersed operations or along regular routes while on Company business. Work-relatedness is determined in accordance with WAC 296-27-011.

(b) First Aid Injuries. These include any one-time treatment and any follow-up visits for the purpose of minor scratches, cuts, burns, splinters, etc., if the nature of the injury does not require a licensed physician. Personnel trained in first aid may administer such treatment. A doctor can also provide first aid treatment, such as for a scratch or cut; however, if a doctor does provide treatment for a minor injury, it is still classified as “first aid.” It is not reported on the OSHA 300 log.

(c) Recordable Injuries. These are injuries that, because of their severity, require a physician for their treatment such as broken bones, stitches, foreign objects imbedded in the eye, prescription medication, etc. These injuries are recorded on the OSHA 300 log. Such things as negative X-rays and tetanus shots are not recordable.

(d) Lost Time Injuries. These are injuries in which a doctor has determined that the employee is unable to return to work on the next workday. When counting lost workdays, the day of the injury and the day the employee returns are not counted. An injury that involves lost-time is, by definition, recordable and must go on the OSHA 300 log.

5.3 Responsibilities

(a) Activity Supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity Supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

5.4 General Requirements

(a) As per Section 4, all injuries are to be reported and, if necessary, investigated. The form and the procedures are in the Accident Investigation section of this manual.

(b) As soon as possible after the end of each month, the each Contractor Site Superintendent or the person responsible for the injury record keeping must send a formal report of the total hours worked, the recordable injuries, regulatory violations, and all other safety events to the SHE&Q manager.

(c) OSHA 300 Log. All Lost Time, Restricted Duty and Recordable injuries must be “recorded” on the OSHA 300 log (see Attachment 4 or www. osha.gov.). Ann updated log must be maintained on the premises at all times.

(d) The following list includes, but is not limited to, activities that will be documented:

1. New Hire Safety Orientation
2. Hazard communication
3. Fall protection
4. Accidents or near misses resulting in personal injury, property damage, and product or material damage
5. Subcontractor Safe Start
6. OSHA inspections/variances
7. Medical and first aid training
8. Medical and first aid treatment
9. Diving operations
10. Fires and extinguisher use
11. Fire extinguisher training
12. Personnel lifting platforms - (man baskets, aerial lifts, etc.)
13. Air quality testing
14. Confined space entry
15. Hearing tests/noise surveys
16. Safety and health training
17. Safety meetings
18. Job hazard analyses
19. Safety inspections and audits
20. Emergency drills and critiques
21. Hazardous substance monitoring and training
22. Special hazard permits
23. Crane/derrick inspections/certifications
24. Respirator training and use
25. Emergency action plans
26. Fire protection plan
27. GFCI tests
28. Trench and excavation inspections

5.5 Implementation

(a) Treating the Injured Person. The injured person must be cared for first. If it is serious, follow the procedures in the Emergency Response Plan. If it is less serious, notify the designated Contractor’s first aid person or the SHE&Q manager. If the person needs to be seen by a doctor, a company employee should transport him or her. The person should not be allowed to drive.

(b) In accordance with corporate procedures and regulatory requirements the Contractor will develop, provide and use forms including but not limited to:

An Accident Expediter/Physician’s Release Form which is filled out by the Site Superintendent and given to the employee or the driver to take to the doctor. It should be completed by the doctor and returned with the employee after treatment. An example form is provided in Attachment 5.

An Employer’s First Report of Injury Form. This form will be furnished by Contractor’s corporate insure or may be the form used by Washington State’s worker’s compensation fund which insures the project. The

form will be timely forwarded to appropriate corporate offices and filed with the state in accordance with regulatory requirements.

(c) The Contractor will establish appropriate protocols to ensure forms are circulated to corporate insurance and health and safety departments, the injured worker, and applicable state regulatory agencies.

5.6 Additional Reporting for Serious Injuries

(a) A serious accident is one that involves, has the potential for, loss of life or major property damage.

(b) The Site Superintended will provide the following notifications:

1. Immediately: the Contractor Project Manager
2. Immediately: the Project Manager
3. Immediately: the SHE&Q Manager
4. In accordance with Contractor's corporate procedures: Contractors corporate and Safety managers

The project manager or SHE&Q manager will in turn contact the senior project manager and other corporate management in accordance with corporate procedures. The project manager or SHE&Q manager will contact the Vancouver Police Department in the event of a workplace death, as well as the Port.

(c) In accordance with WAC 296-800-32005, you must report to Washington Department of Labor and Industries (L&I) within 8 hours of an incident:

- Causes a fatal or possibly fatal injury
- Causes injury requiring in-patient hospitalization of any employee

To report, contact your nearest labor and industries office by phone or in person, or call the OSHA toll-free hotline, 1-800-321-6742.

Exception: If any employer does not learn of a reportable incident at the time it occurs and the incident would otherwise be reportable under this subsection, the employer will make a report within 8 hours of the time the incident is reported to any agent or employee of the employer.

1. Establishment name
2. Location of the incident
3. Time of the incident
4. Number of fatalities or hospitalized employees
5. Contact person
6. Phone number
7. A brief description of the incident.

Fatalities or hospitalizations of any employees that occur within thirty (30) days of an incident must also be reported.

(d) In accordance with WAC 296-800-32010, equipment involved in a work or work related accident or incident must not be moved if any of the following results: a death, a probable death, or an employee's hospitalization. The equipment must not be moved until a representative of the L&I investigates the incident and releases the equipment unless: moving the equipment is necessary to remove any victims or prevent further incidents and injuries.

(e) In accordance with WAC 296-800-32015 witnesses and other employees must be assigned to assist L&I personnel who arrive at the scene to investigate the incident involving a death, a probable death or an employee's hospitalization.

(f) A preliminary investigation for all serious injuries must be conducted in accordance with WAC 296-800-32020 and document the preliminary investigation findings in accordance with WAC 296-800-32025.

5.7 Exhibits/Attachments

(a) ADDENDUM: Incident Notification Policy, Attachment 3

(b) OSHA Form 300 Log, Attachment 4

(c) Accident Expediter Report Form, Attachment 5

Attachment 3. Addendum: Incident Notification Policy

ADDENDUM
Incident Notification Policy

Effective immediately, all incidents are to be reported to supervisors and managers in accordance with the following directives. These requirements are IN ADDITION to any requirements contained within the Incident Investigation and Reporting procedures as outlined in Section/Chapter 2 of the Safety and Health Manual. Please refer to the Safety and Health Manual for formal incident investigation and report filing procedures. The Contractor requires that all employee injuries, regardless of how minor, are to be reported to the employee's supervisor immediately. Every employee has an obligation to seek out their supervisor and report ANY injury immediately after the incident occurs. NO EXCEPTIONS! Once an injury has been reported to the employee's supervisor, the supervisor MUST take the following actions immediately.

Severe or Life Threatening Injury

1. Call 911 immediately and assist medical professionals in the care of the employee.
2. Secure the site and make sure ANY immediate dangers or hazards are corrected or isolated to keep others from being injured.
3. Contact the Superintendent or Senior Manager on site and notify them of the incident. This must be done within the first few minutes of employee reporting injury.
4. Provide any support necessary to assist in managing the incident.
5. The Superintendent or Senior Manager on site is to notify the Safety Department as soon as the injured worker is cared for and the site is secured against all immediately dangerous hazards.
6. Follow-up with the Incident Investigation and Reporting procedures as outlined in the Safety and Health Manual.

Injury Requiring Medical Aid or Clinical Visit – Non-911 Emergency

1. Provide injured worker with First Aid Care and prepare to transport the employee to the designated clinic. DO NOT allow the employee to transport themselves to the clinic.
2. Contact the Superintendent or Senior Manager on site and notify them of the incident. This must be done within the first few minutes of employee reporting injury.
3. The Superintendent or Senior Manager on site is to notify the Safety Department as soon as the injured worker is cared for and the site is secured against all immediately dangerous hazards. Every effort shall be made to contact the safety department prior to taking the employee to the clinic or for any medical treatment.
4. DO NOT allow the employee to refuse proper medical care. ANY employee that chooses to refuse medical care must first obtain approval of Management and/or the Safety Department.
5. Follow-up with the Incident Investigation and Reporting procedures as outlined in the Safety and Health Manual.

First Aid Only Injuries – Injuries Not Requiring Clinical Medical Attention.

1. Provide the injured worker with First Aid Care using project first aid supplies.
2. Contact the Superintendent or Senior Manager on site and notify them of the incident. This must be done within the first few minutes of employee reporting injury.
3. The Superintendent or Senior Manager on site is to notify the Safety Department as soon as the injured worker is cared for IF the injury involves any of the following.
   - Back strain
   - Foreign body or debris in the eye
   - Strained knee (popping, pain, swelling, etc.)
   - Any injury that has the potential to require medical treatment in the future.

All other injuries that are treated using only project first aid supplies do not require immediate notification to the Safety Department and may be submitted to the Safety Department by filling out and faxing or e-mailing the Contractor's Incident Investigation report form within 24 hours of the injury. Any employee that does not follow the incident notification procedure as outlined above, may be subject to disciplinary action as outlined below.

1. 1st Offense: Written warning to be placed in the employees file.
2. 2nd Offense: Written warning and suspension for up to three days.
3. 3rd Offense: Termination of employment.

Attachment 4. OSHA Form 300 Log

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Note: You can type input into this form and save it. Because the forms in this recordkeeping package are "fillable/writable" PDF documents, you can type into the input form fields and then save your inputs using the free Adobe PDF Reader. In addition, the forms are programmed to auto-calculate as appropriate.

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20 __

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name _____

City _____ State _____

Identify the person			Describe the case			Classify the case (SELECT ONLY ONE box for each case based on the most serious outcome for that case:)				Enter the number of days the injured or ill worker was:		Select the "Injury" column or choose one type of illness:					
								Remained at Work				(M)					
(A) Case no.	(B) Employee's name	(C) Job title (e.g., Welder)	(D) Date of injury or onset of illness (e.g., 2/10)	(E) Where the event occurred (e.g., Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Second degree burns on right forearm from acetylene torch)	Death (G)	Days away from work (H)	Job transfer or restriction (I)	Other recordable cases (J)	Away from work (K)	On job transfer or restriction (L)	Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)
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					Page totals ▶							Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Save Input | Add a Form Page

Page 1 of 1

Attachment 5. Accident Expediter Report Form

ACCIDENT EXPEDITER REPORT FORM

Please render medical service to who is employed by the Contractor and is presumed to have sustained an injury or illness in the course of employment. If hospitalization and/or medical treatment is required in excess of the limit provided by the Workers' Compensation Law of the state in which the injury occurred, the Company will not be liable for the excess unless written authority for such treatment is first obtained from the Company, or its designated representative.

The Contractor requires all employees with work-related injuries or illnesses to submit to a drug/alcohol screen. Call number listed below for details.

Date: _____ BY: _____

Phone Number: _____ TITLE: _____

==========

PHYSICIAN'S RELEASE

(To be completed by physician and given to employee.)

_____, whom I have treated for an injury/illness is hereby released to:

_____Full duty work with care not to aggravate the injury.

_____No additional treatment is required.

_____A follow-up appointment has been scheduled on_____
(date)

_____Other: _____

_____ _____
Attending Physician (date)

Employee must present this form to supervisor immediately after each physician's visit.

==========

(Supervisor will fill in below and return to Project Safety Manager or Field Office Manager)

The above named employee returned to work on and has been assigned to duties in accordance with the physician's release.

Job No. _____ Signed _____

Job Name _____ Title _____ Date _____

6. Asbestos Removal

6.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for the safe removal of asbestos. Although demolition of asbestos containing structures is not anticipated for construction of the Facility, asbestos may be present in debris or abandoned or to-be relocated utilities.

When suspect asbestos-containing material is discovered, activity in the area must be suspended and the material not disturbed.

6.2 Definitions

Not applicable.

6.3 Responsibilities

(a) Activity Supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure. The Contractor may hire a certified third party abatement contractor to conduct the activities described below.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

6.4 Procedures

(a) Bulk Sampling of Suspect Asbestos-Containing Materials

Bulk sampling must be completed of suspect asbestos-containing material(s) as soon as possible after discovery. An inspector certified pursuant to the Asbestos Hazard Emergency Response Act (AHERA) will collect the bulk samples. Bulk sample analysis must be completed using polarized light microscopy (PLM) with dispersion staining (EPA Method 600/M4-82-020) on analytical turn-around of not less than 24 hours.

(b) Abatement of Asbestos-Containing Material

Asbestos-containing material (ACM) is defined as material containing 1% or more of any form of asbestos by PLM analysis. A State of Washington-licensed asbestos abatement contractor must abate identified ACM. The contractor must follow the abatement methods and personal protective procedures mandated by Chapters 296-62 and 296-65 WAC as overseen by L&I. Activities will be conducted in accordance with regulations of the Southwest Clean Air Agency (SWCAA) found at SWCAA 476, provided that EFSEC is the agency with final jurisdiction.

6.5 Post-Abatement Submittal

Within 30 days after completing abatement of ACM, the abatement contractor will provide a post-abatement submittal to the site superintendent and the SHE&Q manager. The SHE&Q manager will

forward the submittal to EFSEC and other regulatory agencies as appropriate. The post-abatement submittal will include the following.

- A complete listing of each asbestos worker and asbestos supervisor that worked on the project each day, including copies of their certifications.
- Documentation including name and address of landfill, name of landfill employee authorized to accept asbestos waste, quantity removed from work site, and quantity disposed of at landfill.
- A copy of all regulatory notifications and revisions to notifications.
- A copy of all manometer strip chart readings.
- A copy of all air monitoring results

Failure to provide this submittal within 30 days of project completion could result in withholding of all or partial payment on the contract.

6.6 Removal and Environmental Contractor(s)

(a) A Washington-state licensed asbestos abatement contractor must conduct the asbestos removal.

(b) Safety, health, and industrial hygiene oversight must be provided to the contractor by an independent Environmental/Industrial Hygiene consultant contractor (referred to as Environmental Contractor).

6.7 Exhibits/Attachments

Not applicable.

7. Blasting and Use of Explosives

7.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for conducting blasting activities. Blasting, and the use of explosives for blasting activities are not anticipated to be needed for construction of the Facility.

7.2 Definitions

Not applicable.

7.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

7.4 Implementation

Should a contractor determine that blasting is necessary at the construction site, the contractor will perform the following.

1. The Contractor will notify the SHE&Q manager, project manager, and senior project manager in advance. The Contractor will not conduct blasting activities without prior written approval by Vancouver Energy management.
2. If blasting activities are required the Contractor will develop a blasting plan to demonstrate compliance with state and federal requirements. The plan will be submitted to the SHE&Q manager, project manager, and senior project manager for review and approval. Vancouver Energy management may be required to receive approval of the plan from applicable state and federal agencies. Vancouver Energy management may be required to coordinate with the Port and notify nearby Port tenants in advance.
3. The plan will include, but not be limited to:
    a. A demonstration of blasting activities compliance with the provisions of WAC 296-52
    b. Demonstration of appropriate certification or qualifications for employees involved in handling explosives
    c. Measures for safe transportation, handling, storage and use of explosives
    d. All clears
    e. After-blast inspections

4. Unless used for approved blasting activities at the site, explosives will not be brought to or stored at the construction site.

7.5 Exhibits/Attachments

Not applicable.

8. Bloodborne Pathogens

8.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform activities associated with Bloodborne Pathogens.

People in roles such as “Safety Professional”, “Emergency Medical Technician”, and those who have been trained in first aid and/or CPR may, in the course of their duties, come into contact with the body fluids of another person. Exposure would not be anticipated for these people unless they are in the process of providing medical assistance to an injured employee or cleaning the area after an injury has occurred. For the purpose of this procedure, we will refer to those employees as “medical assistance providers”.

8.2 Definitions

Not applicable.

8.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

8.4 Requirements

Any Contractor who has employees who as part of their regular duties could be exposed (medical assistance providers) to blood borne pathogens will be informed about bloodborne diseases and trained in accordance with the provisions of WAC 296-823. The Contractor will develop and implement a written exposure control plan. The plan will address, but not be limited to

(a) An explanation of the symptoms of bloodborne diseases and how they are transmitted.

(b) How to recognize tasks and activities that may involve exposure to blood or other potentially infectious materials.

(c) The types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.

(d) The signs, labels, and color codes in use to designate contaminated or infectious materials.

(e) The procedure to follow if an exposure incident occurs, including the method of reporting the incident and the evaluation and medical follow-up that will be made available.

(f) Training and recordkeeping requirements.

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9. Code of Safe Practices

1. Contractors and their employees will observe and obey the safety and health requirements of the Project Safety Program, the Code of Safe Practices, WISHA and OSHA Standards, and all other established safety and health standards and regulations as are necessary to the safe and healthful performance of their work.
2. All Facility construction employees will be subject to fair and consistent disciplinary action for policy noncompliance.
3. The possession or sale of illegal drugs, alcohol or weapons at the Facility construction site is strictly prohibited.
4. Employees must be fit for duty and dressed in attire suitable for construction work, including shirts with sleeves, long trousers and proper work shoes.
5. Personal Protective Equipment must be supplied, selected and used for all activities at the construction site, in accordance with WAC 296-155-200 At a minimum, personal protective equipment consisting of HARD HATS AND ANSI APPROVED SAFETY GLASSES WITH SIDE SHIELDS ARE TO BE WORN BY EVERYONE AT ALL TIMES WHILE ON the Facility construction site.
6. Persons not directly involved with the on-site construction will and visitors to the site will comply with site induction requirements, including but not limited to safety and security orientation. Visitors will not be allowed onto the site unless they have received the necessary site induction training.
7. All accidents, incidents and injuries must be reported to a supervisor immediately. Hazardous conditions and unsafe activities observed should also be reported to a supervisor so that corrective action can be taken. Additional reporting requirements are provided in Sections 1 and 2 above.
8. Employees must attend scheduled Safety Meetings and sign an attendance list.
9. Blood may contain communicable diseases. Spilled blood and exposures to blood must be reported to a supervisor.
10. Authorization from a supervisor or competent person is required for entry into confined spaces, trenches or enclosed areas that may contain a hazardous atmosphere.
11. Labels on tools, materials and chemical containers must be read before use, and the instructions for the proper use, handling and personal protective equipment required must be followed.
12. Materials, trash or other objects must not be thrown from buildings or structures. Anyone caught throwing material from upper levels may be subject to immediate dismissal.
13. Materials must not be stored within six (6) feet of floor openings or within ten feet of open floor edges.
14. Materials on roofs and open floors must be secured to prevent them from being windblown.
15. Objects must not be stacked or leaned in such a way that they could fall or be blown over.
16. Protruding nails must be bent over or pulled as the work proceeds. Nails in job built guardrails, ladders or handrails must be pounded flush with the surface of the wood.
17. The large muscles of the legs should be used instead of the smaller muscles of the back when lifting heavy objects. Help should be obtained when an object to be lifted may be too heavy or awkward to be handled safely by one person.
18. Crane operations will be conducted in accordance with the provisions of Section 10 below. Only trained and qualified employees may rig loads and signal cranes. Employees must be warned before loads are lifted overhead, and employees should stay out from under crane loads when it is avoidable. A crane load should not be approached for landing until it has been lowered to chest level. The use of tag lines to help control loads is required, especially for steel erection and during windy conditions.
19. Employees must not stand between crane loads and other objects, and hands must be kept clear of rigging and pinch points as loads are lifted and moved.
20. Employees should be aware of the locations of the fire extinguishers that have been provided throughout the Project and know how to select and use them.
21. An ABC rated fire extinguisher must be readily available when welding or burning and when using flammable liquids and gases.
22. Smoking is prohibited inside the fence line and on Facility property except for specially marked areas located in the parking lots. The purpose of this prohibition is to control ignition sources within the Facility as well as reduce exposure of personnel to harmful second hand smoke. Smoking is permitted only in specially marked areas, and smoking material must be left in vehicles or in the break facilities. Smokers are required to minimize the amount of time spent in smoking areas and are asked to keep the areas clean.
23. Smoking is not permitted around gasoline and other flammable liquids or gases. Equipment must be turned off before refueling and extreme caution must be used with fuel around a hot muffler.

24. Gasoline must be stored and transported only in approved safety containers and gasoline must not be used for cleaning purposes.
25. Only qualified and authorized employees may operate temporary heating devices. The use of temporary heating devices must be in accordance with the provisions of WAC 296-155-280. Open fires are not permitted.
26. Compressed gas cylinders must be kept secured and upright, and they must be capped and gases separated when not in use. Empties should be returned to the storage area for pick up.
27. Hand and Power tools will be used, stored and maintained in accordance with WAC 296-155.
28. Tools and power cords must be inspected for damage or defects before each use. Any problem found must be reported to a supervisor and/or corrected before being put in service.
29. Guards and other safety devices on tools and equipment must be kept in place and working properly.
30. Specific training and certification cards are required for the operation of power-actuated tools, lasers, powered industrial trucks, and for flagger personnel.
31. The heads of striking tools must be kept properly dressed to prevent mushroom burrs from forming.
32. Working above or below other operations creates a hazard from falling objects. Conflicting activities must be reported to a supervisor so that the activities can be coordinated.
33. Overhead protection structures are to be used to enter or exit a building when they are provided.
34. Areas that are separated from the main work areas by warning lines, control lines or barricades must not be entered by unauthorized employees. These areas are blocked off for safety reasons, and they may contain hazards that are not obvious.
35. A full-body harness or other approved means must be used for fall protection at unguarded floor edges, floor openings and other fall hazards where the fall distance is six feet or more. When guardrails, control lines or warning lines are temporarily removed, provisions to prevent unprotected employees from entering the area must be provided.
36. Floor holes two inches and over must be covered, and the covers must be secured and marked.
37. Riding on trucks and heavy equipment is permitted only where a seat has been provided by the manufacturer, and seat belts must be used when they have been provided.
38. Employees must not attempt to cross the path of a truck or a piece of heavy equipment unless eye contact is made with the operator and a "go ahead" signal is given. Employees must stay alert and keep clear of moving equipment.
39. Scaffolds must be erected, altered, used and dismantled under the supervision of a competent person.
40. A proper ladder must be used for access to a scaffold, work platform or another level. Climbing scaffold brace/frame is not permitted.
41. Walkman, discmans, stereo radios and other types of personal radios may cause communication problems during an emergency and are prohibited.
42. Housekeeping is a prime concern and must be maintained at the highest level. Daily cleanup is mandatory, especially for food rubbish. Left over or scrap materials must be removed from the work area daily.
43. When ascending or descending a ladder, employees will use the three point system, e.g. one hand and two feet or two hands and one foot must be in contact with the ladder at all times.

10. Cold Environment

10.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to protect workers exposed to cold environments.

This is not an OSHA standard but OSHA recommends protecting employees in cold environments.

10.2 Definitions

(a) 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

(b) 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.

10.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

10.4 General Requirements

(a) Cold, wet, windy conditions make prime hypothermia weather. Precautions will be taken to keep warm.

(b) 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.

(c) If an employee suspects a co-worker has experienced frostbite, they should seek medical attention immediately.

(d) Reference the OSHA cold stress card (Attachment 6).

10.5 Implementation

(a) Workers will wear warm clothing, such as mittens, heavy socks, etc., when the air temperature is below 40-45 degrees Fahrenheit (°F). Chemical protective clothing, if required by the project, may be used to partially protect the employee from the cold, but must always be the outermost layer.

(b) 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.

(c) At air temperature below 35°F, the following work practices should be followed.

1. If the clothing of an employee could become wet on the job site, the outer layer of clothing should be impermeable to water.
2. 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.
3. Employees should be provided a warm area to change from work clothing into street clothing.
4. Employees should be provided a warm break area. If appropriate, space heaters will 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.
5. 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.
6. The buddy system should be practiced at all times. Any employee observed with severe shivering must leave the cold area immediately.
7. 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.
8. Employees should avoid overdressing when going into warm areas or when performing activities which are strenuous. This could lead to a heat stress problem.
9. Auxiliary heated versions of handwear, 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.
10. Employees handling volatile liquids--gasoline, hexane, alcohol, etc.--must take special precautions to avoid saturating clothing or gloves with these liquids. There is an added danger of injury from overexposure due to evaporative cooling.
11. Work will be arranged in such a way that sitting still or standing for long periods of time is minimized.
12. Employees face increased risks when they take certain medications, are in poor physical condition or suffer from such illnesses such as diabetes, hypertension, or cardiovascular disease.

(d) All employees who work in cold areas will be trained in the following subjects in accordance with Employee Safety Orientation and Training.

1. Proper first aid treatment
2. Proper clothing practices
3. Proper eating and drinking habits
4. Recognition of impending adverse health effects
5. Safe work practices

10.6 Exhibits/Attachments

OSHA Cold Stress Card, Attachment 6

Attachment 6. OSHA Cold Stress Card

OSHA® QUICK CARD™

Protecting Workers from Cold Stress

Cold temperatures and increased wind speed (wind chill) cause heat to leave the body more quickly, putting workers at risk of cold stress. Anyone working in the cold may be at risk, e.g., workers in freezers, outdoor agriculture and construction.

Common Types of Cold Stress

Hypothermia

- Normal body temperature (98.6°F) drops to 95°F or less.
- **Mild Symptoms**: alert but shivering.
- **Moderate to Severe Symptoms**: shivering stops; confusion; slurred speech; heart rate/breathing slow; loss of consciousness; death.

Frostbite

- Body tissues freeze, e.g., hands and feet. Can occur at temperatures above freezing, due to wind chill. May result in amputation.
- **Symptoms**: numbness, reddened skin develops gray/white patches, feels firm/hard, and may blister.

Trench Foot (also known as Immersion Foot)

- Non-freezing injury to the foot, caused by lengthy exposure to wet and cold environment. Can occur at air temperature as high as 60°F, if feet are constantly wet.
- **Symptoms**: redness, swelling, numbness, and blisters.

Risk Factors

- Dressing improperly, wet clothing/skin, and exhaustion.

For Prevention, Your Employer Should:

- Train you on cold stress hazards and prevention.
- Provide engineering controls, e.g., radiant heaters.
- Gradually introduce workers to the cold; monitor workers; schedule breaks in warm areas.

For more information:

OSHA® Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov (800) 321-OSHA (6742)

OSHA 3156-02R 2014

OSHA® QUICK CARD™

How to Protect Yourself and Others

- Know the symptoms; monitor yourself and co-workers.
- Drink warm, sweetened fluids (no alcohol).
- Dress properly:
  - Layers of loose-fitting, insulating clothes
  - Insulated jacket, gloves, and a hat (waterproof, if necessary)
  - Insulated and waterproof boots

What to Do When a Worker Suffers from Cold Stress

For Hypothermia:

- Call 911 immediately in an emergency.
- To prevent further heat loss:
  - Move the worker to a warm place.
  - Change to dry clothes.
  - Cover the body (including the head and neck) with blankets, and with something to block the cold (e.g., tarp, garbage bag). Do **not** cover the face.
- If medical help is more than 30 minutes away:
  - Give warm, sweetened drinks if alert (no alcohol).
  - Apply heat packs to the armpits, sides of chest, neck, and groin. Call 911 for additional rewarming instructions.

For Frostbite:

- Follow the recommendations **"For Hypothermia"**.
- Do not rub the frostbitten area.
- Avoid walking on frostbitten feet.
- Do not apply snow/water. Do not break blisters.
- Loosely cover and protect the area from contact.
- Do not try to rewarm the area unless directed by medical personnel.

For Trench (Immersion) Foot:

- Remove wet shoes/socks; air dry (in warm area); keep affected feet elevated and avoid walking. Get medical attention.

For more information:

OSHA® Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov (800) 321-OSHA (6742)

11. Communication

11.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to provide effective communication between its employees.

This is not an OSHA standard but OSHA highly encourages safety communication with all Contractor's employees and subcontractors.

11.2 Definitions

Not applicable.

11.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

11.4 General Requirements

(a) Communication of safety related information will be made to site supervisory personnel by means of personal contact, bulletins, regular and special safety meetings, and training sessions. Personal contacts consist of sessions discussing specific problems, chronic problems, work planning, safety meetings, and hazard analyses, training philosophies and methods. Contacts may be documented as necessary and followed up with the appropriate levels of supervision. Meetings will be held with site supervisory personnel and employees on a regular basis, with documentation of the meeting content and attendees.

(b) Contractor Safety Lead Involvement

Each Contractor will appoint a Safety Lead. The Site Superintendent or the Contractor's Safety Management personnel may also be responsible for this function. The Safety Lead will be the focal point for communications on the project. The Safety Lead will ensure that employees on the project receive information required to perform their jobs safely. The Safety Lead will:

1. Coordinate health and safety related activities with the SHE&Q manager.
2. Explain communication procedures for receiving and responding to employee suggestions and/or complaints regarding safety.
3. Orient new employees to specific jobsite hazards and safe work procedures. (Other people may be trained to perform this function).
4. Conduct "Safe Start" conferences with subcontractor management/supervisor and any lower tiered subcontractor supervisors to explain the Contractor's safety procedures and review the "Safe Start" program with the subcontractor.
5. Set up and maintain bulletin boards for communication.
6. Conduct training as required.

7. Prepare toolbox safety meeting information for presentation by supervisory personnel.
8. Post appropriate warning and directional information.

11.5 Implementation

(a) Gap Analysis

Prior to mobilization in the field, each contractor must perform a gap analysis to identify discrepancies between their policies and the policies or expectations. The gaps are evaluated and the final decisions are agreed and documented prior to commencing work in the field.

(b) Safety Meetings

Regular safety meetings will be conducted with management, supervision and field personnel. Several avenues will be used to facilitate these meetings. Tool Box Safety Training Meetings will be held weekly (at a minimum) from prepared toolbox topics available from the Contractor. These toolbox safety meetings may be hosted by individual foremen or superintendents or held as a mass meeting by a member of project management. The meeting contents and attendees will be documented as part of the permanent project file. Safety meetings will be periodically monitored and evaluated by management and supervision to ensure their effectiveness and quality. Safety will also be the first agenda item at all scheduled weekly staff, scheduling or other pertinent project meetings.

A brief safety meeting or Job Hazards Analysis (JHA) meeting will be conducted by each Site Superintendent or their designee at the beginning of each work day/shift to jointly discuss and review the anticipated work for the day/shift. The entire Contractor crew participates in this planning, hazard awareness and hazard elimination exercise. The meeting is documented using a mini-JHA form and the daily time sheet.

Additional special safety meetings will be utilized as necessary for new or unusual work, new equipment, unusual or unexpected situations or conditions encountered, and as part of a JHA when the need is indicated. Each contractor will conduct a monthly safety meeting with their on-site employees to provide a forum for an extended conversation about a Facility-specific training topic. The SHE&Q manager may present some or all of the content from the all-hands meetings.

All personnel on site will be expected to comply with this Construction Health and Safety Manual as well as the Contractor's Safety and Health Program. The Site Superintendent will communicate this information to each subcontractor as they arrive on the project. The Site Superintendent will communicate subsequent changes as they occur.

(c) Safety Committee

Safety committees are a recognized way to increase the effectiveness of the overall safety program. The Facility recognizes the value of these committees and the empowerment they provide the contractors. The Facility maintains a cross functional safety team to provide a forum for addressing safety and health concerns related to field construction activities. The team consists of hourly/craft employees with staff support. All contractors performing field construction activities at the Facility must have representation on the Facility safety team. The safety committee is established and meetings conducted in accordance with WAC 296-800-130.

(d) Subcontractor Safety

A "Safe Start" meeting will be conducted with all subcontractors and any lower tiered subcontractors to ensure their active participation in the promotion of safety and accident prevention. They will be advised of any special requirements of the project and of the emergency procedures to be followed.

(e) All employees are encouraged to make suggestions or express their concerns in the daily JHA meetings or the weekly Tool Box meetings. They are told that if they are not comfortable in either of those forums, they may express their safety concerns to the SHE&Q manager, the Superintendent, or their supervisory personnel without fear of retribution. If there appears to be a need for one, a box for anonymous comments will be established.

11.6 Exhibits/Attachments

See Section 29, Job Hazard Analysis, for more information and attachments.

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12. Confined Space Entry

12.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform confined space entry, and to serve as the foundation of the mandatory written permit-required confined space entry program. Confined Space entry must be conducted in accordance with the provisions of WAC 296-809.

12.2 Definitions

(a) Acceptable entry conditions. The conditions that must exist in a permit space to allow entry, and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

(b) Attendant. An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

(c) Authorized entrant. An employee who is authorized by the employer to enter a permit space.

(d) Confined space. A space that: (1) is large enough and so configured that an employee can bodily enter and perform assigned work; and (2) 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.); and (3) is not designed for continuous employee occupancy.

(e) Engulfment. The surrounding and effective capture of a person by liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

(f) Entry. The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing 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 an opening into the space.

(g) Entry permit (permit). The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in Section 12.7 of this procedure.

(h) Entry supervisor. The person (such as the employer, foreman, or crew chief) 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 section. NOTE: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of an entry supervisor may be passed from one individual to another during the course of an entry operation.

(i) Hazardous atmosphere. An atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL); 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 to a distance of 5 feet (1.52 m) or less.
2. Atmospheric oxygen concentration below 19.5 percent or above 22.5 percent;
3. Atmospheric concentration of any substance for which the permissible dose or exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances of 29 CFR 1926, Chapter 296-155 and 296-841 WAC, and which could result in employee exposure in excess of the permissible dose or exposure limit; NOTE: An atmospheric concentration of any substance that is not

capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

4. Any other atmospheric condition that is immediately dangerous to life or health. NOTE: For air contaminants for which OSHA has not determined a permissible dose or exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, 29 CFR 1926, Chapter 296-155 WAC, and 296-901-140 WAC, and published information and internal documents can provide guidance in establishing acceptable atmospheric conditions.

(j) Immediately dangerous to life or health (IDLH). Any condition that poses an immediate or delayed threat to life, or that would cause irreversible adverse health effects, or that would interfere with an individual's ability to escape unaided from a permit space. NOTE: Some materials (i.e., hydrogen fluoride gas and cadmium vapor) may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by a sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" after recovery from transient effects until the impending collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

(k) Inerting. The displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.

(l) Isolation. The process by which a permit space is removed from service and completely protected against the release of energy and introduction of material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; and blocking or disconnecting all mechanical linkages.

(m) Non-permit confined space. A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

(n) Oxygen deficient atmosphere. An atmosphere containing less than 19.5 percent oxygen by volume.

(o) Oxygen enriched atmosphere. An atmosphere containing more than 22.5 percent oxygen by volume.

(p) Permit-required confined space (permit space). A confined space that has one or more of the following characteristics: (1) contains or has a potential to contain a hazardous atmosphere; (2) contains a material that has the potential for engulfing an entrant; (3) 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; or (4) contains any other recognized serious safety or health hazard.

(q) Prohibited condition. Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

(r) Rescue service. The personnel designated to rescue employees from permit spaces.

(s) Retrieval system. The equipment (including a retrieval line and full body harness, wristlets if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

(t) Testing. The process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space. NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during entry.

12.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

12.4 General Requirements

(a) A competent person who represents the employee conducting the Confined Space work will evaluate the workplace to determine if any spaces are permit-required confined spaces.

(b) If the workplace contains permit spaces, the Site Superintendent will inform exposed employees (and subcontractors, if applicable) by posting danger signs, or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces. NOTE: A sign reading DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER, or using other similar language, would satisfy the requirement for a sign.

(c) If permit spaces exist in the workplace, and employees will not be permitted to enter permit spaces, the Site Superintendent will take effective measures to prevent employee entry into permit spaces. If non-permit spaces are modified or experience any change that causes an increased hazard to entrants, the Site Superintendent will reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

(d) If any subcontract employee is to enter a permit space prior to the initial entry the Site Superintendent will: (1) inform the subcontract employer that the workplace contains permit spaces and that entry must comply with 29 CFR 1910.146, WAC 296-24, and WAC 296-809; (2) inform the subcontract employer of the elements, including known hazards and experiences from any previous entries into the space, that classify the space as a permit space; (3) inform the subcontract employer of any controls or procedures implemented to protect employees near the subcontractor's work area; (4) coordinate entry operations among client, contractor, and subcontractor personnel when necessary; and (5) debrief the subcontract employer at the conclusion of entry operations regarding the permit space entry program and any hazards or problems encountered during the entry operations.

12.5 Implementation

(a) Non-Permit Confined Spaces. Entry into non-permit confined spaces will be subject to the following controls:

1. The Site Superintendent and Third Party Safety lead will be informed in advance of the planned entry.
2. The entry will be coordinated with any work activities near the non-permit space so that hazardous conditions will not be created in or around the space.
3. The buddy system will be used for all entries.
4. Entrants will immediately withdraw upon recognition of any hazardous condition.
5. The Site Superintendent and Third Party Safety lead will be advised of any unanticipated incidents related to the non-permit space entry.

(b) Permit-Required Confined Spaces. Entry into permit-required confined spaces will be subject to the following controls:

1. Unauthorized entries will be prohibited, and measures will be implemented to prevent such entries. The Site Superintendent will develop additional written program controls that will specifically address the permit spaces and entries unique to the individual project scope of work and conditions.
2. Hazards will be identified and evaluated prior to entry. Hazards to be addressed include
    - Chemical exposure (via inhalation, ingestion, or dermal absorption) from the contents or residues of previous contents of the space, from chemicals introduced into the space as part of the entry operation, and from chemicals used near the space.
    - Oxygen deficiency or enrichment.
    - Discharge of steam, high-pressure air, water, or oil into the confined space, or against personnel working outside.
    - Structural failure of the space walls, roof, roof support members, swing line cables, or other structural members.
    - Tools, debris, or other objects dropping from overhead.
    - Falls through or from the roof or from scaffolds, stairs, or ladders.
    - Tripping over hoses, pipes, tools, or equipment.
    - Slipping on wet, oily surfaces, or colliding with objects in inadequately lighted interiors.
    - Insufficient or faulty personal protective equipment.
    - Insufficient or faulty operations, equipment, and tools. Noise in excess of acceptable levels.
    - Temperature extremes that may require additional protection or shorter work periods.
3. The Third-Party Safety Lead will, as part of the written material under 6.b.1 above, develop procedures and practices to ensure safe conduct of entry operations. The following points, at least, will be fully addressed:
    - Acceptable entry conditions will be specified (both chemical and physical conditions will be addressed, and conditions which could arise as a result of operations performed outside the space will be considered).
    - Procedures to fully isolate the space (this may not be feasible in sewers; see Exhibit B).
4. Isolation of a space will include the following steps, as applicable:
    - Depressurize the confined space.
    - Prevent accidental introduction into the confined space of hazardous materials through interconnecting equipment such as piping, ducts, vents, drains, or other means.
    - De-energize, lockout, and tagout machinery, mixers, agitators, or other equipment containing moving parts that are in the confined space.
    - Removing a valve, spool piece, or expansion joint in piping to, and as close as possible to, the confined space, and blanking or capping the open end of the pipe leading to the confined space.
    - Inserting a suitable full-pressure blank in piping between the flanges nearest to the confined space.
    - Closing, locking, and tagging at least two valves in the piping leading to the confined space, and locking or tagging open to atmosphere a drain valve between the two closed valves which will be checked to ensure that it is not plugged.
        - In all cases, blanks or caps will be of a material that is compatible with the liquid, vapor, or gas with which they are in contact.
        - The material will also have sufficient strength to withstand the maximum operating pressure, including surges, which can be built up in the piping.
5. In addition, all electrical and mechanical devices within or attached to the confined space will be disconnected or locked and tagged to prevent accidental movement or energizing of such systems.
6. All employees who will be working in the confined space will be informed of the isolation devices in use at the jobsite during safety meetings.
7. Purge, inert, flush, or ventilate the space as necessary to eliminate or control atmospheric hazards.
8. Provide barriers to protect entrants from external hazards.
9. Verify that conditions in the permit space are acceptable throughout the duration of the entry.
10. The following equipment will be provided, maintained, and utilized whenever necessary for safe entry operations.
    - Testing and monitoring equipment needed to perform specified atmospheric testing.
    - Ventilating equipment needed to create and maintain acceptable entry conditions.

- Ventilation of permit spaces will be performed as follows.
  - Prior to ventilating a confined space, a qualified person will take positive steps to ensure that no pyrophoric materials that will ignite in the presence of air are present in the confined space.
  - All confined spaces will be mechanically ventilated to remove and/or prevent the accumulation of hazardous atmospheres.
  - Air or steam driven air movers will be used to ventilate confined spaces. Use of electric powered ventilators is strictly limited to spaces that have not contained flammable or combustible materials.
  - Oxygen will not be used to power air-driven ventilators or to ventilate any confined space location.
  - The entry supervisor will check periodically to ensure that contaminated air from a confined space is exhausted to a location where it presents no hazard.
  - Whenever possible, air movers will be used with ducting to increase the efficiency of ventilation in the confined space and to prevent recirculation of contaminated air due to ventilation "short circuiting."
  - When two or more air movers are used for ventilation, all such units should be operated in the same flow direction to maximize efficiency, i.e., all in the exhaust mode or all in the supply mode.
- Communications equipment necessary to permit immediate, understandable communications between the entrant(s) and the attendant(s).
- Personal protective equipment necessary to supplement feasible engineering and work practice controls.
- Lighting equipment necessary for safe operations and emergency exit. Temporary lighting used in confined spaces will meet the following requirements:
  - All lighting will be approved for use in Class I, Division I, Groups A, B, C, and D atmospheres.
  - Extension cords used for temporary lighting will be equipped with connectors or switches approved for hazardous locations.
  - Temporary lighting will be equipped with adequate guards to prevent accidental contact with the bulb.
  - The lighting will not be suspended by the electric cords, unless they are designed for this method of suspension.
  - Electric cords will be kept clear of working spaces and walkways or other locations in which they may be exposed to damage.
  - Temporary lighting and electric cords will be inspected regularly for signs of damage to insulation and wiring.
  - Specified barriers and shields.
  - Equipment such as ladders needed for safe ingress and egress.
  - Rescue and emergency equipment, unless provided by local rescue services.
  - Any other equipment necessary for safe entry and rescue from permit spaces.

11. Prior to authorizing entry, tests will be conducted by a competent person to determine if acceptable entry conditions exist. When spaces are not fully isolated due to their size or design (sewers), pre-entry testing will be conducted to the extent feasible, and if entry is authorized, conditions will be continuously monitored in the work area. During the course of entry operations, test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained; and, When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors. NOTE: Atmospheric testing conducted in accordance with Exhibit A would be considered as satisfying these requirements. For permit space operations in sewers, atmospheric testing conducted in accordance with Exhibit A, as supplemented by Exhibit B, would be considered as satisfying these requirements.
12. At least one attendant will be stationed outside the permit space for the duration of the entry operations. NOTE: Attendants may be assigned to monitor more than one permit space provided the duties described in Section 12.9(b) of this procedure can be effectively performed for each permit space that is monitored. Likewise, attendants may be stationed at any location outside the permit space to be monitored as long as the duties described in Section 12.9(b) of this procedure can be effectively performed for each permit space that is monitored.
13. If multiple spaces are to be monitored by a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of the permit spaces being monitored without distraction from the attendant's responsibilities under Section 12.9(b) of this procedure.

14. The roles and duties of each person participating in an entry operation (i.e., authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) will be established and each person will receive training commensurate with the duties assigned.
15. Procedures for summoning rescue and emergency services, for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue will be developed and implemented.
16. Procedures to coordinate entry operations among multi-employer workforces will be developed and implemented.
17. The permit space will be secured and entry-related documentation will be completed and retained in project files for a period of at least one year.
18. The entry program will be reviewed and any deficiencies corrected whenever evidence exists that employee protection is inadequate. NOTE: Examples of circumstances requiring the review of the permit-required confined space program are: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.
19. The permit-required confined space program will be reviewed, using the canceled permits retained under Section 12.6(f) of this procedure, within 1 year after each entry and revised as necessary to ensure that employees participating in entry operations are protected from permit space hazards. NOTE: Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

(c) Alternate Entry Procedure.

1. A simpler, alternate procedure may be followed for permit-required space entry if all of the following conditions are met:
   - The only hazard posed by the permit space is from an existing, or potentially hazardous atmosphere.
   - Continuous forced air ventilation alone is sufficient to maintain the space safe for entry.
2. Monitoring and inspection data supporting the above two conditions is collected and documented. Entries conducted to obtain this data must be conducted according to Section 12.5(b) above.
3. Supporting data must be made available to each employee who enters the permit space under this alternate procedure.
4. The alternate entry procedure will conform to the following:
   - Any conditions making it unsafe to remove an entrance cover will be eliminated before the cover is removed.
   - When entrance covers are removed, the opening will be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
   - Before an employee enters the space, the internal atmosphere will be tested with a calibrated direct-reading instrument for the following conditions, in the order given: (1) oxygen content, (2) flammable gases and vapors, and (3) potential toxic air contaminants.
   - There may be no hazardous atmosphere within the space whenever any employee is inside the space.
   - Continuous forced air ventilation will be used, as follows: (1) an employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere; (2) the forced air ventilation will be directed so as to ventilate the immediate areas where an employee is or will be present within the space and will continue until all employees have left the space; (3) The air supply for the forced air ventilation will be from a clean source and may not increase the hazards in the space.
   - The atmosphere within the space will be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.
   - If a hazardous atmosphere is detected during entry: (1) each employee will leave the space immediately; (2) the space will be evaluated to determine how the hazardous atmosphere developed; and, (3) measures will be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

- The employer will verify that the space is safe for entry and that the measures required by 6.c have been taken through a written certification that contains the date, the location of the space, and the signature of the person providing the certification.
- The certification will be made before entry and will be made available to each employee entering the space.

12.6 Entry Permit System

(a) Before authorization to enter is granted, the completion of hazard control measures specified in 12.5(b) and 12.5(c) above will be documented on an entry permit (Attachment 7).

(b) The entry supervisor will authorize the entry by signing the completed permit.

(c) The signed permit will be posted or otherwise made available to all authorized entrants so that they may confirm that all pre-entry preparations are in place.

(d) The duration of the permit may not exceed the time required to complete the assigned purpose of the entry.

(e) The entry supervisor will terminate the entry and cancel the permit when either of the following occurs:

1. The operations covered by the permit have been completed.
2. Any condition not allowed under the entry permit occurs in or near the permit space.

(f) Canceled entry permits will be retained for at least 1 year so that the program review required under 12.5(b).19 above may be performed. Any problems which occur during an entry will be noted on the permit.

12.7 Entry Permit

(a) The entry permit will contain the following information:

1. The permit space to be entered.
2. The purpose of the entry.
3. The date and the authorized duration of the entry permit.
4. The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems), as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space; NOTE: This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.
5. The personnel, by name, currently serving as attendants.
6. The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.
7. The hazards of the permit space to be entered.
8. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry. NOTE: Those measures can include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.
9. The acceptable entry conditions.
10. The results of initial and periodic tests performed under section 12.5(b).11 of this procedure, accompanied by the names or initials of the testers, and by an indication of when the tests were performed.
11. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.
12. The communication procedures used by authorized entrants and attendants to maintain contact during the entry.
13. Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this section.
14. Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety.
15. Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

12.8 Training

(a) The Competent Person for the Contractor entering any confined space will assure that all employees assigned to tasks under this procedure have been trained, and have the understanding, knowledge, and skills necessary for the safe performance of their duties.

(b) All training conducted will be documented on appropriate training forms, and copies will be submitted to the SHE&Q manager. Documentation may likewise we submitted to the Third Party Safety Lead and Corporate Safety Management.

(c) Training will be provided to each employee on the following occasions:

1. Before the employee is first assigned duties under this procedure.
2. Before there is a change in assigned duties.
3. Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained.
4. Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required by 6(b) and 6(c) of this procedure, or that there are inadequacies in the employee's knowledge or use of these procedures.

(d) The training will establish employee proficiency in the duties required by this procedure and will introduce new or revised practices, as necessary, for compliance with this procedure.

(e) Training required by this section will be certified. The certification will contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification will be available for inspection by employees and their authorized representatives.

12.9 Assignment of Duties

(a) Authorized Entrants. The employer will ensure that all authorized entrants:

1. Know the hazards that may be faced during entry, including information on the mode, signs, or symptoms, and consequences of the exposure.
2. Properly use equipment as required by section 12.5(c) of this procedure.
3. Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required by section 12.9(b).6 of this procedure.
4. Alert the attendant whenever
   - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
   - The entrant detects a prohibited condition.
5. Exit from the permit space as quickly as possible whenever:
   - An order to evacuate is given by the attendant or the entry supervisor;
   - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
   - The entrant detects a prohibited condition; or
   - An evacuation alarm is activated.

(b) Attendant. The employer will ensure that each attendant:

1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
2. Is aware of possible behavioral effects of hazard exposure in authorized entrants.
3. Continuously maintains an accurate count of authorized entrants in the permit space, and ensures that the means used to identify authorized entrants under Section 12.7(a) of this procedure accurately identifies who is in the permit space;
4. Remains outside the permit space during entry operations until relieved by another attendant.
   NOTE: When the employer's permit entry program allows attendant entry for rescue, attendants may enter a

permit space to attempt a rescue if they have been trained and equipped for rescue operations as required by Section 12.10(a) of this procedure and if they have been relieved as required by Section 12.9(b).4 of this procedure.

5. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space under Section 12.9(b).6 of this procedure.
6. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space, and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
   - If the attendant detects a prohibited condition.
   - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
   - If the attendant detects a situation outside the space that could endanger the authorized entrants.
   - If the attendant cannot effectively and safely perform all the duties required under this section.
7. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
8. Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
   - Warn the unauthorized persons that they must stay away from the permit space.
   - Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
   - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
   - Performs non-entry rescues as specified by the employer's rescue procedure.
   - Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

(c) Entry supervisor. The employer will ensure that each entry supervisor:

1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
2. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
3. Terminates the entry and cancels the permit.
4. Verifies that rescue services are available and that the means for summoning them are operable.
5. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
6. Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

12.10 Rescue and Emergency Services

(a) The following requirements apply to employers who have employees enter permit spaces to perform rescue services.

1. The employer will ensure that each member of the rescue service is provided with, and is trained to use properly, the personal protective equipment and rescue equipment necessary for making rescues from permit spaces.
2. Each member of the rescue service will be trained to perform the assigned rescue duties.
3. Each member of the rescue service will also receive the training required of authorized entrants under Section 12.8 of this procedure.
4. Each member of the rescue service will practice making permit space rescues at least once every 12 months by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces will, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.
5. Each member of the rescue service will be trained in basic first-aid and in cardiopulmonary resuscitation (CPR). At least one member of the rescue service holding current certification in first aid and in CPR will be available.

6. When an employer (host employer) arranges to have persons other than the host employer's employees (outside rescuer) perform permit space rescue, the host employer will ensure that
   - The outside rescuer can effectively respond in a timely manner to a rescue summons.
   - The outside rescuer is equipped, trained and capable of functioning appropriately to perform permit space rescues at the host employer's facility
   - The outside rescuer is aware of the hazards they may confront when called on to perform rescue at the host employer's facility.
   - The outside rescuer is provided with access to all permit spaces from which rescue may be necessary so that the outside rescuer can develop appropriate rescue plans and practice rescue operations.

(c) To facilitate non-entry rescue, retrieval systems or methods will be used whenever an authorized entrant enters a permit space unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems will meet the following requirements.

1. Each authorized entrant will use a chest or full body harness with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or other point which the employer can establish will ensure that the entrant will present the smallest possible profile during removal.
2. The other end of the retrieval line will be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device will be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.
3. If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information will be made available to the medical facility treating the exposed entrant.

12.11 Exhibits/Attachments

(a) Procedures for Atmospheric Testing, Exhibit A

(b) Sewer System Entry, Exhibit B

(c) Confined Space Entry Permit, Attachment 7

The Confined Space Entry Permit is used for documenting activities associated with this procedure. The completed Permits will be maintained for a period of 1 year from the date of cancellation, in accord with Section 12.6(f) above.

Exhibit A. Procedures for Atmospheric Testing

Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exist.

A.1. Evaluation testing. The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data, and development of the entry procedure should be done by, or reviewed by, a technically qualified professional (e.g., certified industrial hygienist, marine chemist, registered safety engineer, certified safety professional, etc.) based on evaluation of all serious hazards.

A.2. Verification testing. The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. Results of testing (i.e., actual concentration, etc.) should be recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition.

B.3. Duration of testing. Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument specified by the manufacturer.

C.4. Testing stratified atmospheres. When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested a distance of approximately 4 feet (1.22 m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.

Exhibit B. Sewer System Entry

Sewer entry differs in three vital respects from other permit entries. First, there rarely exists any way to completely isolate the space (a section of a continuous system) to be entered; second, because isolation is not complete, the atmosphere may suddenly and unpredictably become lethally hazardous (toxic, flammable or explosive) from causes beyond the control of the entrant or employer; and third, experienced sewer workers are especially knowledgeable in entry and work in their permit spaces because of their frequent entries. Unlike other employments where permit space entry is a rare and exceptional event, sewer workers' usual work environment is a permit space.

B.1 Adherence to procedure. The employer should designate as entrants only employees who are thoroughly trained in the employer's sewer entry procedures and who demonstrate that they follow these entry procedures exactly as prescribed when performing sewer entries.

B.2 Atmospheric monitoring. Entrants should be trained in the use of, and be equipped with, atmospheric monitoring equipment which sounds an audible alarm, in addition to its visual readout, whenever one of the following conditions is encountered: oxygen concentration less than 19.5 percent; flammable gas or vapor at 10 percent or more of the lower flammable limit (LFL); or hydrogen sulfide or carbon monoxide at or above their PEL (10 PPM or 50 PPM, respectively); or, if a broad range sensor device is used, at 100 PPM as characterized by its response to toluene. Normally, the oxygen sensor/broad range sensor instrument is best suited for sewer entry. However, substance specific devices should be used whenever actual contaminants have been identified. The instrument should be carried and used by the entrant in sewer line work to monitor the atmosphere in the entrant's environment, and in advance of the entrants' direction of movement, to warn the entrant of any deterioration in atmospheric conditions. Where several entrants are working together in the same immediate location, one instrument, used by the lead entrant, is acceptable.

B.3 Surge flow and flooding. Sewer crews should develop and maintain liaison, to the extent possible, with the local weather bureau and fire and emergency services in their area so that sewer work may be delayed or interrupted and entrants withdrawn whenever sewer lines might be suddenly flooded by rain or fire suppression activities, or whenever flammable or other hazardous materials are released into sewers during emergencies by industrial or transportation accidents.

B.4 Special Equipment. Entry into large bore sewers may require the use of special equipment. Such equipment might include such items as atmosphere monitoring devices with automatic audible alarms, escape self-contained breathing apparatus (ESCBA) with at least 10 minute air supply (or other NIOSH approved self-rescuer), and waterproof flashlights, and may also include boats and rafts, radios and rope stand-offs for pulling around bends and corners as needed.

Attachment 7. Confined Space Entry Permit

Confined Space Entry Permit

This permit is valid only on the date of issue and for only one shift. Return this permit to the safety department at the end of the shift.

Date_____Shift_____Location_____

Purpose for entry_____

Supervisor in charge_____Contractor _____

Communications ☐ Yes ☐ No Rescue procedure appropriate ☐ Yes ☐ No

Emergency telephone no._____

A check* denotes minimum requirements to be completed and reviewed prior to entering.

REQUIREMENTS	DATE	TIME
☐ Lock out/de-energize and tested	_____	_____
☐ Line(s) broken-capped-blanked	_____	_____
☐ Purge-flush-vent	_____	_____
☐ Ventilation	_____	_____
☐ Secure area (post or flag)	_____	_____
☐ SCBAs	_____	_____
☐ Emergency/Rescue equipment	_____	_____
☐ Emergency retrieval plan	_____	_____
☐ Standby personnel	_____	_____
☐ Full body harness or other	_____	_____
☐ Lifelines	_____	_____
☐ Fire extinguishers	_____	_____
☐ Proper lighting	_____	_____
☐ Personal protective equipment	_____	_____
☐ Welding and/or cutting permit	_____	_____

*For items that do not apply, enter N/A in the date column.

ATMOSPHERE TESTING

Time_____Oxygen reading_____LEL_____

Other tests _____

Sign In	Time In/Out	In/Out	In/Out
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Standby person _____

Confined space entry authorized by and atmospheric survey by: _____

13. Crane Operations

13.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to evaluate the proficiency of crane operators, riggers, and inspectors, and to set the parameters for critical lifts in accordance with the requirements of WAC 296-155-529.

13.2 Definitions

Not applicable.

13.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

13.4 Implementation

1. Operators, riggers, and inspectors will meet the minimum requirements indicated within the paragraphs below prior to qualification in their related discipline.
   - To qualify as an operator, rigger, or inspector, a person must be at least 18 years old, able to communicate in written and spoken English, and meet required physical standards for the job assignment.
   - They must be free from any medical condition that would render the individual incapacitated from ambient conditions that will or might prevail in the work place.
   - They must be able to distinguish colors, have normal depth perception and field of vision as required for job operation.
   - They must have no medical condition that could constitute a hazard to themselves or to others.
2. Crane operators must be certified (CCO) by the North American Crane Rating Bureau for the type of crane that he/she will be operating.
3. Training, if provided, will be in accordance with WAC 296-155-53409.

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14. Critical Lift Procedure

14.1 Purpose

The following procedure identifies the minimum acceptable requirements to be followed by the Contractor when a critical lift operation is to be planned and executed.

14.2 Definitions

(a) Critical Lift. A hoisting operation in which a critical item or load will be hoisted or moved, or in which a non-critical item will be hoisted or moved in an area where critical items could be affected; any lift involving more than one crane (tandem lifts); or where the maximum anticipated dynamic load is at or above 75 percent of the crane's rated capacity for that particular lift. Tandem lifts will be allowed only when there is no other feasible means of placing the item or load.

(b) Critical item or Load. A part, component, assembly, or piece of equipment ("item") that dropping, upset, or collision could cause/result in any of the following:

- Personnel injury or significant adverse health impact, either onsite or offsite.
- Significant release of hazardous material to the environment or create an undesirable condition.
- Undetectable damage that would jeopardize future operations or safety of a facility. Damage that would result in unacceptable delay to schedule or other significant deleterious programmatic impact (such as loss of vital data).
- Damage that would result in serious economic consequences.

(c) Person-in-Charge (PIC)/Competent Person. The key designated contractor supervisor or manager (other than the equipment operator) responsible for the safe handling of critical lifts in, around, or above spaces at which critical lifts are located.

(d) Qualified. A person who by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience has successfully demonstrated his/her ability to solve or resolve problems relating to the critical lift process.

(e) Qualified Engineer/Qualified Engineering Organization. An engineer or an engineering organization whose competence in equipment evaluation for critical lift operations is accepted by the Contractor and the Client.

(f) Qualified Inspector. An individual whose crane inspection competence is recognized by the state in which the critical lift is to be conducted, the U.S. Department of Labor, Occupational Safety and Health Administration, or another agency authorized to certify inspection personnel.

(g) Qualified Operator. An operator whose competence to operate equipment associated with a critical lift safely and effectively can be demonstrated to the Contractor. This demonstration may be by an operational test or by past first-hand knowledge of the operator's experience on similar lifts, or other means that allow the Contractor insight into the operator's competence.

(h) Qualified Rigger. A person whose rigging skill and competence is demonstrated either by satisfactory and extensive past experience or by successfully completing a demonstration rigging test.

(i) Critical Lift Checklist. A Contractor document (Attachment 9) that identifies pre-lift information requirements to be completed prior to making the actual critical lift. The documented Critical Lift Checklist will be completed by the subcontractor and submitted to the Contractor’s Safety Manager for file and retention.

(j) Crane Hoisted Personnel Platform. Work that involves lifting workers in a personnel platform that is suspended from a crane. When work must be performed that cannot be accomplished without the use of

a Crane Hoisted Personnel Platform, a Crane Hoisted Personnel Platform Permit (Attachment 11) must be completed.

14.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

14.4 Critical Lift Procedures

(a) Contractor Designated Representative. The contractor/subcontractor will identify and designate the individual responsible to direct critical lift operations or person-in-charge (PIC). This person will be qualified in critical lift operations. A resume of the contractor's PIC experience will be submitted to the Contractor for review and approval.

(b) PIC Qualifications. The PIC will be a qualified rigger or assisted by a qualified rigger. The PIC will be experienced with the hoisting and rigging equipment to be used in the planned critical lift.

(c) Critical Lift Plan.

1. The PIC will ensure that a critical lift plan is prepared and that the final plan addresses the entire critical lift operation. The completed plan will be submitted to the Contractor for review and approval a minimum of three (3) full working days prior to critical lift operations. Lift operations will not begin until the Contractor reviews the final plan.
2. At a minimum, the plan elements will include:
   - Identification of each piece of operating lift equipment by type and rated capacity. The serial or contractor's identification numbers will be provided as appropriate.
   - Identification of slings, lifting bars, shackles, and all other major rigging accessories or assemblies by serial number and rated safe work load (SWL) capacity.
   - The acceptable first certification of all critical lift lifting equipment required to be tested and certification that all tests were conducted and documented according to the U.S. Department of Labor OSHA, Washington Department of Labor and Industries, or other recognized certifying authority.
   - Identification of the critical item(s) or load(s) to be moved, its weight, dimensions, and center of gravity as determined by the method of SAE J874, or estimated from the drawings, engineering analysis, and the total hook load (including lift attachments).
   - Submittal of a rigging sketch(es) that identifies lift points, sling angles, accessory placement, method of attachment, boom angle, crane orientation, and any and all other factors that affect the equipment's capacity (e.g., special limits on any of the lift accessories).
   - Approximate and maximum hoist and winch speeds.
   - Special instruction given to the operator that might include: boom and swing angles at each step of the critical lift, sequences of moves, coordination of other equipment involved, translation speeds, direction and distance, load weight, center of gravity, and all other pertinent information (e.g., power line considerations, physical obstructions and other on-going Client operations) that could affect lift operations.
   - Requirements if specific tests are to be made before, during, and after the move or lift, including load test results for critical lift practice lifts.

- Any special surveillance procedures including checkpoints, instruments, and indicators used to assure the lift/move is conducted according to plan and speeds/capacities are not exceeded.

(d) Qualified Operator. The contractor will provide only qualified operators to conduct critical lift operations. Operator qualifications will be provided to the Contractor as part of the completed lift plan.

(e) Qualified Signaler(s). Signaler(s) for critical lift operations will be qualified for that operation. Qualifications for the signaler(s) will be provided to the Contractor as part of the completed lift plan.

(f) Considerations. The contractor will consider the crane's lifting history when completing the final lift plan. Additional considerations will include, but not be limited to, (a) the crane's inspection history; (b) sling angles and sizes; (c) inspection and test certification periods; (d) load configuration; (e) the presence of hazardous materials and/or operations; (f) lifting attachment (e.g., spreader bar) SWL rating; and (g) requirements for a load indication device.

(g) If Lift is within 10% of Capacity of Any Component. When the weight of the critical lift is within 10% of the rated capacity, and equipment of greater capacity is not available, the PIC will conduct an operator review. At a minimum, the review will include: the positioning and rigging of the load, the effect of ground conditions, wind and weather (if applicable) on equipment stability, and the effect of rotational and translational speeds on lift operations. A Crane Lift Work Sheet (Attachment 8) will be used to document the lift.

(h) Initial Lift Considerations. Hoisting will be stopped when the load is approximately two inches off the supports and a check made to determine any tendency to swing or sway, and any tendency of the slings to slip or change position. If needed, sling positions will be adjusted prior to continuing the lift. Procedural approval for changes to the sling position, support, and restraints will be obtained from the PIC.

(i) Field Changes. Field changes to the contractor's Critical Lift Plan/Procedures or equipment adjustments to the contractor's equipment may be made providing authorized Contractor project personnel concur with the changes prior to implementation.

14.5 General Planning Responsibility

This Critical Lift Procedure will not be considered as all-encompassing, but at a minimum, the Contractor’s requirement. Because of the many variables to be included when planning a critical operation and the varied types of associated lift equipment, it is the Contractor's/subcontractor’s responsibility to review the overall operation and provide a total lift plan.

Nothing in the procedure should be construed as relieving the Contractor/subcontractor from responsibility to provide a pre-lift/rigging plan. The Contractor's/subcontractor’s plan may include additional information not reviewed in this procedure; however, this procedure provides minimum acceptable guidelines.

14.6 Construction Critical Lift Checklist

The Critical Lift Work Sheet (Attachment 9) and the Tandem Lift Work Sheet (Attachment 10) will be completed before a critical lift or tandem lift procedure is performed.

14.7 Exhibits/Attachments

(a) Crane Lift Work Sheet, Attachment 8

(b) Critical Lift Checklist, Attachment 9

(c) Tandem Pick Lifting Parameters Work Sheet, Attachment 10

(d) Crane Hoisted Personnel Platform Permit, Attachment 11

Attachment 8. Crane Lift Work Sheet

CRANE LIFT WORK SHEET

Date _____

Crane _____

Description _____

_____

_____

WEIGHT

Item _____

Jib _____

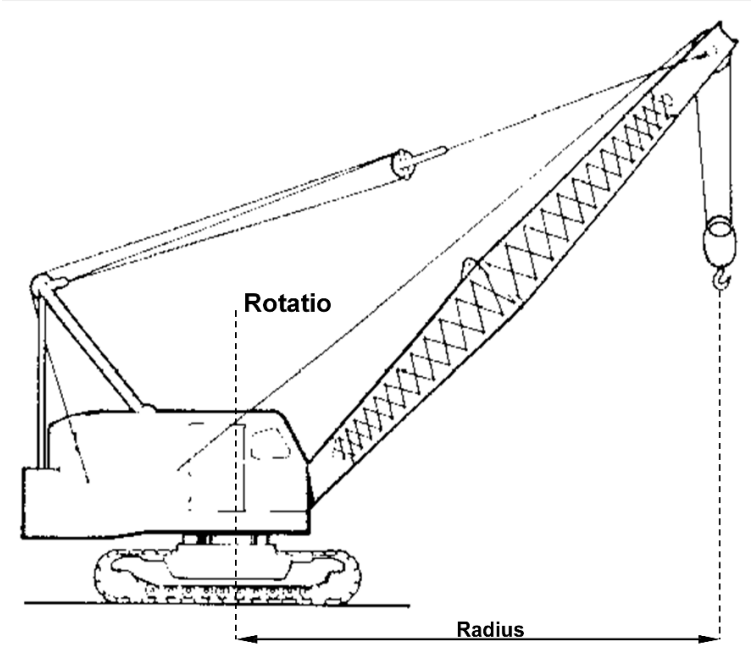
Bail and Hook _____

Load and Block _____

Wire Rope _____

Rigging _____

Total _____



OTHER SPECIFICATIONS

Max Radius to Be Used (ft) _____

Chart Capacity at_____ Radius = ___

Min Boom Angle _____

Percent of Capacity _____

70% to 90% Review by _____

Over 90% - Stamp by _____

SETUP INSPECTION

Ground Conditions _____

Levelness _____

Wind Conditions _____

REMARKS

_____

_____

_____

_____

_____

Attachment 9. Critical Lift Checklist

CRITICAL LIFT CHECKLIST

Contractor Name _____

Date of Planned Lift _____ Date of Planned Lift _____

Contractor Personnel

Designated person-in-charge (PIC) of lift _____

Designated operator(s) _____

_____

Critical Lift Load Information

1. Description of item to be lifted (load): _____
2. Weight of item being lifted: _____
3. Was the item weight estimated? ☐ Yes ☐ No

   If so, who estimated it? _____
4. Who verified the weight? _____
5. How was the item weight verified? _____

   _____
6. Weight of rigging accessories? _____
7. Total gross weight of lift: _____

Major Hoisting Equipment to Be Used

1. Lifting unit: _____
2. Gross lift capacity: _____
3. Rigging to be used: _____
4. Designated rigger: _____

Hoisting Equipment Inspection

1. Lift unit inspector: _____

2. Date inspected: _____

3. Rigging inspector: _____

4. Date inspected: _____

Operations

1. Date: _____

2. Time: _____

3. Place: _____

4. Is area clear of non-essential personnel? ☐ Yes ☐ No

   Who determined? _____

5. Equipment inspection status and operation reviewed? ☐ Yes ☐ No

6. Did the operator or the rigger note any discrepancies on the Pre-Lift Check? ☐ Yes ☐ No
   If discrepancies existed, what were they, and how were they addressed: _____

   _____

   _____

7. Is the critical lift item (the load) freely suspended and ready to move? ☐ Yes ☐ No
   If the load is not freely suspended and ready to move, complete the following information. Identify the retarding force, e.g. "Load is attached to mounting bolts" or identify the restriction:

   _____

   _____

   _____

   Have all of the eyebolts or similar lifting attachments to be used on the load verified to be adequate with respect to sufficient size and capacity to life the load safely? ☐ Yes ☐ No

   If so, identify the individual who provided verification: _____

8. Path of travel details

Diagram the path that the load is to follow:

Is there sufficient clearance for the load at every point along the path? ☐ Yes ☐ No

Identify the contractor person that checked: _____

Do obstructions exist that would require the load to be hoisted to an unsafe position (e.g., sling angles/boom angle would be excessive, etc.)? ☐ Yes ☐ No

Identify the contractor person that checked: _____

Has the contractor's representative been assigned the responsibilities to observe the load's path of travel and ensure personnel are clear? ☐ Yes ☐ No

Identify the contractor person responsible: _____

_____ _____

Signature of Contractor Date

Attachment 10. Tandem Pick Lifting Parameters Work Sheet

TANDEM PICK LIFTING PARAMETERS WORK SHEET

Project Name_____ Project No. _____ Date _____

Description of lift _____

_____

_____

Crane Data

Crane 1: Make and Model _____

Crane 2: Make and Model _____

Lattice Boom Model Type	Unit 1 _____	Unit 2 _____
Boom Length	Unit 1 _____	Unit 2 _____
Counterweight	Unit 1 _____lb.	Unit 2 _____
Capacity	Unit 1 _____lb.	Unit 2 _____

Load Data

Gross Load Weight _____ lb.

+ Rigging Weight	Unit 1 _____lb.	Unit 2 _____ lb.
+ Main Block	Unit 1 _____lb.	Unit 2 _____ lb.
+ Effective Jib Weight	Unit 1 _____lb.	Unit 2 _____ lb.
+ Cable Weight	Unit 1 _____lb.	Unit 2 _____ lb.
+ Headache Ball Weight	Unit 1 _____lb.	Unit 2 _____ lb.
+ Maximum Load Radius	Unit 1 _____ft.	Unit 2 _____ ft.
+ Minimum Load Angle	Unit 1 _____°	Unit 2 _____°
+ Maximum Boom Angle	Unit 1 _____°	Unit 2 _____°
+ Minimum Boom Angle	Unit 1 _____°	Unit 2 _____°
= Net Load Weight	Unit 1 _____lb.	Unit 2 _____ lb.

Rigging Data

Sling Construction

Diameter	Unit 1 _____in.	Unit 2 _____ in.
Core Type	Unit 1 _____	Unit 2 _____
Number of Legs	Unit 1 _____	Unit 2 _____
Sling Angle	Unit 1 _____°	Unit 2 _____°
Sling Capacity	Unit 1 _____	Unit 2 _____
Means of Fastening Slip or Hoist Hook to Load	Unit 1 _____	Unit 2 _____
Capacity of Fastener	Unit 1 _____lb.	Unit 2 _____ lb.

Pre-Lift Requirements (ALL requirements must be met)

_____ Load chart utilized is for exact crane model, boom type, length, tip and counterweight.

_____ Competent person in charge of lift: Name _____

_____ Competent signal person identified: Name _____

_____ Pre-pick meeting help with crew.

_____ Written crane inspection completed within 1 day of critical pick.

_____ Swing path not over personnel.

_____ Footing is sound and level (soil conditions/compaction, underground tunnel or utilities).

_____ Pre-planning for radio or hand signal communications.

_____ Minimum clearances from power lines can and will be maintained.

_____ The load radius has been measured with tape measure.

_____ Wind speed does not exceed 20 mph. Consider postponing lifts if speeds are more than 10 mph.

_____ Load will not touch boom at any time.

_____ Four dual crane lift diagrams have been prepared.

_____ If on barge, the regional manager has reviewed stability and potential lift conditions. Barge chart load provided.

_____ Tag lines are long enough, tied only to the load, and in good condition – loose end controlled by the designated person.

_____ Operating locations are far enough away from shorting, excavations, and trenches to eliminate risk of collapse.

_____ Application of hardwood mats has been carefully considered.

_____ Outriggers or crawler tacks are fully extended and wheels are clear of ground.

_____ Application of blocking under outrigger pads has been carefully considered.

_____ Adequate swing clearance (minimum 2″) between the counterweight and any obstacles.

_____ Boom composition is correct.

_____ No added counterweight.

_____ Machine is rigged with adequate type of cable and number of parts of hoist line.

_____ Regional manager and project superintendent have discussed lift.

_____ Load block is of adequate capacity and sheaves are of proper size for hoist cable.

_____ All rigging has been inspected for capacity and condition.

_____ Underground structures and conditions have been considered.

Approval Signatures

_____ Date _____
Regional Safety Manager

_____ Date _____
Project Superintendent

_____ Date _____
Crane Operator, Unit 1

_____ Date _____
Crane Operator, Unit 2

Attachment 11. Crane Hoisted Personnel Platform Permit

CRANE HOISTED PERSONNEL PLATFORM PERMIT

Date _____

1. This permit is required by _____ in compliance with 29 CFR, Section 1926.550(g), CCR 8 Section 5004, and EM 385-1-1 21.G and 21.F.

2. Prior to use of any personnel platforms suspended from cranes for the hoisting of personnel, the highest level or project management shall determine if the use of conventional means is more hazardous or not possible because of structural design or work site conditions. Reasons shall be stated on Line 3.

   Approval Signature:_____

3. Justification for use:

   _____

   _____

   Work description/location (include elevation):

   _____

   _____

_____ Crane inspected and approved

_____ Rigging inspected and approved

_____ Personnel platform inspected and approved

_____ Anti-two block device radius and capacity established

_____ Maximum operation radius and capacity established

Length of radius _____

Crane capacity at above radius _____

_____ Test lift completed

_____ Proof lift completed

_____ Pre-lift safety meeting held with all personnel involved

_____ Communication methods established

_____ Signal person designated

Name _____

The persons below acknowledge that they have participated in a pre-lift meeting and acknowledge the above activities were completed satisfactorily.

_____	_____
General Superintendent	Crane Operator
_____	_____
Superintendent in Charge of Work	Signal Person
_____	_____
Safety Manager	Employee(s) in Platform

15. Discipline

15.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to provide disciplinary procedures necessary to enforce project safety rules and ensure the protection and safety of all employees.

15.2 Definitions

Not applicable.

15.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

15.4 General Requirements

(a) Action

1. All employees are required to follow Contractor's corporate safety policies and operating procedures. When required, employees will be provided with additional training and information, or retraining to maintain their knowledge.
2. All employees are required to follow Facility-specific safety policies and operating procedures.
3. Employees found performing work in an unsafe manner that would endanger the employee or another employee will be subject to discipline that may include termination.
4. The SHE&Q manager and Site Superintendent will determine the disciplinary action to be taken which best suits the circumstances. The steps to be taken, at a minimum, will include the following:
   - Verbal Warning. As the first step in correcting an unacceptable behavior or minor infraction, a verbal warning will be issued to the employee. This warning will be documented.
   - Written Warning. If the unacceptable performance continues, or the severity of the infraction warrants, the next step will be a written warning. The written warning will clearly state the safety policy that was violated and steps the employee must take to correct it.
   - Suspension. If the unacceptable practice continues or the severity of the infraction warrants, the employee will be given time off without pay.
   - Termination. Employees may be terminated if they do not improve their safety performance.
   - Immediate Termination. Any employee who commits a serious safety violation may be subject to immediate termination without prior notice in lieu of any verbal and/or written warnings.
5. Fighting, possession or use of illegal drugs or weapons, or flagrant violations or disregard of project safety rules will result in immediate and permanent termination.

(b) Intent

The Contractor intends that these disciplinary procedures will reach those employees who do not keep safe work habits as a priority and turn them into safety conscious workers who will be able to return to their homes each day uninjured. The procedures are intended to be educational rather than punitive.

16. Education and Training

16.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to provide specific procedures or systems of controls, consistent with the Contractor's corporate policy, and Owner's requirements, that will effectively protect the safety and health of company personnel, subcontractor personnel, owner personnel, and the general public who may come in contact with or be affected by the work of the Contractor.

16.2 Definitions

Not applicable.

16.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

16.4 General Requirements

Not applicable.

16.5 Implementation

(a) Each contractor will develop a safety execution plan; the plan must include a safety training matrix that identifies the training provided to each employee, by role, trade, or other grouping.

(b) Prior to performing any work on site, new contractor employees must receive all required contactor-specific safety training required for their role. The orientation will cover basic safety, hazard communication, fall protection, drug awareness, unusual conditions, and site-specific safety concerns such as the Emergency Response Plan and the Fire Prevention Plan. Training documentation must be submitted to the Contractor's Safety Manager. In addition, the contractor-specific training must detail the Facility-specific risk assessment procedure. **NOTE*: Any employee **NOT** having completed documentation of his/her training must be under the direct and immediate supervision of a trained and qualified employee while performing the new job or task.

(c) Unescorted Access. Completion of a Facility-Specific Safety Orientation is required for unescorted access to the Facility site. The orientation is facilitated by the SHE&Q manager and the senior project manager, or their designees.

- Training for individuals who are making deliveries, but not performing other work on site, may be limited to the Driver's Site Safety Orientation video.

- Visitors are escorted by a Facility team member or by suitably qualified contractor personnel at all times. The Visitor Orientation program is provided by the SHE&Q manager or his designee.
- The use of the Escort Policy must not be used to circumvent training requirements.
- Authorization for escort training and the authority to escort Facility visitors is provided by the SHE&Q manager.

(d) Employees must complete the Port-specific training regarding On Track Safety (OTS) along with any additional Port-required training.

16.6 Exhibits/Attachments

Employee Information and Training Checklist, Attachment 12

Attachment 12. Employee Information and Training Checklist

EMPLOYEE INFORMATION AND TRAINING CHECKLIST – ENGLISH

NEW HIRE _____ RE-HIRE _____ TRANSFER _____

_____ I have received Hazard Communication Training as required by the OSHA Standard 29 CFR 1926.59 which is outlined in _____ Construction Hazard Communication Program. I know that the Company Program, Hazardous Chemical Inventory List and Material Safety Data Sheets (MSDSs) are kept in the Hazcom Manual in _____ Construction Project Field Office for my review.

_____ I have received Fall Protection Training as required by the OSHA Standard 29 CFR 1926.500 which is outlined in _____ Construction Safety and Health Manual.

_____ I have received Stairways and Ladders Training as required by the OSHA Standard 29 CFR 1926.1050 which is outlined in _____ Construction Safety and Health Manual. I have been trained to recognize hazards related to stairways and ladders and know the procedures to follow to minimize these hazards.

_____ I have received Scaffold Training as required by OSHA Standards Subpart L.

_____ I have received Fire Extinguisher Training (see pamphlet).

_____ I have received a copy of the Code of Safe Practices during orientation.

_____ I have received a copy of the project rules and regulations.

_____ I–9 Verification.

_____ Health and Life Insurance Applications.

_____ Parking Permit.

_____ _____
Print Name Title/Trade

_____ _____
Signature Social Security No./Employee No.

I hereby certify that the above named employee has been provided with:

Hazard Communication Training on _____(date)
Fall Protection Training on_____(date)
Stairways and Ladders Training on_____(date)
Scaffold Training on_____(date)
Fire Extinguisher Training on_____(date)
Code of Safe Practices on_____(date)

_____ _____
Trainer's Signature Title

17. Environmental Protection

17.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for environmental protection while conducting Construction activities at the Facility-site.

17.2 Definitions

Not applicable.

17.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

17.4 General Requirements

Not applicable.

17.5 Implementation

(a) Compliance with Approval and Permit Conditions

The Contractor will comply with all Facility permits and approvals, and local, state and federal regulatory requirements. All work will be closely coordinated with Owner's supervisory personnel (including the contract project manager, the project manager, and the SHE&Q manager, and their designees) so that construction activities meet or exceed permit requirements.

(b) Quality Control

1. The Contractor will establish and maintain quality control for the environmental items and procedure described in this plan or otherwise required by Facility permits and approvals.
2. A record will be made on the daily reports of any problems as well as the corrective action taken to maintain environmental control as required by governing regulations, permits and approvals issued to the Vancouver Energy and Facility.

(c) Protection of Environmental Resources

1. The Contractor will protect environmental resources inside the project boundaries and those affected outside the limits of permanent work during the entire period of the contract.
2. Activities will be confined to areas defined by the specifications and drawings.

(d) Erosion and Sediment Control

Strict compliance with the approved Construction Stormwater Pollution Prevention Plan will be maintained. The Plan will be maintained at the site for use by Inspectors during their periodic inspections.

(e) Disposal of Hazardous Materials

1. All Subcontractors are required to immediately notify the Contractor of any spillage or leakage of hazardous materials, oils, substances, and waste, regardless of the quantity.
2. Example of hazardous items includes, but is not limited to, the following: gasoline, fuel, oil, kerosene, acetone, equipment oil (waste or fresh), certain paints and coatings, contaminated soil and water etc. Hazardous items, similar to those mentioned here, are never to be deposited directly on or into the soil or water but must be in a proper container for disposal. Please refer to the Hazardous Waste Disposal and Hazard Communication sections in this manual.

(f) Spill and Waste Disposal Procedures

Each Site Superintendent will prepare and implement a contractor-specific spill prevention and response plan. The plan will be tiered from the Facility-Specific Construction Spill Prevention, Control and Countermeasures Plan and will:

Implement necessary secondary containment measures

Provide for the presence of spill control and response equipment

Provide for spill clean-up and remediation measures, and disposal by licensed waste management professionals.

Implement notifications to regulatory agencies in coordination with the SHE&Q manager.

The contractor will provide containment in accordance with the Facility-Specific Construction Spill Prevention, Control and Countermeasures Plan. Containment will be affected in the following manner:

(g) Waste Control

1. Trash generated by eating, drinking, etc., will be required to be placed in strategically located trash cans or containers. Trash will be removed periodically in order to prevent vermin infestation.
2. Daily policing of areas will be performed to prevent accumulation of trash.
3. Construction wastes will be handled and removed in accordance with WAC 296-155-335.
4. All construction debris will be removed on a regular basis via a dumpster service and will be disposed of in the proper approved location. Dumpsters will be placed throughout the project and trash chutes will be utilized for removal of building debris once the building shell is complete.
5. Daily project clean-up will be performed. This includes trash collection, cleaning of on-site roadways and off-site roadways if required. All clean-up activities will be monitored by the Contractor's site foreman and enforced by the Contractor's Superintendent.
6. Hazardous waste, if generated, will be accumulated and stored in accordance with state and federal regulations. Hazardous wastes will only be removed and transported to appropriate disposal locations by waste removal contractors will with appropriate hazardous and solid waste licenses/permit(s) and landfill/disposal manifest(s), etc., Copies of all documentation relevant to spill response, clean up and disposal of materials will be retained by the Contractor.

(h) Protection of Water Resources

1. The Contractor will conduct all activities in accordance with the Facility-specific Construction Stormwater NPDES permit, and Facility Water Quality Monitoring and Protection Plan, as applicable to the Contractor activities being performed. The Contractor will implement necessary water pollution prevention measures which may include, but not be limited to: protection of surface and ground water from infiltration of waste materials, uncontrolled project water run-off, and deposit of sediment. Existing sewer and/or stormwater systems will be protected by covering inlets with filter cloth to prevent infiltration of sediment and spillage from the project and hay bales will be placed to control mud and sediment as required by the Project SWPPP.

(i) Protection of Air Resources

1. No burning will be allowed on the project.
2. Equipment, activities, and work operated or performed will be in strict accordance with the state and local air pollution statute and Federal emission performance laws and standards.

3. Industrial air quality at the construction site will be in compliance with applicable industrial hygiene standards.
4. All dust producing operations such as grinding, scaling, or chipping will utilize curtain shields, water spray, or other procedures of accepted good practice to minimize generation and/or migration of dust from the construction site.
5. Operations that could generate fumes, dust or mist will be coordinated with local weather conditions, especially wind direction, wind speed and inversions, so that the effect on personnel and/or property inside and outside the construction site will be kept to a minimum.
6. Paint spraying, coating, sealing or other spraying operations that could discharge mists on or off of the construction site will be performed so as to minimize migration of spray particles off-site. Objects on adjacent property that would be particularly susceptible to damage from airborne mists such as outdoor furnishings, plants, shrubbery, windows and walls, should be removed and/or protected by tarpaulins, plastic sheeting, or other suitable means. Any vehicle parked at the project will be at the vehicle owner's risk.
7. In coordination with the Project Manager the Contractor will monitor his/her construction activities for excessive dust generated due to vehicle movements, and will apply water to control airborne construction dust as needed.
8. Haul roads, parking areas, storage yards or any large bare areas which could contribute to wind born dust problems will be sprinkled with water, covered with suitable restraining barriers, or treated with wetting agent to reduce the generation of dust.
9. All sweeping operations, whether by hand brooms or power sweepers, will utilize water sprays or vacuum attachments to minimize dust generation.
10. Existing site access roads will be cleaned as necessary so as to prevent damage to existing asphalt surfaces and to prevent accidents caused by slippery mud, punctured tires caused by construction debris spills, and to maintain dust control.
11. To accomplish the foregoing, it is anticipated that the following performance procedures will be required:
    - Spot clean up performed by laborers with wheelbarrows and street brooms, especially in the vicinity of curb cut access to the construction site.
    - In specific areas where paving surfaces have been stained or striping obliterated due to accumulation of dirt, these surfaces will be scrubbed and hosed down as deemed necessary to keep lanes markings visible.

(j) Noise Control

1. The hours of construction permitted by Facility permits and approvals will be strictly followed. During construction, noise will be kept to the lowest possible levels. The Contractor will notify the project manager and the SHE&Q manager at least 48 hours in advance of construction activities with significant noise emissions (for example, but not limited to, pile driving).
2. If vehicles are required to queue in locations near other Port tenant activities or on public roads, idling will be minimized to the extent possible.

If noise complaints arise, the Contractor, in consultation with the project manager and SHE&Q manager, will consider implementation of noise control measures such as the following:

- Maintenance and servicing of machinery and equipment including noise control devices.
- Modification of the noise source (airborne and vibrating), i.e., providing mufflers for electric motors, air outlets of pneumatic valves, and intake of air compressors; vibration isolation of machine surfaces, and repair or replacement of vibrating parts, etc.
- Substitution of quieter equipment, processes, and materials, i.e., changing pump type in hydraulic systems changing location of material/personnel hoists and truck delivery areas, etc.
- Prevent impact and collision during manual and mechanical materials handling.
- Enclosure of noise producing sources if no engineering controls are available or engineering controls are inadequate.

(k) Post-Construction Cleanup and Restoration

1. Following completion of the project, all areas in and around the construction project will be cleaned and any damage caused by the construction process repaired/refurbished in accordance with the Owner's instructions and construction restoration plans.
2. The construction area will be left in a clean condition and will include off-site disposal of excess material, debris and rubbish.

17.6 Exhibits/Attachments

Environmental Checklist, Exhibit C

SAMPLE Environmental Checklist

Vancouver Energy Environmental Checklist	Distribution: (list) ☐ HSSE Files ☐ Name (TBD) ☐ Name (TBD)
Inspector Signature	Date of Inspection
Weather Conditions	Time Period of Inspection
Rainfall Previous 24 Hours	Days Since Last Rainfall

Activity	Acceptable	Deviation	Description
Erosion Control Inspection			
Area 200			
Erosion control item 1			
Erosion control item 2			
Area 300			
Erosion control item 1			
Erosion control item 2			
Area 400			
Erosion control item 1			
Erosion control item 2			
Area 500			
Erosion control item 1			
Erosion control item 2			
Rail Infrastructure			
Erosion control item 1			
Erosion control item 2			
Sanitary Wastes			
Portable facilities present and maintained			
Solid Waste (Non-Hazardous)			
Proper collection and storage of scrap			
Proper collection and storage of garbage			
Proper collection and storage of recyclables			
Contaminated Soils and Groundwater			
Proper storage and handling of contaminated soil stockpiles			
Proper storage and handling of contaminated ground or stormwater			
Dust Control			
Little to no dust generated or water used to control dust.			

Activity	Acceptable	Deviation	Description
Oil, Fuel, and Hazardous Material/Waste Handling			
No visible oil/fuel/hazardous materials into stormwater drainage			
Diked areas or sumps with equipment containing oil checked for sheens or spills			
Rainwater drained from dikes or sumps to meet capacity			
Field maintenance conducted away from stormwater drainage			
Note any spill observed (location, type, estimated quantity)			
All oils/fuels/hazardous materials within proper containment			
Compatible material			
Condition of containers			
Product labels applied and readable			
Hazards labeled and readable			
No spills or leaks			
Additional Remarks			

Vancouver Energy
Environmental Deviation Log

Item Description	Level	Date Observed	Deviation No.	Commitment Date on Correction	CommNet or Verification of Correction	Date Correction Verified

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18. Equipment

18.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for equipment safety, in Compliance with federal, state and local construction equipment standards. Only those employees qualified by training or experience will be permitted to operate, inspect, or maintain equipment and machinery.

18.2 Definitions

Not applicable.

18.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

18.4 General Requirements

(a) All equipment received by the project is to be inspected by a competent person prior to being placed in service. Any unsafe conditions will be corrected before operation.

(b) A binding contractual agreement, including insurance requirements, must be established when renting third party equipment.

(c) Equipment requiring an operator will be inspected upon receipt at the site, with a written record of the inspection kept on file.

(d) All operators of mobile equipment, including earthmoving equipment, elevated work platforms, forklift trucks, and lift cranes must be qualified through training and/or experience to operate the equipment.

(e) The Contractor will designate a qualified person(s) to ensure that operators are qualified to operate their assigned equipment.

(f) The equipment operator’s manual will be available and reviewed by the operator.

18.5 Crane Requirements

(a) The manufacturer’s specifications and limitations applicable to the operation of any and all cranes will be followed.

(b) A thorough annual inspection of the hoisting machinery will be made by a competent person or by a government or private agency recognized by the U.S. Department of Labor. The Contractor will have access to documentation regarding such inspections.

(c) A competent person will inspect all machinery and equipment prior to each use and during use to make sure it is in safe operating condition. All deficiencies will be repaired.

(d) The operator, in accordance with the manufacturer's operation manual, must make daily inspections. The date of the inspection and the signature of the inspector must be entered in a logbook.

(e) Good housekeeping must be maintained. All mud, oil, or grease spots must be wiped up to prevent falls.

(f) A five (5) BC rating or higher fire extinguisher must be accessible at the operator's station.

(g) Rated load capacities and recommended operating speeds, special hazard warning, or instructions will be conspicuously posted and visible while the operator is at the control station.

(h) Cranes and derricks with variable angle boom will be equipped with a boom angle indicator readily visible to the operator.

(i) An operable boom stop is required on any crane where the boom could fall over backwards.

(j) Personnel will not mount cranes unless the unit is stopped or the operator indicates that it is safe. Safe access (by steps and handholds) must be provided.

(k) All hooks must have a safety latch or be moused to prevent the load from becoming unhooked.

(l) Before starting work, the operator will operate each control to get the feel of the crane and to be sure clutches and brakes are dry.

(m) Accessible areas within the swing radius of the crane will be barricaded in such a manner as to prevent an employee from being struck or crushed by the crane.

(n) All cranes must be equipped with an operable warning device controlled by the operator.

(o) No crane will be operated with the wheels or tracks off the ground unless properly bearing on outriggers.

(p) No equipment or machinery will operate near electrical lines except where electrical distribution and transmission lines have been de-energized and visibly grounded or proper safety devices have been put in place. Minimum clearances will be observed.

(q) Side loading of booms will be limited to freely suspended loads, and booms will not be used for dragging loads sideways unless the boom is specifically designed and constructed to withstand such side loading.

(r) Only qualified persons will be permitted to give crane signals.

(s) No employee known to be colorblind or to have poor eyesight or hearing which cannot be corrected, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate them will be permitted to operate a crane.

(t) Verification of valid crane operator's license must be completed when required by law and a copy kept on file.

(u) Crane registration must be done where required by law.

(v) A preventative maintenance program based on the crane manufacturers or certified agent's recommendation will be in place.

(w) A copy of ANSI B30.5 Chapter 5-3 Operation should be given to the operator at time of hire.

(x) Requirements for operation and safety may be found in Section 1926.550 Federal OSHA Standards for Construction; Chapter 296-155 WAC, Washington State Safety Standards for Construction Work; and ANSI B30.5 Safety Code for Crawlers, Locomotive and Truck Cranes.

18.6 Suspended Loads

(a) No employees are to work or pass under any suspended loads.

(b) Tag lines will be attached to suspended loads and will be used for guiding and landing loads.

(c) In the event a suspended load is to be swung over a work area, employees will leave the area at the warning sound, and then return to work when the load has passed and the swing path is clear.

18.7 Rigging

Material/load handling activities using slings, rigging hardware, below-the-hook lifting devices when performing construction activities will be conducted in accordance with the provisions of WAC 296-155-33600 through -34025.

18.8 Forklifts (Industrial Lift Trucks)

Forklifts and other powered industrial lift trucks used at the construction site must comply with the provisions of WAC 296-863.

(a) Only drivers authorized and trained in the safe operation of the industrial trucks or industrial tow tractors will be permitted to operate such vehicles.

(b) A set of operating rules must be posted where operators can see them.

(c) Stunt driving and horseplay is prohibited and may result in immediate termination.

(d) No riders will be permitted on vehicles unless provided with adequate riding facilities.

(e) Employees will not ride on the forks of lift trucks.

(f) Drivers will check the vehicle at least once each shift and, if found to be unsafe, have it repaired before continuing operations.

(g) Attention will be given to the proper functioning of tires, horn, lights, battery, controls, brakes, steering mechanism, and the lift system of the forklift (forks, chains, cable, and limit switches).

(h) Vehicles will not exceed the authorized or safe speed.

(i) The driver will slow down and sound the horn at cross aisles and other locations where vision is obstructed.

(j) Operators should always face their destination. If unable to see over the load, the forklift should be driven backwards.

(k) When leaving a vehicle unattended, the power will be shut off, brakes set, and the mast brought to the vertical position with the forks left in the down position. When left on an incline, the wheels will be blocked. NOTE: When the operator is over 25 feet from or out of site of the forklift, the vehicle is “unattended.”

(l) Do not attempt to exceed the capacity of the forklift or carry loads that are too heavy or unbalanced.

(m) A loaded forklift will not be moved until the load is safe and secure.

(n) Seat belt must be worn if forklift has a roll over protective structure.

(o) Where possible, avoid operating near ditches, embankments and holes.

(p) Reduce speed when turning, crossing slopes, and on rough, slick or muddy surfaces.

(q) When traveling watch out for overhead obstruction.

18.9 Aerial Work Platforms (Aerial Lifts)

(a) Only trained and authorized operators will be permitted to operate an aerial lift.

(b) A malfunctioning lift will be shut down until repaired.

(c) The controls will be plainly marked as to their function.

(d) The controls will be tested each day prior to use to determine that they are in a safe operating condition.

(e) All personnel in the platform will wear an approved full body harness and shock- absorbing lanyard attached to the platform attachment point.

(f) Load limits specified by the manufacturer will not be exceeded.

(g) Instruction and other placards must be legible.

(h) Aerial lifts will not be used near electrical power lines unless the lines have been de- energized or adequate clearance is maintained.

(i) Employees using aerial lifts will be instructed to recognize and avoid unsafe conditions and hazards.

(j) Ground controls will not be operated unless permission has been obtained from the personnel in the platform, except in case of an emergency.

(k) A competent person will perform regular inspection of the jobsite and aerial lift.

(l) Personnel will always stand on the floor of the platform, not on boxes, planks, railing or other devices for a work position.

(m) Always perform a walk-around inspection before using any machine. Special aerial lift concerns:

1. Inspect platform assembly for loose or missing parts, visible damage, lock pins and bolts in place, foot switch (safety shutoff) in place and working.
2. Tire and wheel assembly properly secured, no loose or missing lug nuts, no visible damage (no cuts on tires) and tires are properly inflated.
3. Ground and platform control switches are operable, no visible damage, and placards secure and legible.
4. Check emergency stop switch for proper operation.
5. Check manual descent control valves for proper operation in the event they may be needed due to total power failure.
6. Check to ensure that the operating manual is stored on the equipment and is readily accessible.

18.10 Material Handling Equipment

Material handling equipment will be designed, equipped and operated in accordance with WAC 296-155-615.

(a) Only operators qualified through training and/or experience will operate the equipment.

(b) Read and understand all safety precautions and warnings before operating the equipment. Perform a daily inspection at the beginning of each shift.

(c) In an open area check the operation of all controls while moving them slowly.

(d) Do not start the equipment or move controls if there is a warning tag hanging on the controls.

(e) Do not jump off equipment. Use grab rails.

(f) Do not smoke while fueling or when near batteries.

(g) Riding on loads, fenders, running boards or tailgates, or allowing legs or arms to dangle over the sides is not permitted.

(h) Do not ride on equipment not designed for passengers.

(i) The parking brake must be set whenever the equipment is parked. Equipment parked on an incline must have the wheels chocked. Lower all attachments to the ground before leaving the equipment.

(j) Do not back up any vehicle or equipment when the view to the rear is obstructed unless:

1. It is equipped with an operating back-up alarm which is audible above the surrounding noise for a distance of 200 feet; or
2. An observer signals that it is safe to back up.

(k) Know the traffic pattern of the jobsite road and obey flaggers, road signs and signals.

(l) Keep the equipment, especially the deck and steps, free of foreign material. Secure all loose items.

(m) Make sure all safety guards and covers are secured in place.

(n) When operating digging equipment, know the exact location of buried utility lines.

(o) When loading trucks never swing over the truck cab and make sure the driver remains out of the truck unless cab protection is provided.

(p) If necessary to work around power lines, make arrangements to have power disconnected or have sufficient spotters to avoid contact with power lines.

(q) Use caution when moving a piece of equipment with the truck bed in the raised position.

(r) If you hit a power line, stay inside the cab until the equipment is clear of the line or power is shut off.

18.11 Motor Vehicles (Automobiles and Pickups)

(a) Motor vehicles at the construction site will be equipped, operated and inspected in accordance with WAC 296-155-610.

(b) In addition:

- The operator of a motor vehicle must hold a valid driver's license for the class of vehicle to be operated.
- The operator must inspect the vehicle before placing it in operation. Any deficiencies found that might constitute a safety hazard will be repaired before operating.
- A competent person will explain any special controls or operating functions to the operator.
- Personal vehicles should not be brought into the construction site. If there is any means of transportation other than a personal vehicle that will allow you to do your job safely and effectively you are expected to use it.
- Contractors bringing company vehicles inside the Port and construction area fence require prior permission from the senior project manager or project manager. Drive-in access determinations are based on an assessment of role, need and primary work location and controlled through the individual's Facility ID badge.
- While driving on the Facility site all vehicle occupants must wear seat belts at all times. Additionally, the driver is not to use two-way radios or cell phones while driving. If the driver is to take a call or use a radio, he or she must pull over prior to doing so. Use of personal vehicles inside the fence is prohibited unless special permission is obtained from the senior Facility project manager.
- If the evacuation alarm sounds, pull over the vehicle immediately, turn off the engine, and walk to the safest evacuation area. Do not drive the vehicle until the all-clear has sounded.

18.12 Pile-Driving Equipment

Pile-driving equipment will be equipped and operated in accordance with WAC 296-155-620.

(a) Additional Measures for Pile-Driving Activities

- No pile-driving work will occur until verification that no underground utilities exists in those areas where piles will be driven or existing underground utility locations have been verified by hand or vacuum excavation.
- Fall protection will be required when personnel climb leads over 6 feet.
- Hose connections will be secured by at least 1/4-inch-diameter chain or equivalent wire rope to prevent whipping.
- Stirrups will be provided on sheet piling to aid in guiding the pile in place.
- For pile other than sheet piles, a driving head or bonnet is required to bell the head.
- Stop blocks are required for the leads to prevent the hammer from striking the head block.
- A designated signalman will be assigned to give direction to the winch-men.
- Equipment will meet the OSHA construction standards on cranes and derricks.
- Pits or excavations that piles are being driven into will be properly braced, sheet-piled or sloped and barricades will be provided.
- When pile tops are cut, operations will stop for a distance not less than the longest pile that is to be cut.
- When driving jacked piles, the pits will be provided with ladders and curbs to prevent material from falling into the pit.

(b) Pile driving will only be conducted within the vicinity of the Columbia River shoreline with the Marine Mammal Monitoring Plan implemented.

18.13 Exhibits/Attachments

Not applicable.

19. Fire Protection

19.1 Purpose

To establish the requirements for the Contractor and its subcontractors for the prevention of and protection from fire hazards, and to ensure compliance with WISHA WAC 296-155-260 and National Fire Protection Association (NFPA) requirements.

19.2 Definitions

Not applicable.

19.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

19.4 General Requirements

(a) The Site Superintendent will perform the following:

1. Establish and maintain a list of locations for which the Contractor has fire protection equipment and the type of equipment.
2. Have available engineering drawings or up-to-date descriptions of each fire protection system under the Contractor's control.
3. Develop procedures and schedules for implementing fire equipment inspection and testing requirements.
4. Promptly identify and report fire protection impairments as follows:
   - Inform the contractor project manager, the project manager, the SHE&Q manager, and the fire department in advance of planned tests inspections, and modification and/or maintenance operations that will result in impairment of fire protection systems. A Job Safety Analysis (JSA) will be used to complete an analysis process.
   - Immediately report unplanned or emergency fire protection system or equipment impairments to the SHE&Q manager or designee.
   - Institute interim precautions, such as a fire watch, during the impairment, if conditions warrant.
   - Return impaired fire protection systems to full service as quickly as possible.

(b) The Site Superintendent or the Contractor Safety Lead or designee will inspect fire extinguishers and conduct fire prevention inspections daily as part of the site safety review.

(c) Employees will immediately report all fires either by activating a fire alarm or calling 911 or by calling the fire department, as identified by the fire emergency posted numbers.

(d) Employees will notify their supervisors and the Site Superintendent whenever they use a fire extinguisher. The Site Superintendent will notify the SHE&Q manager of all such occurrences.

(e) Extinguishers will be replaced with a fully charged unit after use.

(f) The SHE&Q manager and Site Superintendent will conduct investigation and follow- up on fires and involved equipment.

(g) The Site Superintendent will perform the following functions:

1. Ensure that the Contractor's facilities receive fire protection evaluations/ surveys as required by the appropriate regulation.
2. Conduct fire investigations and complete an incident report.

19.5 Implementation

(a) A pre-fire plan will be prepared for each the Contractor's activities at the Facility Construction site. The pre-fire plan will be provided to the SHE&Q manager.

(b) Portable fire extinguishers will be located throughout facilities in accordance with NFPA requirements and WAC 296-155-260. These will be always charged and the first response devices, designed for use on small fires.

(c) Fire prevention inspections will be conducted monthly and documented on the Monthly Fire Protection Checklist. A copy of the checklist will be provided to the SHE&Q manager.

(d) Monthly Fire Protection Checklist (Exhibit D). If an item on the inspection checklist is less than adequate, immediate corrective action will be taken. Project site inspections will follow the daily inspection checklist included in procedure - Fire Protection/Prevention.

(e) Special extinguishing systems, if needed, may only be installed with advance written Vancouver Energy approval. Special extinguishing systems (if any) will be installed, inspected, tested, and maintained according to manufacturer, OSHA and NFPA requirements.

(f) When applicable, a means of controlling liquid run-off from a credible fire will be provided so that contaminated or polluted liquids will not escape the site. The run-off control means will be included in the pre-fire plan.

(g) Fire Prevention.

1. The Contractor will prepare a fire prevention plan in consideration of the requirements of WAC 296-155-265. A copy of the plan will be provided to the SHE&Q manager.
2. A fire prevention program will be maintained and at least address the following areas:
   - Ignition hazards
   - Temporary Buildings
   - Open Yard and Indoor Storage
   - Housekeeping.
   - Electrical components.
   - Flammable liquids use.
3. Certain operations that require special emphasis will include safety inspections and walkthroughs to ensure compliance with applicable requirements. The Site Superintendent will consult with the SHE&Q manager to identify any work areas/operations requiring special emphasis.

(h) Life safety provisions will be provided for all facilities in accordance with NFPA 101, Life Safety Code. Facilities occupied by the Contractor's personnel are to be provided with an adequate means of safe exit for both normal and emergency conditions as identified in NFPA 101.

(i) Special Fire Protection Requirements.

1. Adequate fire lanes will be maintained to permit fire department access to buildings or equipment.
2. Flammable Vapors.
    - In work areas where the potential exists for accumulation of flammable vapors, engineering and/or administrative controls will be provided to ensure that the concentration of such vapors does not exceed 10% of the lower explosion limit (LEL).
    - Flammable and combustible liquids will be stored and used in accordance with NFPA Requirements 8 S&H-206.
3. Control of Flammable/Combustible Materials.
    - The Contractor will comply with Vancouver Energy and Port requirements for combustible materials.
    - Empty crates and containers will be disposed of as soon as possible in order to maintain site housekeeping at a high level.
    - Stockpiles of combustible construction materials stored inside will be kept to a minimum to minimize the fire hazard potential.
    - Approved containers will be provided for flammable or combustible liquid soaked cloths, rags, or waste.
    - Trash and rag containers will be emptied daily.
    - A designated fire watch will be required during and for 30 minutes following welding, cutting, and heating operations.
    - Flammable liquids will be stored, used and dispensed in accordance with WAC 296-155-270.

Exception: A fire watch will not be required when welding, cutting, or heating is being conducted in fabrication/maintenance shop areas designated for that purpose.

(j) Training.

1. Annual fire extinguisher training will be required for all employees.
2. Training will include:
    - Types of fire hazards.
    - The correct type of fire extinguisher to use.
    - Proper use of fire extinguishers.
    - Location of fire extinguishing equipment.
3. The Third Party Safety Lead or designee will provide this training.
4. Fire extinguisher training will be provided in the scheduled "toolbox" safety meetings.

19.6 Exhibits/Attachments

Monthly Fire Protection Checklist, Exhibit D

MONTHLY FIRE PROTECTION CHECKLIST

Date: _____ Inspector: _____ Area: _____ Page ___of___

Building Number	Fire Extinguishers Inspected	Flammable Liquids	Exits and Corridors Clear	Combustible Materials Properly Stored	Electrical in Proper Condition	Trailers Skirted	Fire Exposure Changed	Sprinkler Head Clearance at least 18"	Sprinkler System Riser, Pressure

Comments:

20. Drug Testing (Fitness for Duty)

20.1 Purpose

WAC 296-800-11025 requires that employers prohibit alcohol and narcotics from the workplace. In compliance with this requirement Vancouver Energy maintains a work environment that promotes the health, welfare, and safety of its employees and those with whom the Contractor's employees are in contact. Employees are expected to be fit for duty at all times. Being under the influence of drugs or intoxicants poses unnecessary and unacceptable safety and health risks, not only to the user but to all those who work with him or her.

Each Contractor and Subcontractor will enact and carry out reasonable measures it deems appropriate for ensuring a drug and alcohol free and safe workplace. This is not an OSHA or WISHA standard, but OSHA/WISHA strongly support comprehensive drug-free workforce programs, especially within certain workplace environments, such as those involving safety-sensitive duties, such as operating machinery.

The possession, transfer, manufacture, dispensation, distribution, sale, or use of drugs (including cannabis and cannabis derivatives) and/or alcoholic beverages at Vancouver Energy is not tolerated. No Employee, Contractor employee, Subcontractor, or visitor will report to work or to Vancouver Energy's property under the influence of intoxicants.

Vancouver Energy's policy with respect to the use or possession of drugs or intoxicants on the Contractor's Property, and with respect to reporting for work under the influence of any intoxicant, is one of "zero tolerance." If an Employee violates this policy, or if he or she is subjected to one of the testing procedures set forth in the policy and has a positive test result, or if an Employee refuses testing or inspections, as detailed in the policy, the Employee will be permanently banned from working on site at Vancouver Energy or be terminated. If an Employee believes that he or she cannot perform safely or effectively, the Employee should inform his or her supervisor. To encourage voluntary disclosure, Employees who give notice in this fashion may be referred to the Employee Assistance Program and reassigned or placed on a leave of absence, rather than terminated, if the employer deems such action appropriate.

TO BE CLEAR: Vancouver Energy has a "zero tolerance" policy with respect to reporting for work or visiting the Facility under the influence of intoxicants, including but not limited to drugs, alcoholic beverages, or other medically restricted substances that could impair the judgment and safety performance of an Employee, Contractor employee, Subcontractor, or visitor.

All searches, inspections, and testing will be performed with appropriate concern for personal privacy, dignity, and confidentiality. The results of Fitness for Duty testing will be considered a confidential record disseminated on a need-to-know basis or as may be legally required or permitted. Fitness for Duty test records will not be maintained in personnel files. The discovery of illegal substances, drugs, stolen property, and other illegal acts may result in notification of proper law enforcement agencies.

20.2 Definitions

Not applicable.

20.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

20.4 Implementation

Each Contractor and subcontractor will demonstrate to Vancouver Energy that Fitness for Duty Policy and Program have been implemented for all employees working at the construction site. This Policy/Program will include but not be limited to the following elements:

(a) Applicants. All offers of employment are contingent upon an applicant receiving a negative result from a Fitness For Duty Test.

(b) Employees. Employees are required to take a Fitness for Duty Test under the following circumstances:

- Incident Testing
- Sensitive Job Testing
- Reasonable Suspicion Testing
- Random Testing
- Periodic Site Testing
- Regular Rehire Testing
- Verification
- Evidence of Medication/Prescription Drugs/Physician's Care

(c) Disciplinary rules

(d) Establishment of an Employee Assistance Program

(e) Policies for Company Sponsored Events where alcohol is served.

20.5 Exhibits/Attachments

Not applicable.

21. Flammable and Combustible Liquids

21.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform activities associated with flammable and combustible liquids. The requirements of WAC 296-155-270 also apply.

21.2 Definitions

(a) Approved Container. A container listed by Underwriters Laboratory (UL) or tested and approved by Factory Mutual (FM) for storing flammable and combustible liquids; more commonly known as a "safety can."

(b) Bonded. Use of a wire conductor that ensures electrical conductivity between metal parts (containers).

(c) Combustible Liquid. A liquid having a flash point at or above 100°F (37.8°C).

1. Class II Liquids: having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).
2. Class IIIA Liquids: having a flash point at or above 140°F (60°C) and below 200°F (93°C).
3. Class IIIB Liquids: having a flash point at or above 200°F (93°C).

(d) Flammable Liquid. A liquid having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 pounds per square inch (absolute) (2068 mm hg) at 100°F (37.8°C).

1. Class IA Liquids: having a flash point below 73°F (22.8°C) and a boiling point below 100°F (37.8°C).
2. Class IB Liquids: having a flash point below 73°F (22.8°C) and a boiling point at or above100°F (37.8°C).
3. Class IC Liquids: having a flash point at or above 73°F (22.8°C) and below 100°F (37.8°C).

(e) Flammable Liquid Storage Cabinets. A cabinet built solely for flammable or combustible liquid storage in accordance with the requirements of the National Fire Protection Association (NFPA).

(f) Open Storage. Storage not using flammable or combustible liquid storage cabinets, or approved containers (safety cans).

21.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

21.4 General Requirements

(a) Organic solvents and fuels with the lowest fire hazard and toxic properties will be used.

(b) Users of flammable liquids will be trained in the safe practices outlined in this procedure, which will include the hazardous characteristics of the specific flammable liquids they are using. Material Safety Data Sheets (MSDS) will assist with the specific training of the hazardous characteristics.

(c) The "No Smoking or Open Flames" posting will be strictly enforced where flammable liquids are being transported, used, or stored. Smoking will be allowed only in a limited, designated area or areas. Additional restrictions may be implemented with the commencement of start-up operations and regular operations.

(d) The use of flammable liquids will be constantly monitored during welding/cutting operations to ensure there are no flammable or combustible hazards in the area.

(e) Work efforts (e.g., painting, solvent cleaning of parts, etc.) and work areas where the potential exists for vapor accumulation will incorporate fire prevention provisions including engineering and/or administrative controls. These controls are intended to prevent the concentration of any flammable or combustible material from exceeding 10% of the applicable lower explosive limit.

(f) Empty flammable liquid containers will be kept away from ignition sources. They generally contain flammable vapor-air mixtures.

(g) Flammable and combustible liquids will be stored at least 10 feet away from stairways, elevators, and exits.

(h) Personnel working with or around flammable or combustible liquids will be trained to this procedure.

21.5 Implementation

(a) Receiving and Storage.

1. Flammable and combustible liquids will be received and stored in approved open storage areas, approved facilities, or in flammable liquid storage cabinets.
2. Storage areas will be designed to prevent the spread of fire to other areas and will have adequate separation distance.
3. The storage areas will be posted "Danger Flammable Liquids" and "No Smoking or Open Flames."
4. Contingency plans will be included in the building emergency procedures when storing flammable and combustible liquids.
5. Flammable liquid storage cabinets will be UL listed, FM approved, or acceptable to the Field Safety and Health Staff.
6. Flammable liquid storage cabinets will be limited to a maximum of three (3) cabinets in any one-fire area.
7. Flammables and combustibles stored in flammable liquid storage cabinets will not exceed a cumulative capacity of 120 gallons.
8. Maximum container sizes for storing flammable and combustible liquids will be in accordance with the sizes listed in the following table. Flammable and combustible liquids will be stored in the original manufacturer's can unless transferred to an approved container.

Container Type	Flammable Liquids			Combustible Liquids	
	Class IA	Class IB	Class IC	Class II	Class III
Glass	1 pt	1 qt	1 gal	1 gal	5 gal
Methal (other than DOT/UN drums) or plastic	1 gal	5 gal	5 gal	5 gal	5 gal
Safety cans	2 gal	5 gal	5 gal	5 gal	6 gal
DOT/UN spec (metal drum)	60 gal	60 gal	60 gal	60 gal	60 gal

(b) Transfer and Use of Flammable Liquids.

1. Flammable liquids transferred from the original manufacturer's container after being opened will only be transferred into an approved container.
2. When not in use containers will be kept closed except when transfers are being made.
3. When transferring flammable liquids between conductive containers, the containers must be effectively bonded and grounded.

4. A maximum of one-day supply of flammable liquids will be kept in a work area at one time.
5. The one-day supply will be returned to the designated storage area at the end of each work shift.
6. Secondary containers of flammable and combustible liquids will be labeled with the name and hazards of the contents in accordance with the Hazard Communication Program.

21.6 Exhibits/Attachments

Not applicable.

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22. Fugitive and Silica Dust Control

22.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to provide appropriate protection to the general public, project workers, and other authorized project personnel from illnesses that may result from exposure to fugitive and silica dust.

22.2 Definitions

Not applicable.

22.3 Responsibilities

22.4 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations. (d) The Contractor and/or its subcontractors will furnish all labor, materials, facilities, equipment, services, employee training and testing, and agreements necessary to perform the work required for fugitive dust and potential silica-generating construction dust control activities. In accordance with these specifications, the Contractor's policies and procedures and the latest regulations from the State of Washington Department of Labor and Industries (WISHA),

(e) In all cases where potential silica dust exposures may occur, the Contractor will use appropriate engineering and work practice controls to reduce and maintain employee exposure levels at or below the Washington State Permissible Exposure Level. It will be assumed that the workers generating the silica dust are exposed above the Permissible Exposure Level until air monitoring demonstrates levels are below the Permissible Exposure Level.

(f) A competent person trained, knowledgeable and qualified in both fugitive and silica dust evaluation and control methods will monitor and oversee work related to this policy and procedure.

(g) If visible fugitive dust emissions or respirable crystalline silica dust concentrations exceed 0.05 mg/m3 beyond the perimeter of the work area, work will be suspended. The Contractor or its subcontractor will perform necessary corrective actions to eliminate visible dust and reduce respirable crystalline silica concentrations to less than 0.05 mg/m3 before resuming work.

22.5 General Requirements

(a) Scope of Work.

1. Construction site work that requires control of silica may include chipping, sanding, grinding, sawing and/or jackhammering on concrete building materials associated with this project.

2. Work activities will include the following, as applicable:

- Provision of site security to assure that no member of the public is able to gain access to the construction work area at any time. The Contractor will maintain access and egress routes at all times.
- In the case of concrete and demolition work, the Contractor or its subcontractors will provide worker training, respiratory protection, and medical examinations, as necessary, to meet applicable silica regulations and regulatory guidance regarding silica exposures.
- Provisions of good work practices to prevent the release of fugitive and silica dust outside of the work area, as described in the Execution portion of this policy and procedure (Part 3).
- Provisions for worker and equipment decontamination where appropriate. Worker decontamination and equipment areas will be cleaned daily or, as required, more frequently to prevent dust emissions.
- Protection of security, life safety, and energy management systems, including associated wiring, which will remain operational throughout the work activities.
- Decontamination of work area(s). Concrete dust will be cleaned from the work area using wet methods and HEPA vacuuming equipment at the completion of concrete demolition activities, before barriers are removed.

(b) Personal Protection.

1. Respiratory Protection.

- Where exposures to respirable crystalline silica exceed the Permissible Exposure Limit (of mg/m based on an 8-hour time-weighted average per WAC 296-63-07515), workers will be provided, as a minimum, with personally issued and marked respirators equipped with high efficiency particulate air (HEPA) filters approved by NIOSH (99.97% efficient) to be worn in the designated work area. Sufficient filters will be provided for replacement as required by the workers or applicable regulations. Disposable respirators will not be used for this work activity.
- The Contractor and its subcontractors will comply with OSHA 29 CFR Part 1926.134, WAC 296-62-071 (Respiratory Protection) and ANSI Standard Z88.2-1990 “Practices for Respiratory Protection”.
- Workers will not be exposed to levels greater than 0.1 mg/m3 respirable crystalline silica as determined by the protection factor of the respirator worn and the work airborne area respirable crystalline silica levels.
- A sufficient supply of replacement parts and HEPA filter cartridges will be provided as needed to the workers using respirators.
- The Contractor or its subcontractors will maintain daily inspection(s) of all respirators to verify cleanliness and to insure replacement of damaged, worn or missing parts.

2. Protective Clothing.

- Workers will, where appropriate, be provided with sufficient sets of protective full-body clothing to be worn in the designated work area whenever an exposure to respirable crystalline silica concentrations above the PEL exists. Such clothing will include, but not be limited to coveralls and eye protection.
- Protective clothing will not be worn outside the work area. Non-disposable- type protective clothing and footwear must be left in the work area.
- Appropriate eye protection will be provided and worn as appropriate for the work being performed. At a minimum, safety glasses will be worn at all times in active construction areas. Equipment will conform to ANSI Z87.1-1991.
- Head protection: Hardhats or other head protection will be provided and worn while in construction work areas. Hardhats will conform to ANSI Z89.1-1991, Class A or B. Theme hardhats such as cowboy hardhats are prohibited.
- Workers will not eat, drink, smoke, or chew gum or tobacco in or near the respirable silica work areas.

(c) Fugitive Dust and Silica Control Submittals. The Contractor or its subcontractors will prepare a safe work plan prior to start of work that may generate fugitive and/or silica dusts. The work plan will be reviewed and signed by an Industrial Hygienist chosen by the Contractor or its subcontractors. The plan will be suitably titled and indexed, providing detailed information concerning the following items as a minimum in the order listed below:

1. Safety and health hazards.
2. Personal protection measures and decontamination system requirements.
3. Respiratory protection program, fit testing and training records for all employees potentially exposed above the PEL.
4. Specific work practices and procedures.
5. Description of engineering controls designed to keep fugitive dust and silica exposures below the levels specified herein, for outside and inside each work area.
6. Silica Air Monitoring Plan.
7. Emergency procedures.
8. Internal administrative and inspection procedures.

(d) Silica Air Sampling Evaluation.

1. The Contractor or its subcontractors will conduct air sampling of workers and other subcontractors working within the defined work zone, for this activity, for respirable crystalline silica in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7500. This sampling is performed to evaluate workers' exposure levels.
2. The Contractor or its subcontractors will conduct outside area air sampling in areas of the terminal occupied by the Public and Port Employees for respirable crystalline silica in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7500. This sampling is performed to evaluate any potential public and port employee exposure levels.
3. The Contractor or its subcontractors will conduct air sampling in accordance with the NIOSH Method to collect a sufficient enough volume to determine if the airborne silica dust levels are below the Permissible Exposure Limits. If the sampling detection levels are above the Permissible Exposure Limits, the Contractor or its subcontractors will take appropriate measures to reduce the PEL and resample the area.
4. Results of area air samples collected by the Contractor or the subcontractors performing this work will be submitted to the Port Engineer within 48 hours after sample collection.

(e) Tools and Equipment.

1. Suitable tools for dust collection and water-jet dust suppression system will be available and, where appropriate, used.
2. HEPA- filtered vacuum cleaners to clean-up visible dust residues will be provided.
3. Air filtration devices will utilize high efficiency particulate absolute (HEPA) filtration systems bearing a UL 586 label indicating its ability to perform under specified conditions. Filters marked with the name of the manufacturer, serial number, airflow rating, efficiency and resistance, and the direction of the test airflow will be provided. Units will have two stages of pre-filtering as follows:

    - The first stage pre-filter will be a low efficiency type for particle sizes 100 micrometers and larger.
    - The second stage pro-filter will be a medium efficiency type effective for particle sizes down to 5 micrometers.
    - Pre-filters will be installed either on or in the intake grid of the exhaust unit and will be held in place with special housings or clamps.

4. Air filtration devices will also include:

    - An elapsed time meter showing the total accumulated hours of operation.
    - An electrical interlock preventing operation of the unit without a HEPA filter.
    - An automatic shutdown system to stop the fan in case of a rupture in the HEPA filter or a blocked air discharge.
    - Warning lights to indicate normal operation (green), moderately high pressure drop across the filters, such as due to filter overloading (yellow), and too high of a pressure drop due to an overloaded or ruptured HEPA filter or obstructed discharge (red).
    - An audible alarm if the unit shuts down due to operation of the safety systems.
    - Electrical components approved by the National Electrical Manufacturers Association (NEMA) and/or the Underwriter's Laboratories (UL). Each unit will be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet must be properly grounded.

22.6 Implementation

(a) Wet Method. “Wet” systems that eliminate or reduce dust generated by demolition activities will be used. Clean up sludge and/or waste will be removed immediately following its generation.

(b) Enclosure Method. Enclosures in conjunction with air filtration devices. Air will be moved through the filtration unit with a minimum of 1500 CFM. HEPA filter-based shop vacuum units to control dust generated at the work face and tools that include dust control features, where possible, will be provided and used.

(c) Negative Air Pressure Systems.

1. Where appropriate, if respirable crystalline concentrations exceed 0.05 mg/m3 outside of the work area, or if visible levels of dust emissions are observed outside work areas, differential air pressure systems for each work area will be provided in accordance with Appendix J of the EPA’s “Guidance for Controlling Asbestos-Containing Materials in Buildings”, EPA 560/5-85-024.
2. Where appropriate, negative air pressure will be continuously monitored by the Contractor using a recording instrument equal to Dwyer Instrument Co.’s “Photohelic Gauge” connected to an appropriate circular chart recorder. The location of the pressure measurement tap will be approved in advance by the Port. During the operation of the unit(s), circular charts will be collected on a daily basis, dated, and signed by the Contractor representative present on site.
3. Negative pressure will be checked at least four times per day by a person familiar with the operation of the negative pressure filtration units, as well as the recording device. Each check will be documented with a time and date notation on the circular chart record will be submitted to the Engineer on a daily basis. The recording instrument will be connected to an audible alarm that will activate at pressure differential of-0.020 inches water gauge air pressure. Defective or non-operating instrumentation may require temporary cessation of work until instrumentation is replaced.
4. Use of linear strip recorders will be acceptable as approved by the Engineer.
5. Exhaust air will only be vented to the exterior of the building at locations approved by the port unless otherwise noted or directed. Such outlets will not be near or adjacent to other building intake vents or louvers or at entrances to the building. The Contractor or its subcontractors will provide on-site certification of the negative pressure units to document adequate filtration efficiency for all units exhausting internally within the building or as otherwise required by the Port. Testing may need to be repeated if the unit(s) or their filtration systems have been repaired or replaced during the course of the work, following movement between zones, or if damage has occurred since the units were previously tested. Certification will be by DOP or portacount testing and signed by an independent tester or the contractor’s trained Health and Safety personnel. DOP testing will verify an in-site efficiency of 99.3% or better. The tester(s) will show knowledge of the testing procedures and limitations to the satisfaction of the Port, including but not limited to knowledge of test modes, variability of results, calibration techniques, and equipment operating procedure. Where knowledge or testing procedures are deemed inadequate, test results will be signed by a Professional Engineer or Certified Industrial Hygienist.
6. The work area will have a minimum differential air pressure of - 0.020 inches w.g. at all times during concrete demolition activities.

(d) Work Area Isolation and Cleanup.

1. The Contractor or its subcontractors will ensure that fugitive dust and silica contaminants from the work area do not contaminate the interior of the building.
2. Work areas where fugitive dust and silica-containing materials will be disturbed will be isolated from other parts of the building with 6 mil polyethylene critical barriers on all doors, windows, and work area penetrations. Other methods may be approved upon written requests.

(e) Record Keeping. The Contractor or its subcontractors will maintain for at least thirty (30) years, a record of the project. One copy will be furnished to the Engineer. The record will include the following information:

1. The starting and completion dates of the project.
2. A copy of all analytical results.
3. Copies of negative pressure documentation records (as required).

4. The name and address of the analytical laboratory used for silica analyses.
5. The name, address, and social security number of all persons who were engaged in the concrete demolition activities.

22.7 Exhibits/Attachments

Not applicable.

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23. Hazard Communication

23.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for an effective hazard communication program, as required under WAC 296-155-180 and WAC 296-901-140.

23.2 Definitions

(a) Acute. An adverse effect on the human body with an immediate onset of symptoms.

(b) Catalyst. A substance that changes the rate of a chemical reaction between two other chemicals but undergoes no permanent change itself.

(c) Chemical Name. The scientific designation of a substance in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry or the system developed by the Chemical Abstracts Service.

(d) Chronic. Adverse effects on the human body with symptoms that develop slowly over a long period of time or that frequently recur.

(e) Common Name. Any designation or identification such as code name, code number, trade name, or brand name used to identify a substance other than by its chemical name.

(f) Expose or Exposure. Any situation arising from work operations where an employee may ingest, inhale, absorb through the skin or eyes, or otherwise come into contact with a hazardous substance.

(g) Flammable. A substance that falls into one of the following categories:

(h) Aerosol, flammable. An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or flashback (a flame extending back to the valve) at any degree of valve opening.

(i) Gas, flammable. A gas that, at ambient temperatures and pressure, forms a flammable mixture with air at a concentration of 13 percent of volume or less, or a gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit.

(j) Liquid, flammable. Any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(k) Solid, flammable. A solid, other than a blasting agent or explosive, that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, retained heat from manufacturing or processing, or which can be ignited readily and when ignited bums so vigorously and persistently as to create a serious hazard. A chemical will be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

(l) Flash Point. Minimum temperature of a liquid at which it gives off significant vapors to form an ignitable mixture with the air near the surface of the liquid or within the container used.

(m) Hazardous Substances and Carcinogens. Those substances or carcinogens appearing at any of the following reference sources are established as hazardous substances or carcinogens or potential carcinogens for hazard communication purposes.

(n) Hazardous Mixtures. Any solution or intimate mixture of two or more substances, at least one of which is present as a hazardous substance. A hazardous substance is present in any mixture of product if it is 1 percent or more of the mixture or product or 2 percent if the hazardous substance exists as an impurity in the mixture. The State may, however, by regulation, raise the concentration requirement for a hazardous substance which the State finds is not hazardous at the threshold levels; and lower the concentration requirement for a hazardous substance for which there is valid and substantial evidence that the substance is extraordinarily hazardous.

(o) MSDS. A material safety data sheet prepared pursuant to state and federal regulations, e.g., OSHA Form 174.

(p) Polymerization. A chemical reaction which results in the joining together of two or more like molecules to form a more complex molecule whose molecular weight is a multiple of the original and whose chemical properties are different. Polymerization reactions commonly produce excessive heat and may cause an increase in pressure, which requires adequate venting to prevent destructive explosive failure of containers.

(q) Reactivity. A measure of the tendency of a substance to undergo chemical reaction with the release of energy.

(r) Specific Gravity (density). The ratio of the weight of a substance to the weight of the same volume of another substance. As used in this directive, specific gravity or density refers to the weight of substance as compared to the weight of an equal volume of water.

23.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

23.4 General Requirements

(a) Hazardous substances in the workplace in some forms, concentrations, and job activities, pose potential acute and/or chronic health hazards to employees who are exposed to these substances.

(b) All employees have a right and a need to know the properties and potential hazards of substances to which they may be exposed, as such knowledge is essential to reducing the incidence and cost of occupational disease and industrial accidents.

(c) The OSHA Form 174 has entries for all of the information now required by the Federal and OSHA standards. This new form replaces the OSHA Form 20, which is no longer acceptable.

(d) The MSDS Request Form Letter may be used to request MSDSs from suppliers. All new MSDSs will be forwarded to the field safety and health staff, with a copy to the Vice President of Safety and Health, for maintenance and distribution as necessary.

(e) Pursuant to the requirements of OSHA regulations to make chemical safety and health information available to employees, this directive prescribes the use of material safety data sheets, by business unit management, to provide the required information to inform employees.

23.5 Implementation

(a) Supervisory Responsibility.

1. Before any employee is permitted to work with a hazardous substance or hazardous mixture, the potential fire, toxic, or reactivity hazards, which are likely to be encountered in the handling, application, or utilization of such a material, will be determined.
2. In order to ascertain the hazards, supervisors will have available a completed OSHA Form 174: MSDS or an essentially similar form, provided by the supplier, for each hazardous substance used.
3. Supervisors will notify employees of hazardous substances used in their work area for which MSDSs are available, making such MSDSs available on a timely and reasonable basis, upon request of an employee or his authorized representative. Such notification may be:
    - Posted lists of MSDSs where they are readily available to workers.
    - Prominently displayed binders containing MSDSs used in the work area.
4. Supervisors will notify subcontractor employers with employees working for the Contractor of any hazardous substances to which their employees may be exposed, and provide suggestions for appropriate protective measures. This will be done in coordination with the field safety and health staff.

(b) Training and Information Program.

1. Supervisors, in coordination with the field safety and health staff will furnish employees who may be exposed to a hazardous substance with an appropriate explanation of information on the contents of the MSDS. Such information must be comprehensible to the workers. Information should also relate to the entire class of hazardous substances to the extent appropriate and relevant to the job, i.e., acids, caustics, chlorinated hydrocarbons, etc.
2. For hazardous substances to which the worker may be exposed, employees will be informed of their right of access to an MSDS, their right to request an MSDS from their employer for material they suspect is hazardous, and the right of their representative or physician to obtain such MSDS.
3. All employees who may be exposed to a hazardous substance will be given training and information:
    - Upon a timely and reasonable basis.
    - Prior to assignment of an employee to an area containing a hazardous substance for which previous training has not been received.
4. Subject training and information will be accomplished by either formal classroom instruction or by jobsite safety meetings, and will be documented accordingly.
5. A completed MSDS, when available, or equivalent information for each hazardous substance or hazardous mixture used or encountered by employees, will be maintained in the workplace, and made accessible to employees in their work area. This will include, but is not limited to:
    - Cleaning agents, such as solvents, detergents, acid inhibitors, etc., used for industrial cleaning.
    - Hazardous substances or hazardous mixtures contained in process vessels.
    - Janitorial and housekeeping substances used by employees at the Contractor’s facilities. Not included are consumer products used in accordance with manufacturer's instructions, and comparable to typical consumer use.

(c) Information Required on a MSDS.

1. The MSDS must conform with the Globally Harmonized System for hazard communication pursuant to WAC 296-901.
2. The name, address, and telephone number of the source of the information specified in this paragraph, preferably those of the manufacturer of the product or material.

3. The trade name and synonyms for a mixture of chemicals; a basic structural material; or for a process material, the chemical name and synonyms, and/or chemical family and formula for a single chemical.
4. Chemical names of hazardous ingredients including, but not limited to, those in mixtures such as:
    - Paints, preservatives, and solvents.
    - Alloys, metallic coatings, and filler metals, and their coatings or core fluxes.
    - Other liquids, solids, or gases (e.g., abrasive materials).
5. An indication of the percentage, by weight of volume, of each ingredient to the whole mixture, and of each ingredient (in appropriate units) for the threshold limit value.
6. Physical data about a single chemical or a mixture of chemicals, including boiling point (in F), vapor pressure (in millimeters of mercury); vapor density of gas or vapor (air = 1); solubility in water (in percent by weight); specific gravity of material (water = 1); percentage volatile by volume (at 70 QF; evaporation rate for liquids (either butyl acetate may be taken as 1); and appearance and odor.
7. Fire and explosion hazard data about a single chemical or a mixture of chemicals, including flash point (in QF); flammable limits (in percent by volume in air); suitable extinguishing media or agents; special firefighting procedures, and unusual fire and explosion hazard information.
8. Health hazard data, including threshold limit value (in appropriate units) for a single hazardous chemical, or for the individual hazardous ingredients of a mixture; and as appropriate, effects of overexposure, and emergency and first-aid procedures concerning these chemicals are also included.
9. Reactivity data, including stability, incompatibility, hazardous decomposition products, and hazardous polymerization.
10. Procedures to be followed and precautions to be taken in cleaning up and disposing of materials leaked or spilled.
11. Special protection information, including use of personal protective equipment-- such as respirators, eye protection, protective clothing, ventilation, or other control measures.
12. Special precautionary information about handling and storage.
13. Any other general precautionary information.

(d) Obtaining Information.

1. MSDS Binders.
    - A master file of MSDSs will be maintained by the Project Safety Manager.
    - MSDS binders will be maintained locally by area management for materials used at that location.
    - Employees may request copies of MSDS.

(e) Employee Information and Training.

1. Employees will be provided with information and training on hazardous substances in their work area at the time of their initial assignment, as well as whenever a new hazard is introduced into their work area. This orientation and training will address the following:
    - Regarding on site investigations or site remediation of unknown materials, every effort will be made to categorize the hazard(s) before starting work. Safety meetings will be used to inform employees of the hazards.
    - Employees will be informed about what an MSDS is, and of the contents of the MSDS for hazardous substances to which employees may be exposed, or equivalent information will be provided, either in written form or through training programs.
    - When training employees on the contents of an MSDS, supervisors will explain: any health hazards associated with use of the substance or mixture, proper precautions for handling, and necessary personnel protective equipment or other safety precautions necessary to prevent or minimize exposure. Emergency procedures for spills, fire, disposal, and first aid are also to be explained.
    - When the Project Safety Manager receives a new or revised MSDS, such information will be provided to employees in a timely manner. This is especially the case if such new information indicates significantly increased risks to, or necessary protective measures for, employee health, as compared to those stated on a MSDS previously provided.

2. Employees will be informed of their right:
   - To personally receive information regarding hazardous substances to which the employee may be exposed. The Employee Request for MSDS will be used by employees requesting MSDS copies.
   - For their physician or collective bargaining agent to receive information regarding hazardous substances to which the employee may be exposed.
3. Employees will be informed of:
   - Any operations in their work area where hazardous substances are present.
   - Location and availability of this written hazard communications program/procedure.
4. Employees will be trained in the following:
   - Methods and observations that may be used to detect the presence or release of hazardous substance in the work area, such as personal monitoring, visual appearance, or odor of hazardous substances being released, etc. Also, the physical and health hazards of substances in the work area, and measures and procedures the Contractor implemented to protect employees.
   - Details of this Hazard Communication Program/Procedure and how appropriate hazard information can be obtained and used.

(f) Trade Secrets.

1. Some hazardous substance suppliers may claim the information requested on MSDSs is proprietary and, therefore, may not provide the information to the Contractor.
2. When suppliers claim trade secrets, the name of the supplier and the hazardous substance in question will be supplied to the field safety and health staff for further action.
3. The field safety and health staff will either obtain the necessary information to make a hazard assessment or reject the material for use by the Contractor.

(g) Labeling.

1. All hazardous substances received from outside suppliers will conform to legal requirements, and will have on each container, as a minimum, the following:
   - Identification of the hazardous substance(s).
   - Appropriate hazard warnings.
   - Name and address of the manufacturer, importer, or other responsible party.

   Any failure to have proper labeling on the container at the time of receipt will be cause to refuse delivery of the product.
2. Stationary process containers or pipes may have signs, placards, process sheets, batch tickets, operating procedures, or other written material as a substitute for fixed labels on the containers, as long as the alternative method conveys appropriate hazard information. The written materials will be readily accessible to the employees in the work area.
3. Portable containers of hazardous substances need not be labeled when the substance is transferred from labeled containers, and which are intended for immediate use by the employee who performs the transfer; although, this practice is not recommended.
4. Containers of hazardous substances transferred from labeled containers and not intended for the immediate use of the employee performing the transfer will be labeled in accordance with a hazardous materials identification system (HMIS), as outlined in Exhibit E of this procedure, or an equivalent commercial system.
5. Labels on incoming containers will not be removed or defaced.
6. Labels or other forms of warning will be legible, written in English, prominently displayed on the containers, and/or readily available throughout each work shift.

23.6 Exhibits/Attachments

The following records are used for documenting activities associated with this procedure.

(a) Hazardous Materials Identification System (HMIS), Exhibit E

(b) U.S. Department of Labor MSDS, (OSHA Form 174), Attachment 13

(c) Hazardous Material Inventory List, Attachment 14

Exhibit E. Hazardous Materials Identification System (HMIS)

This HMIS is based on a comprehensive system for hazardous materials identification. This system conveys chemical identity by chemical, common names, code numbers, or other descriptive terms, which clearly identify the material for hazardous information purposes. The acute health, flammability, and reactivity hazards are communicated by numerical ratings imprinted on the label itself. An alphabetical designation is used to denote a combination of proper personal protective equipment. The designation is also imprinted on the label. The field safety and health staff will provide guidance on what hazard index and what personal protection index should be used.

Hazard Index (HI)

4 Severe Hazard

3 Serious Hazard

2 Moderate Hazard

1 Slight Hazard

0 Minimal Hazard

These designations will be imprinted (written) with indelible ink next to each hazard category on the label, i.e., Health Flammability, Reactivity, etc. Such information is obtainable from the MSDS, among other sources.

DEFINITIONS OF HAZARD CATEGORIES

Health Hazard

4 Danger: May be fatal on short exposure. Specialized protective equipment required.

3 Warning: Corrosive or toxic - avoid skin contact or inhalation.

2 Warning: May be harmful if inhaled or absorbed.

1 Caution: May cause irritation.

0 No unusual hazard.

Fire Hazard

4 Danger: Flammable gas or extremely flammable liquid.

3 Warning: Flammable liquid, flash point below 100°F.

2 Caution: Combustible liquid, flash point of 100°F to 200°F.

1 Combustible if heated.

0 Not combustible.

Reactivity Hazard

4 Danger: Explosive material at room temperature.

3 Danger: May be explosive if shocked, heated under confinement, or mixed with water.

2 Warning: Unstable, or may react if mixed with water.

1 Caution: May react if heated or mixed with water.

0 Stable: Not reactive when mixed with water.

Personal Protection Index (PPI)

Alphabetic designations A through K are used to indicate personal protection required. The letter X indicates that the employee should ask the supervisor for guidance.

The alphabetical designations are:

A Safety glasses

B Safety glasses, gloves

C Safety glasses, gloves, apron

D Face shield, safety glasses, gloves

E Safety glasses, gloves, vapor respirator

F Safety glasses, gloves, apron, dust respirator G Safety glasses, gloves, vapor respirator

H Safety glasses, gloves, apron, vapor respirator

I Safety glasses, gloves, dust and vapor respirator

J Splash goggles, gloves

K Airline hose or mask, gloves, full suit, boots, dust and vapor respirator

X Ask your supervisor for guidance

Attachment 13. U.S. Department of Labor MSDS, OSHA Form 174

Material Safety Data Sheet
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910 1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY *(as Used on Label and List)*

Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's name	Emergency Telephone Number
Address *(Number, Street, City, State and ZIP Code)*	Telephone Number for Information
	Date Prepared
	Signature of Preparer *(optional)*

Section II—Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)

Section III—Physical/Chemical Characteristics

Boiling Point		Specific Gravity (H_2O = 1)	
Vapor Pressure (mm Hg)		Melting Point	
Vapor Density (AIR = 1)		Evaporation Rate (Butyl Acetate = 1)	

Solubility in Water

Appearance and Odor

Section IV—Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL

Extinguishing Media

Special Fire Fighting Procedures

Unusual Fire and Explosion Hazards

(Reproduce locally) OSHA 174 Sept. 1985

Section V—Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable		

Incompatibility *(Materials to Avoid)*

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur		

Section VI—Health Hazard Data

Route(s) of Entry	Inhalation?	Skin?	Ingestion?

Health Hazards *(Acute and Chronic)*

Carcinogenicity	NTP?	IARC Monographs?	OSHA Regulated?

Signs and Symptoms of Exposure

Medical Conditions
Generally Aggravated by Exposure

Emergency and First Aid Procedures

Section VII—Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled

Waste Disposal Method

Precautions to Be Taken in Handling and Storing

Other Precautions

Section VII—Control Measures

Respiratory Protection *(Specify Type)*

Ventilation	Local Exhaust	Special
	Mechanical *(General)*	Other

Protective Gloves	Eye Protection

Other Protective Clothing or Equipment

Work/Hygienic Practices

Attachment 14. Hazardous Material Inventory List

Hazardous Material Inventory Spreadsheet

Principal Investigator _____
Last Name First Name

Person Completing Inventory _____
Last Name First Name

Department _____

Inventory Date: _____

Building: _____

Room: _____

Phone: _____

Chemical Name	Manufacturer	Maximum Quantity	CAS Number	MSDS on File?
(example) Ethyl Alcohol	*Sigma*	*4 L*	*64175*	*yes*

24. Hazardous Material/Waste Handling and Disposal

24.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for inventory control, handling and storage, disposal and regulatory reporting of hazardous materials/hazardous waste.

24.2 Definitions

Not applicable.

24.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure. They are also responsible for: maintaining inventory records and material safety data sheets of all hazardous materials stored on site; ensuring compliance with the labeling/off-site transportation of hazardous materials and/or waste; and initiating/maintaining the documents required by this procedure

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

24.4 General Requirements

(a) Requirements of this procedure apply to hazardous materials/hazardous waste generated onsite, including but not limited to the following:

1. Gasoline and Diesel Fuels.
2. Paint and Paint Thinners (Toluene, Xylene).
3. Ethylene Glycol.
4. Cleaning Solvents (Methylene Chloride/Trichlorotrifluoroethene "M6").

(b) All phases of hazardous material handling will be undertaken with complete adherence to state and federal requirements and safe work practices.

24.5 Implementation

(a) Inventory Control.

1. The Site Superintendent will make a review of the hazardous materials required during construction. Inventory quantities including used and unused will be established for each type of material. Designated storage locations will be established for quantities on hand. The types of liquids to be stored, quantity levels and locations will be reviewed and approved by the Project Executive prior to implementation.
2. The Site Superintendent or designee throughout the duration of the project will maintain an inventory of the hazardous materials.
3. The Site Superintendent or designee will perform periodic inspection of the site to prevent inventory build-up. Any exceptions found during inspection will be reported to the Project Executive for corrective action.

(b) Handling and Storage.

1. To the extent practical, oils and other hazardous liquids will be stored in a controlled area away from modules, other buildings, and/or equipment. Containers must not be handled or stored in a manner that may rupture the drum or cause it to leak.
2. Portable skids to contain 55-gallon drums will be utilized at long-term storage locations. The skid will have a sealed floor with a collection system to contain all possible leaks due to either faulty valves or damaged drums. The drums will be protected from weather and water intrusion.
3. Drums will be stored vertically, wherever practical. A wedge, block, etc. will be placed under the edge of the drums so that the top of the drum will be at an angle, such that rainwater will not accumulate on the lid and drain into loosely capped bungholes.
4. All drums, which are kept in a horizontal position for the purpose of filling other containers, will have a drip pan or bucket under the discharge point in order to catch small leaks. All faulty valves used on dispensing drums will be replaced immediately. Valves are to be of the automatic shut-off type.
5. In locations where drip pans or catch basins are used, the basins or pans will be checked frequently for accumulation of liquids. Any accumulation of liquids in the basins will be disposed of in accordance with this procedure.
6. Pumping is the preferred method of dispensing hazardous liquids from drums. When pumping is not practical, liquids will be transferred from drums to containers that are easily handled by one person. Transfer of liquids will be accomplished in such a manner as to minimize spills.

(c) Collection.

1. Waste Oils.
   - All waste oil will be collected in 55-gallon drums at the project site. The drums will be stored in a rack with a sealed lip to prevent ground spillage.
   - When a drum is nearly full, the Site Superintendent will notify a certified waste oil re-claimer to remove the waste oil from the site.
   - Under no circumstances will waste oil be used for dust control.
2. Hazardous Waste.
   - Waste solvents will be collected to non-returnable 55-gallon drums unless otherwise approved. Drums will be free of severe rusting, apparent structural defects and leaks, and be equipped with a full complement of bung plugs.
   - Each drum will be labeled as to its contents as soon as the filing operation begins. To the extent possible, each drum will contain only one type of liquid. Labels will conform to requirements. See Attachment 1 for sample labels.
   - Bungs will be replaced on the drum each time waste liquid is added.
   - When a drum has been filled with liquid, it will be sent to the designated area for temporary storage pending disposal.
   - The spent liquid storage areas will be inspected weekly by the Site Superintendent or designee to verify acceptability of containers.

(d) Disposal.

1. Collected waste liquid, regardless of type, will not be allowed to remain in temporary storage longer than is specified by generator category.
2. Waste Oils
   - The Site Superintendent will make advance arrangements with a waste oil re- claimer for disposal. When notified by the Site Superintendent or designee that a drum is full, the waste oil re-claimer will be contacted to have collection drum pumped.
   - During low levels of waste oil generation, periodically dispose of accumulated amounts.

3. Hazardous Waste

- Upon receipt of a waste drum in the designated temporary storage area, the Site Superintendent or designee will accomplish the following:
  - Clearly mark on the drum the date of its arrival to the area.
  - Verify and/or clearly mark the drums as to their content.
  - Number the drums consecutively.
- The Site Superintendent will contact a registered waste processor to arrange for shipment of the waste when any container has been stored for the maximum number of days or the maximum number of barrels have been accumulated, whichever comes first.
- Off-site transportation of dangerous wastes is to be done only by those who are approved hazardous waste haulers. Prior to shipment off site, the Site Superintendent or designee will verify that each drum is labeled in accordance with DOT 49 CFR part 172.
- The authorized transporter will prepare a manifest for the shipment. The Contractor must provide the transporter with our EPA/State identification number for referencing purposes. The transporter of the waste will sign the manifest to accept custody of the waste. The Project Executive retains a copy of the signed manifest.
- Upon acceptance of the waste at an approved Dangerous Waste Management facility, the operator will sign the manifest to accept custody of the material. A fully signed copy of the manifest is to be returned within 35 days. Upon receipt of the fully signed copy, previous copies may be destroyed; otherwise it must be retained for three (3) years. The signed copy of each manifest will be retained for three years from the date the waste was accepted by the initial transporter

NOTE: If the manifest is not returned within 45 days, notify the Corporate Safety Management.

- Small quantity hazardous waste generators are required to complete the "Notification of Hazardous Waste Activity Form" and register with the EPA. The project site assigned EPA identification number is EPA ID # TBD.

24.6 Emergency Information

(a) Phone Numbers.

(To be listed on each project Emergency Plan)

1. Location of Emergency Equipment

- Fire Extinguishers - 20-lb. type ABC dry chemical fire extinguishers are located at each project.
- Sorbent Materials - 3M Type 100 Sorbent is located, where indicated, on each project.

2. Emergency Coordinator

- Primary
  - Day Shift: (To be listed on the project Emergency Plan)
  - Office Phone: (To be listed on the project Emergency Plan)
- Alternate
  - Day Shift: (To be listed on the project Emergency Plan)

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25. Hearing Conservation

25.1 Purpose

To establish the minimum requirements for the Contractor's and its subcontractors for hearing conservation. A hearing loss prevention program must be provided in accordance with the provisions of WAC 296-155-210 and WAC 296-817.

25.2 Definitions

(a) Ambient Noise (Residual Noise, Background Noise). Noise of a measurable intensity that is normally present in the background in a given environment.

(b) Audiologist. A professional specializing in the study of rehabilitation of hearing, who is certified by the American Speech, Hearing and Language Association or licensed by a state board of examiners.

(c) Auditory Trauma. Damage to the hearing mechanism resulting in some degree of permanent or temporary hearing loss. Auditory trauma may be caused by agents other than noise; e.g., head injury; burns; sudden or excessive changes of atmospheric pressure.

(d) A-Weighted Sound Level. A single number representing the sound level of a noise containing a wide range of frequencies in a manner representative of the ear's response.

(e) Decibels - A-Weighted (dBA). A unit of measurement of sound level corrected to the A-weighted scale, as defined in ANSI S1.4 - 1981 (R 1976), using a reference level of 0.00002 Newton per square meter.

(f) Dosimeter. An instrument which registers the occurrence and cumulative duration of noise exceeding a predetermined level at a chosen point in the environment or on a person.

(g) Earmuff. A hearing protective device that encloses the entire outer ear.

(h) Earplug. A hearing protective device, having specified or standard acoustic characteristics, which upon insertion occludes the external auditory meatus.

(i) Frequency. The number of times per second that a sine wave repeats itself. It is expressed in hertz (Hz) or cycles per second (cps).

(j) Hearing Impairment. Hearing loss exceeding a designated criterion (commonly 25 decibels (dB), re International Safety Operations (ISO) standard, averaged from the threshold levels at 500, 1,000, and 2,000 Hz).

(k) Hearing Protective Device (HPD). A device inserted into or placed over the ear in order to attenuate air-conducted sounds.

(l) Impulse Noise (Impact Noise). Noise of short duration (typically, less than one second) especially of high intensity, abrupt onset and rapid decay, and often of rapidly changing spectral composition.

(m) Medical Pathology. A disorder or disease affecting the ear, which should be treated by a physician specialist.

(n) Noise Reduction Rating (NRR). A rating system for hearing protective devices developed by the Environmental Protection Agency. The NRR is a measure of the ability of a given protective device to attenuate noise, as a function of noise intensity and frequency. The NRR must be shown on the hearing protector package.

(o) Otolaryngologist. A physician specializing in diagnosis and treatment of disorders of the ear, nose, and throat.

(p) Representative Exposure. Measurements of an employee's noise dose or 8-hour time-weighted average sound level that the employers deem to be representative of exposures of other employees in the workplace.

(q) Standard Threshold Shift. As defined by OSHA a change in hearing threshold relative to the baseline audiogram of 10 dB or more at 2,000, 3,000, and 4,000 Hz-in either ear, corrected for aging (presbycusis).

(r) Sound Level. Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals, given in decibels (dB). For use with the directive, slow time response, in accordance with ANSI S1., 4-1971 (S 1976), is required.

25.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

25.4 General Requirements

(a) Factors Considered

To assess employee noise exposure, the following factors will be considered:

1. The overall decibel level of the noise exposure. If a noise exposure does not cause auditory fatigue, the exposure is not considered harmful to hearing sensitivity.
2. The frequency spectrum of the noise. Noise exposure in the high frequency ranges is generally more harmful than low frequency noise.
3. The daily time distribution of the noise exposure. Noise that is intermittent in character is generally less harmful to hearing than steady-state noise exposure. The potential for hearing loss increases as a function of the duration of the exposure over a working lifetime.
4. The susceptibility of the worker to hazardous noise. Not every individual will develop identical hearing impairment if exposed to the same noise intensity over the same time period.
5. The extra-auditory (or non-auditory) effects of noise. While evidence to support extra-auditory health effects may not be as complete as the case for hearing loss, some concern exists. Noise can alter the normal functions of the endocrine, cardiovascular, and neurological systems. Subjective complaints of nausea, malaise, and headache have been reported in workers exposed to ultrasonic noise levels.

(b) Hearing Conservation Program

1. A hearing conservation program will be implemented and protection against the effects of noise exposure will be provided when the noise exposures equal or exceed an 8-hour time weighted average sound level of 85 decibels measured on the A-weighted scale of a standard sound level meter at slow response.
2. For compliance purposes as regulated by OSHA, an effective hearing conservation program will include as a minimum:

- Monitoring of the workplace to determine the representative exposure of employees to excessive noise levels.
- A training program for all employees exposed to noise levels of this standard will be performed in accordance with the Contractor's Hearing Conservation Program.
- Workers will be provided personal protective equipment when administrative or engineering controls fail to reduce sound levels to within the levels of the standards.

25.5 Implementation

(a) Monitoring

1. Monitoring of employee exposures to noise will be conducted by the field safety and health staff.
2. The monitoring requirement may be met by either area monitoring or personal monitoring that is representative of employee exposures. Personal monitoring is preferred, and may be required based on the type(s) of noise sources.
3. For purposes of the hearing conservation program, employee noise exposures will be computed in accordance with Exhibit F of this procedure and without regard to any attenuation provided by the use of hearing protective equipment.

(b) Employee Training and Information

1. Training Program. A training program will be established as follows. All employees who may be exposed to excessive noise levels will complete a formal training program, which will include, as a minimum, the following information:

   - The effects of noise on hearing.
   - The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.
   - The specific nature of the operations which could result in exposure to excessive noise levels.
   - A description of the medical surveillance program, including a description of the purpose of audiometric testing, and an explanation of the test procedures.
   - The engineering controls and safe work practices associated with the employee's work assignment.

   The training program will be repeated annually, and each employee receiving such training will complete a Hearing Protection Training Completion Form. All training will be documented in accordance with the Contractor's Hearing Conservation Program.

2. Safety Meetings. Job site safety meetings and site-specific health and safety plans will include instruction on the need for hearing protective devices in designated areas. All safety meetings will be in accordance with the Contractor Employee Orientation and Training Program.

(c) Control Measures

1. Examination of the Problem. To control noise exposure, its three basic elements will be examined, i.e., source of the sound, travel path, and effect on receiver or listener. Solution of a given noise problem might require alteration or modification of any or all of these three basic elements.
2. Noise Control at the Source. Controlling noise at the noise source can be achieved by the following:

   - Select quiet equipment initially. In selecting quiet equipment the following features will be considered:

     – Low-noise certification.
     – Advertisement of "quiet" operation, evidence of noise control design.
     – Evidence of "lower" and "slower" operating characteristics.
     – Side-by-side noise testing of equipment.
     – "On-site" or "in operation" inspection of mechanical equipment before purchase.

   - Reduce operating noise by considering the following control measures:

     – Reduce impact or impulse noise by reducing weight, size, or height of fall of impacting mass.
     – Reduce speed in machines and flow velocities and pressure in fluid systems.

- Balance rotating parts - to control machinery noise and vibration of fans, fly wheels, pulleys, cams, shafts, etc.
- Reduce frictional resistance between rotating, sliding or moving parts in mechanical systems: frequent lubrication, proper alignment of moving parts; static and dynamic balancing of rotating parts; correction of eccentricity or "out-of-roundness" of wheels, gears, rollers, pulley, etc.
- Reduce resistance in air or fluid systems: use of low flow velocities, smooth boundary surfaces of duct or pipe systems, and long-radius turns and flared sections in pipes, etc., to reduce turbulence noise.
- Isolate vibration elements in machinery; install motors, pumps, etc., on most massive part of machine; use belt or roller drives in place of gear trains; use flexible hoses and wiring instead of rigid piping and stiff wiring, etc.
- Apply vibration damping materials such as liquid mastic; pads of rubber, felt, foam or fibrous blankets; or sheet metal viscoelastic laminates or composites to vibrating machine surfaces.
- Reduce noise leakage from the interior of machines such as compressors by sealing or covering all openings or applying acoustical materials to machine interiors.

3. Noise Control in the Transmission Path. This can be achieved by the following: Separate the noise source and receiver as much as possible.

   - Use sound-absorbing materials on ceiling, floor or wall surfaces as close to the machine as possible.
   - Use sound barriers and deflectors in the noise path.
   - Use acoustical lining on inside surfaces of such passageways as ducts, pipe chases, or electrical channels.
   - Use mufflers, silencers or snubbers on all gasoline or diesel engines, regardless of size; and particularly on equipment when large quantities of high-pressure, high-velocity gases, liquids, steam or air are discharged into the open air.
   - Use vibration isolators and flexible couplers where the noise transmission path is structure-borne in character.

4. Protection for the Receiver. When engineering controls fail to reduce the levels to within the levels specified in Exhibit F of this procedure the following measures will be implemented:

   - Personal protective equipment will be provided and replaced as necessary at no cost to employees.
   - Supervisors will ensure that hearing protective devices are worn by all employees who are exposed to a time-weighted average of 85 decibels or greater and who have experienced a significant threshold shift.
   - Employees will be given the opportunity to select their hearing protectors from a variety of suitable protectors.

25.6 Exhibits/Attachments

(a) Permissible Noise Exposure, Exhibit F

(b) Hearing Protection Training Record, Attachment 15

Exhibit F. Permissible Noise Exposure (per 29 CFR 1910.95)

A-Weighted Sound Level	Permitted Duration per Workday	A-Weighted Sound Level	Permitted Duration Per Workday
(dB)	(Hours)	(dB)	(Hours)
80	32	106	0.87
81	27.9	107	0.76
82	24.3	108	0.66
83	21.1	109	0.57
84	18.4	110	0.50
85	16.0	111	0.44
86	13.9	112	0.38
87	12.1	113	0.33
88	10.6	114	0.29
89	9.2	115	0.25
90	8.0	116	0 22
91	7.0	117	0.19
92	6.2	118	0.16
93	5.3	119	0.14
94	4.6	120	0 125
95	4.0	121	0.110
96	3.5	122	0.095
97	3.0	123	0.082
98	2.6	124	0.072
99	2.3	125	0.063
100	2.0	126	0.054
101	1.7	127	0.047
102	1.5	128	0.041
103	1.3	129	0.036
104	1.1	130	0.031
105	1.0		

Attachment 15. Hearing Protection Training Record

HEARING PROTECTION TRAINING RECORD

Name: _____

Please Print

INITIAL

_____ 1. I have been informed about the health hazards associated with exposure to excessive noise levels and the effect of noise on hearing.

_____ 2. I have been informed about the types of work that may result in exposure to excessive noise levels, and the necessary protective steps to prevent exposure, including engineering controls and required safe work practices.

_____ 3. I understand the purpose for, proper use and limitations of hearing protective devices, and I have received instruction on selection, fitting, use and care of such devices.

_____ 4. I have been informed about the monitoring and medical surveillance programs, including information on audiometric testing and an explanation of the test procedures.

_____ 5. I have received copies of the applicable regulations governing occupational exposure to excessive noise.

Employee Signature: _____

Date: _____

Signature of Trainer: _____

26. Hot Environments

26.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to protect workers exposed to hot environments, in accordance with the provisions of WAC 296-62-09013.

26.2 Definitions

(a) Acclimatized. Workers who have developed physiological adaptation to hot environments characterized by increased sweating efficiency, circulation stability, and tolerance of high temperatures without stress. Acclimatization occurs after 7 to 10 consecutive days of exposure to heat; and much of its benefit may be lost if exposure to hot environments is discontinued for a week.

(b) Unacclimatized. Workers who have not been exposed to hot work conditions for one week or more, or who have become heat-intolerant due to illness, or other reason.

(c) Chemical Protective Clothing. Apparel that is constructed of relatively impermeable materials with the intent to act as a barrier to physical contact of the worker with potentially hazardous materials in the workplace. Such materials include: Tyvek coveralls (all types), CPF Series coveralls, and polyvinyl chloride (PVC) coveralls and rain suits.

(d) Heat Stress (hyperthermia). A common hazard to employees working on projects involving exposure to hazardous substances, most particularly when impermeable protective clothing is used. This problem can occur at ambient temperatures below what is normally considered "hot weather." The body normally sheds excess heat primarily through radiation (capillaries in the skin dilate, transferring heat from the body core to the surface), and evaporation of sweat. Thermodynamically, evaporation is much more effective than radiation. Heat stress results when the body's regulating mechanisms are inadequate to dispose have internally generated and externally supplied heat.

Heat is normally generated internally through metabolic processes, and the quantity of heat generated corresponds to the level of muscle activity. External heat sources include radiant bodies (the sun, furnaces, fires, etc.), and convection (temperature difference between the skin and ambient air). External heat gain can occur through conduction from hot surfaces, but this is normally not significant since such contact will be avoided (it could be a very important factor if immersed in water, however).

The overall heat balance of a human can be written as an equation:

H = M R C - E

Where: H = body heat burden

M = metabolic heat gain

R = radiant or infrared heat load

C = convective heat load

E = evaporative heat loss.

The "normal" person maintains a core body temperature of 37°C + 1°C, (98.5°F + 1.8°F). Core body temperatures should not exceed 38°C (100.4°F) as a result of the total heat burden. Heat stroke occurs when the core temperature is greater than 40°C (104°F), and death is probable at core temperatures = 42°C (107.6°F).

Working outdoors in hot, sunny weather places the worker under increased heat load from M, R, and C. If the heat loss from E is less than the sum of M, R, and C, the total body heat balance will increase. Unfortunately, the use of impermeable protective clothing can reduce the heat loss from E to near zero.

26.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

26.4 General Requirements

Not applicable.

26.5 Implementation

(a) Recommended Controls.

NOTE: The guidelines discussed in this section are only intended to be used as a means for initial establishment of a work-rest regimen.

1. The field safety and health staff will evaluate the conditions at a specific operation and make final determinations of the work-rest regimen.
2. Intake of fluid will be increased beyond that which satisfies thirst, and it is important to avoid "fluid debt," which will not be made up as long as the individual is sweating.
3. Two 8-oz glasses of water should be taken prior to beginning work, then up to 32 oz per hour during the work shift; although fluid replacement at frequent intervals is more effective.
4. The best fluid to drink is water; liquids like coffee or soda do not provide efficient hydration, and may increase loss of water.
5. If commercial electrolyte drinks (Gatorade, Squincher, etc.) are used, the drink should be diluted 1:1 with water, i.e., 8 oz of water should be taken with each 8 oz of electrolyte beverage.
6. Additional salt is usually not needed; moreover, salt tablets should never be taken.
7. Replacement fluids should be cool, but not cold.
8. Breaks should be taken in a cool, shaded location, and any impermeable clothing should be removed.
9. Dry clothing and/or towels should be available to help minimize chills when taking breaks.
10. Manual labor, other than paperwork or similar light tasks, should not be performed during breaks.
11. 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.
12. Work Schedules.
    - Work schedules providing periodic rest periods should be implemented when employees are exposed to heat stress. Schedules will 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.

- Alternate methods of establishing a work schedule are based on measuring physiological indices, such as heart rate or oral temperature, which correlate to the core body temperature.

NOTE: Oral temperature does not correlate well with increasing core temperature, and is subject to effects from drinking replacement fluids. During heat exhaustion, oral temperature may be normal or even depressed due to extreme peripheral vasodilatation).

- Measures of heart rate (pulse) appear to correlate well with heat-related stress, and can be used to estimate the impact of heat stress on individuals with differing levels of fitness. For example, less fit individuals with a pulse of 150 beats/minute experience about the same level of stress as a fit person, even though the work output required for the fit person to reach this rate will be quite higher. The heart rate also incorporates the combined effects of environmental heat, muscle activity, and elevated body temperature, making it a useful and easily measured variable.
- The procedure for controlling heat stress via establishment of work schedules based on the measurement of heart rate is presented below.

13. The Project Safety Manager will determine the potential for heat stress based on planned activities and weather forecasts.

    - If the potential for heat stress exists:
      - All site workers should be informed of the potential for heat stress during the daily safety meeting. The Project Safety Manager will determine if any workers are at particular risk for heat stress due to illness, etc. Also, the Project Safety Manager will assure that sufficient quantities of portable water and electrolyte drinks are available in the decon area, and that a shaded rest area is available at or immediately outside the decon area.
      - All workers should drink 16 oz of water prior to beginning work, and at least 16 oz during each rest period.
    - The initial work period and monitoring frequency, is set according to the table in Exhibit G.
    - Within the first minute of each rest period, each worker's heart rate (pulse) should be measured and compared to the following (see Attachment 16):
    - Initial heart rate: 110 beats/minute (28 beats/15 sec).
    - Each worker's heart rate should be measured again three minutes later and compared to the following:
    - Recovery heart rate: 80 beats/minute (20 beats/15 sec.).
    - If both heart rate criteria are met, the subsequent work period may be increased by one third, provided the temperature remains constant.
    - If the initial heart rate is greater than 110 beats per minute or the recovery rate is not less than 80 beats per minute, the subsequent work shift is decreased by one third.

14. 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.
    - All breaks should be taken in a cool, shaded rest area.
    - Employees will open or remove chemical protective garments during rest periods.
    - All employees will be informed of the importance of adequate rest and proper diet in the prevention of heat stress.
    - Employees will be informed of the harmful effects of excessive alcohol consumption in the prevention of heat stress.

(b) Training. Those personnel potentially exposed to heat stress will receive the training listed below. Training provided as a part of this procedure will be documented in accordance with Employee Safety Orientation and Training.

1. Employees will be trained on:
   - Sources of heat stress, the influence of protective clothing, and the importance of acclimatization;
   - How the body handles heat;
   - Heat related illnesses;
   - Preventative/Corrective measures;
   - First Aid procedures for heat stress.
2. The Contractor's supervisors will be trained on measurement methods and calculations of heat stress indices, as well as the establishment of work schedules.

26.6 Exhibits/Attachments

(a) Measurement Schedule, Exhibit G

(b) Physiological Monitoring Record for Heat Stress, Attachment 16

Exhibit G. Measurement Schedule

FREQUENCY OF MEASUREMENT		
Ambient Temperature (°F)	**Normal Work Clothing***	**Impermeable Work Clothing**
70 – 80	N/A	90 min
80 – 85	120 min	60 min
85 – 90	90 min	30 min
> 90	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.

Note: 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.

Note: 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.

Note: 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 16. Physiological Monitoring Record for Heat Stress

PHYSIOLOGICAL MONITORING RECORD FOR HEAT STRESS

Employee Name			
Employee SS#		**Date**	
Project Location		**Business Unit**	
Completed By		**Project No.**	
Pre-Work Baseline		**After 5th Work Period**	
Ambient Air Temperature		Ambient Air Temperature	
Heart Rate		Initial Heart Rate	
Recovery Heart Rate		Recovery Heart Rate	
After 1st Work Period		**After 6th Work Period**	
Ambient Air Temperature		Ambient Air Temperature	
Initial Heart Rate		Initial Heart Rate	
Recovery Heart Rate		Recovery Heart Rate	
After 2nd Work Period		**After 7th Work Period**	
Ambient Air Temperature		Ambient Air Temperature	
Initial Heart Rate		Initial Heart Rate	
Recovery Heart Rate		Recovery Heart Rate	
After 3rd Work Period		**After 8th Work Period**	
Ambient Air Temperature		Ambient Air Temperature	
Initial Heart Rate		Initial Heart Rate	
Recovery Heart Rate		Recovery Heart Rate	
After 4th Work Period		**After 9th Work Period**	
Ambient Air Temperature		Ambient Air Temperature	
Initial Heart Rate		Initial Heart Rate	
Recovery Heart Rate		Recovery Heart Rate	

27. Housekeeping Practices

27.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform housekeeping activities.

27.2 Definitions

(a) Housekeeping Zone I. Areas requiring the highest order of cleanness. Zone 1 areas must be equipped with a clean clothing change facility at the vestibule or entrance, preferably with toilet facilities immediately adjacent to the controlled areas so that personnel working in those controlled areas do not need to continue wearing the special clothing in other areas. Such areas must provide for complete outer change of clothing by personnel, including use of shoe covers, head covers, and gloves to protect all equipment surfaces from outside contamination. Material entering this zone must have been appropriately cleaned prior to entry.

(b) Housekeeping Zone II. Intermediate cleanness requirements less restrictive than Zone I but where foreign matter may have detrimental effects.

(c) Housekeeping Zone III. Areas less restrictive than Zones I and II but requiring access control over personnel and materials.

(d) Housekeeping Zone IV. Areas where it is desired to regulate the use of tobacco and eating for material and equipment protection or for health and fire hazards.

(e) Housekeeping Zone V. Unrestricted construction areas requiring good construction site housekeeping practices only.

NOTE: These work zones are not to be confused with the authorized work zones required to be established on sites controlled by OSHA'S Hazardous Waste Operations and Emergency Response standard.

27.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

27.4 General Requirements

(a) Safe access and egress routes will be established and maintained neat and orderly to allow prompt emergency use.

(b) Work areas will have adequate lighting and ventilation.

(c) Necessary protection, such as barriers, screens, shields, or restricted access, etc., will be provided in areas where noise, dust, severe weather, or other conditions may affect the quality of work being performed.

(d) In areas where air quality is adversely affected by activities such as grinding or machining, a temporary enclosure with a medium efficiency filter will be erected around the work area.

(e) Clean rags, duct tape, plastic covering, shielding, and other material required to protect critical components will be available at the work site.

(f) All tools, parts, and other materials entering the work area will be free of dirt, grease, oil, and visible loose particles.

(g) Clothing worn by personnel will be clean and in such condition so as not to contribute to the contamination of the work area or component being serviced.

(h) Labeled containers will be used for combustible and non-combustible trash and will not be placed under cable trays or near material or equipment vulnerable to fire damage.

(i) If poor housekeeping practices are observed by anyone, the condition observed will be discussed with the first-line supervisor and corrective action promptly provided. Cluttered work areas will not be tolerated. All supervisors will follow through and make sure that these conditions are not allowed to recur.

(j) All personnel are responsible for good housekeeping practices and will be instructed to the requirements of this procedure in accordance with Procedure - Employee Safety Orientation and Training.

27.5 Implementation

(a) Control of Site Areas.

1. Work areas will be divided into housekeeping zones and cleanliness requirements will be established on the basis of the zone designations, as shown on the table below.

Requirements	Zone				
	I	II	III	IV	V
Clothing Change	Yes	No	No	No	No
Clean gloves, shoe covers head covering	Yes	Yes	No	No	No
Filtered air	Yes	No	No	No	No
Material pre-cleaning	Yes	No	No	No	No
Material accountability	Yes	Yes	Yes	No	No
Personnel accountability	Yes	Yes	Yes	No	No
Restriction on use of tobacco or eating	Yes	Yes	Yes	Yes	No

2. Areas will be assigned for refuse and garbage dumps, storage locations, parking lots, eating places, smoking areas, subcontractor work areas, common areas, and waste collection container locations. These areas will be regulated as appropriate for their zone designations.
3. For Zones I, II, and III a written record of the entry and exit of all personnel, visitors, and material will be maintained.
4. Grading, drainage, roads, construction facilities, plant fencing, and utilities will be provided in accordance with specific requirements and will be maintained in good condition throughout the construction phase or until replaced with the permanent facilities.
5. Control of work and storage areas where important items are handled will be established and maintained to conform to the appropriate housekeeping zones. Atmospheric control will be provided where necessary.
6. The control of all tools, equipment, materials, and supplies used in Zones I, II, and III will be maintained to prevent the inadvertent inclusion of deleterious materials or objects into critical systems. Appropriate control measures will be provided through utilization of such items as logbooks and tethered tools.

(b) Construction Site Cleanliness.

1. Work areas will be kept sufficiently clean and orderly so that construction activity can proceed efficiently and produce and maintain quality work in conformance with specific requirements.
2. Where large accumulations of materials occur on a non-routine basis, such as the stripping of concrete forms, the material will be promptly removed or stored neatly away from heavily traveled areas.
3. Garbage, trash, scrap litter, and other excess materials will be collected, removed from the job site, or disposed of daily. Such excess material will not be allowed to accumulate.

(c) Working Environment.

1. To maintain a safe working environment, areas of activity will be adequately lighted, ventilated, protected, and accessible as appropriate for the work being performed.
2. Temporary lighting will be installed as needed and maintained to provide good visibility.
3. Ventilation will be provided where necessary to prevent accumulation of dust, noxious fumes, and temperature extremes.
4. Adequate working space for personnel will be provided utilizing proper work stages and platforms having accessibility by stairs or ladders.
5. Barriers, screens, shields, restricted access, or other protection will be provided as necessary for isolation of areas where noise, welding arcs, dust, inclement weather, or other conditions exist that may affect the quality of work being performed.

(d) Materials and Equipment. Materials and equipment delivered to the work area will be placed so that they are accessible but do not hinder construction progress. Material and equipment will be so positioned that it will not be damaged by construction activity.

(e) Tools, Supplies, and Equipment.

1. The use, location, and deployment of construction tools, supplies, and equipment will be regulated to keep access and work areas clear.
2. These regulated provisions will include, but not limited to, such items as the movement of materials to the work area, welding and stress relieving leads, power leads, temporary heating equipment, pumps, air and water hoses, welding machines, air compressors, hoisting equipment, air tools, grinding tools, and burning tools.

27.6 Exhibits/Attachments

Not applicable.

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28. Impalement Protection

28.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for the guarding of reinforcing steel to eliminate the hazard of impalement in accordance with the provisions of WAC 296-1155—680(7).

28.2 Definitions

Not applicable.

28.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

28.4 General Requirements

The exposure to impalement from rebar protrusions is a recognized hazard in the construction industry. The Federal OSHA standards regarding this hazard are defined in Subpart Q of 29 CFR 1926.700, and WAC 296-155 Part O. Standard number 1926.701 (b) states, “All protruding reinforcing steel, onto and into which employees could fall, will be guarded to eliminate the hazard of impalement.” Where the requirements of this program differ from Federal or WISHA standards, the most stringent requirements will apply.

28.5 Implementation

(a) All reinforcing steel less than 54 inches above the working surface will be protected to eliminate the hazard of impalement.

(b) All reinforcing steel greater than 54 inches above the working surface installed in locations where overhead work is being performed will be protected to eliminate the hazard of impalement.

(c) All reinforcing steel greater than 54 inches installed within 10 feet of access/egress ladders leading to/from work areas above the protruding reinforcing steel will be protected to eliminate the hazard of impalement.

(d) The protective devices will be installed as soon as it is safe to complete the installation.

(e) The protective devices will be secured to prevent displacement if the protruding reinforcing steel is uneven or work activities at that location may cause the cover to be knocked off.

(f) The performance criterion for impalement protection devices (covers or wooden troughs) are that the device be capable of withstanding an object weighing a minimum of 250 pounds dropped from a height of 10 feet.

(g) Removal of the protective devices will occur immediately preceding the installation of additional reinforcing steel, wall forms etc. as the sequence of work prescribes. Once the protective devices have been removed, the individual/crew are responsible for identifying other job activities in or above the work area containing unprotected reinforcing steel that create employee exposure to impalement from the rebar. In the event that impalement exposures are identified, the hazards of impalement must be removed by re-scheduling job activities, use of barricades limiting access or other means to eliminate the exposure.

28.6 Protective Systems

(a) Column Rebar Dowels: Will be covered by a fabricated wood cover using a minimum of 1/2-inch plywood and 2x4s. This protective device must fully cover all of the dowels.

(b) Wall Rebar Dowels: Will be covered using one of the systems described below:

1. Manufactured impalement caps tested to the above performance criteria. The plastic caps containing a metal plate meet these criteria. The standard size cap will fit #3-9 rebar.
2. “Carnie Caps” utilizing either a 2x4 (fits #3-9 rebar) or 2x6 (fits #5-18 rebar). The caps must be placed every 8 feet and secured to the lumber with nails. This system must cover all of the protruding rebar in order to eliminate the hazard.
3. Field engineered trough systems can be manufactured using a combination of a minimum of 1/2-inch plywood, 2x4s and 2x6s. The trough must completely cover all of the protruding rebar.
4. The practice of bending the rebar dowels over is an acceptable means of protection under the following conditions:
    - The bars must be bent to a position perpendicular to the working surface. The use of a 4x4 under the dowel as it is bent will create a 90-degree angle bend.
    - All of the bars must be bent in the same direction.
    - The bent over bars must not create a trip/fall hazard. If the bent over bars are located in an access/egress route, a fabricated ramp, cover or other acceptable system will be installed to eliminate the exposure.
5. Reinforcing steel manufactured with a 180-degree bend at the top does not require protection.

28.7 Exhibits/Attachments

Not applicable.

29. Job Hazard Analysis

29.1 Purpose

To provide a method for evaluating and identifying job hazards.

Some tasks, by their nature, can expose employees to the risk of injury. To make them as safe as possible, such work activities require special planning and training. Job Hazard Analysis (JHA) is a process to identify the hazards or risks associated with a task or work activity and to be systematically address them. A thorough JHA is also an excellent tool to train employees performing the task and to solicit their input into the safe execution of the task or activity.

29.2 Definitions

Hazard: A condition or activity that, if left uncontrolled, can result in an injury or illness.

29.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual

29.4 General Requirements

Not Applicable.

29.5 Implementation

(a) Job Hazard Analysis. The JHA is a method of evaluating a job, task, or activity to determine the safest, most efficient way in which it may be accomplished. The JHA process directly carries out two basic safety principles:

1. It determines the potential accident causes by detecting the hazards inherent in a job.
2. It eliminates potential accident causes by eliminating identified potential hazards.
3. The JHA process has three basic components:
    - Determining the basic steps of a job or task.
    - Identifying potential hazards that are associated with each step.
    - Developing solutions for eliminating or controlling the hazards. Once these phases are complete, the result is a written end product that describes the sequence of basic job steps, the potential for accidents and/or hazards and the recommended safe work practices or procedures to be followed for each.

(b) Job Hazard Analysis Development Responsibilities. The JHA process ideally involves both employees and supervisors working together to develop safe work practices and procedures that can be practically implemented into the process. Employee participation is essential in having practical input and involving

the employees who will actually perform the work contributes to the successful and safe completion of the work. The key to a successful JHA is total management commitment to see that it gets done.

By “walking through” the steps involved in a particular job assignment, the employee and the supervisor develop an increased awareness of potential hazards and an understanding of how “shortcuts” can result in dangerous situations or conditions.

(c) Job Hazard Analysis Worksheet. This JHA worksheet (see Attachment 17; also see Attachment 18 for a sample worksheet) has been selected to simplify and document the JHA process. The left column, the Sequence of Basic Job Steps, is for listing the steps in the order in which they would logically occur from the beginning to the end of the process. The middle column, Potential hazards, is for listing all of the hazards associated with each step listed in the left column. The right column, Recommended Safe Job Procedures, is for identifying the best method of eliminating or controlling the hazard.

(d) Job Hazard Analysis Development on Projects. Most supervisors have a large number of tasks or jobs regularly performed by their employees. The needs of every project quite often differ. The following should be considered when determining the work to be analyzed:

1. Accident or injury frequency.
2. New tasks or jobs.
3. On-routine tasks or jobs.
4. Unusual tasks or jobs.
5. Tasks or jobs using new technology.
6. Tasks or jobs using hazardous materials.
7. Tasks or jobs with new or inexperienced workers.
8. Tasks or jobs that have a greater potential for accident or injury.

Each time a crew begins a new task, they should jointly prepare a Job Hazard Analysis using the mini-JHA form at the end of this section. For crews that do essentially the same thing every day, the JHA should be reviewed at least once a week or when conditions change such that different hazards should be considered. Crews that perform several different tasks in a day should prioritize those tasks and prepare a mini-JHA form for each of the tasks.

The Foreman should lead the crew through the process using their input rather than doing the work for them.

(e) Benefits of a Job Hazard Analysis.

1. Demonstrating management’s interest, in and commitment to, safety.
2. Giving employees a voice in suggesting better methods.
3. Focusing supervisors and employees on safety.
4. Defining safety goals for continued improvement.
5. Joining workers and supervisors into a working partnership.
6. Removing guess work and chance when doing a job.
7. Standardizing training.
8. Job Hazard analysis can reduce costs by:
    - Structuring training to control safety, quality, and costs.
    - Controlling losses.
    - Increasing efficiency through improving and standardizing operating procedures.
    - Helping solve engineering problems.
9. Job Hazard Analysis improves operations by:
    - Promoting standard operating procedures.
    - Allowing for follow up job observations.
    - Facilitating the use of new technology.
    - Improving job performance through coaching, training, and teaming.
    - Planning the work.

29.6 Exhibits/Attachments

(a) JHA Phase List, Exhibit H

(b) JHA Worksheet, Attachment 17

(c) JHA Sample Worksheet and Procedure, Attachment 18

Exhibit H. JHA Phase List

A. PHASES OR TYPES OF WORK TO CONSIDER

1. Site-work, Clearing and Grubbing
2. Demolition
3. Excavations, Trenching, Shoring
4. Tunneling
5. Foundations/Piling
6. Concrete - Structural and Architectural
7. Steel Erection
8. Curtain Walls/Precast Erection
9. HVAC
10. Plumbing/Pipe fitting
11. Electrical, Instrumentation
12. Process Systems Erection, Assemble and Tie-In
13. Roofing
14. Marine Exposures
15. Miscellaneous

B. HAZARDS TO ADDRESS

As a minimum (for each phase) consider all potential hazards including those below.

1. Noise
2. Dust/Fumes/Mists/Chemical Exposures
3. Traffic Control
4. Falls, Working at Heights
5. Falling Objects/Flying Objects
6. Walking Surfaces/Access/Work Platforms & Scaffolding
7. Lighting
8. Radiation
9. Machinery/Vehicles
10. Interface with other contractors
11. Security
12. Pollution/Spills
13. Utilities Exposure Including Electrical, Gas, Water (onsite and Public)
14. Vibration/Subsidence/Ground Support/Trenching and Excavations
15. Fires, Welding, Burning Operations/Fire Prevention
16. Clothing/PPE Requirements
17. Craning/Hoisting/Rigging
18. Signage/Barricades
19. Tools-use, Inspection, Maintenance
20. Demolition Operations
21. Protection of the Public
22. Other Hazards Particular to this Project.
23. Weather conditions (Heat or Cold related factors)

Note: If the work to be done does not have any of these hazards, note this and move on to the next item.

C. PROCEDURES

For each phase and major type of work where a hazard is identified, spell out a simple procedure with the following components as a minimum.

1. Outline Purpose and Scope (overview)
2. Delegate Responsibilities
3. Identify Training Requirements
4. Identify specific Project conditions and circumstance and how to apply this procedure
5. List reporting and record keeping requirements
6. Determine emergency actions and responses needed in event of a failure of the plan.

Note: Generic Hazard Analyses may be written for routine tasks. These could be used as a basis for writing the specific analyses for the immediate job. Provided each Hazard Analysis addresses any special hazards to the current job, the generic Hazard Analyses can save preparation time.

D. EMERGENCY ACTION PLANS AND CONTINGENCIES

Emergency action plans and contingencies should be developed for each phase. The following should be addressed as a minimum:

1. Floods.
2. Chemical Spills and Leaks.
3. Fires.
4. Electrical Outage and Emergency.
5. Collapse or Failure of Supports.
6. Injury; Minor, Major, and Fatalities.
7. Catastrophe.
8. Severe Weather Procedures.
9. Earthquake
10. Volcanic Eruption
11. Job specific occurrences not listed above.

Attachment 17. JHA Worksheet

JOB HAZARD ANALYSIS WORK SHEET

Page ___ of ___ Date _____

Project Name _____ Phase _____

Contractor _____ Location _____

Activity/Operation	Unsafe Condition, Action, or Hazard	Preventive or Corrective Action

Attachment 18. JHA Sample Worksheet and Procedure

JOB HAZARD ANALYSIS SAMPLE WORK SHEET AND PROCEDURE

Date _____

Project Name _____ Phase General Sitework, Clearing, and Grubbing

Contractor _____ Location Right Wing of Building

Activity/Operation	Unsafe Condition, Action, or Hazard	Preventive or Corrective Action
1. Site work preparation.	Unauthorized personnel entering the site.	Signs and/or barricades/fencing will be provided.
2. General sitework.	Construction vehicles crossing sidewalks and roadways.	Warning signs/flagger(s) will be posted.
	Non-construction personnel slip/trip on mud and rocks outside the site.	Sidewalk roadway maintenance personnel and equipment will be provided. (Sweep and clean.)
	Flaggers and other workers exposed to contact by non-construction vehicles along roadway.	Orange vests/reflective clothing will be worn by exposed employees.
	Employees exposed to contact by construction vehicles and heavy equipment.	Back-up alarms/warnings/horns/lights/ mirrors will be provided. Employees will be trained to make eye contact with the operator and receive a "go ahead" signal from the operator before attempting to cross the path of a vehicle or equipment.
	Employees falling from vehicles and heavy equipment.	Employees may ride only where seats are provided by the manufacturer. Seatbelts will be worn when provided.
3. Fueling equipment and fuel storage.	Chemical hazards.	MSDSs will be reviewed with employees before they handle chemicals.
	Mix-up of fuels.	I.D. label fuel tanks and containers; for example, Gasoline, Diesel, etc.

Activity/Operation	Unsafe Condition, Action, or Hazard	Preventive or Corrective Action
	Drip/spill/leak of fuel.	Lined berm or other means of containment will be provided for fuel tanks. Drips/spills/leaks will be cleaned up and disposed of as hazardous waste.
	Tank or container damaged/ruptured.	High visibility warning barricade or barrier.
	Fire hazards.	The phone number for the Fire Department and the Fire Emergency notification procedures will be posted in the Company's office trailer. Fuel trucks will be used to minimize stored fuels where practical. Proper tanks and metal safety containers will be used to store fuel on site. Tanks and container piles will be stored 20 feet from buildings.

INSTRUCTIONS FOR COMPLETING THE JOB HAZARD ANALYSIS FORM

Job Hazard Analysis (JHA) is an important accident prevention tool that works by finding hazards and eliminating or minimizing them before the job is performed and before they have a chance to become accidents. Use a JHA for job clarification and hazard awareness, as a guide in new employee training, for periodic contacts and for retraining of senior employees, as a refresher on jobs that run infrequently, as an accident investigation tool and for informing employees of specific job hazards and protective measures.

Set priorities for doing JHA's: jobs that have a history of many accidents, jobs that have produced disabling injuries, jobs with high potential for disabling injury or death, and new jobs with no accident history.

Select a job to be analyzed. Before filling out this form, consider the following: The purpose of the job--What has to be done? Who has to do it? The activities involved--How is it done? When is it done? Where is it done?

In summary, to complete this form you should consider the purpose of the job, the activities it involves, and the hazards it presents. If you are not familiar with a particular job or operation, interview an employee who is. In addition, observing an employee performing the job, or "walking through" the operation step by step may give additional insight into potential hazards. You may also wish to videotape the job and analyze it.

Here's how to do each of the three parts of a Job Hazard Analysis:

SEQUENCE OF BASIC JOB STEPS

Examining a specific job by breaking it down into a series of steps or tasks, will enable you to discover potential hazards employees may encounter.

Each job operation will consist of a set of steps or tasks. For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. To determine where a step begins or ends, look for a change of activity, change in direction or movement.

Picking up the box from the conveyor and placing it on a handtruck is one step. The next step might be to push the loaded handtruck to the storage area (a change in activity). Moving the boxes from the truck and placing them on the shelf is another step. The final step might be returning the handtruck to the receiving area.

Be sure to list all the steps needed to perform the job. Some steps may not be performed each time; an example could be checking the casters on the handtruck. However, if that step is generally part of the job it should be listed.

POTENTIAL HAZARDS

A hazard is a potential danger. The purpose of the Job Hazard Analysis is to identify ALL hazards--both those produced by the environment or conditions and those connected with the job procedure.

To identify hazards, ask yourself these questions about each step:

Is there a danger of the employee striking against, being struck by or otherwise making injurious contact with an object?

Can the employee be caught in, by or between objects?

Is there potential for slipping, tripping or falling?

Could the employee suffer strains from pushing, pulling, lifting, bending or twisting?

Is the environment hazardous to safety and/or health (toxic gas, vapor, mist, fumes, dust, heat or radiation)?

Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards--the actions, conditions and possibilities that could lead to an accident. Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent accidents.

RECOMMENDED ACTION OR PROCEDURE

Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury or occupational illness.

Begin by trying to: 1) engineer the hazard out; 2) provide guards, safety devices, etc.; 3) provide personal protective equipment; 4) provide job instruction training; 5) maintain good housekeeping; 6) insure good ergonomics (positioning the person in relation to the machine or other elements in such a way as to improve safety).

List the recommended safe operating procedures. Begin with an action word. Say exactly what needs to be done to correct the hazard, such as, "lift using your leg muscles." Avoid general statements such as, "be careful."

List the required or recommended personal protective equipment necessary to perform each step of the job.

Give a recommended action or procedure for each hazard.

Serious hazards should be corrected immediately. The JHA should then be changed to reflect the new conditions.

Finally, review your input on all three columns for accuracy and completeness. Determine if the recommended actions or procedures have been put in place. Reevaluate the job hazard analysis as necessary.

30. Ladders – Use, Handling, and Storage

30.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to use, handle, and store ladders. Ladders will be handled, used, stored and repaired in accordance with WAC 296-876.

30.2 Definitions

Not applicable.

30.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual.

30.4 General Requirements

The following are minimum requirements for the use and care of ladders by the Contractor personnel and subcontractors. Compliance is also required with ANSI A14.1, ANSI A14.3, and applicable State Regulations.

(a) Ladders will be maintained in good condition at all times. Those that are defective in any way will be removed from service and tagged with an unsafe equipment tag until made safe for use or destroyed.

(b) Ladders purchased for use on the Contractor's sites will be appropriate for industrial applications (Class 1-A). Light-duty household ladders are not acceptable.

(c) Ladder safety devices may be used in lieu of cage protection on ladders of unbroken length.

(d) Landing platforms are not required in these, cases except at regular step-off points. All ladder safety devices will be compatible with the ladders with which they are used.

(e) Fixed ladders will be installed wherever regular access by ladder is necessary.

(f) Metal ladders will not be used where potential electrical hazards exist.

(g) Ladders having metal parts (other than hardware) will not be used where potential electrical hazards exist, unless they bear a manufacturer's label that indicates:

1. The ladder complies with ANSI 14.5.
2. It is approved for electrical use.

(h) Job-made ladders will be constructed in accordance with OSHA 1926.1053 and WAC 296-876.

(i) All personnel involved in the use of ladders on the project will be instructed to the requirements of this procedure, in accordance with the Contractor's procedure - Employee Safety Orientation and Training.

30.5 Implementation

(a) Use of Ladders.

1. Ladders will be inspected by the user before each use.
2. Straight ladders will be equipped with safety shoes, tied, blocked, or otherwise secured to prevent displacement.
3. Straight ladders will be used at an angle of approximately 75 degrees from the horizontal. (This position may be readily established by placing the base of the ladder 1/4 of its working length from the vertical plane of the top support.)
4. When working from a ladder, the ladder will be secured both at the top and bottom.
5. No type of work requiring the use of both hands will be performed on a ladder over 10 feet from the ground or floor, unless a safety belt is worn and the safety lanyard is secured.
6. No objects that restrict the use of both hands for climbing will be carried in the climber's hands.
7. A ladder will not be placed in front of a door opening toward the ladder, unless the door is blocked open, locked, guarded, or removed.
8. Ladders must only be used on firm, stable bases. Ladders will not be placed on boxes, barrels, or other unstable bases to form longer sections.
9. Ladders will not be spliced together to form longer sections.
10. Ladders used to gain access from one level to another will be long enough for the top to extend 3 feet above the landing or suitable grab rails, for safe moving to or from the point of access.
11. The platform and top step of ordinary types of stepladders will not be used as steps.
12. Stepladders will not be used as straight ladders, and will be used with legs fully extended.

(b) Care of Ladders.

1. Ladders will be handled with care, and are not be subjected to unnecessary abuse or misuse.
2. Immediate inspection and appropriate maintenance is required of any ladder exposed to fire, subjected to damaging chemicals, involved in a fall or collision, or which has become coated with oil or grease.
3. When not in use, ladders will be stored where they are protected from potential damage by collision, temperature, moisture, etc.
4. Users will return ladders to proper storage location when the job is completed.
5. Ladders will not be painted.

30.6 Exhibits/Attachments

Not applicable.

31. Lead Abatement

31.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for the removal of lead or where lead-containing coatings may be disturbed. Although demolition of lead containing structures is not anticipated for construction of the Facility, lead may be present in debris, abandoned or to-be relocated utilities, etc. If lead abatement is necessary, it will be conducted in accordance with WAC 296-155-176.

31.2 Definitions

Not applicable.

31.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual.

31.4 General Requirements

If lead is found at any concentration in coatings, paints, or other materials to be disturbed, the L&I requires worker notification of the potential hazard. Furthermore, the contractor must follow proper worker health and safety precautions. Construction contractors should be informed of the presence of lead paint, provided with the any testing or survey results, and to take appropriate health and safety measures, as required by law. Work must comply with 29 CFR 1926.62 and WAC 296-155 and 296-26 regulations. Where lead abatement is going to occur, a licensed lead contractor must conduct the lead removal work.

Representative samples (by weight proportion) of each demolition waste stream should be analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) to determine if the waste stream constitutes a dangerous waste regulated pursuant to Chapter 173-303 WAC. If a material is recycled it is not a waste and a TCLP determination maybe unnecessary. However, the recycling facility or end user may have other restrictions.

31.5 Procedures

(a) General Procedures

1. Wear proper protective clothing and respiratory protection prior to entering an abatement/removal area.
2. There will be no eating, drinking, smoking, or any other activity in the work area that breaks the seal of the respiratory protection.
3. Packing, labeling, loading, transporting, and disposing of hazardous waste will be done using sealed DOT-approved drums to avoid the release of lead particulate.
4. Emergency procedures will be in place in the event of a medical or safety emergency inside of the work area.

5. Appropriate safety procedures will be in place to minimize the hazards inside the work area (i.e., Lockout/Tagout of existing dangerous equipment such as mechanical systems or electrical systems must be done prior to beginning impacting work operations).
6. The abatement contractor will have a competent person on-site at all times. The competent person is a person who is capable of identifying existing and predictable lead exposure hazards in the work area(s), in the proposed abatement methods, and the typical symptoms employees will have when overexposed to lead, and who has the authority to take prompt corrective measures. The competent person must be trained and licensed as a "Lead Supervisor" with a current certification. He must also be able to perform the following functions.

    - Monitor the set-up of the work area.
    - Control entry and exit into the work area.
    - Insure that employees are adequately trained in the use of engineering controls, proper work practices, proper personal protective equipment, and decontamination procedures.
    - Insure that employees use proper engineering controls, proper work practices, proper personal protective equipment, and proper decontamination procedures.
    - Check for rips and tears in work suits, and insure that they are repaired immediately or discarded and replaced.

7. The abatement contractor will have all workers trained and certified as "Lead Workers". Certification must be current.

(b) Disposal Activities and TCLP Sampling

1. A representative sampling of the waste will be collected. It will be at least 100 grams, and represent the relative proportions of waste components. The results will be analyzed using Lead Toxic Characteristic Leaching Procedure (TCLP) protocol.
2. If the TCLP results are greater than or equal to 5.0-PPM lead, then the following disposal protocol must be followed:

    - The contractor must package all lead waste in drums approved by the U.S. Department of Transportation (DOT). The subcontractor must comply with DOT CFR 49 and EPA CFR 40 as well as applicable OSHA and WISHA requirements.
    - Waste drums will be filled in such a way that at least 3 to 5 inches of space remains at the top of the drum to the lid.
    - The subcontractor must label all generated waste drums as hazardous.
    - Any hazardous waste water (i.e. from the shower and used in cleaning, and greater than 5.0 ppm lead content as determined by the TCLP analysis) will be drummed as lead waste.
    - Copies of manifests for each drum must be provided to the Project Manager.

(c) Air, Wipe, and Soil Sampling.

1. The contractor will employ an independent industrial hygiene consultant and laboratory to perform air, wipe, and soil sampling.
2. The laboratory used will be a current proficient participant in the American Industrial Hygiene Association/National Institute of Occupational Safety and Health (AIHA/NIOSH) PAT Program for the analysis of Lead.
3. The consultant performing the sampling will meet all of the following criteria as defined:

    - Certified Industrial Hygienist; or
    - Industrial Hygienist with experience in the monitoring of lead abatement projects.

4. Air sampling and analysis methods will be as per NIOSH 7082. Air sampling results must be delivered to the Contractor within three working days. The air sampling results will include the signatures of the sampler, the analyst, and the Certified Industrial Hygienist.

5. Wipe sampling will be performed prior to and after demolition of lead-based paint materials.
   - Locations of pre-demolition and post-demolition wipe samples will be taken as follows:
     - At least 3 wipe samples from inside the work area;
     - One exterior work area sample; or
     - Taken, as contract specifications require.
   - The clearance criteria is as follows:

Substrate	Clearance Level (ug/m3)
Bare and carpeted floors	200
Exterior concrete and other rough surfaces	800

   - Wipe sample results will be submitted to the Contractor within seven working days. The wipe sample results must include signatures of the sampler, the analyst, and the CIH.
6. Soil Sampling. There will be a baseline conducted prior to demolition activities. After demolition, there will be one exterior composite soil sample per work area. Soil sampling does not apply if there is no soil. Soil sample results must be submitted to the Contractor within seven working days. The clearance criteria is the higher of:
   - 2,000 ug/g; or
   - Baseline lead level in the soil.

31.6 Exhibits/Attachments

Not applicable.

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32. Lock and Tag Program

32.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform equipment lockout and tagout operations in accordance with the provisions of WAC 296-155-429.

32.2 Definitions

(a) Danger Tag. A numbered tag stating "DANGER" on both sides in white letters on a red, white, and black background with specific instructions to protect personnel working on equipment and/or systems.

(b) Energy Source. Any electrical, mechanical, hydraulic, pneumatic, chemical, radiation, thermal, or compressed gas energy source; energy stored in springs; and potential energy from suspended objects (gravity) that may injure personnel, cause property damage, and/or cause a release of hazardous substance to the environment.

(c) Isolation. A physical activity using a device that prevents the transmission or release of energy. Examples of devices used to isolate equipment/systems include, but are not limited to: restraint blocks, electrical circuit breakers, disconnect switches, fuses, slip gates, slip blinds, or double valves. Control circuit devices, motor controllers, etc., are not acceptable isolation devices.

(d) Locking Device. A device that utilizes a lock, key, and identification number to hold an energy isolation device in the safe position for the purpose of protecting personnel.

(e) Tag Disposal. The act of returning all approved and removed tags to the manager, supervisor, or engineer, who then destroys the tags to prevent reuse.

32.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual.

32.4 General Requirements

(a) A Lock and Tag Program will be established whenever the release of energy during major replacement, repair, renovation, or modification of machines or equipment, or during installation of new machines or equipment may cause injury to personnel, create property damage, or release a harmful substance to the environment.

(b) Where design permits, a lock will be applied in support of a "DANGER" tag to ensure the energy source is kept isolated.

(c) No device will be operated with tag or lock attached regardless of circumstances.

(d) In an emergency, or if the person who placed the tag is not available, the project manager and/or the Site Superintendent will have the authority to remove the danger tags and locks ONLY AFTER POSITIVELY DETERMINING THAT THE EQUIPMENT OR SYSTEM IS SAFE FOR OPERATION AND THAT ALL PERSONNEL ARE IN THE CLEAR.

(e) Personnel deviating from these instructions, or unauthorized persons removing danger tags, will be subject to disciplinary action that may include their removal from the project.

(f) Where possible, isolation devices will provide visible indication of the position of the device, by using push buttons, selector switches, or other types of position indicators of the circuit control device.

(g) After removal, the tag will be destroyed. Simply placing the tag in a trash can does not constitute proper tag disposal. Potentially contaminated tags will be disposed of at the controlled entry point to the site.

32.5 Implementation

(a) Use of Locks and Tags.

1. Locks and "DANGER" tags will be installed by authorized personnel. If locks cannot be used, an alternate method of isolating the system must be implemented. A tag will always be used in conjunction with the locking device or system.
2. Affected employees, and contractors if applicable, will be notified of the placement of locks/tags prior to locking out the equipment for repair or service work.
3. The authorized individual will install the lock and tag on the equipment or system requiring the energy source to be controlled. In operations where more than one individual is working on the equipment or system, each authorized individual will install a lock and tag. The authorized employee will retain the key to each lock he/she places.
4. The individual installer will verify that the equipment or system has been properly isolated. Verification will be accomplished by operating or testing the equipment or system for energy release. If there is any doubt regarding the isolation of the equipment or system, the field safety and health staff will be contacted.
5. The required service/maintenance work will then be performed. If the required work extends over a single work shift, and will be continued by craft workers on multiple shifts, a system that guarantees the safe transfer of energy control between shifts will be implemented.
6. After the service/maintenance work is completed, a physical check will be conducted of the area to ensure all personnel working on the equipment or system and all affected employees and contractors are accounted for and have been notified of the imminent reenergizing of the equipment before the authorized employee who installed the lock and tag removes them for the area/activity under his/her control.
7. The installer will return the lock to the designated area cabinet location, enter into the logbook the date when the lock and/or tag were removed, then destroy the tag.

(b) Lock and Tag Cabinets.

1. Lock and tag cabinets will be provided at central locations in each area. The area manager or designee will control the cabinets.
2. Each cabinet will contain numbered locks and tags.
3. The cabinets will be locked, and the key of one cabinet will not open the lock of any other cabinet.

(c) Lock and Tag Requirements. The Project Manager, or designee, will specify the physical appearance of the locks and tags to be used on the project. Tags will contain a space to identify the person placing the tag. Locks and tags will be sufficiently strong to resist inadvertent removal or casual vandalism, and will not be significantly affected by the ambient environmental conditions.

1. The area manager or designee will number each lock (serial numbers on locks can be used) before placing it in a cabinet to ensure it can be accounted for. The area manager or designee will keep a list of lock numbers.
2. The key of one lock will not fit any other lock. Master keys are not permitted.
3. Each tag will be numbered and logged in the logbook by the area manager/designee before being placed in a cabinet to ensure accountability.

4. The authorized individual removing the tag from a cabinet will complete the information required on the tag, such as:
    - Log book location.
    - Job identification.
    - Name of installer and signature (manager/supervisor/foreman).
    - Component tagged.
    - Component position.
    - Any special instructions to employees.

(d) Log Book Requirements.

1. A logbook entry is required to account for each tag and lock issued.
2. Each time a lock and tag is removed from a cabinet, the following information will be recorded in the logbook:
    - Tag number.
    - Lock number.
    - Work order.
    - Craft number.
    - Location of the tag and/or lock.
    - System or component affected.
    - Date and time when lock and/or tag were attached.
    - Name of individual using lock and tag.
    - Date and time lock and/or tag were returned to cabinet.

32.6 Exhibits/Attachments

Lock and Tag Log, Exhibit I

The Lock and Tag Log will be used for documenting activities associated with this procedure. Requirements for record distribution, retention, and maintenance will be established within applicable project planning documents.

Exhibit I. Lock and Tag Log

Tag Number	Lock Number	Work Order	Craft Number	Location Used	Component Affected	Date/Time Attached	Manager/Supervisor Foreman	Date/Time Returned

33. Microbial Remediation Program

33.1 Top Ten Things You Should Know About Mold

1. Potential health effects and symptoms associated with mold exposures include allergic reactions, asthma and other respiratory ailments.
2. There is no way to eliminate mold in the indoor environment; the way to control indoor mold growth is to control moisture.
3. If mold is a problem in building, clean up the mold and eliminate sources of moisture.
4. Fix the source of the water problem or leak to prevent mold growth.
5. When porous materials get wet, reduce indoor humidity (to 30-50%) to decrease mold growth by:

   - Increasing ventilation;
   - Using air conditioners and de-humidifiers;
   - Venting bathrooms, dryers, and other moisture sources to the outside; and
   - Using exhaust fans whenever cooking, dishwashing, and cleaning.

6. Clean and dry any wet building materials and furnishings within 24-48 hours to prevent mold growth. If the materials cannot be dried out in 48 hours, remove and replace them.
7. Clean mold off hard surfaces with an anti-microbial treatment and dry completely. Porous materials such as ceiling tiles, drywall, carpet, etc., that are moldy, must be removed and replaced.
8. Prevent condensation: Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof, or floors) by adding insulation.
9. In areas where there is a perpetual moisture problem, do not install carpeting.
10. Molds can be found almost anywhere; they can grow on virtually any substance, providing moisture is present. There are molds that can grow on wood, paper, carpet, and foods.

33.2 Suggested Water Intrusion and Quality Control Methods

Value Engineering Items to Be Avoided

1. Elimination of façade mock-up and testing – (especially lab mock-ups)
2. Downgrading of flashing systems or elimination of flashing elements
3. Elimination of window sub-sills or receptors
4. Downgrading of window systems – (e.g. drainage system to barrier system or elimination of thermal breaks)
5. Downgrading of roofing systems
6. Downgrading of horizontal or below grade waterproofing, including expansion joints
7. Downgrading of air/moisture barrier (e.g. felt paper for tyvek)
8. Elimination of vapor barriers – (especially slab on grade)
9. Elimination of secondary line of defense – (e.g. 2nd line of sealant)
10. Substitution of EIFS or GFRC for precast or masonry

Peer Review of Contract Documents

1. Window & Façade Systems
2. Interface Details
3. Flashing
4. Vapor Barrier
5. Roof Systems
6. Waterproofing Systems
7. HVAC Systems
8. Plumbing Systems

QC Plan

1. Pre-Installation Conferences
2. Inspections
3. Check Lists

4. Documentation – Photographs, Daily Reports
5. Ceiling and Wall Close-In Inspection Procedures

Water Intrusion Control Plan

1. Require all subcontractors to keep all interior materials dry – prior to, during and after installation.
2. Do not permit the installation of wet building materials.
3. Report any water damage, leaks or water intrusion to the Site Superintendent immediately.
4. Dry out or remove any water damaged materials immediately.
5. Build in strict accordance with the Project Plans and Specifications.
6. Immediately alert the Architects to designs, which we are aware of, that may allow water intrusion or moisture accumulation.

Temporary Measures

1. Temporary Roofing Plan (possible temporary roof on intermediate floors)
2. Temporary Window Enclosures (Visqueen)
3. Hold Drywall ½" Above the Slab
4. Temporary Dams around Elevator Shafts, Openings, etc.
5. Install Greenboard in Shaft Walls
6. Cover Tops of Exterior Walls During Construction
7. Ensure That All Roof Drains are Properly Installed and Tied Into the System
8. Install Curbs Around Busduct Openings
9. Protect Ends of Insulated Duct Work
10. Proper Storage of Materials
11. Have Industrial Fans On-Site to Immediately Address Ponding Water, etc.
12. Temporary Humidity Control

34. Inspections by the Washington Department of Labor and Industries

34.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to prepare for and provide the necessary assistance in project inspections by the Washington Department of Labor and Industries conducted under WAC 296-900-120.

34.2 Definitions

(a) Compliance officer. An official of the Washington Department of Labor and Industries (L&I) that has enforcement authorization designated by the Washington Industrial Safety and Health Act (WISHA).

(b) Inspection. The process, through observation and investigation, by which matters of compliance with the safety and health standards contained in the L&I regulations codified in Washington Administrative Code (WAC) are evaluated.

(c) Washington Department of Labor and Industries (L&I). A state organization whose purpose is to assure safe and healthful working conditions for employees, by authorizing enforcement of the standards developed under WISHA, namely the L&I regulations codified in Washington Administrative Code (WAC).

(d) Point of contact. The “agent in charge” on the project; either the Project Safety Manager or the Site Superintendent.

(e) Scope of the inspection. The type of inspection and whom the inspection will affect (see 7(b).1 below).

34.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual.

34.4 General Requirements

(a) Preparation for an inspection. L&I will give no advance notice; therefore several steps must be taken to prepare for an inspection.

1. In the event of an inspection, the SHE&Q manager and Site Superintendent must be contacted.
2. Site Superintendent will be the point of contact for the L&I inspection. The Site Superintendent may request a delay in beginning an inspection until a Contractor Corporate Safety Manager is present.
3. All documents that are requested, as well as interviews, must go through the point of contact. All records provided to the L&I inspector for review must be specifically identified and logged.

4. Upon arrival of the compliance officer, he/she will be directed to the jobsite point of contact. Only persons requested to be interviewed by the compliance officer and supervisory personnel attending the inspection should communicate with the will compliance officer.

34.5 Reasons for OSHA Inspections

The following are various reasons why L&I may enter a project for an inspection:

(a) Any report of a fatality, an incident that will hospitalize 5 or more employees, or an imminent danger situation.

(b) A formal written complaint submitted to L&I by an employee or employee representative.

(c) A referral sent to L&I from another government agency, such as building inspectors, Fire Marshall, District Attorney, etc.

(d) If a jobsite or incident on a project is publicized by the media.

(e) Failure to respond to a letter sent by L&I requesting a response to an informal, unwritten, employee complaint.

(f) Random selection by L&I.

(g) A follow-up inspection to ensure violations from a previous inspection have been corrected.

(h) Selection as part of a general schedule of inspections.

(i) Any operation covered by a special emphasis program targeting high hazard areas that require such an inspection.

34.6 Preparation for the Inspection

(a) Arrival of the compliance officer.

1. When a compliance officer arrives on the project and intends to perform an inspection, the point of contact must be notified immediately. The point of contact will meet with the compliance officer before the inspection begins and will verify the compliance officer's credentials. This must be done in a professional manner and not used as a delaying tactic. Compliance officers should have an identification card with their photograph on their person. If the point of contact is unsure whether or not the compliance officer is an authorized representative of a state or federal agency he should contact the Contractor's Safety Manager before allowing the inspection process to continue.
2. Once the point of contact is satisfied with the compliance officer's credentials, there are two courses of action to choose from:
   - Allow the compliance officer to begin the inspection process; or
   - Require a warrant before the inspection can begin.

NOTE: If the Point of Contact feels that a warrant may be necessary, the ultimate decision must be made by the Contractor's Safety Manager.

3. If the point of contact is not present, upon arrival the compliance officer may be asked to delay the inspection until the appropriate point of contact person arrives. Ensure that the compliance officer knows this is not a delay tactic and that no request for a warrant is being made.

(b) The opening conference. Before the actual inspection begins, an opening conference should be held. The objective of this conference is to provide affected employers with the scope and objectives of the inspection.

1. The opening conference is required by law, and the compliance officer will tell you what type of inspection he intends to perform. These types include:
    - General inspection.
    - Imminent danger.
    - Fatality/catastrophe investigation.
    - Complaint investigation.
    - Referral inspection.
    - Special emphasis inspection.
    - Follow-up inspection.
    - Focused inspection.
2. At the opening conference the compliance officer will attempt to gather all prime and subcontractors on the project.
3. If a company is not represented at the opening conference, it does not negate the validity of any citation that may be issued.
4. Union representatives do not have an absolute right to be present during the opening conference.
5. The compliance officer will gather specific information from each company, including, but not limited to:
    - Establishment name and address.
    - Central office address and telephone.
    - Number of persons employed by the company.
    - Completed OSHA 300 Form.
    - Names of employees and employee representatives.
6. All information must be given to the compliance officer that is requested. However, do not issue information or materials that is not requested. All records provided to the compliance officer for review must be specifically identified and logged. If copies are requested by the compliance officer, ask for a written document request and explain that documents provided in writing will be provided as soon as practicable.
7. Any information, operation, or other process that may be considered a “trade- secret” or “business confidential” will be noted and discussed.
8. If possible, the compliance officer should furnish the employer with the following items at the opening conference:
    - Copies of the OSHA Poster.
    - OSHA 300 Forms.
    - OSHA standards, as well as other applicable laws, regulations, etc.

NOTE: If such documentation is not provided, it should be requested after the inspection.

9. At the opening conference, an agreement will be made with the compliance officer on the procedures that will be allowed during the course of the inspection. These include, but are not limited to:
    - Procedures for controlling the production of documents.
    - Taking “side-by-side” photographs or samples and the work permits that may be required.
    - The identification and handling of trade secrets or business confidential information.

34.7 The Inspection

(a) Scope of the inspection. Once the scope of the inspection is determined, the appropriate action will be taken:

1. Inspections based on complaints of alleged imminent danger or other violations will be limited to the area of the alleged violation.

2. Fatality/accident investigations will be limited to the specific area of the accident. However, the L&I may authorize an expanded inspection if the inspection record of the employer indicates a history of “significant violations”, or for other “legitimate reasons.”
3. Referral inspections will be limited to only the specific items addressed in the original inspections.
4. Special emphasis inspections will be limited to the areas covered by the program.
5. In all cases, the compliance officer will be escorted along the most direct route to and from the area to be inspected.

NOTE: Do not allow any compliance officer to exceed the original and necessary scope of the inspection. Any attempt by L&I to broaden the inspection to include other issues or areas of the project besides those that were part of the initial purpose of the inspection will be thoroughly discussed in the opening conference and, if possible, negotiated. The compliance officer will be required to conduct a new opening conference to explain any activity that goes beyond the scope of the original inspection.

(b) Complaints.

1. Formal. Written complaints by employees or employee representatives that allege hazards to employee safety and/or health.
2. Informal. Verbal complaints based on alleged hazards.

(c) The walk around.

1. The compliance officer will perform a walk around inspection.
2. The Contractor’s point of contact, employee representative, and union representatives have the right to accompany the compliance officer during the walk around.
3. The walk around inspection must be restricted to the scope of the inspection that was discussed in the opening conference.
4. If the inspection is being conducted under a warrant do not allow the inspector to exceed the scope of the warrant. Also, make sure to obtain a copy of the warrant.
5. If an alleged violation or hazard is discovered during the walk around, ensure that the hazard is immediately abated (corrected).
6. During the walk around inspection, compliance officers are legally authorized to talk to employees on the jobsite.
7. Do not allow private supervisor interviews unless a subpoena or a court order authorizing same has been appropriately issued. However, even if the inspection is conducted under a warrant that authorizes private interviews, Contractor and its subcontractors still have certain rights. Before any private interviews are conducted, an attorney will be contacted by the Contractor to appropriately handle this issue.
8. Employees will not be forbidden to talk to the compliance officer on the project, but they must be aware that they are under no obligation to do so.

(d) During the inspection.

1. During the inspection, careful and detailed notes must be taken, specifically listing questions asked and comments made. These notes must be taken at the opening conference, continued during the actual inspection, and at the closing conference. The following must be noted and documented:
   - The name, address, and telephone number of the compliance officer.
   - A list of the persons present at the opening conference and during the walk around.
   - A concise, accurate summary of statements made by all present.
   - The details of comments made by the compliance officer when observing alleged violations.
   - Any statements made during the closing conference.
   - Any action taken by the point of contact or agent in charge during the inspection.
2. A point-and-shoot camera or video camera must be used by the point of contact to take the same photographs or video footage that the compliance officer takes at the same time and at the same angle.
3. Any undisputed violations that are pointed out during the inspection will be immediately corrected and/or abated, but no fault will be admitted.
4. Never leave the compliance officer unattended and never argue with the compliance officer.

(e) Closing Conference.

1. At the conclusion of the inspection, the compliance officer will hold a closing conference. At this point he/she will separately inform all contractors involved of any alleged violations.
2. The compliance officer will reference standards that may have been violated on the jobsite.
3. The compliance officer will also inform referral to another compliance officer, such as an industrial hygienist.
4. Request the compliance officers notes from the inspection, this may be honored, although not required by L&I.
5. Immediately after the compliance officer leaves, as much information about the alleged violations should be documented, including any agreements or disagreements with the compliance officers statements, additional pictures from different vantage points, and other relevant notes.
6. Every employee that was interviewed by L&I should be re-interviewed by an appropriate Contractor representative after the inspection.

(f) Citations. If a citation is received after the inspection it must be posted on the project conspicuously so that it is in plain view of all employees for a period of three days or until the alleged violation is corrected, whichever is longer.

34.8 Exhibits/Attachments

OSHA Checklist, Attachment 19

Attachment 19. OSHA Checklist

Checklist for the Construction Industry

ITEM	YES	NO
OSHA Form 300: Are occupational deaths, injuries and illnesses recorded and reported as required? (Article I, Subarticle III, Section 302)		
OSHA Form 300A: Is the annual summary portion of the OSHA 300 completed by February 1? Is the summary posted from February 1 through April 30? (Article I, Subarticle III, Section 305)		
OSHA Form 301 or other records with same information as OSHA Form 301: Is a supplementary individual record of each occupational injury and illness completed within 7 calendar days after a case occurs? (Article I, Subarticle III, Section 304)		
Is the S.C. Department of Labor, Licensing and Regulation (LLR) poster SCLD-5-SH "Safety and Health Protection on the Job" posted in a conspicuous place? (Article I, Subarticle V, Section 502A)		
Is SC OSHA notified within eight hours of any employment fatality or accident which results in in-patient hospitalization of three or more employees? (Article I, Subarticle III, Section 308)		

General Safety and Health Provisions

ITEM	YES	NO
Safety and Training Education: Is each employee instructed in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury? 1926.21(b)(2)		
Are employees who are required to handle or use poisons, caustics, and other harmful substances instructed in their safe handling and use, and made aware of the potential hazards, personal hygiene, and personal protective measures? 1926.21(b)(3)		
Are employees who are required to enter confined or enclosed spaces instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment? 1926.21(b)(6)(i)		
Housekeeping: Is form and scrap lumber with protruding nails and all other debris kept cleared from work areas, passageways, and stairs? 1926.25(a)		
Personal Protective Equipment: Are employees required to wear appropriate personal protective equipment when there is an exposure to hazardous conditions? 1926.28(a)		

Occupational Health and Environmental Controls

ITEM	YES	NO
Medical Services and First Aid: Where life threatening injuries could occur, is a facility for the treatment of injured employees located within three minutes of the jobsite? If not, is there an employee(s) trained in first aid at the site? 1926.50(c)		
Are telephone numbers of physicians, hospitals, or ambulances conspicuously posted? 1926.50(f)		
Sanitation: Are potable (drinking) water and adequate toilet facilities available at the jobsite? 1926.51		
Occupational Noise Exposure: Are the regulations concerning protection of employees against the effects of noise exposure understood and complied with? 1926.52		
Gases, Vapors, Fumes, Dusts, and Mists: Does the employer assure that no employee is exposed to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the *"Threshold Limit Values of Airborne Contaminants for 1970"* of the American Conference of Governmental Industrial Hygienists? 1926.55(a)		
Illumination: Are employees provided with light not less than the minimum illumination intensities listed in Table D-3 while any work is in progress? 1926.56 (a)		
Ventilation: Does the employer ensure that concentrations of hazardous substances such as dusts, fumes, mists, vapors, or gases produced in the course of construction work does not exceed the limits specified in 1926.55(a)? 1926.57(a)		
Hazard Communication: Does the employer have any hazardous materials on site? If so: Does employer have a written Hazard Communication Program? 1910.1200(e)(1)		
Does employer have a complete list of hazardous chemicals used on site at the worksite? 1910.1200 (e)(1)(i)		
Does the employer either: (1) Provide other employers who may have exposed employees with SDS or (2) Make SDS available at a central worksite location? 1910 .1200(e)(2)		
Does the employer inform other employers of any precautionary measures they may need to take? 1910.1200 (e)(2)(ii)		
Does the employer inform other employers of labeling system? 1910.1200(e)(2)(iii)		
Are containers of hazardous chemicals, labeled, tagged, or marked? 1910.1200(f)(1)		
Do labels include product identifier, signal word, hazard statement, pictogram, precautionary statement, and the name, phone no., and address of manufacturer if shipped out? 1910.1200(f)(1)(i-vi) Note*: Labels need not be used on portable containers to be immediately used by employee making transfer.*		
Does the employer have an SDS for each hazardous chemical on site? 1910.1200(g)(1)		
Are SDS available to employees in their work area? 1910.1200 (g)(8)		
Are employees trained in the hazards of chemicals in their work area? 1910.1200(h)		
Does training include the following: Requirements of the Hazard Communication Standard? 1910.1200(h)(1)		
Any operation in employee's area where hazards chemicals may be present? 1910.1200(h)(2)(ii)		
Where is the Hazard Communication Program located and is it available to all employees? 1910.1200(h)(2)(iii)		
What methods are used to detect a chemical release? 1910.1200(h)(3)(i)		
Have all physical and health hazards related to chemicals on the jobsite been identified? 1910.1200(h)(3)(ii)		

ITEM	YES	NO
Details of employers Hazard Communication Program? (Labeling, SDS, and How to obtain and use information) 1910.1200(h)(3)(iv)		
Does employer have a method of informing employees of the hazards of non-routine tasks, unlabeled pipes, etc? 1910.1200(e)(1)(ii)		

ITEM	YES	NO
Lead: Are employers who engage in construction work occupationally exposed to lead? 1926.62(a) Typical/common operations which involve potential employee exposure to Lead: Application of coating materials (paints, primers) to surfaces, particularly spray application Removal of lead containing coatings (surface preparation operations which involve, abrasive blasting, scraping, grinding, heat gunning etc.) Lead burning Welding, brazing, torch cutting, torch burning, and soldering on or with materials containing lead Rivet busting Demolition of structures where lead containing paint, mortars, or other materials containing lead (Note) To determine whether or not there is a lead exposure hazard, the following resources should be consulted: (1) MSDS sheets of materials used (paint, welding materials, etc.), (2) Visual observations of presence of suspect materials (paints used for corrosion resistance, red, yellow, or orange paints), (3) Environmental survey reports. Bulk samples of suspect materials should be tested to determine if material contains significant amounts of lead.		
ITEM	**YES**	**NO**
Permissible exposure limit (PEL): Are employers exposed to lead at concentrations greater than 50ug/m3 averaged over an 8-hour period? 1926.62(c)(1)		

ITEM	YES	NO
Exposure assessment: If the presence of lead is indicated or construction work involving work listed above is being performed:		
Has a determination of employee exposure to lead been performed by utilizing personal air sampling on a representative number of exposed employees to specific lead related tasks over an eight hour time weighted average? 1926.62(d)		
If no, the employer must implement interim protective measures as follows:		
Provide respiratory protection specified for operation Provide protective clothing (coveralls, head covers) Provide hand washing facilities Provide biological monitoring (Blood sampling and lead and ZPP analysis) Provide training program to inform employees of hazards of exposure to lead and and necessary measures employees must follow to protect themselves		
1926.62(d)		
If YES, then is level of employee eight-hour time weighted exposure greater than 30 ug/m3 (action level)?		
Then employer shall:		
Provide a medical surveillance program for affected employees. 1926.62(j)		
Provide training program. 1926.62(l)		
Is exposure level greater than 50 ug/m3 (PEL)? Then in addition, the employer shall:		
Implement engineering and work practice controls to the extent feasible. 1926.62(e)		
Develop a written compliance program. 1926.62(e)		
Provide appropriate respiratory protection and appropriate practices governing the use of respirators in accordance with 1926.62(f).		
Provide and require the use of hygiene facilities (change rooms, showers and hand washing facilities). 1926.62(i)		
Ensure that employees do not eat, drink, smoke, or apply cosmetics in areas where employees are exposed to lead above the PEL. 1926.62(i)(4)		
Maintain all surfaces as free as practicable of lead. 1926.62(h)(1)		
Ensure that vacuums used to collect lead contaminated dust are equipped with HEPA filters. 1926.62(h)(4)		
Ensure that compressed air is not used to remove lead from surfaces unless used in conjunction with ventilation systems designed to capture/contain dust generated from process. 1926.62(h)(5)		

ITEM	YES	NO
Negative initial determination: Has employer developed a written record which documents employees determination that no employee is exposed to airborne concentrations of lead at or above the action level? Does this record include at least the information specified in 1926.62(d)(3)(i)? 1926.62(d)(5)		
Engineering and work practice controls: Are engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead to or below the PEL to the extent that such controls are feasible? 1926.62(e)(1) Examples of engineering controls: Substitution with materials that do not contain lead (paints) Use of dust collection/local exhaust systems Use of negative air containment systems Use of an alternative method of application		
Employee information and training: In addition to the requirements set forth in 29 CFR 1910.1200, OSHA's Hazard Communication Standard for the construction industry, does the employer communicate information concerning lead hazards, including but not limited to, warning signs and labels, safety data sheets (SDS), and employee information and training? 1926.62(l)(1)(i)		
Does the content of the employers training program include at least those elements addressed in 1926.62(l)(2)(i-viii)? 1926.62(l)(2)		

Personal Protective and Life Saving Equipment

ITEM	YES	NO
Head protection: Are protective helmets (hard hats) worn at all times where there is a possible danger of head injury from impact, falling or flying objects, or electrical shock and burns? 1926.100		
Hearing protection: Are ear protection devices provided and used wherever it is not feasible to reduce noise levels or where a deviation to exposures levels specified in Table D-2, Permissible noise exposure in 1926.52 exist? 1926.101		
Eye and Face protection: Are employees provided with and use eye and face protection when machines or operations present potential eye or face injury from physical, chemical, or radiation agents? 1926.102 *Note: See Table E-1*		
Foot protection: Is the employer requiring the wearing of appropriate personal protective equipment by employees in all operations where there is an exposure or potential exposure to hazardous conditions such as falling or rolling objects, objects piercing the sole, or electrical hazards? 1926.28 (a), 1926.96, 1910.136(a) & (b)		
Selection, Issuance, Use and Care of Respirators: Are employers provided with and use appropriate respiratory protective devices in emergencies or when controls required by Subpart D of this part either fail or are inadequate to prevent harmful exposure? 1910.134(a)(1)		
Working over or near Water: Are employees working over or near water provided with and use U.S. Coast Guard-approved life jacket or buoyant work vests and are ring buoys with at least 90 feet of line and at least one lifesaving skiff provided? 1926.106		

Fire Protection

ITEM	YES	NO
General Requirements: Has a fire protection program been developed? 1926.150(a)(1)		
Is firefighting equipment conspicuously located? 1926.150(a)(3)		
Is firefighting equipment periodically inspected and maintained in operating condition? 1926.150(a)(4)		
Is firefighting equipment selected and provided according to the listed requirements? 1926.150(c)		
Have employees been trained not to use gasoline to start fires to burn trash, etc.?		
Has an educational program to familiarize employers with the general principles of fire extinguishers use and the hazards involved been provided? 1926.150(a)(1)		
Flammable Liquids: Are all flammable liquids stored and handled in approved containers and portable tanks? 1926.152(a)(1)		
If more than 25 gallons of flammable liquid is stored in a room, is it in an approved cabinet? 1926.152(b)(1)		
Is at least one portable fire extinguisher with a rating of not less than 20-B:C located within 75 feet of each pump, dispenser, underground fill pipe opening and lubrication or refueling service area? 1926.152(g)(11)		

Signs, Signals and Barricades

ITEM	YES	NO
Accident prevention signs and tags: Are accident prevention signs and tags visible at all times when work is being performed and/or removed or covered promptly when the hazard no longer exists? 1926.200(a)		
Accident prevention signs and tags: Do all traffic control signs or devices used for workers' protection conform with Part IV of the Manual of Uniform Traffic Control Devices (MUTCD) 1988 edition revision 3 or Part VI of the MUTCD Millennium Edition? 1926.200(g)(2)		
Signaling: Is signaling by flaggers and the use of flaggers, including warning garments worn by flaggers, in conformance with Part vi of the MUTCD(1988 Edition, Revision 3 or the Millennium Edition) ?1926.201(a)		
Barricades: Are barricades used for protection of workers in conformance with Part VI of the MUTCD (1988 Edition, Revision 3 or the Millennium Edition) ?1926.202		

Materials Handling, Storage, Use, and Disposal

ITEM	YES	NO
General requirements for storage: Are materials which are stored in tiers either stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse? 1926.250(a)(1)		
Are materials stored more than 6 feet from any hoistway or inside floor opening and more than 10 feet from any exterior walls that do not extend above the top of the stored materials? 1926.250(b)(1)		
Are materials being stored beneath powerlines being moved or unloaded?		
Are safe procedures utilized when unloading pipes?		
Are aisles and passageways kept clear and in good repair to provide for the free and safe movement of material handling equipment? 1926.250(a)(3)		
Rigging equipment for material handling: Do alloy steel chain slings have a permanently affixed durable identification stating size, grade, capacity, and manufacturer? 1926.251(b)(1)		
Are monthly inspection records being maintained on all alloy steel chain slings? 1926.251(b)(6)(ii)		
Do any hooks, rings, oblong links, pear-shaped links, coupling links, and other attachments have a rated capacity at least that of the chain? 1926.251(b)(2) *Note: Job or shop hooks and links or makeshift fasteners are not to be used 1926.251(b)(3)*		
Is all rigging equipment for material handling inspected prior to use on each shift? 1926.251(a)(1)		
When forming eyes in wire rope are U-bolt clips properly spaced and installed? 1926.251(c)(5) and (c)(5)(i)		
Disposal of waste materials: Are waste materials disposed of properly? 1926.252		

Tools, Hand and Power

ITEM	YES	NO
General requirements: Are hand and power tools furnished by employer or employee maintained in a safe condition? 1926.300(a)		
Are power tools, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, and chains properly guarded? 1926.300(b)(1) & (2)		
Power-operated hand tools: Are electric power operated tools equipped with proper ground or are they double-insulated? 1926.302(a)		
Are employees using foot protection when using jackhammers or tampers?		
Eye and Face protection: Are employees provided with eye and face protection when machines or operations present potential eye or face injury from physical, chemical, or radiation agents? 1926.102 *Note: See Table E-1*		
Have all employees who operate power actuated tools been trained in the use of the particular tool they use? 1926.302(e)(1)		
Woodworking tools: Do all portable circular saws have a guard above the base plate and a guard below the base plate that will automatically and instantly return to the covering position when the saw is withdrawn from the work? 1926.304(d)		
Do all circular saws have an exhaust hood or a guard to prevent accidental contact with the saw blade if there is a possibility of contact either beneath or behind the table? 1926.304(d) ANSI 01.1-1992 (R 2002)		
Do hand-fed circular rip saws have an upper blade guard? 1926.304(i) ANSI 01.1-1992 Section 2.2.4		
Do hand-fed circular rip saws have a spreader? 1926.304(i) ANSI 01.1-1992 Section 2.2.4)		
Do hand fed circular rip saws have non-kickback fingers or dogs? 1926.304(i) ANSI 01.1-1992 Section 2.2.4		
Do all radial arm saws have upper and lower blade guards? 1926.304(g) ANSI 01.1-1992 Section 2.2.3		
Are radial arm saws equipped with an adjustable stop or sufficiently wide table so that saw blade does not pass the edge of the table? 1926.304(g) ANSI 01.1-1992 Section 2.2.3		

Welding and Cutting

ITEM	YES	NO
Gas welding and cutting: When transporting or storing compressed gas cylinders, are cylinders secured and caps in place? 1926.350(a)(1)		
Are cylinders secured in a vertical position when transported by powered vehicles? 1926.350(a)(4)		
Are all compressed gas cylinders secured in an upright position at all times? 1926.350(a)(9)		
Is the employer sure that all cylinders, full or empty, are never used as rollers or supports? 1926.350(c)(1)		
Are employees instructed in the safe use of fuel gas? 1926.350(d)		
Are torches inspected for leaking shut off valves, hose couplings, and tip connections at the beginning of each shift? 1926.350(g)(2)		
Are oxygen cylinders and fittings kept away from oil and grease? 1926.350(i)		
Are oxygen and fuel gas regulators in proper working order? 1926.350(h)		
Arc welding and cutting: Are frames of all arc welding and cutting machines grounded? 1926.351(c)(5)		
Are employees instructed in the safe means of arc welding and cutting? 1926.351(d)		
Are welding and cutting operations shielded by noncombustible or flameproof screen whenever practicable? 1926.351(e)		
Are electrodes removed and electrode holders placed or protected so they cannot make electrical contact with employees when the holders are left unattended? 1926.351(d)(1)		
Fire prevention: Is suitable fire extinguishing equipment immediately available in the work area and ready for instant use? 1926.352(d)		
Are drums, containers, or hollow structures which have contained toxic or flammable substances either filled with water or thoroughly cleaned of such substances, ventilated and tested before welding, cutting, or heating? 1926.352(i)		
Before heat is applied to a drum, container, or hollow structure, is a vent or opening provided to release built up pressure? 1926.352(j)		
Ventilation and protection in welding, cutting, and heating: Is mechanical ventilation system of sufficient capacity and so arranged to remove fumes and smoke and keep the concentration within safe limits? 1926.353(a)(2) and (3)		
When employees are welding, cutting, or heating in confined spaces, is either general mechanical ventilation, local exhaust ventilation, or airline respirators provided? 1926.353 (b) (1) & (2)		
Are employees who are performing any type of welding, cutting, or heating protected by suitable eye protective equipment? 1926.353(e)(2)		
Are employees welding inside of a pipe?		
Are pipes blanked off, and flushed etc. before any welding operations take place?		
Is there a "Hot Work Permit" system followed by your employees?		

Electrical

ITEM	YES	NO
General requirements: Does the employer examine all electrical equipment to ensure that recognized electrical hazards (i.e. exposed live parts, splices in cords, missing ground pins, reverse polarity etc.) are identified? 1926.403(b)(1)		
Are disconnecting means legibly marked to indicate purpose unless located so that purpose is evident? 1926.403(h)		
Is sufficient working space provided to permit safe operation and maintenance of electrical equipment? 1926.403(i)(1)		
Are live electrical parts guarded against accidental contact? 1926.403(i)(2)		
Wiring design and protection: Is polarity of conductors correct? 1926.404(a)(2)		
Are ground fault circuit interrupters used to protect employees? 1926.404(b)(1)(i) If not, is an assured equipment grounding program in place? 1926.404(b)(1)(iii)		
Are all 120-volt, single phase, 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, protected by a ground-fault circuit interrupter(s) GFCI? 1926.404(b)(1)(ii)		
Are outlet devices correctly matched with load being served? 1926.404(b)(2) *See Table K-4*		
Are all electrical circuits and equipment grounded? Is path to ground from circuits, equipment, and enclosures permanent and continuous? 1926.404(f)(6) Are exposed noncurrent carrying metal parts of cord and plug-connected equipment grounded? 1926.404(f)(7)(iv) Are electrical extension cords of the three wire type? 1926.405(a)(2)(ii)(J)		
Are lamps for general illumination protected against breakage? 1926.405(a)(2)(ii)(E)		
Are flexible cords and cables protected from damage? 1926.405(a)(2)(ii)(I)		
Are conductors entering boxes, cabinets, or fittings protected from abrasion and do unused openings in cabinets, boxes, and fittings have covers? 1926.405(b)(1)		
Wiring methods, components, and equipment for general use: Do all pull boxes, junction boxes, and fittings have covers? 1926.405(b)(2)		
Are all cabinets, cut out boxes, fittings, boxes, panel board enclosures, switches, circuit breakers, and switchboards located in wet or damp locations enclosed in weather proof enclosures. 1926.405(e)(1) and (2)		
Are flexible cords and cables used as a substitute for fixed wiring of a structure; run through holes in walls, ceilings, or floors; through doorways or windows; attached to building surfaces; or concealed behind walls, ceilings, or floors? 1926.405(g)(1)(iii)		
Are fixtures and receptacles in wet or damp locations identified for that purpose and installed so that water cannot enter? 1926.405(j)(1)(v) and (j)(2)(ii)		
Hazardous locations: Is all electrical equipment used in hazardous locations either approved for the location or intrinsically safe? 1926.407(b)		
Safety-related work practices: Are electrical cords or cables taken out of service when worn or frayed? 1926.416(e)(1)		
Are contractors/subcontractors (painters) using aluminum extension handles (or ladders) around electrical power lines?		

Scaffolding

ITEM	YES	NO
General requirements. Capacity: Are scaffolds and scaffold components capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it? 1926.451(a)		
Scaffold platform construction: Are scaffold platforms fully planked? 1926.451(b)(1) Does the employer ensure that each platform (on all working levels of scaffolds) is fully planked or decked between the front uprights and the guardrail supports…1926.451(b)(1)(i) and (ii)		
Criteria for supported scaffolds: Where support scaffolds are used with a height to base width (including outrigger supports, if used) ratio of more that four to one (4:1)…does employer ensure that scaffold is restrained from tipping by guying, tying, bracing, or equivalent means? 1926.451(c)(1) and 1926.451 (c)(i-iii)		
Criteria for suspension scaffolds: Are all suspension scaffold support devices, such as outrigger beams, cornice hooks, parapet clamps, and similar devices, resting on surfaces capable of supporting at least 4 times the load imposed on them? 1926.451(d)		
Access: Is safe access to scaffold platforms provided to employees working on scaffolds where cross braces are **not** used as a means of access? 1926.451(e)(1) Are hook-on, and attachable ladders positioned so that their bottom rung is not more that 24 inches (61 cm) above the scaffold supporting level? 1926.451(e)(2)(ii) Are rest platforms provided at 35-foot (10.7m) maximum vertical intervals where supported scaffolds are more than 35 foot high? 1926.451(e)(2)(iii)		
Use: Are scaffolds and scaffold components capable of supporting their maximum intended load or rated capacities, whichever is less? 1926.451(f)(1)		
Are scaffolds inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold's structural integrity? 1926.451(f)(3)		
Fall Protection: Are employees who are working from a scaffold more than 10 feet (3.1m) above a lower level protected from falling to that lower level? 1926.451(g)(1)		
Falling object protection: In addition to wearing hard-hats, are employees provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms or canopy structures that contain or deflect the falling objects? 1926.451(h)(1)		
Additional Requirements: In addition to the applicable requirements of 1926.451(a)-(h), General Requirements…has the employer addressed ***any additional requirements*** which are applicable to specific types of scaffolds? 1926.452(a)-(y)		
Aerial lifts: Are aerial lifts designed and constructed in conformance with the applicable requirements of American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix? 1926.453(a)-(b)		
Aerial Lifts (Extensible & Articulating Boom Platforms): Are workers in aerial lifts equipped with standard guard rails also wearing fall-restraint devices connected to manufacturer suggested tie off points on the boom or basket? 1926.453(b) (2)(v)		
Training Requirements: Are employees who perform work while on a scaffold trained by a qualified person to recognize the hazards associated with the type of scaffold being used and in the understanding of procedures to control or minimize those hazards? 1926.454(a)		

Training requirements: Does training address the nature of electrical hazards; fall hazards; falling object hazards; procedures for dealing with electrical hazards; for erecting, maintaining, and disassembling fall protection systems; falling object protection systems; proper use of the scaffold and proper handling of materials on the scaffold; maximum intended load and load carrying capacities of scaffolds used in the work area? 1926.454(a)(1)-(5)		
Are employees involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person? 1926.454(b)		
Are employees retrained where there is reason to believe that an employee lacks the skill(s) or understanding needed for safe work involving the erection, use, or dismantling of scaffolds? 1926.454(c)		

Fall Protection > 6 Feet

ITEM	YES	NO
General requirements: Is walking/working surface strong enough to support employees and the work to be done? 1926.501(a)(2)		
Are employees on walking/working surfaces with unprotected sides and edges protected by guardrails, safety nets or personal fall arrest systems? 1926.501(b)(1)		
Are employees who are constructing leading edges protected by guardrails, safety nets or personal fall arrest systems if feasible? (If not feasible, requirements of paragraph (k) of 1926.502 must be met) 1926.501(b)(2)(i)		
Is each employee in a hoist area protected by either guardrails or personal fall arrest system? 1926.501(b)(3)		
In hoisting areas where guardrails are used and guardrails are removed to facilitate landing of material and the employee must lean out over the edge or through the access opening, is *that* employee protected by a fall arrest system? 1926.501(b)(3)		
Are employees exposed to falling through holes (including skylights) protected by fall arrest systems, guardrails or covers? 1926.501(b)(4)(i)		
Are employees on walking/working surfaces protected from tripping or stepping into holes by covers? 1926.501(b)(4)(ii)		
Are employees on walking/working surfaces protected from objects falling through holes by covers? 1926.(b)(4)(iii)		
Are exposed employees working on the face of form work or reinforcing steel protected by fall arrest systems, safety nets, or positioning device systems? 1926.501(b)(5)		
Are exposed employees working on ramps, runways or other walkways protected by guardrail systems? 1926.501(b)(6)		
When excavations, wells, shafts, pits, are not readily seen (shrubs, plants, etc.) are employees protected by guardrails, fences, or barricades? 1926.501(b)(7)(i) and (ii)		

Cranes and Derricks

ITEM	YES	NO
General Requirements: Are manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks complied with? 1926.1417(a)		
Are rated load capacities, recommended operating speeds, and special hazard warnings posted on all equipment and visible from operator's station? 1926.1417(c)		
Is equipment inspected by a competent person before each use? 1926.1417(e)(1)(iii)		
Are thorough annual inspections made on hoisting machinery and records of the dates and results of inspection maintained by employer? 1926.1412(f)(1)		
Are accessible areas within the swing radius of the rear rotating superstructure of the crane barricaded? 1926.1424		
Are employees working within 10 feet of powerlines? 1926.1407		
Before leaving crane unattended, is the boom securely fastened? 1926.1417(e) ANSI B30.5-1968 Chapter 5-3		
Are booms which are being assembled or disassembled on the ground, with or without support of the boom harness, securely blocked to prevent dropping of the boom and boom sections? 1926.1403-1406 ANSI B30.5-1968 Chapter 5-3		
Are cranes or derricks only used to hoist employees on a personnel platform when conventional means are more hazardous or impossible? Section 1431		
If a personnel platform is being used, are all operation criteria required by this standard being followed? 1926.1431		
Does the crane or derrick used with a personnel platform have a boom angle indicator (if equipped with a variable angle boom), a device to indicate boom length (if equipped with telescoping boom), and an anti-two blocking device or two block damage prevention feature? 1926.1431		
Does the personnel platform meet all design criteria and platform specifications required by this standard? 1926.1431(e)		

Before each crane component is erected, it must be inspected by a qualified person for damage or excessive wear. 1926.1435(f)(2)

Hoists and Elevators

ITEM	YES	NO
Material hoists, personnel hoists, and elevators: Are employees prohibited from riding on material hoist except for the purpose of inspection and maintenance? 1926.552(b)(1)(ii)		
Are hoistway entrances protected by substantial gates or bars? 1926.552(b)(2)		
Are hoistway door or gates on personnel hoists at least 6 feet 6 inches high? 1926.552(c)(4)		
Are hoistway doors or gates provided with mechanical locks which cannot be operated from landing side and are accessible only to persons in car? 1926.552(c)(4)		
Are overhead protective coverings provided on top of hoist cages or platforms? 1926.552(c)(7)		
Overhead hoists: Is the safe working load for overhead hoists, as determined by the manufacturer, indicated on the hoist, and that safe working load not being exceeded? 1926.554(a)(1)		

Conveyors

ITEM	YES	NO
Conveyors: Where conveyors pass over areas or aisles, have guards been provided to protect employees from falling materials? 1926.555(a)(5)		
Are conveyors equipped with audible warning signals and is that signal sounded immediately before starting the conveyor? 1926.555(a)(1)		
Are conveyors locked-out while employees perform maintenance and/or repairs? 1926.555 (a)(7)		

Motor Vehicles, Mechanized Equipment, and Marine Operations

ITEM	YES	NO
Equipment: Are all vehicles which are left unattended at night, adjacent to a highway in normal use or a construction site where work is in progress, equipped with lights, reflectors, or barricades to identify the location of the equipment? 1926.600(a)(1)		
Are safety tire racks, cages, or equivalent protective devices provided and used when inflating, mounting or dismounting tires installed on split rims or locking rings? 1926.600(a)(2)		
Are bulldozer and scraper blades, dump bodies, etc., fully lowered or blocked when being repaired or not in use? 1926.600(a)(3)(i)		
Are parking brakes set on parked equipment, and are wheels chocked when parked on an incline? 1926.600(a)(3)(ii)		
Do these vehicles have a service brake system, emergency brake system, and parking brake system in operable condition? 1926.601(b)(1)		
Are all vehicles equipped with an audible warning device in operable condition at the operator's station? 1926.601(b)(3)		
Do all vehicles with an obstructed view to the rear have a backup alarm or are they always used with an observer? 1926.601(b)(4)		
Do all vehicles have seat belts and are they used? 1926.601(b)(9)		
Are trucks with dump bodies (beds) equipped with a positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body (bed of truck) while maintenance or inspection work is being done? 1926.601(b)(10)		
Are operating levers on dump trucks equipped with latches? 1926.601(b)(11)		
Are tail gate handles on dump trucks arranged to keep operator clear? 1926.601(b)(12)		
Are vehicles in use inspected at the beginning of each shift to assure that all parts, equipment, and accessories affecting safety operations are free of defects? 1926.601(b)(14)		
Material handling equipment: Are seat belts provided on all earth-moving equipment except those not equipped with ROPS and those designed for a stand up operation? 1926.602(a)(2)(i) **Note: See Rollover Protective Structures (ROPS).*		
Does all bi-directional earthmoving equipment have a horn in operable condition? 1926.602(a)(9)(i)		
Is all earthmoving or compacting equipment with an obstructed rear view equipped with an operable backup alarm or used only with an observer? 1926.602(a)(9)(ii)		
Are all high lift rider industrial trucks equipped with overhead guards? 1926.602(c)(1)(v)		
Powered Industrial Trucks: Are all powered industrial truck operators trained in accordance with 1926.602(d)?		
Are all powered industrial trucks equipped with inspection data plate or tag? Does each industrial truck possess working brakes, steering mechanisms, control mechanisms, warning devices, lights, overhead lift devices, and guards and safety devices? 1926.602(c)(1)(vi) *Note: ANSI B56.1-2009 Section 7.5.2*		
Site clearing: Is all equipment used in site clearing operations equipped with proper rollover protection? 1926.604(a)(2)		
Marine operations and equipment: Is a ramp of adequate strength, with side boards, well maintained and properly secured or a safe walkway provided in such a way that employees are able to step safely to or from a wharf, float, barge, or river towboat,? 1926.605(b)(1) and (2)		

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Excavations

ITEM	YES	NO
General requirements: Are all surface encumbrances that may create a hazard removed or supported as necessary to safeguard employees? 1926.651(a)		
Have all underground utility installations been located? 1926.651(b)(1), (2), and (3)		
In trenches more than 4 feet deep, are stairways, ladders, or ramps located so that travel to them is no more than 25 feet? 1926.651(c)(2)		
Are employees exposed to vehicular traffic wearing warning vests made of reflectorized or high visibility material. 1926.651(d)		
Is a warning system such as barricades, hand or mechanical signals or stop logs used when mobile equipment approaches the edge of the excavation? 1926.651(f)		
Are testing and controls used to prevent exposure to hazardous atmospheres? 1926.651(g)		
Are excavation or other materials kept at least 2 feet from the edge of the excavations? 1926.651(j)(2)		
Is the excavation inspected daily and after any hazard increasing occurrence by a competent person? 1926.651(k)(1)		
Requirements for protective systems: Are employees in an excavation 5 feet deep or more, or with the potential for cave in, protected by an adequate protective system? 1926.652(a)(1) *Note: See appendices A, B, C, D, E, and F to this standard*		

Concrete, and Masonry Construction

ITEM	YES	NO
General requirements: Is all protruding reinforcing steel, onto or into which employees could fall, guarded to eliminate the hazard of impalement? 1926.701(b)		
Requirements for equipment and tools: Do powered, rotating-type concrete trowels, that are manually guided, have a control switch that automatically shuts off if operators hands are removed from handles? 1926.702(c)		
Are respirators provided for employees who engage in sandblasting operations?		
Are enclosed spaces adequately ventilated when using gasoline powered concrete cutters, buggies, and trowels?		
Are employees wearing steel-toe boots when handling concrete block?		
Is proper personal protective equipment (PPE) provided for employees engaged in cutting brick, block, or when using acid to clean brick?		
Are employees prohibited from riding concrete buckets? 1926.701(d)		
Is a lock-out/tag-out procedure in use of any machinery where inadvertent operations could cause injury? 1926.702(j)(1)		
Requirements for cast-in place concrete: Is all form work for cast-in-place concrete designed, fabricated, erected, supported, braced, and maintained so that it will support without failure all loads that may be anticipated? 1926.703(a)(1)		
Are cement mixers guarded properly?		
Is erected shoring equipment inspected immediately prior to, during and immediately after concrete placement? 1926.703(b)(3)		
Are forms and shores left in place until employer determines that the concrete can support its weight and superimposed loads? 1926.703(e)(1)		
Requirements to precast concrete: Are precast concrete wall units, structural framing, and tilt-up wall panels supported to prevent overturning and collapse until permanent connections are made? 1926.704(a)		

Requirements for lift-slab construction operations: Are lift-slab operations designed and planned by a qualified professional engineer or architect? Do designs and plans include prescribed method of erection? 1926.705 Appendix A		
Does jacking equipment have a safety factor of 2.5? 1926.705 Appendix A		
Is the maximum number of manually controlled jacks on one slab limited to fourteen? 1926.705 Appendix A		
Are jacking operations synchronized to insure even and uniform lifting? 1926.705 Appendix A		
Are only those employees required for jacking and to secure slabs permitted under slab during jacking? 1926.705 Appendix A		
Requirements for masonry construction: Is a limited access zone established when constructing a masonry wall? 1926.706(a)		
Are all masonry walls over eight feet in height braced or supported to prevent collapse? 1926.706(b)		

Steel Erection

ITEM	YES	NO
Approval to begin Steel erection: Has the controlling contractor provided in writing to the steel erector that the concrete has cured properly before steel erection begins and any repairs, replacements and modifications were conducted within accordance to 1926.755(b)? 1926.752(a)		
Site layout: Has the controlling contractor provided and maintained adequate access roads inside the construction site; keeping them, properly graded, drained, and firm? 1926.752(c)		
Hoisting and Rigging: Are cranes being inspected before each shift by a competent person? 1926.753(c)(1)		
Is a Qualified Rigger inspecting the rigging prior to each shift? 1926.753(c)(2)		
Is the headache ball or hook used to transport personnel? 1926.753(c)(3)		
Are routes for suspended loads preplanned to ensure that no employee is required to work directly below a suspended load? 1926.753(d)(1)		
Structural Steel Assembly: Are fully planked or decked floors or nets maintained within two stories or 30 feet, whichever is less, directly under any erection work being performed? 1926.754 (b)(3)		
Are roof and floor holes and openings decked over? Are metal decking holes and openings not being cut until immediately prior to being permanently filled? 1926.754(e)(2)		
Are roof and floor opening covers designed to withstand at least twice the weight of employees, equipment , and materials that may be imposed upon it? Are they secured to prevent displacement? Are they marked with the word "HOLE" or "COVER"? 1926.754(e)(3)		
Column Anchorage: Are all columns anchored by a minimum of four anchor bolts? 1926.755(a)		
Systems-Engineered Metal Buildings: Are both ends of all steel joists or cold formed joists fully bolted or welded to the support structure before releasing hoisting cables, allowing employees on the joist, or allowing construction loads on the joists? 1926.758(f)		
Falling Object Protection: Are all materials, equipment and tools, which aren't in use while aloft secured against accidental displacement? Is overhead protection provided for people below? 1926.759		
Fall Protection: Are employees engaged in steel erection activities on a walking and working surface with unprotected sides or edges more than 15 feet above a lower level protected by guardrails, safety nets or personal fall arrest systems? 1926.760 (a) (1)		

Have perimeter safety cables been installed at the final interior and exterior perimeters of floors as soon as the metal decking is installed? 1926.760(a)(2)		
Is each Connector protected from fall hazards of more than two stories or 30 feet above a lower level, whichever is less? Have they Completed connector training in accordance with 1926.761? Are they provided with a personnel fall arrest system at heights over 15 and up to 30 feet? 1926.760(b)		
If a controlled decking zone is used, have all employees working in the CDZ completed CDZ training in accordance with 1926.761? 1926.760(c)(4)		
Is there more than 3,000 square feet of unsecured decking in the CDZ? 1926.760(c)(5)		
Training: Has appropriate training been provided for all employees exposed to fall hazards? 1926.761(b)		
Has special training been provided to employees engaged in multiple lift rigging, Connector procedures and Controlled Decking Zone Procedures? 1926.761(c)		

Underground Construction, Caissons, Cofferdams, and Compressed Air

ITEM	YES	NO
Underground construction: Are safe means of access and egress provided and maintained to all working places? 1926.800(b)(2)		
Is a check-in and check-out system used that will provide positive identification of every employee underground? Is an accurate record and location of the employees kept on the surface? 1926.800(c)		
Are emergency evacuation plans and procedures developed and made known to employees? 1926.800(d)(10)		
Are Bureau of Mines approved self-rescuers available to equip each employee near the advancing face and on haulage equipment and other areas where employees may be trapped by smoke or gas? 1926.800(g)(2)		
Is a maximum of one days supply of diesel fuel stored underground? 1926.800(m)(3)		
Are gasoline and liquefied petroleum gases prohibited from being taken, stored, or used underground? 1926.800(m)(5)		
Are enclosed metal cages used to raise and lower persons in the shaft? 1926.800(t)(4)(iii)		
Caissons: Are employers who expose employees to compressed air working environments complying with the requirements contained in 1926.803? 1926.801(f)		
Cofferdams: At cofferdams, are warning signals for evacuation of employees in case of emergency developed and posted? 1926.802(b)		
Compressed Air: Is a competent person present at all times who is designated and representing the employer, who is familiar with all requirements of this subpart and is responsible for full compliance with this and other applicable subparts? 1926.803(a)(1)		

Demolition

ITEM	YES	NO
Preparatory operations: If employees are exposed to the hazard of falling through wall openings, are the openings protected to a height of approximately 42 inches? 1926.850(g)		
If debris is dropped through holes in the floor without chutes, is the area onto which the material is dropped completely enclosed with barricades at least 42 inches high and at least 6 feet back from the projected edge of the opening above? 1926.850(h)		
Are all floor openings, not used as material drops, equipped with a properly secured cover that will support any load which may be imposed? 1926.850(i)		
Stairs, passageways, and ladders: Are all stairs, passageways, ladders, and incidental equipment covered by this section periodically inspected and maintained in a clean safe condition? 1926.851(b)		
Chutes: Is any area where material is dropped outside the exterior walls of the structure effectively protected? 1926.852(a)		
Manual removal of floors: Are workers engaged in razing the steel after floor arches are removed protected by planking as required in 1926.855(b)? 1926.858(a)		
Mechanical demolition: Are continuous inspections made by a competent person as work progresses to detect hazards from weakened or deteriorated floors or walls or loosened materials? 1926.859(g)		
Has employer made provisions for the removal of lead containing materials, asbestos, or any other hazardous materials or chemicals prior to the onset of demolition operations?		

Blasting and Use of Explosives

ITEM	YES	NO
General provisions: Are only authorized and qualified persons permitted to handle explosives 1926.900(a)		
Are smoking, firearms, matches, open flame lamps and other fires, flame or heat producing devices, and sparks prohibited in or near explosive magazines and while explosives are being handled, transported, or used? 1926.900(b)		
Is an inventory and use record of all explosives maintained by the employer? 1926.900(d)		
Are explosives not in use kept in a locked magazine? 1926.900(d)		
Are precautions taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lighting, adjacent power lines, dust storms and other sources of extraneous electricity? 1926.900(k)		
Surface transportation of explosives: Is every vehicle or conveyance used for transporting explosives marked on both sides, front, and rear with placards reading "EXPLOSIVES" in red letters not less than 4 inches high on white background? 1926.902(h)		
Are motor vehicles transporting explosives always attended? 1926.902(k)		
Storage of explosives and blasting agents: Are explosives and related materials stored in approved facilities? 1926.904(a) *Note: See Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 56, Commerce in Explosives.*		
Are blasting caps, electric blasting caps, detonating primers, and primed cartridges stored in separate magazines from explosives or blasting agent? 1926.904(b)		
Loading of explosives or blasting agents: Is tamping done only with wood rods or plastic tamping poles without exposed metal parts except for non-sparking metal connections of jointed poles? 1926.905(c)		

Use of safety fuse: Is the so-called "drop fuse" method of dropping or pushing a primer or any explosive with a lighted fuse prohibited? 1926.907(k)		
Is a loud warning signal given by the blaster in charge before that blast is fired? 1926.909(b)		

Power Transmission and Distribution

ITEM	YES	NO
General requirements: Are electric equipment and lines considered energized until determined to be de-energized by test or other appropriate methods or means? 1926.950(b)(2)		
Does the employer provide training or require that his employees are knowledgeable and proficient in procedures involving emergency situations and first aid fundamentals including resuscitation or comply with 1926.50(c)? 1926.950(e)(1)		
Tools and protective equipment: Does rubber protective equipment meet the requirements of American National Standards Institute J6 series? 1926.951 (a)(1)(i)		
Mechanical Equipment: Are aerial lift trucks working near energized lines or equipment grounded or barricaded and considered as energized equipment or the lift truck insulated for the work being performed? 1926.952(b)(2)		
Material handling: Are tag lines or other suitable devices used to control loads being handled by hoisting equipment where hazards to employees exist? 1926.953(d)		
Grounding for protection of employees: When attaching grounds, is the ground end attached first and the other end attached and removed using insulated tools or other suitable devices? 1926.954(e)(1)		
Underground lines: When working on buried cable or a cable in manholes, is metallic sheath continuity maintained by bonding across the opening or by equivalent means? 1926.956(c)(7)		

Rollover Protective Structures (ROPS); Overhead Protection

ITEM	YES	NO
Rollover protective structures (ROPS) for material handling equipment: Are all rubber tired, self-propelled scrapers, rubber-tired front end loaders, wheel type agricultural and industrial tractors, crawler tractors, crawler type loaders, and motor graders (with or without attachments) equipped with rollover protective structures? 1926.1000(a)(1) **Note: Not required if the above equipment was manufactured before July 1969. See Motor Vehicles, Mechanized Equipment, and Marine Operations: Material handling equipment.*		
Do ROPS meet minimum performance criteria detailed in these standards? 1926.1001 and 1926.1002 *Note: Check with Office of OSHA Standards*		

Stairways and Ladders

ITEM	YES	NO
General requirements: Is a ladder or stairway provided at all personnel points of access where there is a break in elevation of 19 inches or more? 1926.1051(a)		
Is there always at least one clear point of access between levels of a building or structure? 1926.1051(a)(3)&(4)		
Stairways: Is each stairway having four or more risers or rising more than 30 inches equipped with: (a) at least one handrail; and (b) at least one stairrail system along each unprotected side or edge? 1926.1052(c)(1)		
Are the unprotected sides and edges of stairway landings provided with a guardrail system? 1926.1052(c)(12)		
Ladders: Are ladder rungs, cleats, and steps parallel, level, and evenly spaced when the ladder is positioned for use? 1926.1053(a)(2)		
Does each stepladder have a metal spreader or locking device? 1926.1053(a)(8)		
Do portable ladders used for access to an upper landing surface have side rails that extend at least 3 feet above the landing? 1926.1053(b)(1)		
Do ladders that are used where the employee or the ladder could contact exposed energized parts have nonconductive side rails? 1926.1053(b)(12) (see 1926.951(c)(1) for exception)		
Are ladders periodically inspected by a competent person? 1926.1053(b)(15)		
Are portable ladders with structural defects marked as defective and withdrawn from service? 1926.1053(b)(16)		
Training requirements: Have all employees been trained to recognize hazards related to ladders and stairways? 1926.1060(a)		

Toxic and Hazardous Substances

ITEM	YES	NO
Asbestos: Has a determination been made as to whether or not building contains Asbestos Containing Materials (ACM = Greater than 1% Asbestos) or Presumed Asbestos Containing Materials (PACM)? 1926.1101 Was the building/structure constructed prior to 1980? Does it contain materials such as thermal system insulation (TSI), surfacing materials, floor tile, roofing materials, gaskets, and/or drywall/plaster? Is the material ACM? [Has a survey been performed to determine if materials in question are ACM?] If no survey has been performed, and the building is older than 1980, then above mentioned materials are PACM. NEXT, determine "class" of ACM work: Class I = work activities involving removal of TSI or surfacing materials. Class II = any ACM other than TSI or surfacing material [floor tile, roofing, etc.] Class III = maintenance work where ACM may be disturbed. Class IV = maintenance/custodial activities where employees may contact but NOT DISTURB ACM. Once the class of ACM work is determined, a complete copy of 1926.1101 should be obtained and consulted to determine the specific requirements related to the specific class of ACM work. Below is a list of general requirements applicable to all classes of ACM work: Has a regulated area been established? 1926.1101(e) Has an exposure assessment/personal air sampling been performed to determine degree of employee exposure? 1926.1101(f) Is a "competent person" who has an appropriate level of training to supervise the class of ACM work being performed been designated? 1926.1101(e)(6) and (o) Have appropriate respirators and practices been implemented? 1926.1101(h) Has protective clothing (coveralls, head covers) been provided for employees to wear? 1926.1101(i) Are Hygiene facilities and practices appropriate to the class of ACM work and size of Job (Less than or Greater than 25 linear or 10 square feet)? 1926.1101(j) Are asbestos hazards communicated to affected employees and to other contractors by means of signs, labeling, and exchange of information concerning the work being done involving ACM? 1926.1101 (d) and (k) Is training appropriate for class of ACM work provided? 1926.1101(k) Has a medical surveillance program been made available to affected employees? 1926.1101(m) Have appropriate housekeeping practices such as the use of HEPA filtered vacuuming equipment to collect ACM dust and placing ACM wastes/debris into impermeable, labeled, and sealed containers been established? 1926.1101(l)		

Cadmium: The following is a list of potential construction activities which are covered under this standard: 1926.1127 Wrecking, demolishing, or salvage of structures where cadmium is present. Use of paints/coating materials which contain cadmium (consult SDS of material in question). Cutting, brazing, grinding, welding, or abrasive blasting on surfaces coated with cadmium containing paints. Welding/cutting cadmium plated materials or welding, brazing, or soldering using cadmium containing alloys. Electrical work involving cadmium; Cadmium welding electrical grounding, using cadmium coated conduit (refer to SDS). Actions to be taken once determination of a potential cadmium exposure hazard has been made: Has personal air monitoring been performed to determine level of employee exposure to cadmium in air (eight-hour time weighted average,)? 1926.1127(d) Is exposure > 2.5ug/m3, eight-hour TWA (action level)? If yes, then the employer must: Provide medical surveillance program in accordance with 1926.1127(l). Provide training program(s) to affected employees and inform them of the potential hazards associated with over exposure to cadmium in accordance with 1926.1127(m)(4). Is exposure > PEL (5ug/m3, eight-hour TWA)? Has a regulated area been established? 1926.1127(e) Have feasible engineering controls and work practice controls (i.e. local exhaust ventilation, product substitution) and a written compliance program been implemented as required? 1926.1127(f) Are appropriate respirators provided and are appropriate practices governing the use of respirators implemented? 1926.1127(g) Are hygiene facilities such as change rooms, showers, and hand washing facilities provided and required to be used by employees? 1926.1127(j) Is protective work clothing (coveralls, head covers) provided? 1926.1127(i) Are employees prohibited from eating, drinking, smoking, or applying cosmetics in areas where employees are exposed to cadmium? 1926.1127(j)(4) Other general requirements pertaining to employee exposure to cadmium: For welding/brazing involving cadmium based metals, cadmium plated metals, coated with cadmium containing paint, local exhaust ventilation and/or air-line respirators (depending on exposure level) are used? Use of high speed saws/abrasive equipment prohibited, unless equipped with engineering controls to eliminate emissions. Use of abrasive blasting (use of compressed air) as means of removing cadmium containing coatings is prohibited, unless engineering controls such as containment of dusts (negative air containment systems) and use of respiratory protective equipment which is specifically approved for abrasive blasting. 1926.1127(f)(2) and (k)(6)		

35. Outdoor Heat Exposure

35.1 Purpose

The purpose of this addendum is to ensure compliance with the Outdoor Heat Exposure rule, WAC 296-62-095, for employees who are exposed to temperatures at or above regulations (see Table 1 below). Employees with only incidental exposure as defined in the rule are not covered.

Table 1	
All other clothing	89°
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°
Non-breathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°

The following requirements are only in effect during the months of May through September each year for employees working outdoors according to Table 1 above.

WAC 296-62-095 through 296-62-09560 does not apply to incidental exposure which exists when an employee is not required to perform a work activity outdoors for more than 15 minutes in any 60-minute period. This exception may be applied every hour during the work shift.

35.2 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

35.3 Definitions

Outdoor environment means an environment where work activities are conducted outside. Work environments such as inside vehicle cabs, sheds, and tents or other structures may be considered an outdoor environment if the environmental factors affecting temperature are not managed by engineering controls. Construction activity is considered to be work in an indoor environment when performed inside a structure after the outside walls and roof are erected.

35.4 Training

Each year prior to the month of May when Table 1 shown above applies, all employees working in the categories listed above will be provided training on signs and symptoms of outdoor heat exposure and on the company policies to prevent heat-related illness. Additional training will be scheduled for a make-up class as needed. When new employees are hired during the summer months, training will be provided prior to the new employee working in the outdoor environment.

35.5 Employee Training Content

Training on the following topics will be provided to all employees who may be exposed to outdoor heat at or above the temperatures listed in WAC 296-62-09510(2) Table 1:

(a) The environmental factors that contribute to the risk of heat-related illness;

(b) General awareness of personal factors that may increase susceptibility to heat-related illness including, but not limited to, an individual's age, degree of acclimatization, medical conditions, drinking water consumption, alcohol use, caffeine use, nicotine use, and use of medications that affect the body's responses to heat. This information is for the employee's personal use;

(c) The importance of removing heat-retaining personal protective equipment such as non-breathable chemical resistant clothing during all breaks;

(d) The importance of frequent consumption of small quantities of drinking water or other acceptable beverages;

(e) The importance of acclimatization;

(f) The different types of heat-related illness, the common signs and symptoms of heat-related illness; and

(g) The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate emergency response procedures.

35.6 Supervisor Training Content

Prior to supervising employees working in outdoor environments with heat exposure at or above the temperature levels listed in WAC 296-62-09510(2) Table 1, supervisors will be given training on the following topics:

(a) The information required to be provided to employees listed in subsection (1) of this section;

(b) The procedures the supervisor must follow to implement the applicable provisions of WAC 296- 62-095 through 296-62-09560;

(c) The procedures the supervisor must follow if an employee exhibits signs or symptoms consistent with possible heat-related illness, including appropriate emergency response procedures; and

(d) Procedures for moving or transporting an employee(s) to a place where the employee(s) can be reached by an emergency medical service provider, if necessary.

35.7 Drinking Water

On days when the temperature is at or above those listed in Table 1 of the regulation, employees will be provided a sufficient quantity of drinking water which is readily accessible at their work location. The water quantity will be sufficient to allow each employee to drink at least a quart or more of water each hour. It is not necessary to have the entire supply of water available at the beginning of shift as long as the water source is replenished during the work day and is always available for employee access. It is up to the employee to drink water and replenish their water jugs or bottles. As the temperature increases through the day, additional water will be made available or replaced. It is the responsibility of the Contractor to ensure that the supply of available drinking water does not run out.

35.8 Responding to Signs and Symptoms

Time is critical when people are experiencing heat stress/heat stroke. The quicker any employee experiencing symptoms can be removed from the heat and cooled down, the better the chances are for a full recovery. On days when the temperatures will be at or above those listed in Table 1 of the regulation, the company will identify the risk for outdoor heat exposure and encourage employees to frequently consume water or other acceptable beverages to ensure hydration.

Employees are responsible for monitoring their own personal factors for heat-related illness including consumption of water or other acceptable beverages to ensure Hydration. Never leave an employee who is experiencing heat-related problems by themselves; if they do not respond quickly to cooling attempts, immediately call emergency medical services. If a co-worker is experiencing difficulty, do not hesitate to bring it to the attention of the supervisor or lead worker.

35.9 Exhibits/Attachments

Not applicable.

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36. Personnel Hoisting

36.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform personnel hoisting operations, in accordance with the provisions of WAC 296-155-547 through – 54900.

L&I standards state that the use of a crane or derrick to hoist employees on a personnel platform (man basket) 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. This standard should be carefully considered before making the decision to use a crane supported platform. The decision to use a personnel platform must be made by the Site Superintendent.

36.2 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

36.3 Definitions

Not applicable

36.4 The Platform

(a) The personnel platform must be designed by a registered professional engineer.

1. Platforms must have a minimum safety factor of five.
2. Each platform must have a standard guardrail system that is enclosed from the toe board to the mid-rail to keep tools, materials and equipment from falling on employees below.
3. Each platform must have a grab rail located inside of the guardrail to prevent injuries to the hands from impact with structures or objects.
4. When needed to protect occupants from objects falling from above, overhead protection must be provided with adequate headroom for employees.
5. An access gate, if provided, must not be able to swing outward during hoisting and must have a restraining device to prevent accidental opening.

(b) The weight of the platform and its maximum load capacity must be clearly indicated on a plate or with other permanent markings.

(c) Rigging

1. When a wire rope bridle is used to connect the platform to the load line, the bridle legs must be connected to a master link or shackle so the load is evenly positioned between the legs. Bridles used as a connection for the personnel platform should not be used for any other purpose.

2. Attachment assemblies such as hooks must close and lock to keep the hook throat from opening. Mousing (using wire rope to close the hook opening) is not permitted.

36.5 The Crane

(a) Inspections and certifications must be current.

(b) The load (including rigging and attachments) must not exceed 50% of rated capacity of the crane as indicated by the load chart for the maximum radius being used.

(c) The load line must be capable of supporting at least seven times the maximum intended load.

(d) The crane used must have a properly functioning anti-two-block device and boom angle indicator.

(e) The crane must have a power-down device which can control the lowering speed of the platform without relying solely on the friction brakes.

(f) The operator must remain at the controls at all times while employees are in the platform.

(g) Traveling is not allowed while hoisting personnel unless this is the least hazardous way to accomplish the task or when portal, tower or locomotive cranes are used.

(h) No lifts will be made on another of the crane's load lines while personnel are suspended on a platform.

36.6 The Operation

(a) Use tag lines unless their use would create a hazard.

(b) Keep body parts inside the platform during raising, lowering and positioning.

(c) Make sure the platform is secure when entering and exiting.

(d) Wear a full-body harness with a shock-absorbing lanyard.

1. The lanyard must be attached to the load block or overhaul ball or to a structural member within the platform capable of supporting a fall impact.
2. If the operation is performed over water, a life vest must be worn instead of a harness.

(e) Stay in sight of or in direct communication with the operator or signal person.

36.7 Inspection and Testing

(a) At each project prior to hoisting employees and after any repair or modification, the platform and rigging must be proof tested to 125 percent of the platform's rated capacity by holding it in a suspended position for five minutes with the test load evenly distributed.

(b) Each time the crane is set up in a different location, a test lift must be made.

1. The test lift must be made with enough weight added to the platform to equal the maximum intended load for the operation.
2. The platform must be hoisted by the crane and moved to each work location to be used in the current configuration.

(c) After the platform is loaded, it should be hoisted a few inches to make sure it is balanced.

(d) Following the test lift and prior to hoisting people, the crane, rigging and platform are to be visually inspected by a qualified person.

1. Hoist ropes must be free of kinks.
2. Multiple part lines must not be twisted.
3. The primary attachment must be centered over the platform.

4. There should be no slack in the wire rope.
5. Crane controls and safety devices must be functioning properly.

36.8 Prelift Meeting

(a) A coordination meeting must be conducted by the Site Superintendent or the supervisor in charge of the work being performed prior to the actual lifting of the platform to review the requirements and procedures for hoisting personnel.

(b) The following personnel must attend this meeting:

1. The Site Superintendent or his designee.
2. The person(s) in charge of the work being performed.
3. The employee(s) who will be in the platform.
4. The crane operator.
5. The signal person(s).

(c) The prelift meeting will be conducted:

1. Each time the work location changes, or
2. If there is any change in the personnel included in the previous section.

36.9 The Permit

(a) The permit at the end of this section must be completed before any lift may be made.

(b) All sections must be filled out and all signatures are required.

(c) Each permit must be retained in the project safety files.

36.10 Exhibits/Attachments

Crane Hoisted Personnel Platform Permit, Attachment 20

Attachment 20. Crane Hoisted Personnel Platform Permit

Crane Hoisted Personnel Platform Permit

The persons below acknowledge that they have participated in a pre-lift meeting and acknowledge the above activities were completed satisfactorily.

Project Superintendent	Crane Operator
Superintendent in charge of work	Signal Person
Safety Manager	Employee(s) in Platform

37. Personal Protective Equipment

37.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for the use of personal protective equipment in accordance with WAC 296-155-200 through -240, and WAC 296-800-160.

37.2 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

37.3 Definitions

Not applicable.

37.4 General Requirements

(a) Minimum personal protective equipment requirements for the Contractor will include the following:

1. ANSI-approved leather or equivalent work boots. A protective safety toe and metatarsal cap is recommended;
2. ANSI-approved hardhat;
3. ANSI-approved safety glasses with side shields where eye hazards are present [see Section (b)];
4. A shirt with sleeves that cover the shoulders, and long work pants;
5. Respirator (as needed for location and type of work);
6. Clean shaven daily (if using a respirator);
7. Hearing protection (as required).

In addition to the requirements outlined above, the Facility has the following PPE requirements.

- High-visibility vests are worn by all personnel in the .construction areas. Requirement to wear vests may be waived in writing by the Facility HSSE manager as conditions warrant.
- Dust goggles are required under face shields when chipping or grinding concrete and are also required when working in dusty or dirty conditions.
- Face shields must be worn over safety glasses when using impact guns, grinders, or other particle producing tools or work.
- Workers full names must be visible on the front of their hard hats.
- Fire retardant clothing is not required for the portion of the work until hydrocarbons are introduced.

(b) Eye Protection

1. As standard eye protection, ANSI-approved, non-prescription industrial standard safety glasses with side shields are considered as minimum protection.
2. ANSI-approved eye protection is required in all designated construction, warehouse areas, and maintenance/equipment yards where hazards to the eyes may exist. Examples of hazards to the eyes may

include but are not limited to; chipping, grinding, welding, cutting, sawing, hammering, and blowing dust/dirt/debris.

3. Eye protection may be required in work atmospheres other than construction and warehouse areas as hazards dictate (as determined by the Project Safety Manager). Some examples are:

Operation	Hazards	Required Protection
Chipping	Flying particles	Goggles, flexible or cushion, rigid body, with regular ventilation Face shield with plastic window
Grinding	Flying particles	Same as chipping

4. Contact lenses are not recommended for use at the worksite due to the possibility of particles and chemicals getting behind the contact lens, the lens being broken into small particles in the eye, or welding spatter fusing the lens to the eye. These can be very serious injuries.
5. In cases where employees must wear prescription eye wear for proper vision, the following practices will be observed;

   a. Employees that wear contact lenses will be required to wear ANSI approved safety glasses with side shields as outlined above where hazards to the eye exist.

   b. Employees that wear prescription glasses are encouraged to obtain and wear ANSI approved lenses with side shields where hazards to the eye exist. If prescription lenses are not ANSI approved, employees will be provided with, and must wear, over the glass ANSI approved safety glasses with side shields. If prescription lenses are ANSI approved but to do not have side shields, clip-on/slip-on ANSI approved side shields must be worn with the ANSI approved prescription lenses where hazards to the eye exist.

   c. In certain cases, it may be recognized to be highly beneficial for certain employees to wear ANSI approved prescription eye wear with side shields. Under such circumstances and with approval from the Project Manager and Safety Manager, the company will provide the employee with prescription lenses as described above and will cover the costs associated with obtaining specialized equipment. This will only apply to key staff personnel, and will only cover the cost of basic prescription lenses with metal frames and side shields. The cost of the basic eye exam will NOT be covered, in that a prescription lens wearer would normally obtain an annual eye exam anyway. The costs of special transition lenses, colored lenses, bifocals or other special lens treatments (except scratch resistant lenses) will NOT be covered. The employee will be given the choice of adding any such enhancements at their sole cost and expense.

(c) Chemical (Splash-proof) Goggles

Approved chemical mono-goggles, cushion fitting, rigid body will be provided to ensure eye protection from the hazards associated with handling or dispensing liquid chemicals.

(d) Face Shield

An approved full-face shield will be worn to provide face protection to the employee from flying particles, splashes, or mist. A face shield only provides protection to the face from direct impact objects, and does not provide acceptable eye protection. Additional eye protection or goggles must be worn in conjunction with a face shield.

(e) Burning Goggles

Approved burning goggles with the appropriate shade number lens will be worn to provide employee protection from optical radiation whenever burning or cutting operations are to be conducted.

(f) Welding Hood

Welding hoods with a filtered lens of number 10 shade or darker will be used to provide protection from the optical radiation produced during electric arc welding. Welding hoods will meet ANSI standards.

(g) Head Protection

1. Approved hardhats include both plastic and fiberglass hats that meet ANSI Z89.1 standards for Class II and I only. Metal hardhats, cowboy type, or bump caps are not considered approved head protection and will not be used. ALL employees, at all times while on the project site, will wear approved hardhats.
2. Hardhats must conform to the approved specifications of the Contractor's Safety Policies and ANSI Z89.1.

(h) Hearing Protection

1. Employees will not be exposed to noise in excess of the Occupational exposure Limits established by OSHA. The two types of recognized hearing protection available for use in effectively reducing noise exposure are earplugs and earmuffs.
2. In most instances, universal-fit earplugs are acceptable hearing protection. Cotton plugs are not acceptable and will not be used.
3. When using earmuffs for hearing protection, special care will be given to ensure that the muffs are disinfected before being issued to another employee.

(i) Hand Protection

1. General-purpose work gloves should be worn by the employee for protection against splinters, sharp edges, jagged surfaces, wire rope, glass, and metal splinters.
2. Special purpose work gloves should be worn and, at times, will be required when employees are performing certain tasks. Special purpose gloves include:

- Electric "hot" gloves
- Cut-resistant gloves
- Chemical-resistant gloves
- Standard rubber gloves
- Heat-resistant gloves
- Foot protection

3. ANSI-approved leather or equivalent work boots are mandatory. Protective toe and metatarsal caps are highly recommended.
4. Sneakers (even if ANSI-approved), sandals, high heels, leather soled street or dress shoes, and thongs will not be considered approved industrial or construction footwear.

37.5 Exhibits/Attachments

Sample Job Safety Analysis, Exhibit J

Exhibit J. Sample Job Safety Analysis

Your Co Inc — Risk Assessment Form

Hazard	Control	Action Taken
Ingestion of chemicals Severity = 4 Likelihood = 3 Total = 12	All chemicals are to be assessed before initial use.	
	All persons handling any chemical are required to refer to the material assessment before the product is used for the first time.	
	Personal protective clothing detailed by the material assessment is provided and must be worn by all staff at all times when they are handling a hazardous material.	
	Products which are not on the approved list of chemicals must not be purchased or brought into the business without the prior approval of the Operations Manager.	
	Chemicals must never be mixed under any circumstances.	
	Waste must be controlled thru being held in sealed bins in the work area and all bins are to be marked to identify their contents.	
	Specific training should be given to all staff involved in the handling of hazardous materials. This training should establish the definition of a hazardous material.	
	Hazardous materials must always be kept in their original containers and they must always be kept sealed when they are not being used.	

Risk Level Calculation	Risk Level Action	
(a) Severity of risk/injury — 1=no injury, 2=slight, 3=minor, 4=major, 5=fatality	1-5 Small risk	Acceptable
(b) Likelihood of event — 1=very unlikely, 2=unlikely, 3=likely, 4=very likely, 5=inevitable	6-10 Medium risk	Requires monitoring
	10-15 Severe risk	Requires immediate further action and control
(c) Risk Rating = (a) x (b)	15+ Emergency risk	Halt activity and review immediately

Assessment Date		07/01/2003	Assessor's Name			John Citizen		
Review Dates	1st	01/07/2004	2nd	01/07/2005	3rd	01/07/2006		

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38. Portable Electrical Equipment

38.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to perform activities associated with portable electrical equipment.

38.2 Definitions

(a) Hazardous Location. Locations where flammable vapors, liquids, gases, or combustible dusts or fibers may be present. Classification of hazardous locations is made based on the likelihood of a flammable concentration or quantity being present. Six designations of hazardous locations are made:

1. Class I, Division 1.
2. Class I, Division 2.
3. Class II, Division 1.
4. Class II, Division 2.
5. Class III Division 1.
6. Class Ill, Division 2.

Detailed definitions of these six hazardous locations are given in 29 CFR 1910.399 and in the National Electrical Code (NEC 70-500), as supplemented by WAC 296-24, WAC 296-155, and WAC 296-45.

38.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

38.4 General Requirements

(a) Electrical equipment must be free from recognized hazards.

(b) Unless approved for the purpose, no electric conductors or equipment may be:

1. Located in damp or wet locations.
2. Exposed to gases, fumes, vapors, liquids, or other agents that could have a deteriorating effect.
3. Exposed to elevated temperatures.

(c) All electrical equipment must be marked with the manufacturer's name or other identifying description. Other markings will provide voltage, current, wattage, or other applicable ratings.

38.5 Implementation

(a) Cord and Plug Equipment.

1. Type of Equipment. Cord and plug sets containing exposed metal parts will not be used. Non-metallic cord and plug sets with ground connections will be used, unless the equipment is double-insulated and grounding is not required. Double-insulated equipment will be distinctively identified. Common examples of this equipment include:
   - Portable hand-held motor operated tools e.g., drills, sanders and saws.
   - Portable electric equipment used in damp or wet locations.
   - Portable equipment used in hazardous locations.
   - Portable hand lamps.
2. Grounding Methods. Cord and plug equipment will be grounded by one of the following methods:
   - By means of the metal enclosure of the conductors supplying such equipment if a grounding-type attachment plug with one fixed grounding contact is used for grounding the metal enclosure, and if the metal enclosure of the conductors is secured to the attachment plug and to the equipment by connectors approved for the purpose.
   - By means of a grounding conductor run with the power supply conductors in a cable assembly or flexible cord properly terminated in a ground-type attachment plug with one fixed ground contact.
   - By means of a separate flexible wire or strap, insulated or bare, protected as well as practicable against physical damage.
3. Multi-Outlet Power Cords. Multi-outlet power cords (power strips) may be used only under the following conditions:
   - The total current (start-up amps) of all equipment connected to the power strip must not exceed the rated capacity of the power strip or of the circuit into which the power strip is connected.
   - Power strips may not be used in series (pig-tailed).
   - Only one power strip may be connected to a single outlet receptacle.
   - With a ground fault circuit interrupter (GFCI) protected outlet.

(b) Portable Hand Lamps.

1. Hand lamps will be equipped with a handle of molded composition or other material approved for the purpose.
2. Hand lamps will be equipped with a substantial guard around the lamp, attached to the lamp holder or the handle.
3. Metallic guards will be grounded by means of an equipment-grounding conductor run with circuit conductors within the power supply cord.
4. Hand lamps may not contain plug receptacles.
5. Portable lighting used in wet or conductive locations, such as tanks or boilers, must be operated at no more than 12 volts, or must be protected by ground fault circuit interrupters (GFCIs).

(c) Flexible Cords and Cables.

1. Flexible cords and cables (extension cords) must be of the three-wire type, with dead front plugs and receptacles. A fixed ground connection must be present. Cords used with temporary or portable lights must be designed for hard or extra hard usage (types S, ST, or SO).
2. Flexible cords and cables may not be used as a substitute for the fixed wiring of a structure. Permitted uses include:
   - Connection of portable lamps or appliances.
   - Connection of stationary equipment to facilitate their frequent interchange.
   - Connection of fixed or stationary appliances where the fastening means and mechanical connections are designed to permit removal for maintenance or repair.
3. Flexible cords and cables may not pass through windows, doorways, or openings in walls, ceilings, or floors.
4. Flexible cords and cables will be protected from accidental damage.

5. Flexible cords and cables, where permitted, will be attached so that strain or pull is not transmitted to joints or terminal screws.
6. Worn, frayed, or damaged electrical cords will not be used. Cords may not be attached to building surfaces, hung from nails, or suspended by wire.
7. Receptacles, cord connectors, and plugs will not accept an attachment with a piece of equipment or a device of different voltage or current rating than that for which the equipment/device is designed. Non-grounding receptacles will not accept grounding-type attachment plugs.
8. Splices and repairs will be made only by qualified personnel. All splices or repairs will be made so that the insulation on the repaired section is equivalent to the original insulation rating of the device.

(d) Grounding.

1. The path to ground from circuits, equipment, and enclosures must be permanent and continuous.
2. Ground Fault Circuit Interrupters must protect electrical installations at project sites.
   - Ground Fault Circuit Interrupters (GFCI) must protect all 120-volt single phase, 15 and 20 amp receptacles that are not part of permanent wiring.
3. In addition to GFCIs a subcontractor may use an Assured Grounding Program.
   - The assured equipment grounding conductor program must cover extension cords, receptacles, and cord and plug-connected equipment. The program must include the following elements:
     - A written description of the program.
     - At least one competent person to implement the program.
     - Daily visual inspections of extension cords, and cord and plug-connected equipment for defects (see Exhibit K for a sample inspection program). Equipment found damaged or defective will be removed from use, and not used until repaired.
     - Continuity tests of the equipment grounding conductors or receptacles, extension cords, and cord- and plug-connected equipment every three months.
     - Compliance with the requirements for grounding of systems, circuits, and equipment (see 1926.404).
4. If the assured equipment grounding conductor program option is chosen, inspection records will be maintained by the designated competent person at the site.

38.6 Exhibits/Attachments

Sample Electrical Equipment Inspection Program, Exhibit K

Maintenance of portable electrical equipment will be performed at regular intervals, not to exceed three months, by qualified personnel.

1. DAILY INSPECTION REQUIREMENTS

Each cord set, attachment cap, plugs, and receptacles of cord sets, and any equipment connected by cord and plug, including those that are not required to be grounded, will be visually inspected for external defects, such as deformed or missing pins or insulation damage, and for indication of possible internal damage. Equipment found damaged or defective will be removed from service until repaired.

2. PERIODIC INSPECTION GUIDELINES

The following guidelines will be followed when performing the periodic inspections of portable electrical equipment. In addition, Steps (1), and (2) will be performed before the first use of any new equipment, before equipment is resumed to service following repairs, and before equipment is used following any incident that may have damaged it.

(a) General Inspection Procedure.

1. Check the general condition of the equipment.
2. Look for loose fasteners, broken or cracked housings or casings, loose or broken switches.
3. Check the power cord carefully for cracks or deterioration of the insulation.
4. If the attachment plug is not a dead-front type, replace it.
5. Check the operation of ground fault circuit interrupters if so equipped.
6. Take the device out of service if any defects cannot be immediately remedied.

(b) Continuity Test. Steps 1, 2, and 3 do not apply to double-insulated tools.

1. Use a resistance meter (multi-meter) set on the R x 1 scale.
2. Attach one lead to the ground prong of the attachment plug, and the other lead to an exposed metal part of the device's housing.
3. The meter should read less than 10 ohms to pass.
4. Next attach one lead to each of the two flat line blades of the attachment plug.
5. The meter should read less than 10 ohms to pass.
6. If the unit fails either of these tests, take it out of service, and tag it for repair.

(c) Insulation Test. This test does not apply to double-insulated tools.

1. Attach one lead of the test meter to one of the flat line blades on the attachment plug, and the other lead to an exposed metal part of the device's housing.
2. The meter should read greater than 1 M Ω (1,000,000 ohms) to pass.
3. If the unit fails the test, take it out of service, and tag it for repair.

(d) Portable Hand Lamps. In addition to the three steps above, portable hand lamps will comply with the following test:

1. The wattage of the lamp (bulb) will not exceed the rating of the device.
2. The bulb guard must be complete, and in place as designed. The Continuity Test described in step 2 above must be performed on hand lamps with metal bulb guards. To perform the test, one lead from the meter will be attached to the bulb guard, and the other lead to the ground prong of the attachment plug.
3. The meter will read less than 10 ohms to pass.
4. If the unit fails the test, take it out of service, and tag it for repair.
5. If the hand lamp is an approved explosion-proof type, the bulb guard, bulb cover, and gasket(s) will be inspected for damage or defects. If the device fails the inspection, it will be taken out of service, and repaired according to the manufacturer's requirements.

(e) Inspection Records. Records of inspections will be maintained. The record will include at least:

1. The identity of the device inspected.
2. The date of the inspection.
3. The inspector's name or employee number.
4. The inspection results (and date of return-to-service if repairs are made).
5. The due-date of the next inspection.

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39. Respiratory Protection

39.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to reduce concentrations of airborne contaminants and hazardous atmospheres through engineering controls, to adequately protect employees from airborne contaminants and hazardous atmospheres through the use of respiratory personal protective equipment (PPE), and to prevent health effects associated with airborne contaminants and hazardous atmospheres.

This procedure covers the general identification, evaluation, and control of employee exposure to airborne contaminants and hazardous atmospheres during construction operations. This procedure establishes general minimum performance requirements for the control of airborne contaminants and hazardous atmospheres as well as necessary measures to be taken to prevent employee overexposure as outlined in OSHA 29 CFR 1910, OSHA 29 CFR 1926, WAC 296-155-220, WAC 296-841, and WAC 296-842.

39.2 Definitions

Not applicable.

39.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

39.4 General Requirements

(a) Introduction. Exposure to airborne contaminants and hazardous atmospheres may be encountered during construction operations. During the planning process of all construction operations potential airborne contaminants and hazardous atmospheres will be identified in the Job Hazard Analysis. Upon identification of the potential respiratory hazards, it will be brought to the attention the Contractor. The Contractor's Safety Manager will review the job process and make one of the following determinations:

1. Engineer the hazard out.
2. Use a combination of engineering controls and respiratory protection.
3. Use respiratory protection because engineering controls are not feasible.

NOTE: It is important to understand that some airborne contaminants and hazardous atmospheres have specific guidelines (i.e., Lead, Asbestos, and Methylene Chloride) and that not all job processes fall under performance standard guidelines. Under these circumstances, the L&I specific guidelines will be stringently adhered to.

(b) Engineering Controls. For all construction operations, airborne contaminants and hazardous atmospheres will be kept to a minimum through engineering controls (eliminating the hazard). Misting with water, HEPA exhaust ventilation, fans, fresh-air ventilation, enclosure, and sweeping compound are all examples of effective means of controlling respiratory hazards.

NOTE: Engineering controls not feasible. Engineering controls are not always feasible during construction operations. When engineering controls are not feasible or not fully effective respiratory protection will be used in combination with, or alone to prevent employee overexposure.

(c) Respiratory Protection Guidelines. Upon reviewing the job processes and associated respiratory hazards, The Contractor's Safety Manager will make a respiratory protection determination. Respiratory protection will be either determined to be mandatory or non-mandatory. The determination will be based on:

1. OSHA respirator specifications for specific airborne contaminants or hazardous atmospheres;
2. Preliminary industrial hygiene assessments;
3. Or periodic/ongoing industrial hygiene assessments.

NOTE: If this cannot be done, the most stringent respiratory protection requirements will be imposed.

39.5 Implementation

(a) Medical Surveillance. When a respirator is mandatory as identified a medical evaluation will be performed as outlined in this section prior to the employee being fit-tested and required to wear a respirator in the workplace. The medical evaluation entails the following:

1. Use only Physician(s) and Licensed Health Care Practitioners (LHCP). Copy of Program - The physician or LHCP must be provided with a copy of the Contractor's written respiratory protection program.
2. The Medical Questionnaire (Attachment 26) may be amended upon review of a physician or LHCP. Employees who are required to wear a respirator will complete the respirator medical evaluation questionnaire.
   - The questionnaire will provide mandatory information necessary for the medical evaluation. Refer to Attachment 26, Medical Questionnaire.
   - The questionnaire will be administered confidentially during the employee's normal working hours or at a time convenient to the employee.
   - The questionnaire will be administered in a way that the employee fully understands.
3. Supplemental information to be provided to the physician or LHCP.
   - Type and weight of the respirator to be used by employee.
   - Duration and frequency of respirator use.
   - Expected physical work effort.
   - Additional protective clothing and equipment to be worn.
   - Temperature and humidity extremes to be encountered.
4. Medical Determination. The physician or LHCP must provide a written determination upon reviewing all items identified and a physical examination at his discretion. The written determination must include the following:
   - Limitations on respirator use relating to the employees medical condition.
   - Limitations on respirator use relating to workplace conditions.
   - Whether or not the employee is medically able to use the respirator.
   - If applicable, the need for a follow-up medical evaluation.
   - A statement that the physician or LHCP has provided the employee with a copy of the written determination.

(b) Follow-up Medical Surveillance. A yearly follow-up medical evaluation by the physician or LHCP is required. Also, a follow-up medical examination is required anytime one of the following conditions exist:

1. Medical signs or symptoms that are related to the ability to use a respirator that is reported by the employee.

2. A change occurs in workplace conditions (i.e. physical work effort, protective equipment, temperature extremes, etc.) results in a physiological burden to the employee.

(c) Respirator Training. Training will be conducted with each employee who is required to wear a respirator. Each employee will be trained and able to demonstrate knowledge in the following areas:

1. Employee training.
   - Why the respirator is necessary.
   - How improper fit, usage, and maintenance (if applicable) can compromise the protective effect of the respirator.
   - The limitations and capabilities of the respirator.
   - How to inspect, put on and remove, use, and check the seal(s) of the respirator.
   - Procedures for disposal, maintenance (if applicable), and storage (if applicable) of the respirator.
   - How to recognize signs and symptoms that may limit or prevent the effective use of the respirator.
2. Retraining. Annual retraining will be conducted to review items a. through f. identified in section H.1. above and when the following conditions occur:
   - Changes in the type of respirator used or required.
   - Changes in the work environment (i.e. temperature extremes, work load, amount of exposure, change of air contaminants, etc.)
   - Any situation that arises in which retraining becomes necessary to insure safe respirator use.

(d) Hazard Communications/Awareness Training. Employees will be trained/educated in accordance with the Contractor's hazard communications program.

(e) Fit Testing. A qualitative fit-test (QLFT) will be done prior to initial use of the respirator, whenever a different respirator is used, and at least annually thereafter. Additional fit tests will be conducted when the employee reports, or an observation is made of, changes in the employee's physical condition that could affect the respirator fit. Changes in physical condition include, but are not limited to facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

A record of the qualitative fit-test must be kept and filed by the Contractor's Safety Manual.

(f) Use of Respirators.

1. Face piece seal protection and user seal-check guidelines for the proper use of respirators are as follows:
   - Face piece seal protection - Respirators will not be worn by employees who have:
     - Facial hair that comes between the sealing surface of the face piece and the face or that interferes with the valve function.
     - Any condition that interferes with face-to-face-piece seal or valve function. An example is corrective glasses or goggles.
   - User seal-check - Each time an employee dons a respirator he/she must perform a user seal check as per the manufacturers specifications.

(g) Maintenance and Care of Respirators. This section only applies to respirators other than dust respirators. It outlines requirements for cleaning and disinfecting, storage, inspection, and repair of respirators.

1. Cleaning and disinfecting. Respirators will be cleaned in accordance with manufacturers specifications, and at the following intervals:
   - Respirators issued for the exclusive use of one employee must be cleaned and disinfected as necessary to be maintained in a sanitary condition.
   - Respirators issued to more than one employee must be cleaned and disinfected prior to being worn by each individual employee.
   - Respirators used for training and fit testing will be cleaned and disinfected after each use.

2. Storage. Respirators must be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and also packed or stored to prevent deformation of facepiece and exhalation valve.
3. Inspection. All respirators used in routine situations must be inspected before each use and during cleaning. The inspection will include the following.
   - A check of respirator function.
   - Tightness of connections.
   - Condition of various parts including but not limited to, facepiece, head straps, valves, connecting tube, cartridges, canisters, or filters.
   - A check for pliability and deterioration.
4. Repairs. Respirators that fail an inspection or are otherwise found to be defective are to be removed from service and discarded. Depending on cost feasibility, it is strongly recommended that a new respirator be used. If it is determined that repair will be made the distributor or manufacturer may only repair the respirator and re-certify for use.

39.6 Exhibits/Attachments

Respirator Medical Evaluation Questionnaire, Attachment 21

Attachment 21. Respirator Medical Evaluation Questionnaire

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- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** I
- **Subpart Title:** Personal Protective Equipment
- **Standard Number:** 1910.134 App C
- **Title:** OSHA Respirator Medical Evaluation Questionnaire (Mandatory).
- **GPO Source:** e-CFR

Appendix C to Sec. 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date:_____

2. Your name:_____

3. Your age (to nearest year):_____

4. Sex (circle one): Male/Female

5. Your height: _____ ft. _____ in.

6. Your weight: _____ lbs.

7. Your job title:_____

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____

9. The best time to phone you at this number: _____

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No

11. Check the type of respirator you will use (you can check more than one category):
a. _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one): Yes/No

If "yes," what type(s):_____
_____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please

1. Do you *currently* smoke tobacco, or have you smoked tobacco in the last month: Yes/No

2. Have you *ever had* any of the following conditions?

a. Seizures: Yes/No

b. Diabetes (sugar disease): Yes/No

c. Allergic reactions that interfere with your breathing: Yes/No

d. Claustrophobia (fear of closed-in places): Yes/No

e. Trouble smelling odors: Yes/No

3. Have you *ever had* any of the following pulmonary or lung problems?

a. Asbestosis: Yes/No

b. Asthma: Yes/No

c. Chronic bronchitis: Yes/No

d. Emphysema: Yes/No

e. Pneumonia: Yes/No

f. Tuberculosis: Yes/No

g. Silicosis: Yes/No

h. Pneumothorax (collapsed lung): Yes/No

i. Lung cancer: Yes/No

j. Broken ribs: Yes/No

k. Any chest injuries or surgeries: Yes/No

l. Any other lung problem that you've been told about: Yes/No

4. Do you *currently* have any of the following symptoms of pulmonary or lung illness?

a. Shortness of breath: Yes/No

b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No

c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No

d. Have to stop for breath when walking at your own pace on level ground: Yes/No

e. Shortness of breath when washing or dressing yourself: Yes/No

f. Shortness of breath that interferes with your job: Yes/No

g. Coughing that produces phlegm (thick sputum): Yes/No

h. Coughing that wakes you early in the morning: Yes/No

i. Coughing that occurs mostly when you are lying down: Yes/No

j. Coughing up blood in the last month: Yes/No

k. Wheezing: Yes/No

l. Wheezing that interferes with your job: Yes/No

m. Chest pain when you breathe deeply: Yes/No

n. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you *ever had* any of the following cardiovascular or heart problems?

a. Heart attack: Yes/No

b. Stroke: Yes/No

c. Angina: Yes/No

d. Heart failure: Yes/No

e. Swelling in your legs or feet (not caused by walking): Yes/No

f. Heart arrhythmia (heart beating irregularly): Yes/No

g. High blood pressure: Yes/No

h. Any other heart problem that you've been told about: Yes/No

6. Have you *ever had* any of the following cardiovascular or heart symptoms?

a. Frequent pain or tightness in your chest: Yes/No

b. Pain or tightness in your chest during physical activity: Yes/No

c. Pain or tightness in your chest that interferes with your job: Yes/No

d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No

e. Heartburn or indigestion that is not related to eating: Yes/No

d. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you *currently* take medication for any of the following problems?

a. Breathing or lung problems: Yes/No

b. Heart trouble: Yes/No

c. Blood pressure: Yes/No

d. Seizures: Yes/No

8. If you've used a respirator, have you *ever had* any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

a. Eye irritation: Yes/No

b. Skin allergies or rashes: Yes/No

c. Anxiety: Yes/No

d. General weakness or fatigue: Yes/No

e. Any other problem that interferes with your use of a respirator: Yes/No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you *ever lost* vision in either eye (temporarily or permanently): Yes/No

11. Do you *currently* have any of the following vision problems?

a. Wear contact lenses: Yes/No

c. Color blind: Yes/No

d. Any other eye or vision problem: Yes/No

12. Have you *ever had* an injury to your ears, including a broken ear drum: Yes/No

13. Do you *currently* have any of the following hearing problems?

a. Difficulty hearing: Yes/No

b. Wear a hearing aid: Yes/No

c. Any other hearing or ear problem: Yes/No

14. Have you *ever had* a back injury: Yes/No

15. Do you *currently* have any of the following musculoskeletal problems?

a. Weakness in any of your arms, hands, legs, or feet: Yes/No

b. Back pain: Yes/No

c. Difficulty fully moving your arms and legs: Yes/No

d. Pain or stiffness when you lean forward or backward at the waist: Yes/No

e. Difficulty fully moving your head up or down: Yes/No

f. Difficulty fully moving your head side to side: Yes/No

g. Difficulty bending at your knees: Yes/No

h. Difficulty squatting to the ground: Yes/No

i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No

j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them:_____

_____

_____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

a. Asbestos: Yes/No

b. Silica (*e.g.*, in sandblasting): Yes/No

c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No

d. Beryllium: Yes/No

e. Aluminum: Yes/No

f. Coal (for example, mining): Yes/No

h. Tin: Yes/No

i. Dusty environments: Yes/No

j. Any other hazardous exposures: Yes/No

If "yes," describe these exposures:_____

_____

_____

4. List any second jobs or side businesses you have:_____

_____

5. List your previous occupations:_____

_____

6. List your current and previous hobbies:_____

_____

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If "yes," name the medications if you know them:_____

10. Will you be using any of the following items with your respirator(s)?

a. HEPA Filters: Yes/No

b. Canisters (for example, gas masks): Yes/No

c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:

a. Escape only (no rescue): Yes/No

b. Emergency rescue only: Yes/No

c. Less than 5 hours *per week:* Yes/No

d. Less than 2 hours *per day:* Yes/No

e. 2 to 4 hours per day: Yes/No

f. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:

a. *Light* (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:_____hrs._____mins.

Examples of a light work effort are *sitting* while writing, typing, drafting, or performing light assembly work; or *standing* while operating a drill press (1-3 lbs.) or controlling machines.

b. *Moderate* (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:_____hrs._____mins.

Examples of moderate work effort are *sitting* while nailing or filing; *driving* a truck or bus in urban traffic; *standing* while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; *walking* on a level surface about 2 mph or down a 5-degree grade about 3 mph; or *pushing*

If "yes," how long does this period last during the average shift:_____hrs._____mins.

Examples of heavy work are *lifting* a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; *shoveling; standing* while bricklaying or chipping castings; *walking* up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment:_____

_____

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No

16. Describe the work you'll be doing while you're using your respirator(s):

_____

_____

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

_____

_____

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance:_____
Estimated maximum exposure level per shift:_____
Duration of exposure per shift:_____
Name of the second toxic substance:_____
Estimated maximum exposure level per shift:_____
Duration of exposure per shift:_____
Name of the third toxic substance:_____
Estimated maximum exposure level per shift:_____
Duration of exposure per shift:_____
The name of any other toxic substances that you'll be exposed to while using your respirator:

_____

_____

_____

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

_____

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998; 76 FR 33607, June 8, 2011; 77 FR 46949, Aug. 7, 2012]

Next Standard (1910.134 App D)

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40. Safety and Health Audit

40.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to orient and familiarize all subcontractors with the safety program.

40.2 Definitions

Not applicable.

40.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

40.4 General Requirements

(a) Each Project Manager/Superintendent is required to formally inspect his or her project on a monthly basis following the Safety and Health Audit format (Attachment 27). It is recommended that the Project Manager utilize additional expertise available on the project when performing these audits. The Safety Manager and Superintendent will also conduct weekly Safety and Health Audits. Additional safety related items only requiring monthly check or monitoring must be documented on the Safety and Health Audit form.

(b) Correction of Deficiencies. Any unsafe condition or act discovered should be corrected on the spot, if possible, by direction to the supervisor or Site Superintendent responsible for the work. If an unsafe condition or act could result in an injury, the work should be stopped until the situation is resolved. All employees exposed to injury should be removed from the exposure and only those required to correct the problem allowed to remain – with appropriate protection for the circumstances.

(c) Any unsafe conditions or acts discovered are to be documented on the audit forms along with the corrective action taken to resolve them.

(d) Subcontractors. A senior supervisor for each subcontractor should accompany the Safety Manager/Superintendent during the weekly audit of the subcontractor's work area.

(e) Distribution. Forms for the weekly and monthly audit and a checklist can be found at the end of this section. The checklist is provided only as a guide. Auditing every item on the checklist every week is not the intention and is not required. Copies of the completed audits are to be sent to the Safety and Health Department and Regional Safety Manager once each month.

40.5 Implementation

Not applicable.

40.6 Exhibits/Attachments

Safety and Health Audit, Attachment 22

Attachment 22. Safety and Health Audit

SAFETY AND HEALTH AUDIT

A completed audit is to be submitted to the Contractor Safety and the Regional Safety Director at the end of each month. This audit is to be used as a guide to self-inspect your project.

Project Name _____ Job No. _____ Month/Year _____

Person(s) making the audit _____

Dates weekly inspections or observations were made.

1st week _____ 3rd week _____ 5th week _____

2nd week _____ 4th week _____

==========

		OK	Def	N/A
1.	Housekeeping	☐	☐	☐
2.	Fire protection	☐	☐	☐
3.	Personal protective equipment	☐	☐	☐
4.	Scaffolds	☐	☐	☐
5.	Scissor lifts, articulating boom lifts, man lifts, and elevators	☐	☐	☐
6.	Cranes and hoists	☐	☐	☐
7.	Excavations	☐	☐	☐
8.	Project electrical	☐	☐	☐
9.	Small tools/equipment	☐	☐	☐
10.	Motor vehicles, including pickups/sedans	☐	☐	☐
11.	Heavy equipment	☐	☐	☐
12.	Water work	☐	☐	☐
13.	Blasting	☐	☐	☐
14.	Site security/public protection	☐	☐	☐
15.	Confined spaces	☐	☐	☐
16.	Fuel/gas/oxygen storage	☐	☐	☐
17.	Ladders derricks (subs included)	☐	☐	☐
18.	Pressure vessels	☐	☐	☐
19.	Pneumatic tools/hoses/compressors	☐	☐	☐
20.	Hazardous material storage/waste	☐	☐	☐
21.	Underground	☐	☐	☐
22.	Lighting	☐	☐	☐
23.	Overall site conditions	☐	☐	☐

1. Action taken for deficiencies _____

2. Special safety activities this week _____

3. Injuries reported and investigated this week _____

Signature _____

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41. Safety Orientation

41.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for safety orientation.

41.2 Definitions

Not applicable.

41.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

41.4 General Requirements

(a) Employees will be trained to perform assigned job duties. Training is to address required knowledge and skills.

(b) Employee training and information programs required by OSHA and L&I will be provided for all employees prior to the employee's initial assignment to a project or task.

41.5 Implementation

(a) Initial Employee Safety Orientation.

1. All project employees must receive a safety orientation prior to starting project work activities.
2. Subcontractors may give orientation training to their employees, however, the training must be done by a competent person and must meet or exceed the orientation requirements set by the Contractor. Documentation of training must be forwarded to the Contractor's Project Safety Manager.
3. The depth of training will be commensurate with the job function(s) to be performed.
4. Items to be covered in the orientation should include:

    - Emergency procedures.
    - Project work rules.
    - Accident investigation.
    - First Aid/Accident reporting.
    - Fitness for duty.
    - Lost time injury management policy.
    - Fall protection policy.
    - Discipline policy.
    - Actions to be expected for failure to comply with safety requirements.
    - Parking and site security procedures and regulations.
    - Public protection.

- Scaffold program and standards.
- Hazard communication.
- Hazardous Chemical Inventory List.
- All MSDSs on site and submitted before product is used.
- Safety incentive program.
- Ladder safety.
- Specific licensing requirements.
- Subcontractor's safety audits.
- Our written safety program.
- Contractual obligation to comply with our safety program.
- Respiratory protection program or requirements.
- Fire protection.
- Confined spaces/Permits.
- Job hazard analysis.
- Safety meetings and documentation
- Hazard abatement.
- Housekeeping.
- Project specific safety plan.
- Designated safety representative.
- Chain of command within the company.
- Notification of OSHA visits.
- Personal protective equipment policy (safety glasses mandatory).
- Personal protective equipment use (including demonstration as necessary)
- Owner imposed safety requirements.
- First aid provider identification.
- First aid kit location and contents with physician approval.
- Footwear/clothing/Jewelry/Hair policy.
- Trenches and excavations.
- Competent person identification.
- Barricade/Barricade Tape (Yellow tape is cautionary; Red tape is mandatory).
- Lock Out/Tag Out.
- Hot Work Permits.
- Live Railroad requirements

(b) "Take Five" Safety Meetings.

1. "Take Five" safety meetings will be conducted on a daily basis by the employee's immediate supervisor.
2. The purpose of these meetings is to allow the project employees an opportunity to maintain a high degree of safety awareness through timely safety education. This training will be used to discuss specific safety topics and to obtain employee feedback.
3. Field safety and health staff will periodically monitor "Take Five" safety meetings to assure that subject matter is properly presented.
4. Topics to be discussed will include safety hazards noted during the week and explanation of job safety procedures unique to the project/work assignment.
5. Other items open for discussion may include, but are not limited to:

- Use of employee personnel protective equipment.
- Project safety rules.
- Employee accidents due to specific, repeated unsafe acts.
- Unsafe acts.

(c) "Safety Talk" Training Sessions.

1. "Safety talk" training sessions will be developed by the project Safety Manager and conducted by the immediate supervisors. "Safety Talk" subjects may be obtained from Contractor's Safety Manager.

2. The sessions may be presented in conjunction with the weekly or monthly safety meetings and/or circulated through each department on a read-and-route basis.
3. The sessions will cover various and timely topics as furnished by the Project Safety Manager and/or requested by line management.

(d) Other Training. Other ongoing safety training for specific job functions will be conducted on an as-needed basis. Such training may be performed by the field safety and health staff of by the employee's immediate supervisor.

(e) Attendance Documentation. Records of attendance for all employee safety orientation and training provided as part of this procedure will be documented on the training attendance record.

41.6 Visitors

Any person entering the Contractor's worksite for the purpose of observing, meeting, or performing non-work (hands off) activities, including the Contractor's employees from other sites is deemed a "visitor".

- Before entering the jobsite or commencing work, each individual must be approved to do so by completing the Visitor Safety orientation meeting.
- There will be training for individuals who are making deliveries, but not performing other work on site.
- Visitors will be escorted by a Project Team member or by suitably qualified contractor personnel at all times. The Visitor Orientation program is provided by the project Safety Manager.
- The use of the Escort Policy must not be used to circumvent training requirements.
- Authorization for escort training and the authority to escort Project visitors is provided in writing by the Project Safety Manager.
- A sign-in/sign-out sheet must be signed by all visitors.
- Safety cards or stickers for hard hats will be given to the individuals who have completed the visitor orientation.
- Visitors must present cards or sticker at point of entry (guard station).

A visitor safety orientation will include, but not limited to, the following.

- A list of the proper PPE for the job scope.
- A list of potential hazards, including chemical spills and live rail lines on jobsite.
- A discussion on current contractor activities on site.
- Guidelines and procedure for a potential immediate evacuation.
- An emergency list of names and phone numbers.
- Railroad safety, including railroad flagger awareness.

41.7 Exhibits/Attachments

(a) Safety and Health Meeting Summary Report, Attachment 23

(b) Safety Orientation Attendance Record, Attachment 24

The Safety and Health Meeting Summary Report (Attachment 23) and Safety Orientation Attendance Record (Attachment 24) should be used for documenting employee attendance and the orientation and training activities associated with this procedure. Requirements for record distribution, retention, and maintenance will be established within applicable project planning documents.

Attachment 23. Safety and Health Summary Report

SAFETY AND HEALTH MEETING SUMMARY REPORT

Work Location _____

Date of Meeting _____ Time _____ until _____

Location of Meeting _____ Speaker _____

Topics Discussed _____

_____

_____

_____

Name (Print)	Signature	Company Name

Attachment 24. Safety Orientation Attendance Record

SAFETY ORIENTATION ATTENDANCE RECORD

This is to acknowledge and document that the following individuals attended a safety orientation training session where the Project Safety Rules as well as other important safety related information was given to each individual whose name and signature appears below.

The signature of each individual is evidence of their commitment to work safely and abide by the project safety and health regulations for this project. They understand that they have the right and obligation to report unsafe acts and conditions to their supervisor or a project safety manager as part of their role in the overall safety of the project.

Date _____ Project Name and Number _____

Employee Name	Social Security No.	Signature

42. Scaffold Use, Assembly, and Dismantling

42.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to safely use, assemble, and dismantle scaffolds. Specific criteria for design, dimensions, capacities, etc., can be found in the federal OSHA Standards 29 CFR 1926, Sections 450 through 454, and L&I regulations found at WAC 296-874.

NOTE: There is no such thing as a temporary scaffold. All scaffolding must be erected and maintained to conform to established standards.

42.2 Definitions

(a) Competent Person. One who is capable of identifying existing and predictable hazards and authorized to take prompt corrective measures to eliminate them.

(b) Qualified Person. One who is recognized by a degree, certificate or professional standing, or possesses extensive knowledge, training and experience.

42.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

42.4 Competent/Qualified Person

(a) The scaffold must be designed by a qualified person and constructed and loaded in accordance with that design. A competent person must supervise the erection, movement, alteration, and disassembly of the scaffold. Scaffold manufacturer’s recommendations must be reviewed. All aspects of scaffolding, supervision and inspection by a competent person are crucial.

(b) Every employee who performs work on a scaffold will be trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and the procedures to control or minimize those hazards.

(c) Every employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold must be trained by a competent person. Each employee must be trained to recognize the nature of scaffold hazards, correct procedures for handling scaffolds, design criteria, maximum intended load capacity and intended use.

(d) Scaffold components manufactured by different manufacturers will not be intermixed unless components fit together and a competent person approves the procedure.

(e) Scaffolds and scaffold components will be inspected for visible defects by a competent person before each shift, and after any occurrence that could affect a scaffold's structural integrity. Daily inspections will be recorded on tags attached to scaffolds.

(f) Fall protection must be provided for employees erecting or dismantling scaffolds where the installation and use of protection is feasible and does not create a greater hazard. A competent person will determine the feasibility and safety of providing fall protection.

(g) A safe means of access will be provided for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. A competent person will determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination will be based on site conditions and type of scaffold being erected or dismantled.

(h) Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Windscreens will not be used unless the scaffold is secured against the anticipated wind forces imposed.

42.5 Training Requirements

(a) Each employee who performs work while on a scaffold must be trained by a person 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. The training will include the following areas, as applicable:

1. The nature of any electrical hazards, fall hazards and falling object hazards in the work area.
2. 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.
3. The proper use of the scaffold, and the proper handling of materials on the scaffold.
4. The maximum intended load and the load carrying capacities of the scaffolds used.

(b) Employees involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold will be trained by a competent person to recognize any hazards associated with the work in question. The training will include the following topics, as applicable:

1. The nature of scaffold hazards.
2. The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used.
3. The design criteria, maximum intended load carrying capacity, and intended use of the scaffold.

(c) When there is reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, each such employee will be retrained. Retraining is required in at least the following situations:

1. Where changes at the worksite present a hazard about which the employee has not been previously trained.
2. Where changes in the types of scaffolds, fall protection, or other equipment present a hazard about which an employee has not been previously trained.
3. Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the information required.

42.6 General Requirements

(a) Capacity.

1. Each scaffold and scaffold component will be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

2. Scaffolds will be designed by a qualified person and will be constructed and loaded in accordance with that design.
3. Scaffold Platform Construction. Each platform on all working levels of scaffolds will be fully planked or decked between the front uprights and the guardrail supports as follows:
   - Each platform unit (scaffold plank, fabricated plank, fabricated deck, or fabricated platform) will be installed so that the space between adjacent units is no more than 1 inch wide, except where the employer can demonstrate that a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform).
   - Platforms will be planked or decked as fully as possible and the remaining open space between the platform and the uprights will not exceed 9 ½ inches.
   - Platforms used solely as walkways or solely by employees performing scaffold erection or dismantling are not required to be fully planked or decked as long as it will provide safe working conditions.
4. Each scaffold platform and walkway will be at least 18 inches wide.
   - Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold will be at least 12 inches wide. There is no minimum width requirement for boatswains' chairs.
   - Where scaffolds must be in areas where platforms and walkways cannot at least be 18 inches wide, such platforms and walkways will be as wide as feasible, and employees on those platforms and walkways will be protected from fall hazards by the use of guardrails and/or personal fall arrest systems.
5. The front edge of all platforms will not be more than 14 inches from the face of the work, unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used.
   - The maximum distance from the face for outrigger scaffolds will be 3 inches.
   - The maximum distance from the face for plastering and lathing operations will be 18 inches.
6. Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, will extend over the centerline of its support at least 6 inches.
7. Each end of a platform 10 feet or less in length will not extend over its support more than 12 inches, unless the platform is designed and installed so that the cantilevered portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employees access to the cantilevered end.
8. Each end of a platform greater than 10 feet in length will not extend over its support more than 18 inches unless it is designed and installed so that the cantilevered portion of the platform is able to support employees without tipping, or has guardrails which block employee access to the cantilevered end.
9. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end will rest on a separate support surface. This provision does not preclude the use of common support members, such as "T" sections, to support abutting planks, or hook on platforms designed to rest on common supports.
10. On scaffolds where platforms are overlapped to create a long platform, the overlap will occur only over supports, and will not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.
11. At all points of a scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle will be laid first, and platforms which rest at right angles over the same bearer will be laid second, on top of the first platform.
12. Wood platforms will not be covered with opaque finishes, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.
13. Scaffold components manufactured by different manufacturers will not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained by the user. Scaffold components manufactured by different manufacturers will not be modified in order to intermix them unless a competent person determines the resulting scaffold is structurally sound.
14. Scaffold components made of dissimilar metals will not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component.

(b) Criteria for Supported Scaffolds.

1. Supported scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one will be restrained from tipping by guying, tying, bracing, or equivalent means, as follows:

- Guys, ties, and braces will be installed at locations where horizontal members support both inner and outer legs.
- Guys, ties, and braces will be installed according to the scaffold manufacturer's recommendations or at the closet horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet or less thereafter for scaffolds 3 feet wide or less, and every 26 feet or less thereafter for scaffolds greater than 3 feet wide. The top guy, tie or brace of completed scaffolds will be placed no further than 4:1 (height from the top. Such guys, ties and braces will be installed at each end of the scaffold and at the horizontal intervals not to exceed 30 feet (measured from one end [not both] towards the other).
- Ties, guys, braces, or outriggers will be used to prevent the tipping of supported scaffolds in all circumstances where an eccentric load, such as a cantilevered work platform, is applied or is transmitted to the scaffold.

2. Supported scaffold poles, legs, posts, frames, and uprights will bear on base plates and mud sills or other adequate firm foundation.

- Adequate mud sills or other rigid footing, capable of withstanding the maximum intended load, must be used. All stationary metal scaffold legs, including those of outriggers, will rest upon base plates available from the manufacturer for this service. When the scaffold or outrigger is resting on earth or soft material, the base plates will rest on and be secured to the equivalent of a 2-inch by 10-inch by 10-inch wooden base.
- Unstable objects will not be used to support scaffolds or platform units.
- Unstable objects will not be used as working platforms.
- Front-end loaders and similar pieces of equipment will not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.
- Forklifts will not be used to support scaffold platforms unless the entire platform is attached to the forks and the forklift is not moved horizontally while the platform is occupied.

3. Supported scaffold legs, poles, posts, frames, and uprights will be plumb and braced to prevent swaying and displacement.

(c) Access.

1. When scaffold platforms are more than 2 feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers, stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface will be used. Cross braces will not be used as means of access.
2. Portable, hook-on, and attachable ladders will be positioned so as not to tip the scaffold.

- Hook-on and attachable ladders will be positioned so that their bottom rung is not more than 24 inches above the scaffold supporting level.
- When hook-on and attachable ladders are used on a supported scaffold more than 35 feet high, they will have rest platforms at 35-foot maximum vertical intervals.
- Hook-on and attachable ladders will be specifically designed for use with the type of scaffold used.
- Hook-on and attachable ladders will have a minimum rung length of 11 ½ inches.
- Hook-on and attachable ladders will have uniformly spaced rungs with a maximum spacing between rungs of 16 3/4 inches.

3. Stairway-type ladders will be positioned such that their bottom step is not more than 24 inches above the scaffold supporting level.

- Stairway-type ladders will be provided with rest platforms at 12-foot maximum vertical intervals.
- Stairway-type ladders will have a minimum step width of 16 inches, except that mobile scaffold stairway-type ladders will have a minimum step width of 11 ½ inches
- All stairway-type ladders will have slip-resistant treads on all steps and landings.

4. Stair towers will be positioned such that their bottom step is not more than 24 inches above the scaffolding support.

- A stair rail consisting of a top rail and a midrail will be provided on each side of each scaffold stairway.

- The top rail of each scaffold system will also be capable of serving as a handrail, unless a separate handrail is provided.
- Handrails and top rails that serve as handrails will provide an adequate handhold for employees grasping them to avoid falling.
- Stair rail systems and handrails will be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- The ends of stair rail systems and handrails will be constructed so that they do not constitute a projection hazard.
- Handrails and top rails that are used as handrails will be at least 3 inches from other objects.
- Stair rails will be not less than 28 inches or more than 37 inches from the upper surface of the stair rail to the surface of the tread.
- A landing platform at least 18 inches wide by at least 18 inches long will be provided at each level.
- Guardrails will be provided on the open sides and ends of each landing.
- Riser height will be uniform for each flight of stairs. Greater variations in riser height are allowed for the top and the bottom steps of the entire system, not for each flight of stairs.
- Tread depth will be uniform for each flight of stairs.

5. Ramps and walkways 6 feet or more above lower levels will have guardrail systems that comply with the Fall Protection section of this program.

    - No ramp or walkway will be inclined more than a slope of one (1) vertical to three (3) horizontally (20 degrees above the horizontal).
    - If the slope of a ramp or walkway is steeper than one (1) vertical in eight (8) horizontal, the ramp or walkway will have cleats not more than fourteen (14) inches apart which are securely fastened to the planks to provide footing.

6. Integrated prefabricated scaffold access frames will be specifically designed and constructed for use as ladder rungs.

    - They should have a rung length of at least 8 inches.
    - Be uniformly spaced within each frame section.
    - Be provided with rest platforms at 35-foot maximum vertical intervals on all supported scaffolds more than 35 feet high.

7. Steps and rungs of ladder and stairway type access will line up vertically with each other between rest platforms.
8. Direct access to or from another surface will be used only when the scaffold is not more than 14 inches horizontally and not more than 24 inches vertically from the outer surface.
9. Access for employees erecting or dismantling supported scaffolds will be in accordance with the following:

    - A safe means of access will be provided for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. A competent person will determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination will be based on site conditions and the type of scaffold being erected or dismantled.
    - Hook-on or attachable ladders will be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.
    - When erecting and dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than 22 inches apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.
    - Cross braces on tubular welded frame scaffolds will not be used as a means of access or egress.

(d) Use.

1. Scaffolds and scaffold components will not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
2. The use of shore or lean-to scaffolds is prohibited.

3. Scaffolds and scaffold components will be inspected for visible defects by a competent person before each work shift, and after any occurrence that could affect a scaffold's structural integrity.
4. Any part of a scaffold damaged or weakened will be immediately repaired, replaced, or removed from service until repaired.
5. Scaffolds will not be moved horizontally while employees are on them, unless they have been designed by a registered professional engineer specifically for such movement.
6. The clearance between scaffolds and power lines will be as follows: Scaffolds will not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

Insulated Lines, Voltage	Minimum Distance	Alternatives
Less than 300 volts 300 - 50 kv More than 50 kv	3 feet 10 feet 10 feet plus 4 inches for each 1 kv > 50 kv	Two times the length of the line insulator, but never less than 10 feet
Uninsulated Lines, Voltage	**Minimum Distance**	**Alternatives**
Less than 50 kv More than 50 kv	10 feet 10 feet plus 4 inches for each 1 kv over 50 kv	Two times the length of the line insulator, but never less than 10 feet

EXCEPTIONS: Scaffolds and materials may be closer to power lines than specified above where such clearance is necessary for performance of work, but only after the utility company, or electrical system operator, has been notified of the need to work closer and the utility company or electrical system operator has de-energized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

7. Scaffolds will be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Only experienced and trained employees selected for such work by the competent person will perform such activities.
8. Employees will be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.
9. Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads will be used.
10. Suspension ropes supporting adjustable suspension scaffolds will be of a diameter large enough to provide sufficient surface area for the functioning of brake and hoist mechanisms.
11. Suspension ropes will be shielded from heat-producing processes. When acids or other corrosive substances are used on a scaffold, the ropes will be shielded, treated to protect against the corrosive substances, or will be of a material that will not be damaged by the substance being used.
12. Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens will not be used unless the scaffold is secured against the anticipated wind forces imposed.
13. Debris will not be allowed to accumulate on platforms.
14. Makeshift devices, such as but not limited to boxes and barrels, will not be used on top of scaffold platforms to increase the working level height of employees.
15. Ladders will not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where the following criteria are satisfied:
    - When the ladder is placed against a structure that is not a part of the scaffold, the scaffold will be secured against the sideways thrust exerted by the ladder.
    - The platform units will be secured to the scaffold to prevent movement.
    - The ladder legs will be on the same platform or other means will be provided to stabilize the ladder against unequal platform deflection, and the ladder legs will be secured to prevent slipping or being pushed off the platform.
16. Platforms will not deflect more than 1/60 of the span when loaded.

17. To reduce the possibility of welding current arcing through the suspension wire rope when performing welding from suspended scaffolds, the following precautions will be taken, as applicable:

    - An insulated thimble will be used to attach each suspension wire rope to its hanging support such as an outrigger. Excess suspension wire rope and any additional independent lines from grounding will be insulated.
    - The suspension wire rope will be covered with insulated material extending at least feet above the hoist. If there is a tail line below the hoist, it will be insulated to prevent contact with the platform. The portion of the tail line that hangs free below the scaffold will be guided or retained, or both, so that it does not become grounded.
    - Each hoist will be covered with insulated protective covers.
    - In addition to a work lead attachment required by the welding process, a grounding conductor will be connected from the scaffold to the structure. The size of this conductor will be at least the size of the welding process work lead, and this conductor will not be in series with the welding process or the work piece.
    - If the scaffold grounding lead is disconnected at any time, the welding machine will be shut off.
    - An active-welding rod or uninsulated welding lead will not be allowed to contact the scaffold or its suspension system.

(e) Fall protection

1. Each employee on a scaffold more than 6 feet above a lower level will be protected from falling to that lower level. Listed below are the types of fall protection provided to employees on each type of scaffold:

    - Each employee on a boatswain's chair, catenary scaffold, float scaffold, needle beam scaffold, or ladder jack scaffold will be protected by a fall arrest system.
    - Each employee on a single-point or two-point adjustable suspension scaffold will be protected by both a personal fall arrest system and guardrail system.
    - Each employee on a crawling board (chicken ladder) will be protected by a personal fall arrest system, a guardrail system (with minimum 200 pound top rail capacity), or by a three-quarter inch diameter grabline or equivalent handhold securely fastened beside each crawling board.
    - Each employee on a self-contained adjustable scaffold will be protected by a guardrail system (with minimum 200 pound top rail capacity) when the platform is supported by the frame structure, and by both a personal fall arrest system and a guardrail system (with minimum 200 pound top rail capacity) when the platform is supported by ropes.
    - Each employee on a walkway located within a scaffold will be protected by a guardrail system (with minimum 200 pound top rail capacity) installed within 9-1/2 inches of and along at least one side of the walkway.
    - Each employee performing overhand bricklaying operations from a supported scaffold will be protected from falling from all open sides and ends of the scaffold (except at the side next to the wall being laid) by the use of a personal fall arrest system or guardrail system (with minimum 200 pound top rail capacity).
    - For other scaffolds not mentioned above, the use of fall arrest systems or guardrail systems will be used.

2. A competent person will determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Fall protection is required for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
3. Personal fall arrest systems used on scaffolds will be attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structure member. Vertical lifelines will not be used when overhead components, such as overhead protection or additional platform levels, are part of a single-point or two-point adjustable suspension scaffold.

    - When vertical lifelines are used, they will be fastened to a fixed safe point of anchorage, will be independent of the scaffold, and will be protected from sharp edges and abrasions. Safe points of anchorage include structural members of buildings, but do not include standpipes, vents, other piping systems, electrical conduit, outrigger beams, or counterweights.
    - When horizontal lifelines are used, they will be secured to two or more structural members of the scaffold, or they may be looped around both suspension and independent suspension lines (on scaffolds so equipped) above the hoist and brake attached to the end of the scaffold. Horizontal lifelines will not be attached only to the suspension ropes.

- When lanyards are connected to horizontal lifelines or structural members on a single-point or two-point adjustable suspension scaffold, the scaffold will be equipped with additional independent support lines and automatic locking devices capable of stopping the fall of the scaffold in the event one or both of the suspension ropes fail. The independent support lines will be equal in number and strength to the suspension ropes.
- Vertical lifelines, independent support lines, and suspension ropes will not be attached to each other, nor will they be attached to or use the same point of anchorage, nor will they be attached to the same point on the scaffold or personal fall arrest system.

4. Guardrail systems will be installed along all open sides and ends of platforms. Guardrail systems will be installed before the scaffold is released for use by employees other than erection/dismantling crews.

- The top edge height of top rails on supported scaffolds and on all suspended scaffolds where both a guardrail and a personal fall arrest system are required to be between 39 inches and 45 inches.
- When midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they will be installed between the top edge of the guardrail system and the scaffold platform
- When midrails are used, they will be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.
- When screens and mesh are used, they will extend from the top edge of the guardrail system to the scaffold platform, and along the entire opening between the supports.
- When intermediate members are used, they will not be more than 19 inches apart.
- Each top rail or equivalent member of a guardrail system will be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least 100 pounds for guardrail systems installed on single-point adjustable suspension scaffolds or two-point adjustable suspension scaffolds, and at least 200 pounds for guardrail systems installed on all other scaffolds.
- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system will be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along the midrail or other member of at least 75 pounds for guardrail systems with a minimum 100 pound top rail capacity, and at least 150 pounds for guardrail systems with a minimum 200 pound top rail capacity.
- Suspension scaffold hoists and non-walk-through stirrups may be used as end guardrails, if the space between the hoist or stirrup and the side guardrail or structure does not allow passage of an employee to the end of the scaffold.
- Guardrails will be surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.
- The ends of guardrails will not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees.
- Steel or plastic banding will not be used as a top rail or midrail.
- Manila or plastic (or other synthetic) rope being used for top rails or midrails will be inspected by a competent person as frequently as necessary to ensure that it continues to meet the strength requirements.
- Cross bracing is acceptable in place of a midrail when the crossing point of two braces is between 20 inches and 30 inches above the work platform or as a top rail when crossing points of two braces is between 38 inches and 48 inches above the work platform. The end points at each upright will be no more than 48 inches apart.

(f) Falling Object Protection.

1. In addition to wearing hard hats, each employee on a scaffold will be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. When the falling objects are too large, heavy or massive to be contained or deflected by any of the above listed measures, such potential falling objects will be placed away from the edge of the surface from which they could fall and secured as necessary to prevent their falling.
2. Where there is danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions will apply:

- The area below the scaffold to which objects can fall will be barricaded, and employees will not be permitted to enter the hazard area, or
- A toeboard will be erected along the edge of platforms more than 10 feet above lower levels for a distance sufficient to protect employees below, except on float (ship) scaffolds where an edging of 3/4- by 1-1/2-in. wood or equivalent may be used in lieu of toeboards.
- Where tools, material or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail will be erected for a distance sufficient to protect employees below.
- A guardrail system will be installed with openings small enough to prevent passage of potential falling objects.
- A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects will be erected over the employees below. Canopies when used for falling object protection, will comply with the following criteria:
  - Canopies will be installed between the falling object hazard and the employees.
  - When canopies are used on suspension scaffolds for falling object protection, the scaffold will be equipped with additional suspension ropes.
  - Independent support lines and suspension ropes will not be attached to the same points of anchorage.
- Where used, toeboards will be:
  - Capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction at any point along the toeboard.
  - At least 3-1/2 inches high from the top edge of the toeboard to the level of the walking/working surface. Toeboards will be securely fastened in place at the outermost edge of the platform and have not more than 1/4-inch clearance above the walking/working surface. Toeboards will be solid or with openings not over 1 inch in the greatest dimension.

42.7 Additional Requirements Applicable to Specific Types of Scaffolds

(a) Tube and Coupler Scaffolds.

1. When platforms are being moved to the next level, the existing platform will be left undisturbed until the new bearers have been set in place and braced prior to receiving the new platforms.
2. Transverse bracing forming an “X” across the width of the scaffold will be installed at the scaffold ends and at least at every third set of posts horizontally and every fourth runner vertically. Bracing will extend diagonally from the inner or outer posts or runners upward to the next outer or inner posts or runners. Building ties will be installed at the bearer levels between the transverse bracing and will conform to the requirements of 1926.451(c)(1).
   On straight run scaffolds, longitudinal bracing across the inner and outer rows of posts will be installed diagonally in both directions, and will extend from the base of the end posts upward to the top of the scaffold at approximately a 45- degree angle. On scaffolds whose length is greater than their height, such bracing will be repeated beginning at least every fifth post. On scaffolds whose length is less than their height, such bracing will be installed from the base of the end posts upward to the opposite end posts, and then in alternating directions until reaching the top of the scaffold. Bracing will be installed as close as possible to the intersection of the bearer and post or runner and post.
   Where conditions preclude the attachment of bracing to posts, bracing will be attached to the runners as close to the post as possible.
   Bearers will be installed transversely between posts, and when coupled to the posts, will have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers will be as close to the posts as possible.
   Bearers will extend beyond the posts and runners, and will provide full contact with the coupler.
   Runners will be installed along the length of the scaffold, located on both the inside and outside posts at level heights (when tube and coupler guardrails and midrails are used on outside posts, they may be used in lieu of outside runners).

Runners will be interlocked on straight runs to form continuous lengths, and will be coupled to each post. The bottom runners and bearers will be located as close to the base as possible.
Couplers will be of structural metal, such as dropforged steel, malleable iron, or structural grade aluminum. The use of gray cast iron is prohibited.
Tube and coupler scaffolds over 125 feet in height will be designed by a registered professional engineer, and will be constructed and loaded in accordance with such design.

(b) Fabricated Frame Scaffolds (Tubular Welded Frame Scaffolds).

1. When moving platforms to the next level, the existing platform will be left undisturbed until the new end frames have been set in place and braced prior to receiving the new platforms.
2. Frames and panels will be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces will be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, level, and square. All brace connections will be secured.
3. Frames and panels will be joined together vertically by coupling or stacking pins or equivalent means.
4. Where uplift can occur which could displace scaffold end frames or panels, the frames or panels will be locked together vertically by pins or equivalent means.
5. Brackets used to support cantilevered loads will:
   - Be seated with side-brackets parallel to the frames and end-brackets at 90 degrees to the frames.
   - Not be bent or twisted from these positions.
   - Be used only to support personnel, unless the scaffold has been designed for other loads being placed on the bracket-supported section of the scaffold.
6. Scaffolds over 125 feet in height above their base plates will be designed by a registered professional engineer and will be constructed and loaded in accordance with such design.

(c) Mobile Scaffolds.

1. Scaffolds will be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent racking or collapse of the scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds will be plumb, level, and squared. All brace connections will be secured.
2. Scaffold casters and wheels will be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the scaffold while the scaffold is used in a stationary manner.
3. Manual force used to move the scaffold will be applied as close to the base as practical, but not more than 5 feet above the supporting surface.
4. Power systems used to propel mobile scaffolds will be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors will not be used to propel scaffolds unless the scaffold is designed for such propulsion systems.
5. Scaffolds will be stabilized to prevent tipping during movement.
6. Employees will not be allowed to ride on scaffolds unless the following conditions exist.
   - The surface on which the scaffold is being moved is within 3 degrees of level, and free of pits, holes, and obstructions.
   - The height to base width ratio of the scaffold during movement is two to one or less, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements.
   - Outrigger frames, when used, are installed on both sides of the scaffold.
   - When power systems are used, the propelling force is applied directly to the wheels, and does not produce a speed in excess of 1 foot per second.
7. Platforms will not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
8. Where leveling of the scaffold is necessary, screw jacks or equivalent means will be used.
9. Caster stems and wheel stems will be pinned or otherwise secured in scaffold legs or adjustment screws.
10. Before a scaffold is moved, each employee will be made aware of the move.

42.8 Exhibits/Attachments

Scaffold Release Form, Attachment 25

Attachment 25. Scaffold Release Form

SCAFFOLD RELEASE FORM

TO: _____

In consideration of the permission granted to us by you for use of the scaffold erected by you or your Subcontractor at _____
located at_____ .

We hereby assume the entire responsibility and liability for any and all damage or injury of any kind or nature whatsoever (including death resulting there from) to all persons, whether our employees or otherwise, and to all property caused by, resulting from, arising out of, or occurring in connection with our use or operation of the said scaffold while in our use or under our control or resulting from our use of the condition of the said scaffold or the ways, works or machinery. Except to the extent, if any, expressly prohibited by statute, should any claims for such damage or injury (including death resulting there from) be made or asserted, whether or not such claims are based upon _____ alleged active or passive negligence or participation in the wrong or upon any alleged breach of any statutory duty or obligation on the part of _____, we agree to indemnify and save harmless _____, its Officers, Agents, Servants and Employees from and against any and all such claims, and further from and against any and all loss, cost, expense, liability, damage or injury, including legal fees and disbursements, that _____, its Officers, Agents, Servants or Employees may directly or indirectly sustain, suffer or incur as a result thereof. We agree to and do hereby assume, on behalf of _____, its Officers, Agents, Servants and Employees, the defense of any action at law or in equity which may be brought against _____, its Officers, Agents, Servants and Employees upon or by reason of such claims and to pay on behalf of _____, its Officers, Agents, Servants and Employees, upon its demand, the amount of any judgment that may be entered against _____, its Officers, Agents, Servants and Employees in any such action.

We will also assume and pay the cost of any repairs to said scaffold which may be made necessary by our use or possession thereof. It is expressly agreed that such permission to use said scaffold shall in no way or manner affect the terms of any other contract between us.

Your permission may be revoked upon notice to us at our principal office or to our Superintendent or other representative at the project.

_____
Principal

Date _____

By _____
Authorized Representative

_____
Title

43. Severe Weather

43.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to protect their employees and projects in situations of severe weather conditions.

43.2 Definitions

Not applicable.

43.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

43.4 General Requirements

Not applicable.

43.5 Implementation

A contingency plan should be in place to deal with excessive rain, floods or high winds. The owner may want to be involved in the decision process when severe weather is forecast. Individual situations will vary but the guidelines below may be helpful:

(a) All winds over 30 mph. All rigging of forms or flat-sided materials should be discontinued until wind subsides.

(b) All winds over 35 mph. All crane operations should be stopped and not resumed until winds are below 30 mph.

(d) Flooding.

1. The Site Superintendent should establish a control station for operations.
2. Set gang boxes, safety skips, and miscellaneous items on trucks or move to higher elevations.
3. If possible, have all craft people remove their personal tools.
4. Tow mobile items such as welders and compressors out of the floodplain.
5. Remove equipment such as electric welding machines, gas driven pumps, and concrete vibrators.

6. Remove diesel and gasoline tanks, curing compound, and propane tanks, as well as other containers of petroleum products.
7. Make sure that life rings, life jackets and a motorized boat are available where appropriate.
8. Disconnect power to the area.

43.6 Exhibits/Attachments

Not applicable.

44. Emergency Procedures

44.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to implement procedures to respond emergencies at the construction site, in accordance with WAC 296-155-17309.

44.2 Definitions

Not applicable

44.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

44.4 General Requirements

Vancouver Energy, implements construction site emergency procedures tiered from its operations emergency response plan (see OP.02 Operations Safety Program, Section 3.1 – Emergency Response Plan [Operations ERP]). The Operations ERP identifies emergency situation which may occur not only during operations, but also during construction, including but not limited to:

- Evacuation procedures
- Fire and/or explosion
- Product spill
- Severe weather
- Earthquake or volcanic action
- Medical emergencies
- Communicable diseases, and epidemic/pandemic
- Security incidents
- Bomb and/or terrorism threats

A site-wide construction emergency plan is managed by the SHE&Q manager. Upon mobilization of each new contractor the plan is reviewed to ensure consistent emergency procedures are implemented throughout the site. It is the responsibility of each contractor (and subcontractor) to familiarize themselves with the elements of the plan and implement the plan's procedures.

A site evacuation procedure and site evacuation route maps (Attachment 26) is part of the contractor employee and visitor safety orientation plan and addressed in the daily/weekly safety meetings.

Upon final configuration of construction areas and updated as construction progresses, the evacuation route map should include (see sample Attachment 26).

- Your location “you are here”
- Site plan, with “North “ direction symbol
- Safe refuge/assembly areas
- Site evacuation route
- Rally/meeting point
- Emergency phone numbers/contacts
- Posted in permanent and temporary jobsite buildings

The jobsite has local emergency contact information posted. This information includes the telephone number of the local hospital, police and fire departments. Information is conspicuously posted at the job site, in all office and change trailers, and adjacent to telephones. The Site Superintendent is responsible in ensure this information is obtained and posted at designated locations under each contractor’s control prior to the start of construction activities.

Construction work is occurring within the Port where existing tenants conduct ongoing operations. Adjacent operations may be a source of hazard exposure, either resulting from intrinsic operations, or from tenant traffic within the Port relative to such operations. Constant awareness of the nearby facilities is maintained, and communication plans are in place to ensure the SHE&Q manager, and subsequently project managers and site superintendents are notified of an emergency situation at an adjacent Port tenant’s operation.

The SHE&Q manager arranges for additional training or drills as construction site conditions change through project completion. Additionally, the SHE&Q manager coordinates closely with the senior project manager and the Vancouver Energy Director of Operations when portions of the site transition to the operational phase to ensure appropriate notification of and response to emergencies when concurrent operations and construction activities are occurring.

44.5 Emergency Procedures

See - OP.02 Operations Safety Program, Section 3.1 – Emergency Response Plan (Operations ERP).

44.18 Temporary Barricades

Temporary barricades will be erected and maintained to warn or protect workers whenever hazards or processes such as those listed below are encountered on the project. This list includes, but is not limited to the following.

- Floor or wall openings
- Working above other workers
- Open excavations/trenches
- Unguarded equipment
- Overhead loads
- Closed stairwells
- Exposure to vehicular traffic
- Startup operations and testing of equipment/systems
- Process hazards such as discharges, open systems, etc.

When barricading is required, the following guidelines should be followed.

- **Yellow “Caution” tape** is used to limit the passage of workers through the barricaded area. This barricading should only be used to protect workers from hazards that are not severe or the potential for severe injury or death is unlikely.

- **Red “Danger” tape** is used to prohibit the passage of unauthorized workers through the barricaded area. This barricading should be used to protect workers from hazards that have the potential to cause serious injury or death. Red Danger tape is **NOT a substitute for a guard rail.** Danger tape is not to be used if the hazards cannot be eliminated or removed during a single work shift.
- **Rigid barricades** are used when protection is required beyond a work shift or longer. It will be used to protect workers from unguarded moving machinery/equipment, vehicular or heavy equipment traffic and low light conditions. Rigid barricading will consist of standard guardrail, temporary chain link fencing, and tube and coupler scaffold members with blue construction fencing attached and concrete.

When using “Caution” or “Danger” tape barricading:

- Install at least 15feet from excavations, trenches, holes, leading edges and floor or wall openings.
- Install a standard “Caution” or “Danger” sign that identifies the hazard at regular intervals around the barricaded area and the name and contact information that erected the barricade.
- Do not impede stairs, walkways, driveways or aisles without notifying and identifying alternative passageways.
- The barricade tag or signage will be approved by the site superintendent prior to posting on a barricade.

When using rigid barricading:

- Support and maintain construction fencing to prevent tipping or sagging.
- Install pins in concrete barriers whenever there is a danger of vehicles or heavy equipment striking them.
- Provide adequate access to the work area.

When work is complete and the hazard is eliminated, remove the barricading immediately. Workers who enter a “Danger” or “Radiation” barricaded work area without authorization will be subject to disciplinary action.

44.19 Exhibits/Attachments

(a) Evacuation Plan Samples, Attachment 26 (5 figures)

(b) Master Chemical and Substance Inventory List, Attachment 27

(c) Barricade Tag, Attachment 28

Attachment 26. Sample Evacuation Plan

(five figures)

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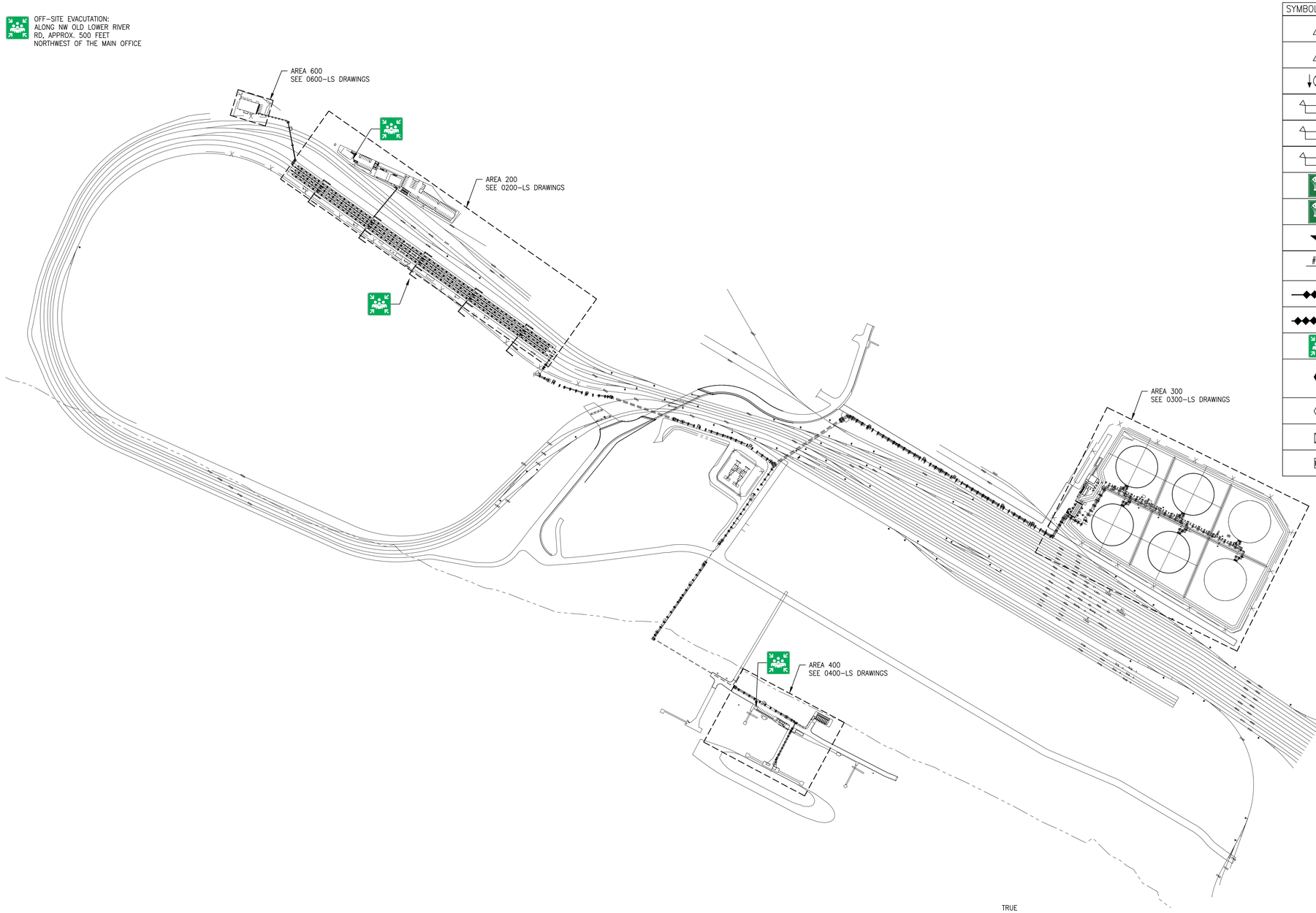


1 LIFE SAFETY SITE PLAN

SCALE: 1" = 300'

0 300' 600'

TRUE NORTH

SYMBOLS LEGEND	DESCRIPTION	PROTECTIVE ELEMENTS
	DRY CHEMICAL EXTINGUISHER – ABC TYPE	
W	DRY CHEMICAL EXTINGUISHER – ABC TYPE – WHEELED	
	ILLUMINATED EXIT SIGN	
	EMERGENCY LIGHT – BATTERY POWERED	
EP	EMERGENCY LIGHT – BATTERY POWERED – EXPLOSION PROOF	
	COMBINED BATTERY POWERED EMERGENCY LIGHT AND ILLUMINATED EXIT SIGN	
	EYE WASH STATION – HEATED	
P	EYE WASH STATION – PORTABLE	
	EXIT – EXTERIOR	
#/#" / #"	ACCUMULATED EXIT WIDTH AT REQUIRED EXIT (CLEAR WIDTH)	OCCUPANTS / REQUIRED WIDTH PROVIDED WIDTH (BASED ON MOST RESTRICTIVE EXIT COMPONENT)
	2 HOUR FIRE BARRIER	
	3 HOUR FIRE BARRIER	
	MUSTER POINT	
X	GAS DETECTOR	GAS DETECTOR SETTINGS: CH4: LOW/10%LEL HIGH/30%LEL H2S: LOW/10ppm HIGH/15ppm O2: LOW/19% HIGH/24%
	SMOKE DETECTOR	
	HORN/STROBE	
F	FOAM RELEASE MANUAL SWITCH	

GENERAL NOTES:

1. THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE ONLY MEANT TO SHOW THE DESIGN INTENT.
2. THE EQUIPMENT PLACEMENT SHOWN IS FOR DIAGRAMMATIC PURPOSES ONLY. THE ENGINEER RESPONSIBLE FOR THE INSTALLATION SHALL MAKE ANY FINAL DETERMINATIONS ON DEVIATIONS FROM THIS LAYOUT.
3. ALL EQUIPMENT TO BE INSTALLED SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (2012), INTERNATIONAL FIRE CODE (2012), NFPA 10 (2010), NFPA 30 (2012), ANSI Z358.1 (2009), AND OTHER APPLICABLE CODES AND STANDARDS, OR AS REQUIRED BY THE "AHJ".
4. EXTINGUISHERS LOCATED IN E-HOUSES ARE ALLOWED TO BE CO_2.
5. FIRE EXTINGUISHERS LOCATED OUTSIDE OR EXPOSED TO WEATHER SHALL BE PROTECTED BY AN ENCLOSURE OR PROTECTIVE COVER.

Poole Fire Protection
19910 West 161st Street
Olathe, KS 66062
www.poolefire.com
913.829.8650 office ▲ 913.829.8690 fax

PERMIT SET
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CK'D	APP

BergerABAM
700 NE Multnomah Street, Suite 900
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

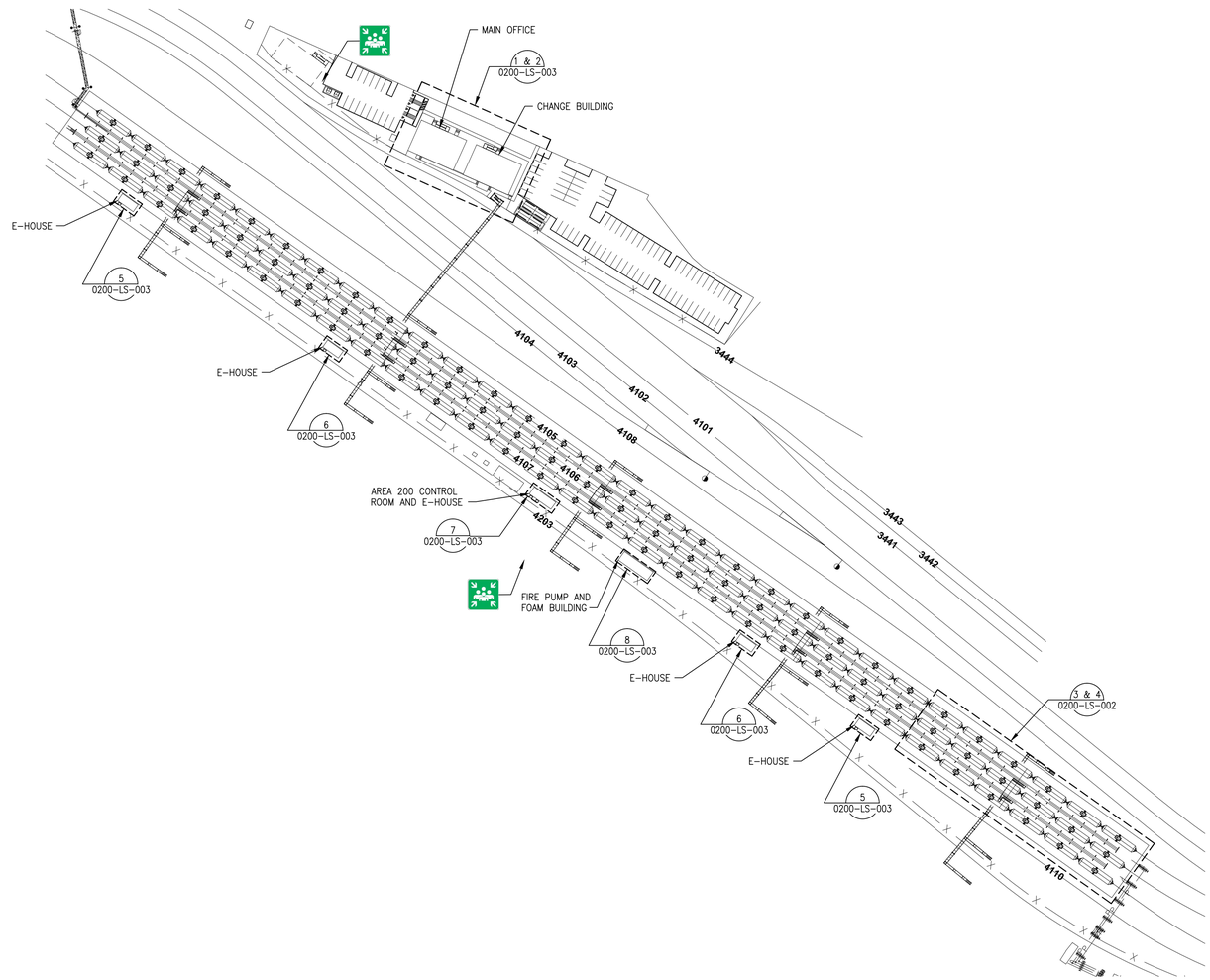
PROJECT: TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION: LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/31/2014	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0100-LS-001	1/1	A

EX-0001-004845-PCE



1 AREA 200 – LIFE SAFETY SITE PLAN

SCALE: 1" = 100'

0 100' 200'

TRUE NORTH

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VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

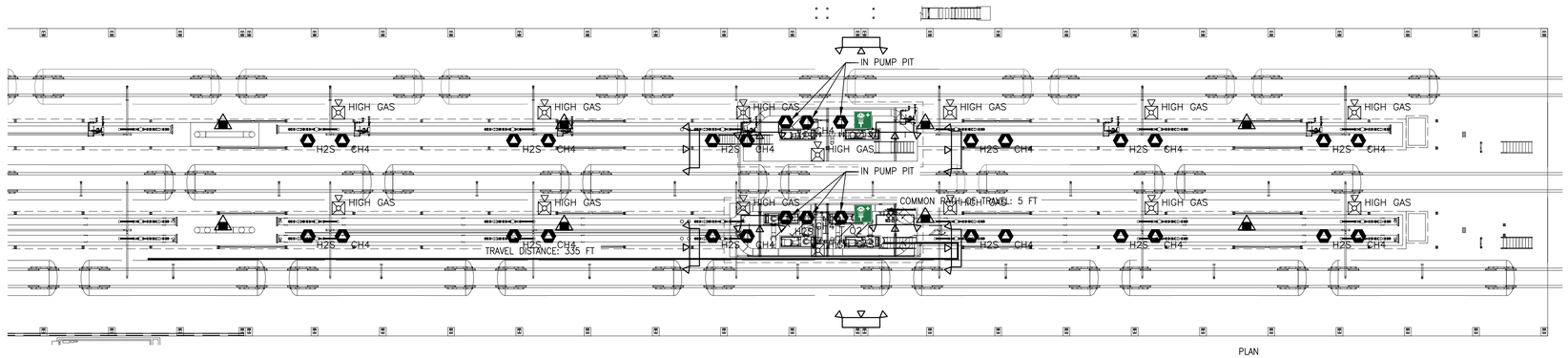
PROJECT:
TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 200 – LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0200-LS-001	1/1	A

EX-0001-004847-PCE

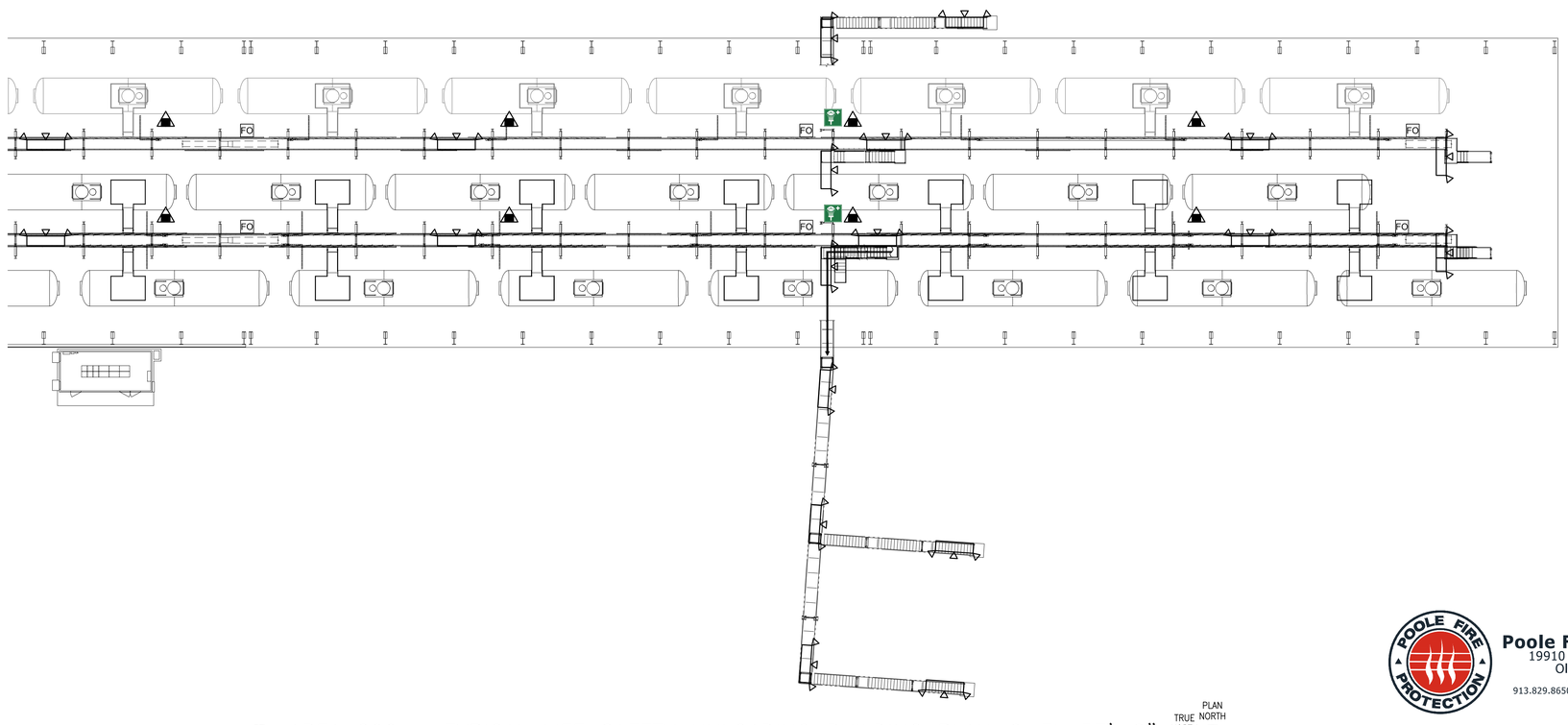


3 AREA 200 – TYPICAL LIFE SAFETY UNLOADING BUILDING PLAN @ T/RAIL EL 32'–6"

SCALE: 1" = 20'

0 20' 40'

TRUE NORTH PLAN NORTH



4 AREA 200 – TYPICAL LIFE SAFETY UNLOADING BUILDING PLAN @ EL 57'–8"

SCALE: 1" = 20'

0 20' 40'

TRUE NORTH PLAN NORTH

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Tesoro Savage Petroleum Terminal LLC

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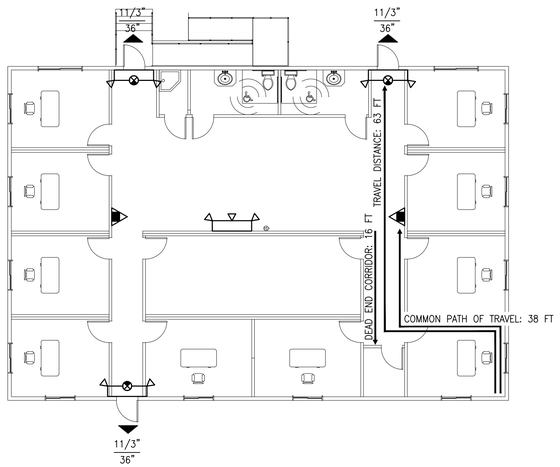
PORT OF VANCOUVER, WASHINGTON

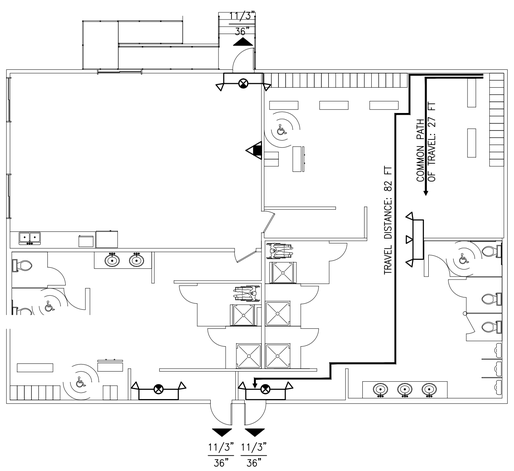
DESCRIPTION:
AREA 200 – TYPICAL LIFE SAFETY UNLOADING BUILDING PLANS

DESIGN:	R. BENNETT	START DATE:	4/29/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04–30–2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

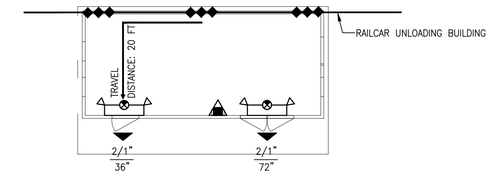
DRAWING NUMBER	SHEET	REV.
0200–LS–002	1/1	A



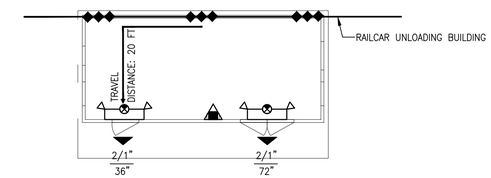
1 AREA 200 – LIFE SAFETY OFFICE BUILDING PLAN
SCALE: 1" = 10'
0 10' 20'
PLAN NORTH
TRUE NORTH



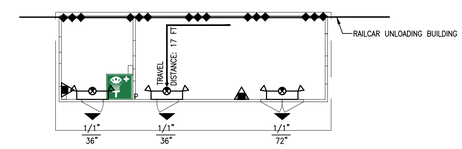
2 AREA 200 – LIFE SAFETY CHANGE BUILDING PLAN
SCALE: 1" = 10'
0 10' 20'
PLAN NORTH
TRUE NORTH



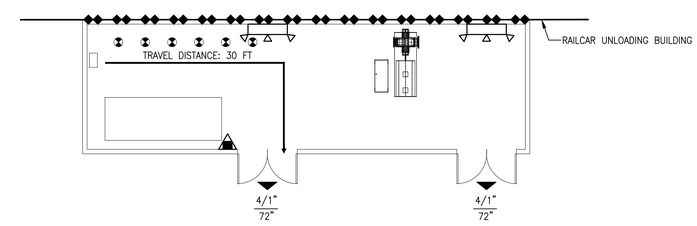
5 AREA 200 – LIFE SAFETY E-HOUSE 1 & 5 PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH
TRUE NORTH



6 AREA 200 – LIFE SAFETY E-HOUSE 2 & 4 PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH
TRUE NORTH



7 AREA 200 – LIFE SAFETY CONTROL ROOM/E-HOUSE 3 PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH
TRUE NORTH



8 AREA 200 – LIFE SAFETY FIRE PUMP AND FOAM BUILDING PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN NORTH
TRUE NORTH

Poole Fire Protection
19910 West 161st Street
Olathe, KS 66062
www.poolefire.com
913.829.8650 office ▲ 913.829.8690 fax

PERMIT SET
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CK'D	APP

BergerABAM
700 NE Multnomah Street, Suite 900
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

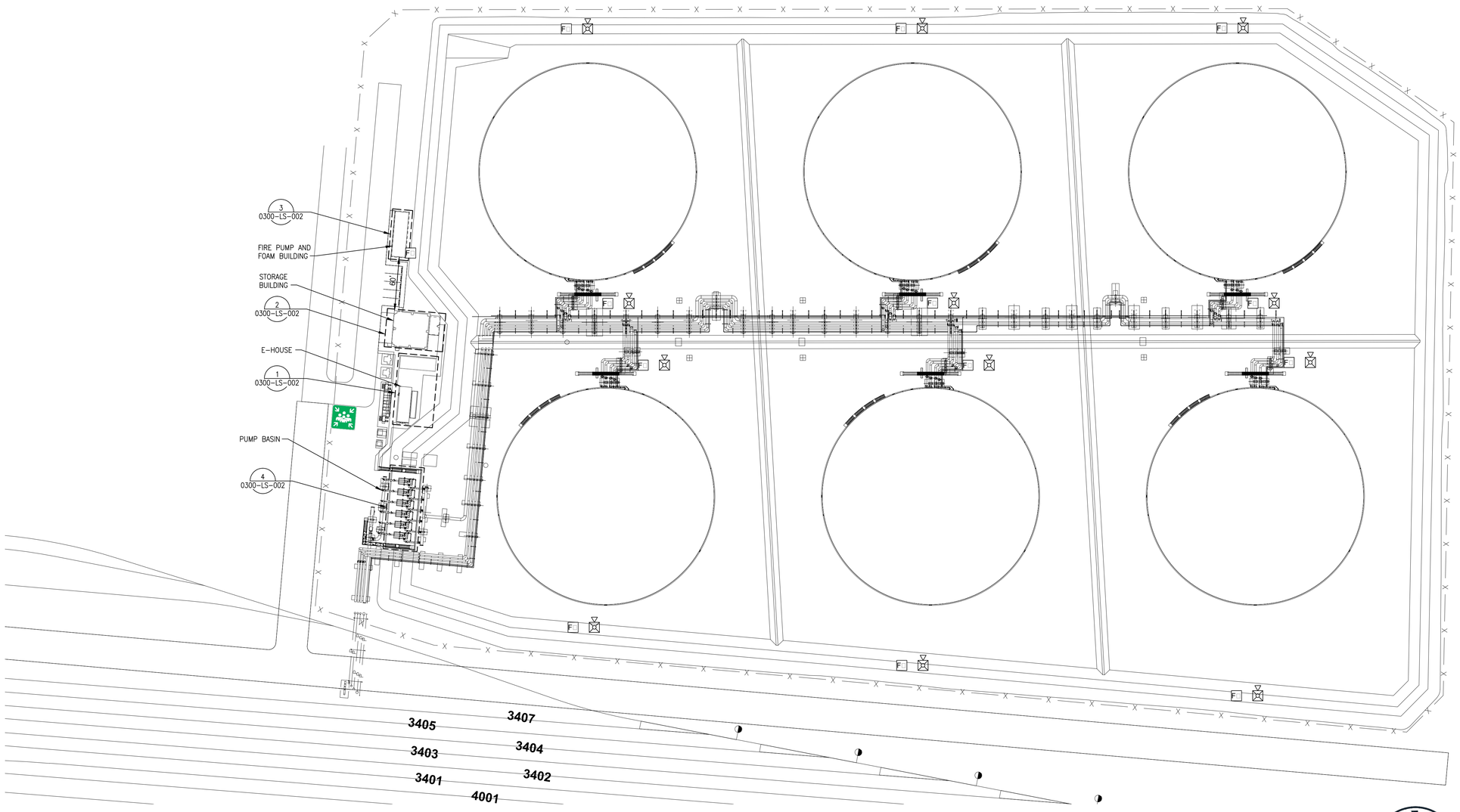
PROJECT: TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION: AREA 200 – LIFE SAFETY PLANS

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0200-LS-003	1/1	A

EX-0001-004851-PCE



1 AREA 300 – LIFE SAFETY SITE PLAN

SCALE: 1" = 60'

0 60' 120'

PLAN NORTH

TRUE NORTH

Poole Fire Protection
19910 West 161st Street
Olathe, KS 66062
www.poolefire.com
913.829.8650 office ▲ 913.829.8690 fax

PERMIT SET
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CK'D	APP

BergerABAM
700 NE Multnomah Street, Suite 900
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT: TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION: AREA 300 – LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0300-LS-001	1/1	A

EX-0001-004853-PCE

Attachment 27. Master Chemical and Substance Inventory List

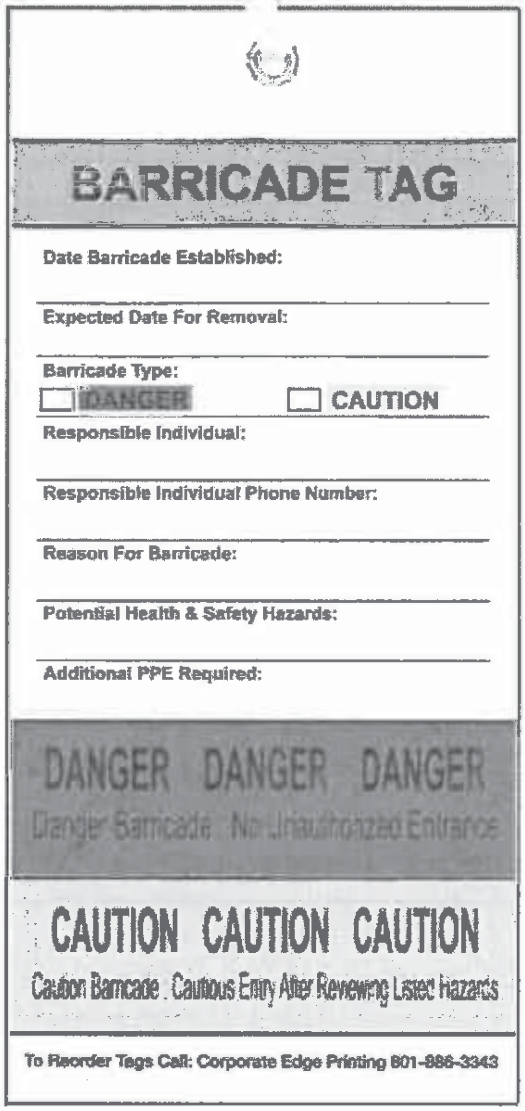
MASTER CHEMICAL AND SUBSTANCE INVENTORY LIST

SUBCONTRACTOR: **DATE OF UPDATE:**

DATE	BRAND NAME	MANUFACTURER	CHEMICAL NAME

Attachment 28. Barricade Tag

BARRICADE TAG



BARRICADE TAG

Date Barricade Established:

Expected Date For Removal:

Barricade Type:

☐ DANGER ☐ CAUTION

Responsible Individual:

Responsible Individual Phone Number:

Reason For Barricade:

Potential Health & Safety Hazards:

Additional PPE Required:

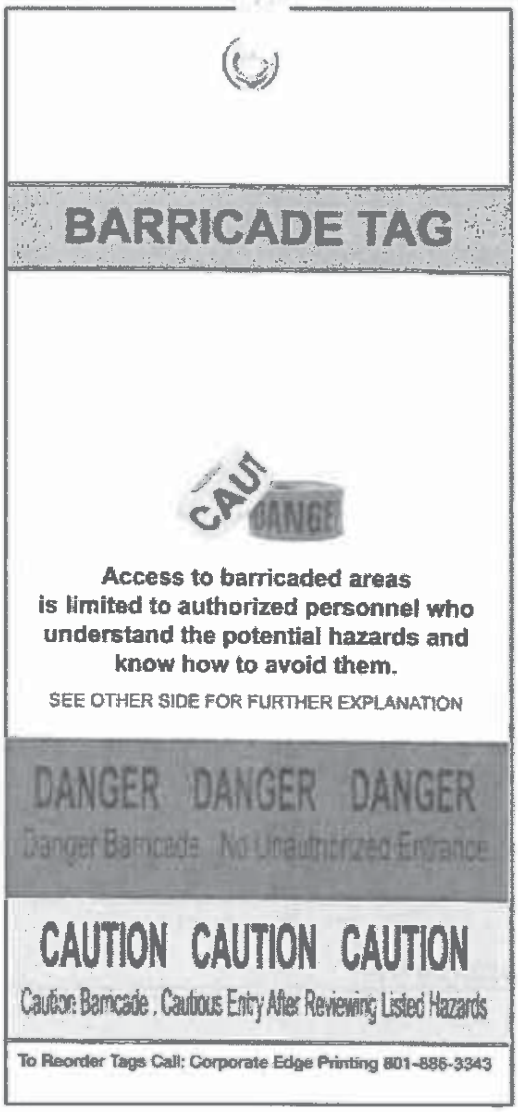
DANGER DANGER DANGER

Danger Barricade . No Unauthorized Entrance

CAUTION CAUTION CAUTION

Caution Barricade . Cautious Entry After Reviewing Listed Hazards

To Reorder Tags Call: Corporate Edge Printing 801-886-3343



BARRICADE TAG

CAUTION DANGER

Access to barricaded areas is limited to authorized personnel who understand the potential hazards and know how to avoid them.

SEE OTHER SIDE FOR FURTHER EXPLANATION

DANGER DANGER DANGER

Danger Barricade . No Unauthorized Entrance

CAUTION CAUTION CAUTION

Caution Barricade . Cautious Entry After Reviewing Listed Hazards

To Reorder Tags Call: Corporate Edge Printing 801-886-3343

45. Trenching and Excavation

45.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors for trenching and excavation.

45.2 Definitions

(a) Competent Person: A person 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.

(b) Excavation: As any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal.

(c) Trench: A narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet (4.5 meters).

45.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

45.4 General Requirements

(a) Prior to any ground disturbance, including trenching and excavation activities, utilities will be located in accordance with the requirements of RCW 19.22.

(b) Do not enter an unprotected trench.

(c) WISHA requires that trenches 4 feet deep or greater require a protective system unless the excavation is made entirely in stable rock. Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/ or approved by a registered professional engineer. General requirements also include

- Keep heavy equipment away from trench edges.
- Keep surcharge loads at least 2 feet (0.6 meter) from trench edges.
- Know where underground utilities are located.
- Test for low oxygen, hazardous fumes and toxic gases.
- Inspect trenches at the start of each shift.
- Inspect trenches following a rainstorm.
- Do not work under raised loads.

45.5 Implementation

(a) Checklist. Prior to the start of any trench or excavation work over 5 feet in depth, a trench and excavation checklist must be completed. A sample trenching and excavation checklist is included in this section. The completed form must be maintained as part of the permanent project file and maintained by the Project Engineer or the designee.

(b) Competent Person.

1. The Competent Person has the authority to stop work when he or she deems the trench or excavation unsafe. A Competent Person must be designated whenever a trench or excavation is opened.
2. The Competent Person will perform required inspection of the trench or excavation using the form included in this section. The completed inspection form will be maintained as part of the permanent project file by the Project Engineer or the designee.
3. Prior to the start of a trench or excavation, unless designed by a registered professional engineer, the Competent Person will complete a Soil Analysis Checklist. A sample checklist is included in this section.

(c) Soil Classification and Protective Systems.

1. The soil must be classified by the competent person as stable rock, Type A, B, or C as defined in the WISHA regulations.
2. Once the soil is classified, the appropriate sloping, benching, shoring or shielding method can be selected. Situations that do not conform to those allowed must have a protective system designed by a registered professional engineer.

(d) Access and Egress.

1. Suitable means of access and egress (stairway, ladder, ramp or other safe means) must be located so as to require no more than 25 feet of lateral travel for employees.
2. A Competent Person must design structural ramps for people working in the trench.
3. A registered professional engineer must design structural ramps for equipment.

(e) Hazardous Atmospheres.

1. Where oxygen deficiency and/or a hazardous atmosphere could reasonably be expected to exist, the atmosphere in the excavation must be tested before employees are allowed to enter.

(f) Inspections.

1. When employee exposure can reasonably be anticipated, daily inspections must be made by a Competent Person for evidence of a situation that could result in:
    - Possible cave ins;
    - Failure of a protective system;
    - Hazardous atmospheres, or
    - Other hazardous conditions.
2. Inspections must be made after every rainstorm or other hazard-increasing occurrence.
3. If a hazard is indicated, the employees must be removed from the area until appropriate corrective measures have been taken.

(g) Walkways.

1. Where employees or equipment are required or allowed to cross over a ` trench, a walkway must be provided.
2. Where walkways are more than six feet above lower levels, guardrails must be included.

(h) Surface Protection.

1. Where people or equipment could fall into the excavation, adequate protection in the form of barricades or stop-logs must be put in place.
2. Excavated material must be piled at least two feet back from the edge.
3. Appropriate steps must be taken to protect the public from entry into excavations and trenches.

45.6 Exhibits/Attachments

(a) Soils Analysis Checklist, Attachment 29

(b) Excavation Checklist, Attachment 30

(c) OSHA Trench Inspection Report, Attachment 31

Attachment 29. Soils Analysis Checklist

SOILS ANALYSIS CHECKLIST

This checklist must be completed when soil analysis is made to determine the soil type(s) present in the excavation. A separate analysis must be performed if the excavation (trench) is stretched over a distance where soil type changes.

SITE LOCATION:		
DATE:	TIME:	COMPETENT PERSON:
WHERE WAS THE SAMPLE TAKEN FROM:		
SOIL CLASSIFICATION:	EXCAVATION DEPTH:	EXCAVATION WIDTH:

VISUAL TEST
Particle type: ☐ Fine grained (cohesive) ☐ Granular (sand/silt or gravel)
Water conditions: ☐ Dry ☐ Wet ☐ Seeping ☐ Water ☐ Surface water ☐ Submerged
Previously disturbed soils: ☐ Yes ☐ No
Underground utilities: ☐ Yes ☐ No If yes, what type?
Layered soils? ☐ Yes ☐ No NOTE: The least stable layer controls soil classification.
Layered soils dipping into excavation: ☐ Yes ☐ No ☐ Unknown
Excavation exposed to vibrations: ☐ Yes ☐ No If yes, from what?_____
Crack like openings or spalling observed: ☐ Yes ☐ No
Conditions that may create a hazardous atmosphere: ☐ Yes ☐ No If yes, identify condition and source:_____
Surface encumbrances: ☐ Yes ☐ No If yes, what type?_____
Work to be performed near vehicular traffic: ☐ Yes ☐ No
Possible confined space exposure: ☐ Yes ☐ No

MANUAL TEST
Plasticity: ☐ Cohesive ☐ Non-cohesive
Dry strength: ☐ Granular (crumbles easily) ☐ Cohesive (broken with difficulty)
Wet shake: Water at surface (granular material)_____ Surface remains dry (clay material)_____

NOTE: The following unconfined compressive strength tests should be performed on undisturbed soils. (Either the thumb test or the penetrometer/shearvane)

Thumb Test used to estimate unconfined compressive strength of cohesive soil:
Test performed: ☐ Yes ☐ No
☐ Type A -- soil indented by thumb with very great effort.
☐ Type B -- soil indented by thumb with some effort.
☐ Type C -- soil easily penetrated several inches by thumb with little or no effort. If soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.
Penetrometer or Shearvane used to estimate unconfined compressive strength of cohesive soils:
Test performed: ☐ Yes ☐ No Device used:_____
☐ Type A -- soil with unconfined compressive strength of 1.5 tsf or greater.
☐ Type B -- soil with unconfined compressive strength greater than 0.5 tsf and less than 1.5 tsf.
☐ Type C -- soil with unconfined compressive strength of 0.5 tsf or less. If soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.

NOTE: Type A - no soil is type A if soil is fissured, subject to vibration, previously disturbed, layered dipping into excavation on a slope of 4H:1V.

SOIL CLASSIFICATION
☐ Stable Rock ☐ Type A ☐ Type B ☐ Type C

SELECTION OF PROTECTIVE SYSTEM	
Protective System:	☐ Sloping; specify angle _____
	☐ Timber shoring
	☐ Aluminum hydraulic shoring
	☐ Trench shield; maximum depth in this soil _____

NOTE: Although Federal OSHA will accept the above tests in most cases, some states will not. Check your state safety requirements for trenching regulations.

Attachment 30. Excavation Checklist

EXCAVATION CHECKLIST

SITE LOCATION:		
DATE:	TIME:	COMPETENT PERSON:
SOIL TYPE (see attached form):		
SOIL CLASSIFICATION:	EXCAVATION DEPTH:	EXCAVATION WIDTH:
TYPE OF PROTECTIVE SYSTEM USED:		

Indicate YES, NO, or N/A (for not applicable) for each item listed below.

General Inspection of Jobsite:	
Excavations, adjacent areas, and protective systems to be used inspected by a Competent Person daily prior to the start of work.	
Competent Person has the authority to remove employees from the excavation immediately.	
Surface encumbrances removed or supported.	
Employees protected from loose rock or soil that could pose a hazard by falling or rolling into the excavation.	
Hard hats worn by all employees.	
Spoils, materials, and equipment set back at least 2 feet from the edge of the excavation.	
Barriers provided at all remotely located excavations, wells, pits, shafts, etc.	
Walkways and bridges over excavations 6 feet or more in depth are equipped with standard guardrails and toeboards.	
Warning vests or other highly visible clothing provided and worn by all employees exposed to public vehicular traffic.	
Employees required to stand away from vehicles being loaded or unloaded.	
Warning system established and utilized when mobile equipment is operating near the edge of the excavation.	
Employees prohibited from going under suspended loads.	
Employees prohibited from working on the faces of sloped or benched excavations above other employees.	
Utilities	
Utility companies contacted and/or utilities located.	
Exact location of utilities marked.	
Underground installations protected, supported, or removed when excavation is open.	
Means of Access and Egress	
Lateral travel to means of egress no greater than 25 feet in excavations 4 feet or more in depth.	
Ladders used in excavations secured and extended 3 feet above the edge of the trench.	
Structural ramps used by employees designed by a Competent Person.	
Structural ramps used for equipment designed by a registered professional engineer (RPE).	

Ramps constructed of materials of uniform thickness, cleated together on the bottom, equipped with no-slip surface.	
Employees protected from cave-ins when entering or exiting the excavation.	
Wet Conditions	
Precautions taken to protect employees from the accumulation of water.	
Water removal equipment monitored by a Competent Person.	
Surface water or runoff diverted or controlled to prevent accumulation in the excavation.	
Inspections made after every rainstorm.	
Hazardous Atmosphere	
Atmosphere within the excavation tested where there is a reasonable possibility of an oxygen deficiency, combustible, or other harmful contaminant exposing employees to a hazard.	
Adequate precautions taken to protect employees from exposure to an atmosphere containing less than 19.5% oxygen and/or to other hazardous atmospheres.	
Ventilation provided to prevent employee exposure to an atmosphere containing flammable gas in excess of 10% of the lower explosive limit of the gas.	
Testing conducted to ensure that the atmosphere remains safe.	
Emergency equipment, such as breathing apparatus, safety harness and lifeline, and/or basket stretcher readily available where hazardous atmospheres could or do exist.	
Employees trained to use personal protective and other rescue equipment.	
Safety harness and lifeline used and individually attended when entering bell bottom or other deep confined excavations.	
Support Systems	
Materials and/or equipment for support systems selected based on soil analysis, trench depth, and expected loads.	
Materials and equipment used for protective systems inspected and in good condition.	
Materials and equipment not in good condition have been removed from service.	
Damaged materials and equipment used for protective systems inspected after repairs and before being placed back into service.	
Protective systems installed without exposing employees to the hazards of cave-ins, collapses, or threat of being struck by materials or equipment.	
Members of support system securely fastened to prevent failure.	
Support systems provided to insure stability of adjacent structures, buildings, roadways, sidewalks, walls, etc.	
Excavations below the level of the base or footing supported, approved by a registered professional engineer.	
Removal of support systems progresses from the bottom and members are released slowly as to note any indication of possible failure.	
Backfilling progresses with removal of support system.	
Excavation of material to a level no greater than 2 feet below the bottom of the support system and only if the system is designed to support the loads calculated for the full depth.	
Shield system placed to prevent lateral movement.	
Employees are prohibited from remaining in shield system during vertical movement.	

CORRECTIVE ACTION AND REMARKS:

Attachment 31. OSHA Trench Inspection Report

OSHA TRENCH INSPECTION REPORT

DATE:	TIME:
PLACE:	

COMPLIANCE OFFICER'S NAME:
BADGE NUMBER:
OFFICER'S ADDRESS:

Did OSHA Compliance Officer wait for Manager? ☐ Yes ☐ No If yes, how long?_____
Was opening conference held? ☐ Yes ☐ No
Who was the Competent Person:_____
Depth of trench entered by employees:_____Width of trench:_____
Type of soil: ☐ Stable Rock ☐ Type A ☐ Type B ☐ Type C
Type of soil test taken: ☐ Pocket penetrometer ☐ Other
Employees in trench? ☐ Yes ☐ No
Water in trench? ☐ Yes ☐ No If yes, was it controlled? ☐ Yes ☐ No
Were pictures taken? ☐ Yes ☐ No If yes, how many?
Was spoil back two feet? ☐ Yes ☐ No
Did Competent Person do daily jobsite inspection prior to OSHA visit? ☐ Yes ☐ No If no, why not?_____
If the ditch was over 5 feet deep, was it: · Sloped? ☐ Yes ☐ No At what angle? _____ · Shored? ☐ Yes ☐ No Was it our system? ☐ Yes ☐ No · Other?
Was there a ladder? ☐ Yes ☐ No If no, why not? _____
Were all employees wearing hard hats? ☐ Yes ☐ No
Were barricades and signs used properly? ☐ Yes ☐ No

COMMENTS:
SIGNED (Competent Person):

46. Trucking Compliance

46.1 Purpose

To establish the minimum requirements for the Contractors and its subcontractors for the safe operation of all trucks, by providing all project employees, as well as the general public, with a safer environment by requiring operators of trucks that haul material/debris to and from the Contractor's Project sites to follow a set of standards that are based on Department of Transportation (DOT) and common sense safety standards. In addition, Contractors must conduct trucking operations in accordance with the Facility's Construction Traffic Plan.

46.2 Definitions

(a) All-In-Compliance (AIC) stickers. Supplied by the Contractor's Safety Department, these stickers are individually numbered and registered to each applicable Contractor's Project for placement on the windshield or passenger side window of any and all trucks operated on the project, and are intended to signify compliance with the Safe Trucking Standard of all trucks and their operators.

(b) Safe Trucking Standard. Set of standards set forth by the Contractor following WISHA set of standards.

46.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

46.4 General Requirements

(a) AIC stickers are to be displayed in the lower left corner of the passenger side window or the lower right corner of the vehicle's windshield.

(b) Subcontractors. All Contractor's subcontractors will be held accountable for the compliance of their lower tiered subcontractors. On-site subcontractor supervisors will be expected to monitor and ensure compliance and, from time to time, perform random checks for appropriate paper work and safety compliance.

46.5 Implementation

(a) Each subcontractor awarded a demolition or excavation subcontractor will be furnished, by the Contractor's Safety Department, a copy of the Safe Trucking Standard (Exhibit L) and a letter explaining the program requirements. An appropriate number of All-In-Compliance (AIC) stickers will be sent with the Safe Trucking Standard and requirements letter.

(b) Safe Trucking Standards are reviewed at new hire orientation.

(c) Any truck subject to this requirement that is found on the Facility construction site without the AIC sticker will be ordered to leave the project and will not be allowed to return until in compliance with the Safe Trucking Standard. If the truck in violation is owned by the Contractor, subcontractor, including any lower tiered subcontractor, the Contractor's subcontractor directly responsible for the truck or responsible for the lower tiered subcontractor will be required to certify to the Contractor, in writing, that their truck or that of their lower tiered subcontractor has met the requirements of the Standard.

(d) The Project Safety Managers will monitor and ensure the trucks' and their operator's compliance with the Safe Trucking Standard. Some of the items that Project Safety Managers will ensure include, but are not limited to:

1. Truck operators know the correct and approved haul route to and from the project.
2. Truck operators have in their possession a valid and current Commercial Driver License (CDL).
3. Truck's brakes keep the truck from moving forward or backward when the emergency brake is applied and the clutch is released while the transmission is in gear.
4. Truck's headlights, brake lights, turn signals, etc. function properly.
5. Truck's backup alarm functions and is sufficiently loud to be heard within the prescribed distance, as outlined in the Federal OSHA 1926 Standard.
6. Required paperwork, as described in the Safe Trucking Standard, is in the possession of the truck operator, such as current insurance certification card, registration, a recent DOT safety inspection certificate, etc.

(e) Failure to comply with any of the above items will subject the truck and/or operator to be banned from the Contractor's Project until the truck and/or operator is in compliance with the Safe Trucking Standard.

46.6 Exhibits/Attachments

Safe Trucking Standard, Exhibit L

Exhibit L. Safe Trucking Standard

In addition to this Subcontractor's own safety program, this Subcontractor will comply with the following:

1. Before any trucking company begins work at the construction site, the company must provide the following information to the Contractor by which they were hired:
   - Current documentation demonstrating that the trucking company has the level of liability insurance required by law in addition to Subcontractor insurance as required by this Subcontract;
   - Current documentation demonstrating that the trucking company has all licenses and permits required by law to authorize it to perform all of the work the trucking company is reasonably likely to perform, in each jurisdiction in which the trucking company is reasonably likely to perform such work, during the course of the project;
   - Current documentation demonstrating that a qualified inspector performed the last periodic inspection required by 49 U.S.C.§396.17 (or its legal equivalent) and any applicable state, city or county laws on each truck, including its brakes, and that each truck was found to be in proper working condition; and
   - Current documentation demonstrating that the trucking company has, and follows, a policy of not paying or reimbursing its drivers for any speeding tickets, in any circumstances.
2. During the term of the construction activity, the trucking company will submit new documentation of the types specified in paragraphs noted in Requirement No. 1 above, if any such documentation expires, becomes superseded, or becomes inapplicable, or if new information becomes available, or if new information is requested by the Contractor.
3. Prior to a trucking company beginning work on the construction site, the Contractor in charge of the company will provide to the trucking company a certification indicating that the trucking company has complied with Requirement No. 1, above, in its entirety. The trucking company is required to display such certification on the windshield of each truck used at the Facility construction site. The certification will also list each driver authorized to operate that truck in connection with the Facility construction site.
4. Prior to any truck driver beginning work on the Project, the contractor hiring the trucking company must inspect the driver's commercial driver's license (CDL) to confirm it is current and it permits the driver to perform all driving the driver will do in connection with the Project. Copies of these licenses should be retained.
5. The trucking company must conduct truck movements in conformance with the Facility Construction Traffic Management Plan. The trucking company must identify and communicate to the drivers all routes of the trucks from the Facility construction site to the unloading destination. These routes must conform to all local ordinances and regulations of the applicable jurisdiction.
6. The trucking company must not load any truck with a weight that would cause the truck to exceed the maximum weight allowed for the truck in any jurisdiction through which or into which will be driven.
7. The trucking company will take all other steps necessary to ensure that trucks are operated safely and in accordance with all applicable laws.

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47. Work at Elevated Locations (Fall Protection)

47.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to work at elevated locations, in accordance with the provisions of WAC 296-155-24601 through 24624, as applicable.

47.2 Definitions

Not applicable.

47.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

47.4 General Requirements

The fall protection standards can be found in WAC 296-155 Part C-1.

(a) Fall protection is required when employees are working more than 4 feet above lower/working levels. If the fall distance is less than 6 feet but the employee could fall into/onto dangerous equipment, fall protection must be provided.

(b) Unprotected sides and edges must be protected by use of a guardrail system, a safety net system, or a personal fall arrest system unless it can be demonstrated that it is infeasible or creates a greater hazard to use these systems. Federal OSHA defines infeasible as “impossible to perform the construction work using one of these fall protection systems, or that it is technologically impossible to use one of these three systems to provide fall protection.” The presumption is that it is feasible and will not create a greater hazard to implement at least one of the above fall protection systems.

47.5 Implementation

(a) Guardrail Systems. Guardrail systems are usually the first choice when the situation permits them. When used, they must meet the following requirements:

1. Top rails of guardrail systems must be 42 inches above the walking/working surface plus or minus 3 inches. Guardrail systems must be able to withstand a force of 200 pounds in any outward or downward direction at any point along the top edge without deflecting to a height less than 39 inches. If wire rope is used for top rails, it must be flagged at not more than six-foot intervals with high visibility material.
2. Midrails must be used between the top rail and the walking/working surface when there is no wall or parapet wall at least 21 inches high. Midrails must be able to withstand downward or outward pressure of 200 pounds.
3. When guardrail systems are used around holes that are used as points of access (such as ladder ways), they must be provided with a gate or be so offset that a person cannot walk directly into the hole.

4. For installation of wire rope guardrails, see Exhibit M at the end of this section.

(b) Safety Net Systems. Safety nets may be the only reasonable choice in some situations. They must meet the following requirements if used:

1. Safety nets must be installed as close as practicable under the walking/working surface but in no case more than 25 feet below.
2. They must extend outward from 8 to 13 feet depending on the vertical distance to the net.
3. Unless it is unreasonable to do so, they must be drop-tested after installation, relocation, major repair, and at six-month intervals if left in one place.
4. They must be inspected at least once a week for wear, damage, and other deterioration.
5. Materials, scrap pieces, equipment, or tools that fall into the net must be removed as soon as possible and at least before the next shift.

[Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds. If vertical lifelines are used, each employee must have a separate lifeline.]

6. Self-retracting lifelines and lanyards which automatically limit free-fall to two feet or less must have a minimum tensile strength of 5,000 pounds.
7. Personal anchorage must be independent of any anchorage being used to support or suspend platforms and must be capable of supporting 5,000 pounds.
8. Personal fall arrest systems must be rigged so that the employee can neither free fall more than six feet nor contact any lower level. If the combined tool and body weight exceeds 310 pounds, modification of the system may be necessary.
9. The attached point of the body harness must be located in the center of the wearer's back near shoulder level or above the wearer's head.
10. Personal fall arrest systems may not be attached to guardrail systems unless they are designed for that purpose by a competent person and capable of supporting 5,000 pounds for each person attached.
11. Positioning devices must be rigged so the employee cannot free-fall more than two feet. They must be secured to an anchorage capable of supporting 3,000 pounds.

(d) Fall Protection Plans. If it is determined that the work cannot be done by using one of the these conventional fall protection systems, i.e. (1) guard rails, (2) safety nets, or (3) personal fall arrest, then a written fall protection plan must be developed prior to performing the work. It must include the following:

A qualified person must write it and only a qualified person may make changes to it, which must also be in writing.

It must be developed specifically for the project/area of work where the work will be performed.

A copy of the plan must be maintained at the project.

It must be implemented under the supervision of a competent person.

It must document why the use of conventional fall protection methods are either infeasible or create a greater hazard.

It must include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard(s).

The plan must identify each location where conventional fall protection methods cannot be used. These locations must then be classified as Controlled Access Zones.

The plan must include the name or other method of identification for each employee who is designated to work in a Controlled Access Zone. No other employees may enter a Controlled Access Zone.

(e) Controlled Access Zones. Controlled Access Zones may only be used when a Fall Protection Plan has been developed as described above. They must meet the following criteria:

1. A control line must define them or some other method that restricts access.

2. The lines must be erected not less than 6 feet or more than 25 feet from the unprotected edge except when erecting pre-cast concrete members.
3. When erecting pre-cast concrete members, the control line must be not less than 6 feet nor more than 60 feet or half the length of the member being erected, whichever is less, from the leading edge.
4. The control line must extend along the entire length of the unprotected edge and approximately parallel to it.
5. The control line must be connected on each side to a guardrail system or wall.
6. For bricklaying, the line must be not less than 10 feet or more than 15 feet from the working edge.
7. Additional control lines must be placed at each end to enclose the Controlled Access Zone.
8. Control lines should consist of rope, wire, or comparable material. Each line must be flagged or clearly marked with high visibility material at not more than 6-foot intervals.
9. Each line must be rigged and supported in such a way that the lowest point, including sag, is not less than 39 inches and the highest point is not more than 45 inches above the walking/working surface.
10. Each line must have a minimum breaking strength of 200 pounds.
11. Under some circumstances, employees performing overhand bricklaying and related work may be allowed to use a Controlled Access Zone instead of a conventional fall protection system. However, use of a controlled access zone for any other situation must be in conjunction with a "Fall Protection Plan".

(f) Safety Monitoring Systems. These may only be used for work on low-sloped roofs in conjunction with a warning line system, pre-cast concrete erection work, or residential construction when it can be demonstrated that it is infeasible or it creates a greater hazard to use conventional fall protection equipment. If any of these situations exists, the safety monitoring system must meet the requirements of 1926.502(h).

1. A safety monitor must be designated to monitor the safety of employees working in a Controlled Access Zone. The safety monitor must meet the following requirements:
   - The monitor must be competent to recognize fall hazards.
   - The monitor must warn an employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.
   - The monitor must be on the same walking/working surface in visual sight of each employee and close enough to communicate effectively with him or her.
   - The monitor must not have other responsibilities that could take that person's attention away from the monitoring function.
   - Each employee working in a Controlled Access Zone must be directed to comply promptly with fall hazard warnings from safety monitors.
   - Each employee working in the Controlled Access Zone will be limited to a fall exposure of no more than 15 feet.
   - The monitor will wear an orange vest or other highly visible apparel that easily sets them apart from the crew performing the work in the Controlled Access Zone.

(g) Warning Line Systems.

1. The warning line must be erected around all sides of the roof work area. When mechanical equipment is not being used, it must be erected not less than six feet from the roof edge. When mechanical equipment is being used, the warning line must be not less than six feet from the parallel edge and not less than ten feet from the perpendicular edge.
2. Warning lines must consist of ropes, wires or chains, and supporting stanchions erected as follows:
   - The rope, wire or chain must be flagged at not more than six-foot intervals with high visibility material.
   - Its lowest point, including sag, may be no less than 34 inches and the highest point not more than 39 inches.
   - Stanchions (after erected) must be able to withstand a force of 16 pounds applied horizontally against the stanchion 30 inches above the walking/working surface perpendicular to the warning line in the direction of the edge.
   - The rope, wire or chain must have a minimum tensile strength of 500 pounds.
   - The line must be attached to each stanchion such that pulling on the line in one section will not result in taking up slack in the adjacent section before the stanchion tips over.

(h) Holes and Falling Objects.

1. Holes in walking/working surfaces large enough to step in or trip in must be covered. Holes larger than 2 inches through which objects could fall on employees below must also be covered.
2. Covers for holes in floors, roofs or other walking/working surfaces must be capable of supporting at least twice the load of employees, materials or equipment that might be imposed on them at one time and must be secured in such a way as to prevent accidental displacement. All covers must be marked with the word "HOLE" or "COVER".

NOTE: Covers in roadways must be able to support twice the maximum axle load of the largest vehicle expected to cross them.

3. Employees walking or working below potential falling objects must be protected. Toeboards must be at least 3-1/2 inches high and able to withstand a downward or outward force of 50 pounds. When tools, materials or equipment are piled higher than the toeboards, other measures such as panels or screens must be used.

(i) Training. The training requirements are quite specific in the L&I standards as they relate to fall protection. If this Fall Protection Program is outlined with employees, it will sufficiently explain the OSHA standard. This training must be documented in the employee's training record.

1. The brands and types of fall protection equipment or devices that have been chosen for use on the project must be demonstrated to the employee. All employees will be taught to select the proper fall protection equipment or device for the task that they will perform. We must also include the donning, daily inspection for damage or wear, proper care and storage of all components. A stern directive, that if there is anything suspected to be wrong with any component of their fall protection system, it must not be used and is to be reported to their supervisor immediately for examination and determination. All defective components will be removed from service and either destroyed or repaired to manufacturer specifications.
2. All employees are to be instructed that they must use 100% fall protection when working 6 feet or higher as required under this program.
3. Employees must be reminded that if they are not sure how or where to tie off, to ask their supervisor. If new types, brands or systems are brought to the project, training must be updated and documented.

(j) Steel Erection. Steel erectors will be required to comply with this program and policy with the following exceptions:

1. Connectors will be allowed to work up to 2 stories or 30 feet above a lower level, whichever is less, without using fall protection devices when they are actively involved in making initial connections.
2. Connectors and their supervisor will be identified with a sticker or highly visible tape on their hardhat that makes them easily identifiable. Only designated Connectors and their supervisor will be authorized to wear the pre-agreed upon identifying sticker or tape.
3. Employees directly involved in the installation of decking may be exposed to a fall of up to two floors or 30 feet, whichever is less. They must have a written fall protection plan and must have established a Controlled Access Zone, as described in this program and policy.
4. All other ironworkers involved in the steel erection process will observe a trigger height of 15 feet for fall protection while working at elevations.

This policy meets or exceeds Federal OSHA Subpart R for Steel Erection. Where the requirements of this program differ from Federal, State, or Owner requirements or standards, the requirement that is most protective of worker safety will apply.

47.6 Exhibits/Attachments

(a) Wire Rope Rail Safety Requirements, Exhibit M

(b) Fall Protection Training Record, Attachment 32

(c) Fall Protection Training Update, Attachment 33

(d) Standard Form for Release of Floor or Stairs, Attachment 34

Exhibit M. Wire Rope Rail Safety Requirements

1. As a minimum, 3/8-inch-diameter cable (1/2-inch top wire rope when installed as part of the initial perimeter protection by the ironworking subcontractor) will be used.
2. Top rail (cable) will be installed 42 inches above the top of the finished slab elevation. The intermediate rail will be installed at the midpoint between the top of the finished slab and railing. High visibility material, such as construction tape, will be installed on the top rail at 6-foot intervals.
3. Cables are to be installed so that cable tension and cable supports (columns and intermediate posts) prevent cables from deflecting in excess of 3 inches when a 200-pound downward force is applied. Intermediate posts (approximately 8 inches on center) will be required.
4. Cables must be secured at the interior side of each structural column with nuts (no washers).
5. Eye splices must be used for cable splicing with a minimum of three wire rope J-type clips. No bypass or Molly Hogan splices are permitted.
6. Cables must be terminated with eye splices around each end support; no dead end terminations are permitted.
7. The 18-inch turnbuckles are to be installed every third bay or 100 inches, whichever is less.

Attachment 32. Fall Protection Training Record

FALL PROTECTION TRAINING RECORD

Employee Name	Date
Social Security Number	Badge Number

INITIAL TRAINING

- A copy of the Company Fall Protection Program is given to the employee.
- The program is explained either orally or through a video presentation.
- The equipment in use on this project at this time is demonstrated. Brands and equipment covered:

  _____

  _____

- The employee has been instructed in how to perform the daily inspection.
- The employee has also been instructed that if he/she suspects that anything is wrong or amiss with the equipment or system that they are asked to use, they immediately report to their supervisor and do not use that component until deemed safe to do so, replaced or repaired.
- If the employee ever has any questions or concerns about their safety to report the concerns to their supervisor, the project Safety Manager or to management.

Signature of Trainer	Date
Signature of Employee	Date

This document is to remain a part of the employee's permanent personnel file.

Attachment 33. Fall Protection Training Update

FALL PROTECTION TRAINING UPDATE

Employee Name	Date
Social Security Number	Badge Number
Signature of Trainer	Date
Signature of Employee	Date

Subject of Material Covered:

This document is to remain a part of the employee's permanent personnel file.

Attachment 34. Standard Form for Release of Floor or Stairs

STANDARD FORM FOR RELEASE OF FLOOR OR STAIRS

_____ will install and maintain all safety protective devices as necessary to protect its employees from hazards associated with steel erection. The AISC code of standard practice guidelines (7.2) will be followed, as well as OSHA Standards, including subpart R and subpart M as they relate to steel erection.

_____ will provide a means of safe access for its employees. These devices shall be used by _____ employees only, and their use by any other contractor, subcontractor, or their employees is prohibited.

As stated in CFR 1926.16(C) "the subcontractor only assumes responsibility for that portion of his own work in regards to safety. The prime contractor who assumes the entire responsibility for work being done, must instruct each subcontractor to provide equipment and training for the safety of their employees."

Safety devices, including guardrails, covers, and horizontal lifelines that are installed for the protection of those involved in steel erection, may or may not meet the standards required for use by employees of other subcontractors. _____ will not assume responsibility for any claims arising from the use of those devices by other contractors or their employees. Under current OSHA standards, guardrails may not be used for personal fall arrest unless they have been designed, rated, and tested for use as horizontal lifeline. (1926.502(d)(23) in part)

No employee shall enter or work in any area, including stairways, which has not been released by_____ in writing. Prior to release of any floor stairway by _____, the prime contractor, must inspect all safety devices in the area and agree to accept responsibility for the condition, maintenance and proper use of such devices by signing this form. _____ and _____ will not be held responsible for latent defects.

_____ may install additional safety devices upon request by the prime contractor only after the installer has been indemnified from liability for any injuries or accidents incurred through the use of the devices in writing. An additional cost shall be agreed upon prior to installation of safety devices, including, but not limited to, guardrails, lifelines, temporary covers, ladders, scaffolds, temporary work platforms, or any anchorages designated as permissible for use as part of an overall personal fall arrest system. _____ will not accept responsibility for maintenance after installation nor will it accept any other liability for the safety equipment installed once the prime contractor has accepted the floor or area.

The area or stairway described below has been released by _____ for use by the prime contractor. This area has been accepted according to the terms and conditions described above.

Level _____ bounded by Grid Lines _____ and _____

General Contractor _____

By _____ Title _____

Steel Erector _____ Title _____

By _____ Title _____

Date _____ Project Name _____

48. Proximity to Active Rail Lines

48.1 Purpose

To establish the minimum requirements for the Contractor and its subcontractors to work in proximity to active rail lines.

48.2 Definitions

Not applicable.

48.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

48.4 Implementation

(a) Port Training. Employees must complete the Port specific training regarding On Track Safety (OTS) along with any additional Port required training.

(b) Safety Barricades. Contractors operating equipment or conducting construction activities near the BNSF track should stay 150 feet from the nearest rail. Barricades should be put up off the BNSF right-of-way indicating where the contractors and their employees can work safely. Work within 150 feet of an existing rail will be performed in accordance with the requirements below

(c) BNSF Notification and Briefing

Prior to beginning work on live track, the contractor-in-charge must notify a BNSF representative of the need, and specifically the location where the work is done. A job briefing must be conducted with the railroad representative in accordance with 49 CFR 214.315 prior to fouling any track.

If contractors have to work within the BNSF right-of-way, contractor employees need to receive the following BNSF safety training.

- Rail Security Awareness Training
- Contractor Orientation Training

(d) Work Practices

Contractors must follow the following policy when working on or around live track.

- Green, Yellow/Red, and Red Flag Protection must be used on live tracks to warn train crews of men or equipment working on or around the track.
- Always be on alert to moving equipment. Contractor employees must always expect movement on any track, at any time, in either direction.

- Do not walk or step on the top of the rail or any other track components.
- In passing around the ends of standing cars, engines, roadway machines, or work equipment, leave a minimum of 25 feet between yourself and the end of the equipment. Do not go between equipment if opening is less than 50 feet.
- Before crossing over tracks, look in both directions.
- Do not sit on, lie under, or cross over between cars.
- No tools or equipment should be left close to any live track.
- All contractor employees must have and be wearing identification.
- All contractor employees must be wearing the proper PPE.

49. Work Near or Over Water

49.1 Purpose

The purpose of the following is to provide general safety guidelines for working over or near water. Work near or over water will comply with the provision of WAC 296-155-235.

49.2 Definitions

Not applicable.

49.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

49.4 Life Saving Equipment

Employees working over or near water, where the danger of drowning exists, will be provided with a U.S. Coast Guard approved life jacket or buoyant work vest. OSHA 1926.106(b)

If the deck of a barge or work platform is not equipped with an OSHA-compliant railing system, employees walking or working on deck must wear a U.S. Coast Guard approved life jacket or buoyant work vest, also called a life preserver or personal flotation device (PFD). These PFDs should be fully buckled, snapped, or zipped whenever there is a hazard of falling into the water, regardless of the size of the barge. While a PFD is not required to be worn while an employee is inside an enclosed cab or equipment compartment on a barge, each employee should have a PFD accessible to them at all times.

PFDs

- An approved and readily available PFD is required to be on board the vessel or barge for each individual on board. An immersion/exposure suit is considered to be an acceptable substitute for a PFD. All lifesaving equipment designed to be worn is required to be readily available and in serviceable condition.
- Each barge or vessel 26 feet or longer must have at least one approved ring life buoy which is immediately available. All lifesaving equipment designed to be thrown into the water is required to be immediately available and in serviceable condition.
- An approved light is required for all PFDs and immersion/exposure suits. Also, all PFDs must have approved retro reflective material installed.
- Employees will inspect buoyant work vests or life preservers for defects which could alter their strength or buoyancy prior to and after each use. Defective units will not be used.(OSHA 1926(b))

Have the necessary safety equipment to hand so it is ready for immediate use:

- Ring Lifebuoy
- 90-foot Buoyant Heaving Line
- Life Saving Skiff

Ring buoys will be provided and readily available for emergency rescue operations with at least 90 feet of line and the distance spaced between ring buoys may not exceed 200 feet. (OSHA 1926.106 (c))

At least one lifesaving skiff will be made immediately available when employees are working over or adjacent to water. Each skiff will be checked daily prior to work beginning to ensure the capability of the skiff to respond to an emergency. (OSHA 1926.106(d))

49.5 Slips, Trips, and Falls

(a) Minimizing Hazards on Deck

- Keep all walking and working surfaces clean, dry, and unobstructed.
- Keep all areas free of debris.
- Clean up and/or report any spill immediately.
- Stack materials in a stable manner.
- Secure gear and equipment that is not in use.
- Keep stairs, doorways, walkways, and gangways free of equipment and stowed materials.
- Secure ramps during loading and offloading operations.
- Repair leaks from hoses, pipelines, and valves immediately.
- Use non-skid protective deck compound and do not paint over the non-skid compound with standard paint.
- Have de-icing procedures in place when necessary.

(b) Wearing Appropriate Footgear

- Wear safety shoes or boots with slip-resistant soles as appropriate.
- Keep shoes clean of mud, snow, ice, spilled liquids, and debris.

(c) Man Overboard Prevention

- Employees are not permitted to work alone when performing work over or near water.
- Railing should be continuous around the deck. The ends should be secured with lashings or quick release slips so that you can cut or release them to recover a person from the water.
- Treat any slippery areas with either non-skid paint or stick on strips.
- Use harnesses in rough weather and at night. Ensure they are adjusted to a tight fit.
- Wear suitable protective clothing and a USCG approved lifejacket fitted with reflective tape and a light

In the event that an individual falls overboard, immediately throw a Type IV lifebuoy with attachment and raise the alarm by shouting “MAN OVERBOARD.” The work barge will have at least one tender/skiff available for in-water rescue if needed.

49.6 Hypothermia (Cold Water Exposure)

Hypothermia occurs when body heat is lost faster than it can be replaced and the normal body temperature (98.6°F) drops to less than 95°F. Hypothermia is most likely at very cold temperatures, but it can occur even at cool temperatures (above 40°F), if a person becomes chilled from rain, sweat, or *submersion in cold water*.

Symptoms of Hypothermia.

- Mild Symptoms
  - An exposed worker is alert.
  - He or she may begin to shiver and stomp the feet in order to generate heat.

- Moderate to Severe Symptoms
  - As the body temperature continues to fall, symptoms will worsen and shivering will stop.
  - The worker may lose coordination and fumble with items in the hand, become confused and disoriented
  - He or she may be unable to walk or stand, pupils become dilated, pulse and breathing become slowed, and loss of consciousness can occur. A person could die if help is not received immediately.

What can be done for a person suffering from hypothermia?

- Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible.
- Move the person to a warm, dry area.
- Remove wet clothes and replace with dry clothes, cover the body (including the head and neck) with layers of blankets; and with a vapor barrier (e.g. tarp, garbage bag). Do **not** cover the face.
- If medical help is more than 30 minutes away:
  - Give warm sweetened drinks if alert (no alcohol), to help increase the body temperature. Never try to give a drink to an unconscious person.
  - Place warm bottles or hot packs in armpits, sides of chest, and groin. Call 911 for additional rewarming instructions.
- If a person is not breathing or has no pulse:
  - Call 911 for emergency medical assistance immediately.
  - Treat the worker as per instructions for hypothermia, but be very careful and do not try to give an unconscious person fluids.
  - Check him/her for signs of breathing and for a pulse. Check for 60 seconds.
  - If after 60 seconds the affected worker is not breathing and does not have a pulse, trained workers may start rescue breaths for 3 minutes.
  - Recheck for breathing and pulse, check for 60 seconds.
  - If the worker is still not breathing and has no pulse, continue rescue breathing.
  - Only start chest compressions per the direction of the 911 operator or emergency medical services*
  - Reassess patient's physical status periodically.

49.7 Fire Hazards

- Store engine fuel tanks and compressed gas tanks properly, away from sources of ignition. Only keep onboard quantities of flammable and combustible materials that are necessary for operations and maintenance. Post appropriate danger signs.
- When dealing with work that is capable of providing a source of ignition through a flame or spark (hotwork), such as welding, cutting, burning, drilling, grinding, etc., follow these precautions:
  - Ensure the space is properly tested by a qualified or shipyard-competent person and deemed safe before work is begun. (See OSHA 29 CFR 1915.7 and 1915.15.).
  - Make sure that proper fire extinguishing equipment is near the work area and that it is maintained in a state of readiness for emergency use.
- Do not leave oxygen or acetylene hoses unattended.
- Consider where sparks will fall when doing hotwork and employ a fire watch.
- Shield fuel sources to protect them from ignition sources.
- Cover openings to prevent sparks from entering.
- Stop any hotwork if you smell fuel or gas until the source has been identified and the problem fixed.
- When welding or burning on the deck of a vessel, the space below should be inspected to ensure that no flammable atmosphere or combustible materials are present.
- Use good housekeeping practices to limit the amount of clutter, debris and combustible/flammable material.

Follow these safety measures to help prevent electrical fires:

- Make sure that electrical systems are installed by a qualified marine electrician and that electrical systems are inspected regularly.
- Regularly conduct visual inspections of connections, switches and wiring, which may be subject to corrosion and damage from use.

49.8 Winches

Operating or working near winches may potentially expose employees to hazards such as body parts caught in a winch drum, being struck by a broken line or cable, and tripping over a line or cable. To reduce hazards:

- Use a device or tool, never your hand, to keep the winch line spooling properly.
- Enclose the winch drum in a cage if practical.
- Stay off the deck unless you are part of the operation.
- Never stand in, on, over, or in line with lines or cables connected to winches when they are under tension. The danger zone lies within 15 degrees of either side of a line under tension.
- Never step on or walk over the winch drum.
- Inspect the winch system regularly for problems associated with general or localized deterioration, cracked welds, and other structural, mechanical, or electrical deficiencies.
- Inspect lines and cable systems regularly, including blocks, hooks, and associated components, for signs of damage or deterioration.
- A guard should be installed between the winch operator and the connected cables to protect the operator from potential whiplash.
- Never stand in the bight of a line.

49.9 Training

Employees working over or near water will be provided training on the hazards. Employees working over or near water must be adequately trained in their responsibilities and the safe work practices associated with this task and the identified hazard for the site and equipment they are working with.

Training will also be conducted on pre-task planning, hazard identification, tool box meetings, and daily equipment checks prior to beginning work.

Practice man overboard drills regularly.

49.10 Exhibits/Attachments

Not applicable.

50. Off-Site Monitoring Activities (Fieldwork)

50.1 Purpose

The purpose of the following is to provide general safety guidelines for persons conducting off-site environmental monitoring activities related to on-site Facility construction activities.

50.2 Definitions

Not applicable.

50.3 Responsibilities

(a) Activity supervisors, and as appropriate their corporate management, have overall responsibility for establishing and ensuring compliance with this procedure.

(b) Activity supervisors, in association with their site-specific or corporate health and safety support staff, are responsible for implementing and/or monitoring activities associated with this procedure.

(c) It is the responsibility of all managers and supervisory personnel to enforce this procedure and of each employee to follow it.

(d) All incidents, investigations, reports, and corrective actions relative to this procedure must be documented and reported to the SHE&Q manager. Supervisors should also report activities resulting from this procedure to their management in accordance with established corporate procedures, and to the owner or prime contractor per contractual obligations.

50.4 General Requirements

(a) Employees and their supervisors must consider procedures identified in other sections above as appropriate to the activities being conducted at the off-site locations. Prior to departing for the off-site location prepare a fieldwork safety plan/task hazard analysis. Consider anticipated site conditions for hazards including but not limited to slips/Trips/Falls, In/Over water work, climatological conditions, and activities related the use of the site (agricultural, recreational, etc.) which may pose a hazard while conducting activities at the site. Prepare and bring an appropriate first aid kit.

(b) Identify the nearest locations where emergency assistance is available, including but not limited to: hospitals and medical clinics, fire and police departments. Assemble in writing travel directions reach such locations in the event of an emergency, and the means to contact such locations I the event of an emergency. Ensure all members of the field team have access to such information.

(c) File a daily work plan, to include monitoring activities and locations.

(d) Check in with the SHE&Q manager at start of day to ensure awareness that work is being conducted off site.

(e) Check in with the SHE&Q manager at end of field work to ensure awareness that employees are no longer working off site.

(f) Field teams will consist of two people.

(g) Appropriate PPE will be used, safety toe shoes/hard hat, safety vest, eye protection when on Vancouver Energy facility. Off-site PPE will include safety vest and appropriate footwear (boots/waders) for activity.

(h) Incidents must be reported in accordance with procedures described in other parts of this plan,

50.5 Exhibits/Attachments

Not applicable.

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