

**National Utility Contractors Association of Oregon &  
SW Washington**



**and**

**Bureau of Environmental Services  
CITY OF PORTLAND  
Portland, Oregon**

**HEALTH &  
SAFETY PLAN**

**For non-OCIP Projects**

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## 1.0 INTRODUCTION

This plan was developed in a cooperative effort between the National Utility Contractors Association of Oregon and SW Washington (NUCA) & the Bureau of Environmental Services (BES) of the City of Portland. The intent is to provide a comprehensive basic plan that may be used on future BES projects. Contractors who elect to use this plan will state their intentions in a submittal. This submittal will include specific information indicating the name and contact information of the primary safety person, the competent persons, and any other components deemed necessary by BES or the Contractor. A checklist of required submittals can be found in the Appendix Section of this document.

The Job Site Safety Plan shall be available at the job site. One copy shall be provided to the Owner's Safety Representative. The Job Site Safety Plan will be updated or revised as necessary.

## 2.0 POLICY

General Contractors using this plan assume the responsibility to provide a safe and healthy work environment for all of their employees and all of the employees of subcontractors of all tiers. To achieve this, the active support of their management and staff will be provided to assure proper work attitudes and compliance with established safety and health requirements.

This Job Site Safety Plan will guide project supervision in assuring that all work will be conducted in a manner designed to eliminate or minimize the exposure to workplace hazards.

## 3.0 APPLICABILITY

The provisions of this Job Site Safety Plan are mandatory for all Contractors' on-site personnel, including direct employees and all employees of their subcontractors. Contractor will comply with all applicable regulations including:

- The Occupational Safety and Health Act (OSHAct)
- Oregon Revised Statutes Chapter 654 (The Oregon Safe Employment Act)
- Oregon Administrative Rules Chapter 437 (Occupational Safety and Health Standards):
  - Division 1 General Administrative Rules
  - Division 3 Construction
- Contract Safety Requirements provided by Project Owner.
- All other applicable federal, state and local safety and health standards.

In the event that the law requires greater safety obligations than those imposed by the Contract Documents, the Contractor shall perform the obligations required by law without cost to the Owner.

All individuals will have access to this Job Site Safety Plan prior to participation in fieldwork. The information herein and related safety topics will also be delivered in on-site training sessions. If desired, specific Owner's personnel will also be able to participate in these training sessions.

#### 4.0 Contractor Staff Requirements and Responsibilities

##### 4.1 Primary Safety Person

The Primary Safety Person is responsible for the direction of the Safety and Accident Prevention Program. He/she will act in an advisory capacity to the Project Manager and administer the Job Site Safety Plan.

Primary Safety Person Responsibilities:

1. Coordinate the Safety and Accident Prevention Program and related activities with all Contractors and subcontractors on this project.
2. Coordinate with the Project Manager to meet with designated supervisory personnel of Contractors and Subcontractors before they begin work in order to ensure their understanding of and compliance with the Contractor Safety and Accident Prevention Program.
3. Coordinate with the Project Manager to administer employee new hire safety orientations.
4. Review accidents, direct investigations and recommend corrective action.
5. Maintain record of accidents and follow required reporting procedures.
6. Cooperate in the preparation of letters and bulletins on accident prevention problems and the distribution of approved safety literature.

##### 4.2 Project Manager Responsibilities

The Contractor Project Manager is responsible for maintaining contact with the Safety Director to monitor the on-site direction of the Job Site Safety Plan. The Project Manager is also responsible for the following:

1. Read and review the Construction Safety Standards and be knowledgeable of all applicable federal, state, and local standards. Have available copies of all applicable federal, state, and local safety regulations at the main office.

2. Coordinate with the Primary Safety Person to make an analysis of the plans and specifications and study of the site to determine the potential accident exposures. Particular attention will be given to protection of the public and traffic control.
3. Read and review the Contractor safety and accident prevention program on each new project and make amendments or additions that will be applicable to a particular job or owner's requirement.
4. Be responsible to report to the Job Superintendent un-safe practices and conditions either of the Contractor employees or Subcontractor personnel and ensure that the Superintendent takes the required corrective action.
5. Coordinate with the Primary Safety Person to instruct Subcontractors and their employees to comply with applicable safety requirements and to document violations of safety requirements by Subcontractor personnel.
6. Coordinate with the Primary Safety Person to provide the job site with the necessary safety forms, posters, reports, regulations and literature.
7. Coordinate with the Primary Safety Person to assure that all Field Site Supervisors maintain accurate and correct records.
8. Review all accident/incident reports and initial corrective actions to determine effectiveness of the actions.

#### 4.3 Job Superintendent/Foreman Responsibilities

1. Be familiar with the laws and regulations pertaining to safety and the basic requirements.
2. Be responsible for management of on-site safety in his/her area, and see that the entire safety program is carried out at the work level.
3. Require all Subcontractors and other Contractors on-site to adhere to all safety regulations.
4. Administer employee new hire safety orientations.
5. Make available all necessary personal protective equipment, job safety materials, and first aid equipment; make sure it is used properly.
6. See that all injuries are cared for properly and reported promptly.
7. Investigate all accidents; file complete reports and correct the cause or remove the hazard immediately.

8. Submit reports to the Project Manager regarding safety meetings, accidents, incidents and injuries.
9. Assure that designated “Competent Persons” for each of the following construction activities are assigned and present on-site when activities are being performed. Competent person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. Activities requiring a competent person include, if applicable:
  - a. Excavation and Shoring
  - b. Lifting Equipment
  - c. Scaffolding
  - d. Ladders
  - e. Confined Space Entry
  - f. Lockout/Tagout
  - g. Fall Protection
  - h. Cranes
  - i. Traffic
  - j. Soils
  - k. Electrical/Hot Work

#### 4.4 Employee Responsibilities

1. Work according to good safety practices as posted, instructed, and discussed.
2. Refrain from any unsafe act that might endanger himself/herself or co-workers.
3. Use all safety devices provided for their protection.
4. Report any unsafe situation or act to their supervisor or the Primary Safety Person immediately.
5. Assume his/her share of responsibility for thoughtless or deliberate acts that cause injury to himself/herself and/or co-workers.

#### 5.0 Initial and Annual Orientation Programs

- 5.1 Each employee, prior to starting work, will receive a safety orientation. During the orientation, the employee(s) will review, at a minimum, the job site safety rules, the safety violation disciplinary program, and the Contractor’s employee safety handbook. Each new employee will be required to read the handbook and to acknowledge its contents by signing the appropriate signature page. This will indicate that the employee understands and agrees to abide by the directives

set forth. A copy of the signature page will become a part of the employee's file, which will be maintained by the Contractor's personnel department.

- 5.2 Initial and annual orientation programs should also include at a minimum: hazards present in the area in which the employee will be working, the personal protective equipment and apparel they will be required to use or wear, incident reporting, and the location of approved medical clinics.

## 6.0 Safety Violation Disciplinary Program

In order to maintain a safe and healthy work environment, a Safety Violation Disciplinary Program has been developed to monitor and control unsafe work practices. Serious or multiple violations of safety rules will result in termination for cause in accordance with this progressive discipline system.

### 6.1 Disciplinary Program

When an employee commits an unsafe act, the foreman or superintendent should correct them and instruct them to refrain from such unsafe acts. If the unsafe act is:

1. Serious and intentional, the employee shall be:
  - a. Verbally reprimanded, or
  - b. Suspended from work for a period of time, or
  - c. Terminated for cause, at the discretion of the Superintendent or Project Manager, depending on the severity of the conduct and circumstances.
2. Repeated or multiple, after being corrected and instructed to refrain from unsafe acts; the employee shall be:
  - a. Suspended from work without pay for a minimum of three days, or
  - b. Terminated, at the discretion of the Superintendent or Project Manager.

## 7.0 Accident Prevention

### 7.1 Materials

#### 7.1.1 First Aid/Medical Supplies

First aid kits will be available at all work locations. Kits will contain supplies as required by OSHA standards but at a minimum will contain the following:

- 8 gauze pads (at least 3" x 3")
- 2 gauze pads (approximately 8" x 10")
- 1 box of adhesive bandages
- 1 roll gauze bandage (at least 2" wide)
- 1 pair scissors



- 1 blanket or equivalent
- 2 pair latex gloves (or equivalent)
- 1 cardiopulmonary resuscitation (CPR) mouth barrier with 1 way valve
- Soap water solution or moist towelettes

Kits will be of adequate size or number so that this minimal supply list is available at a ratio of one supply list for every ten workers. Kits shall be restocked on a regular basis to ensure that an adequate amount of supplies are maintained.

#### 7.1.2 Safety Signs

Signs shall be provided as necessary. They shall be posted as required by law and where necessary, to ensure personnel protection. Examples: Hard Hat Area, No Smoking.

#### 7.1.3 Personnel Protective Equipment

Employees will report to work each day wearing at a minimum:

- Long pants
- Shirts that cover the shoulders and midsection
- Work boots

All of these items will be made of durable materials, free of holes, and in good repair. The work boots will have ankle support, non-slip soles, and steel toes. The Contractor Project Superintendent/Foreman shall be responsible to ensure that all other equipment is available and adequate for all activities performed. The employee shall be responsible to use the equipment issued to them; management and staff shall be responsible to enforce the wearing of protective equipment by employees. PPE will include but not be limited to hard hats, safety vests, safety glasses, and work boots. Hearing protection should be available for all employees to use as needed.

#### 7.1.4 Reference Material

The Project Manager and Primary Safety Person are responsible for the acquisition and maintenance of all safety, health and fire prevention reference material applicable to the job site.

### 7.2 Prevention of Personnel Injury

#### 7.2.1 Daily Safety Inspections

The Job Superintendent or their designated representative will make daily safety inspections of the entire project. He/she will be especially alert to activities involving new work, new personnel, and new Subcontractors.

#### 7.2.2 Tool Box Meetings

The Foreman or Superintendent will conduct “tool box” safety meetings upon the initiation of a new work task, as often as deemed appropriate to insure a safe work environment, but at a minimum of weekly. Meetings to be conducted are:

- Minimum weekly safety meeting.
- Safety meeting at the initiation of new work type
- Biweekly or daily if deemed appropriate to insure safe operations.

It is the Primary Safety Person’s responsibility to see that the meetings are conducted in a meaningful manner. The Foreman or Superintendent will distribute “Tool box” topics for use. Current issues, problems, unsafe acts or conditions that have been observed during the past week will also be discussed.

### 7.2.3 Supervisory Safety Meetings

These meetings require the attendance of all on-site Subcontractor designees and will be held on a regularly scheduled basis. If applicable, the Contractor will participate in a joint Contractor safety coordination program on the project.

### 7.2.4 Safety Equipment and Instructions

It is the responsibility of the Primary Safety Person to ensure that adequate and appropriate equipment is available for all activities performed, that all safety rules and regulations are adhered to and that each employee understands and is capable of utilizing the equipment provided

### 7.2.5 Accident Investigation and Corrective Action

Immediately after an accident or incident has occurred, the involved superintendent will conduct an accident investigation. Based on the findings of that investigation, he/she will initiate the necessary corrective measures to prevent the recurrence of a similar situation and provide written documentation. He/she must continually monitor the job site to ensure that when new employees are hired and new tasks are undertaken, a similar set of circumstances does not recur.

### 7.2.6 Reporting Dangerous Conditions

It is the responsibility of all employees (staff, direct hire, and Subcontractors) to monitor the site for unsafe conditions. Such conditions are to be immediately brought to the attention of the Primary Safety Person and responsible supervisor. The Primary Safety Person is responsible for maintaining incident and exposure data, reports, and logs.

### 7.2.7 Stopping Dangerous Actions

The Primary Safety Person, Operations Manager, and Superintendents have the responsibility and the authority to stop work activities that could impair the safety of Contractor employees and/or subcontractors’ site personnel who are

directly engaged in the activity or performing adjacent activities. In addition, all crewmembers shall have the ability to stop unsafe work.

#### 7.2.8 Infectious Disease Program

The Contractor will follow this Infectious Disease Program to protect employees against biological and disease producing organisms that may be encountered around live sewage. The program is as follows:

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##### Infectious Disease Program

Employees will be trained in the following personal hygiene practices:

- **Wash your hands well with clean water and soap before you eat or use tobacco products and after work.** Remember that while waterless hand cleaners are better than nothing, tests have shown that soap and water or just water alone are more effective at removing sewage residue.
- **Do not touch your nose, mouth, eyes or ears with your hands, unless you have just washed. Most of the time, people get these diseases when they have germs on their hands and they touch their mouth or nose or eyes.**
- Avoid licking your lips.
- Keep your fingernails short; use a stiff soapy brush to clean under your nails.
- Always wear gloves when your hands are chapped or burned or you have a rash or cut.
- Clean your work tools regularly with a solution of one part bleach to ten parts water. The bleach solution must be made fresh every 24 hours for it to kill germs.
- When possible, shower and change out of your work clothes before you leave work.
- Do not keep your soiled work clothes with your other clothes.
- Report any injury or illness you think you got from work right away.
- **If you do get sick, be sure to tell your doctor that you work around live sewage.** That information will help the doctor know what to look for.

##### Personal Protective Equipment

- Employees will be provided with and trained in the use of all necessary personal protective equipment, including but not limited to a hard hat, safety glasses, hearing protection, safety vest, and appropriate footwear.
- Gloves, goggles, a face shield, water resistant suit, or respirator may also be necessary depending on the job.

##### Vaccinations

- The Contractor will recommend that employees have up-to-date shots for tetanus and diphtheria, but associated costs for these vaccinations will be the responsibility of the employee.
- The Contractor will advise any employees who have not had primary vaccinations for polio, typhoid, measles, mumps, and rubella to speak with their (the employees) primary care physician(s) about having those done. It is also important that the family members of workers be current in their vaccinations. Any costs associated with vaccinations will be the responsibility of the employee.

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#### 7.2.9 Respiratory Protection Program

The Contractor will prevent atmospheric contamination to facilitate the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general or local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

*The Contractor will establish and maintain a respiratory protection program, which shall include the requirements outlined in OAR 437, Division 3, Subdivision D, 1926.103.*

### 7.3 Prevention of Material Damage

7.3.1 The site superintendent or their designated representative will conduct daily inspections of all areas in which flammable or combustible materials are used or stored.

7.3.2 Fire extinguishers will be located in all temporary buildings and Contractor vehicles.

7.3.3 Equipment Inspection - The superintendent will assure completion and recording of all periodic equipment inspections.

7.3.4 Traffic Control Program – The Contractor will submit a site-specific traffic control plan.

7.3.5 Project Security Plan – The Contractor will submit a Project Security Plan that will include a description of the methods that will be used to secure the work area and excavations from public access.

## 8.0 Accident/Injury Control Procedures

### 8.1 Personnel Injury

It is the responsibility of the employee to report immediately to their supervisor all injuries, no matter how minor.

### 8.2 First Aid

Contractor or Subcontractor employees that are currently first aid certified can provide first aid to employees who require those services. A list of currently certified first aid employees will be posted in the job site trailer or at another location where it will be accessible to employees. Other first aid services will be provided as needed by members of the emergency response system, which will be activated as needed.

### 8.3 Emergency Transportation

Ambulance Service/Fire & Police Departments numbers will be posted on all bulletin boards in the Contractor office trailer, in all subcontractor trailers, and/or at other locations where they will be accessible to employees. When job sites are remote or difficult to access specific directions to the site will be developed and maintained with the posted emergency phone numbers. Refer to Section 8.4 for the Emergency Procedures to follow.

### 8.4 Emergency Communications

In addition to outside telephone service, cellular phones will be used. In the event of any incident requiring ambulance, police, or fire department response, or the media:

1. If ambulance, off site first aid treatment, police, or fire service is required CALL 911; identify yourself and location of the incident.
2. Notify the project Primary Safety Person.
3. Notify the Project Superintendent.
4. Designate a person to wait for and guide the ambulance or authorities to the incident.
5. Notify the City Project Manager within 1 hour of incident if possible. Alert them that the 911 Emergency Response System has been activated.
6. Notify the Contractor Project Manager in the following situations:
  - a. Serious Injury to a Contractor employee, subcontractor employee, owner employee, or general public.
  - b. Any property damage occurs.

### 9.0 Records and Reports

Timely preparation of ALL reports and submittals pertaining to this safety plan will be given high priority.

### 10.0 External Safety Audits

#### 10.1 Safety Inspections

The job site shall be visited regularly by the Project Manager for the purpose of reviewing the job site for compliance with OR-OSHA and the Contractor's safety and health requirements and to perform safety and health audits.

#### 10.2 Federal/State OSHA Compliance Officers and Insurance Representatives

In the event a compliance officer or insurance representative visits the job site, the following shall be observed by the Competent Person:

- 10.2.1 Ensure proper identification is given
- 10.2.2 Inquire as to the purpose of the visit:
  - a. Specific Complaint
  - b. General Inspection
  - c. Accident or Injury
- 10.2.3 Immediately inform job site management of their presence.
- 10.2.4 Ensure that they meet with the Project Foreman and Superintendent.
- 10.2.5 Ensure that they have access to any part of the project they have indicated they wish to inspect.
- 10.2.6 Notify the Contractor Project Manager.
- 10.2.7 In the case of compliance officer's visits, notify the City of Portland representative.

#### 11.0 Visitor Hazard Control Protection

- 11.1 All visitors to this project will be required to contact the Project Superintendent.
- 11.2 Visitors will be briefed on operations and hazards.
- 11.3 Visitors will comply with the written SSP.
- 11.4 Visitors will wear the appropriate PPE required for the operations being conducted at the site.
- 11.5 Visitors that do not check in with the Project Superintendent will remain a safe distance from all operations and will be considered a member of the general public.

#### 12.0 Known and Potential Project Hazards

##### 12.1 Confined Space Procedures

Prior to participating in a confined space entry (permit or non-permit), employees shall be trained in confined space entry. Before entering any BES confined spaces an authorization permit must be obtained from the BES engineer. A competent person in confined space entry shall be present at each entry and shall be responsible for filling out a CSE permit if the workers will be entering a permit-required confined space. A list of competent persons should be submitted with this safety plan.

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#### **Confined Space Definitions:**

Confined Space means 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, crawl spaces, hoppers, vaults, manholes, pipelines and pits are spaces that may have limited means of entry,); and
3. Is not designed for continuous employee occupancy.

NOTE: A space to be considered a “Confined Space” must meet all three of these criteria.

Entry Supervisor means 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.

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.

Attendant means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendants’ duties.

Authorized Entrant means an employee who is authorized by the employer to enter a permit space.

Entry means 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.

**Duties of authorized entrants, attendants, and entry supervisors**

Authorized entrants, attendants, and entry supervisors have the following duties and responsibilities:

<b>Duty/Responsibility</b>	<b>Entrant</b>	<b>Attendant</b>	<b>Supervisor</b>
Keep unauthorized entrants away from the space		X	X
Remove unauthorized individuals who enter or who attempt to enter the permit space.			X
Communicate with entrants, monitor their status, and tell them when to evacuate.		X	
Inform the entrants and the entry supervisor if unauthorized persons enter the permit space.		X	
Communicate with the attendant regularly	X		
Remain outside the space during entry operations until relieved by another attendant		X	
Know the number and identity of authorized entrants.		X	
Use all equipment properly	X	X	

Determine that acceptable entry conditions are maintained.			x
Exit from the permit space immediately upon an order to evacuate, an alarm warning, or a sign of a hazardous condition.	x		
Know permit space hazards, including the mode, symptoms, and consequences of exposure.	x	x	x
Notify the attendant of any signs or symptoms of exposure to a hazardous condition.	x		
Terminate the entry and cancel the permit when entry operations are finished or if a prohibited condition arises.			x
Verify that entry conditions are acceptable before signing the permit and allowing entry.			x
Perform non-entry rescues if necessary.		x	
Verify that rescue services are available and the means for summoning them are effective.			x
Summon emergency responders when entrants need their services.		x	

Upon preparation for confined space entry, review and inventory that the required personal protective equipment and testing devices are available and in operable condition.

1. Prior to entering the confined space, determine and document whether the confined space is a “permitted” or “non-permitted” confined space. Review emergency procedures. Review gas detection equipment for current calibration and function (charged or batteries).

- All manholes that have been in service (either sanitary or storm) shall be considered “Permitted Confined Spaces.” Prepare the “Confined Space Entry Permit,” which will be provided by the Owner.
- Newly constructed manholes may be considered either permitted or non-permitted confined spaces. Employees shall consult the Primary Safety Person concerning the determination for newly constructed manholes. If the manhole is considered a non-permitted space, entry is allowed. Continual testing of the atmosphere is required for non-permitted confined spaces. If the atmosphere becomes unsafe as indicated through atmospheric testing (i.e. an alarm sounds), immediately exit the space, and reclassify the space as a permitted confined space. Follow the procedures below for re-entry.

2. Prior to opening the confined space, test the atmosphere of the confined space through the manhole lid.

- Test the atmosphere through the manhole lid if access is available. If the atmosphere is initially deemed safe (oxygen >19.5%, explosive LFL <10%, toxicity PEL <10 ppm), open the manhole and retest at the top, middle and bottom of the confined space. Document all atmospheric tests on the “Confined Space Entry Permit” form.

## ATMOSPHERIC TESTING



Evaluation testing –	Analyze, identify, interpret and evaluate.
Verification testing -	Results of evaluation must be written.
Duration of testing -	As recommended by the manufacturer.
Testing stratified atmospheres –	A distance of approximately four feet (4') in the direction of travel and to each side.

Order of testing - 1) Oxygen 2) Flammable 3) Toxic

- 1) Oxygen –
  - a. Oxygen deficient atmospheres (Less than 19.5% oxygen):  
DO NOT ENTER. If these levels are noted after the employee has entered the space, they will immediately exit the space. Symptoms include loss of muscular coordination, rapid breathing, impaired judgment, vomiting, fainting, blue lips, coma and death)
  - b. Normal atmospheric air at sea level (Approximately 20.9% oxygen):  
OKAY  
Approximately 20.9% oxygen.
  - c. Oxygen Enriched Atmosphere: DO NOT ENTER.  
If these levels are noted after the employee has entered the space, they will immediately exit the space.  
More than 23.5% oxygen.
- 2) Flammable/explosive/combustible-
  - a. Greater than 10% of LEL (Lower Explosive Limit).
  - b. Greater than 10% of LFL (Lower Flammable Limit).
  - c. Combustible Dust of such a concentration that it reduces visibility to five feet or less and/or alarm sounds.
- 3) Toxic atmosphere –
  - a. Hydrogen Sulfide (sewer gas) at or above 10ppm - eye and respiratory irritation, paralysis of breathing response, unconsciousness. Eventual death.
  - b. Carbon Monoxide at or above 35ppm – headache, confusion, nausea, tendency to stagger, heart palpitations, unconsciousness. Eventual death.

## VENTILATION

Ventilate a minimum of five minutes before any entry.  
To determine VOLUME of:

Rectangle = Length X Width X Height

Cylinder =  $3.14 \times \frac{1}{2} \text{ Diameter} \times \frac{1}{2} \text{ Diameter} \times \text{Length}$   
example: sixty inch round manhole, thirty feet deep.  
 $3.14 \times 2.5' \times 2.5' \times 30 = 600 \text{ Cubic feet (volume) of air.}$

For the initial purge of the confined space, set the ventilator at least five feet away and upwind of the entry, with the inlet of the ventilator facing into the wind.

REMEMBER: Before entering any confined space, TEST the atmosphere, Ventilate, then TEST again!

3. Protect the confined space with signs, cones, barriers, safety tape, or fencing.
4. Assign standby personnel and assess communication needs.
  - The standby person shall remain at the entrance to the confined space and maintain communication with the entrant at all times.
  - Radio communications shall be used if visual contact cannot be maintained.
5. Install a forced air device into the bottom of the confined space.
  - Insure that the forced air device is located in an area that is free from exhausting device (gas or diesel motors).
6. Determine the personal protective equipment requirements for the tasks required in the confined space.
  - If a single person will enter the space, a harness, winch, and retrieval tripod shall be utilized.
  - If more than one person will be entering the space or the permittee will be entering/traveling into a pipe, consult with the Primary Safety Person to determine the personal protective equipment requirements.
7. Retest the atmosphere immediately prior to entry. The entrant shall be equipped with an atmospheric testing device during the entry. Record the oxygen, explosive, and toxic gas levels every 15 minutes. All tests shall be recorded on the "Confined Space Entry Permit" form.
8. Upon leaving the confined space, debrief the work team. Note any unusual occurrences, equipment deficiencies, etc. Return the permit to the corporate office for review by the Primary Safety Person.

#### CONFINED SPACE RESCUE PROCEDURES

In the event of a confined space rescue emergency, contractor personnel shall contact 911 and request an emergency response unit qualified in confined space rescue.

No persons shall enter the confined space in an emergency, unless they are properly trained and qualified in confined space rescue and all protective measures are in place.

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A shoring plan will be submitted for approval. In addition, the following requirements will be followed:

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## **Excavation**

### Specific Excavation Requirements

Underground construction and related hazards vary greatly. Factors such as soil classification, proximity to structures, moisture, both excessive and lack of, duration of exposure, depth of cut, existing utilities, vibration, imposed loads by equipment, etc., will all have an impact on the type of shoring and methods of application. It is not the intent of this policy to limit the use of any industry standard type shoring and related practices. In light of this, the contractor will adopt OAR 437, division 3, subsection P, 1926.650, 1926.651, and 1926.652, pages P-1 through P-38. Items of vast importance are as follows:

- A. The sides of excavations which are five (5) feet or more in depth will be adequately shored, sloped, or supported in accordance with accepted engineering standards.
- B. The sides of excavations which are five (5) feet or less will be evaluated by a Competent Person for soil stability and protection will be provided if deemed necessary.
- C. A Competent Person will be responsible for evaluating soil conditions, monitoring shoring installation, and inspecting protective systems. *The competent person shall have the tabulated data on combination systems available for review by the inspector.*
- D. Prior to the start of new work each day:
  - 1. A Competent Person will inspect excavations to ensure that protective systems are structurally sound with no potential for cave-ins. In addition, a competent person will inspect excavations after every rainstorm, hard freezing and thaw, or any other hazard-increasing occurrence.
  - 2. If using hydraulic shoring, the shores must be reconnected to the pump to ensure proper hydraulic pressure.
- E. Every excavation four feet or deeper will have some form of access for both entering and exiting. Access can be either a portable ladder, fixed ladder integral with shoring shields, or sloped cut. If a sloped cut or ramp is used for access, the slope will be configured to allow persons to walk up it in an upright position without using handholds. When excavations are occupied, access must be placed so that it can be reached with no greater than 25 feet lateral movement.
- F. When installing shoring, it will be performed from the top down, and procedure reversed when removing.
- G. Shoring will be installed prior to entering the excavation.
- H. When using plywood for sheathing behind hydraulic shores, the plywood must be 1 1/8 inch thick if softwood, or 3/4 inch if 14 ply arctic white birch. When using other types of sheathing behind hydraulic shores, the sheathing must be in accordance with the manufacturers tabulated data.

- I. Water will not be allowed to accumulate in the excavation.
- J. Spoil piles will no be closer than 2 feet from the edge of the excavation unless shoring or shielding is rated for the full height of the excavation measuring from the top of the spoils pile to the bottom of the excavation.
- K. A registered professional engineer will design excavations that are greater than twenty feet in depth. Engineered shoring over 20' in depth will be submitted to the Owner for review and approval.
- L. Undermining of sidewalks or pavement is prohibited.
- M. The one call locating system shall be called 48 hours prior to any excavation and some hand excavating may be necessary at times around existing utilities. A utility location request form can be found in the appendix.
- N. When existing utilities are encountered in an excavation the utility involved will be contacted and informed about the work that is to be done so that they can be coordinated with on any support measures.
- O. When existing utilities are encountered in excavations appropriate steps will be taken to support and protect them. Alternative cave-in protection systems such as hydraulic shoring may be used at such utility crossing. When these systems are used they will be installed in accordance with OSHA standards.
- P. All single jack shores are to be tied off to prevent falling.
- Q. Installation around manholes and connections
  - 1. Stackable manhole boxes, round manhole cans, or octagon boxes will be used for manhole installation and connections. If needed, the proper shoring or shield system to meet the depth and soil condition stated in the bid specs will be installed outside of manhole box for connects of existing pipe.
  - 2. Manhole boxes, manhole cans or octagon boxes being stacked to accommodate deeper manholes will utilize stack pins in accordance with the manufacturers Tabulated Data.
  - 3. Manguards will be used on smaller manholes and will be pinned together.
- R. Documentation that meets OSHA requirements for the sloping or shoring system that is used will be available to the competent person who is charged with the installation of the excavation protection system. This documentation will be readily available and provide to BES representatives upon request. When required by the project specification information on excavation protection systems will be submitted to BES for review.
- S. Soils

The contractor will follow an approved contaminated soils HASP submittal for the site, as well as the following requirements:

- (1) Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the OSHA definitions for soil types.

(2) Basis of classification. The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in below, or in other recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

(3) Visual and manual analyses. The visual and manual analyses shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

(4) Layered systems. In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

(5) Reclassification. If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, a competent person shall evaluate the changes. The deposit shall be reclassified as necessary to reflect the changed circumstances.

Acceptable visual and manual tests:

(1) Visual tests. Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

(i) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

(ii) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

(iii) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

(iv) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

(v) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

(vi) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

(vii) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

(2) Manual tests. Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

(i) Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.

(ii) Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

(iii) Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

(iv) Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shear vane.

(v) Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:

(a) If the sample develops cracks as it dries, significant fissures are indicated.

(b) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.

(c) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

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### 12.3 Fall Protection

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Regulations require that all job site fall exposures be analyzed as to what fall protection equipment and methods will be used to limit the hazard. After this analysis a job safety analyses (JSA's) may be developed on site to determine the best fall protection system(s). Items to be considered when developing JSA's must be ease of system procurement and production levels. The project foreman, superintendent, manager or safety department will develop JSA's. Once JSA's are developed, they will be shared with the Owner's Representative. The Contractor's employees will be instructed in what protection will be required for each fall exposure.

#### **Training**

- All employees will receive a copy of and read this fall protection plan.
- After reading, the employee will be given the opportunity to ask questions regarding this plan.
- After reading and discussing this plan, the employee and foreman/superintendent will sign the plan acknowledgement (which can be found in the appendix.)

#### **Fall Protection Systems**

The majority of fall protection systems will consist of simply attaching a lanyard to an anchorage point. However, some exposures will challenge the contractor to plan more

thoroughly, and possibly incorporate more intricate systems. The following limitations apply to all such systems.

- Horizontal lifelines will be fabricated of ½ inch wire rope
- Horizontal lifelines must be installed with a safety factor of two to one. This means that the line and anchorage points must be capable of supporting a minimum tensile strength of 10,000 lbs per person attached thereto.
- Eye splices formed as end connections for horizontal life lines will utilize the following table for number and spacing of wire rope clips:

Improved Plow Steel Clips	Number of Clips Drop Forged	Minimum Spacing (Inches)
1/2	3	3
5/8	3	3
3/4	4	4 1/2
7/8	4	5 1/4
1	5	6
1 1/8	6	7
1 1/4	6	8
1 3/8	7	9
1 1/2	7	10

- A special consideration related to a horizontal lifeline is fall distance. If a person were to fall, sag/stretch must be considered when using this type of system as the worker may hit a lower surface before complete fall arrest occurs.
- Only one person is allowed to be tied off to a vertical lifeline. There are two types of lanyard attachments for vertical lifelines:
  - Mechanical rope grab (Toledo)
  - Triple sliding hitch knot. This can only be used on nylon rope, not wire rope

**Fall Arrest Systems**

When work is done that requires the use of fall arrest systems, the following measures will be implemented:

- All site personnel will be required to use a body harness (with clip-on safety rope) when working at heights exceeding six feet above existing ground surface.



- When fall protection is required, at least one lanyard will be attached at all times, both while in work position and while in transition to the next work location. This will more than likely require the use of two lanyards.
  - Lanyard snap hooks will be of the locking type only.
  - Lanyards will be a maximum length of six feet.
  - When fabricating lanyards, only ½ inch or larger nylon rope can be used.
  - When fabricating eye splices in nylon rope lanyards, there will be a minimum of four full tucks. Individual rope strand tails will measure a minimum of three inches past the last tuck. In addition, thimbles will be used for lanyard attachments to the D-rings and shackles.
  - Frozen lanyards will not be used until thoroughly thawed, as this would significantly reduce the rope strength in the event of a fall.
  - Lanyard attachment points should be no lower than waist high, as this would increase the overall fall distance to greater than six feet.

### **Boom Lifts and Ladders**

- When work tasks require the field personnel to spend extended periods of time at heights above six feet, a boom lift (man lift) will be utilized as the primary working platform.
- While workers are in the man lift they will be required to don individual secured safety harnesses. The secured harnesses will be worn for the entire duration of the work task conducted from the man lift.
- Workers will also be briefed on the proper use of ladders and supervised by the Superintendent to make sure that these fall protection measures are implemented.
- Ladders will meet OSHA qualifications.

### **Fall Restraint**

Fall restraint for the most part will consist of a standard guardrail that is constructed in accordance with CFR 1926.502 of the OSHA standard.

### **Fall Protection System Inspection**

- It is the specific responsibility of each individual to inspect the fall protection system they are using. The inspection will be conducted prior to use, and at least once daily. In addition, foremen will inspect fall protection systems along with their other duties.
- Hardware Inspection

All fall protection hardware will be inspected in accordance with the following guidelines. Any hardware that is deficient will be immediately removed from service. Fall protection components subject to impact loading will be immediately removed from service and shall not be used again for employee safeguarding.

- A type III harness must be used.
- Lanyards will be inspected for cuts, wear, damage, mildew, chemical contact and any other deficiency.

- When using horizontal lifelines:
  - Verify that at least three wire rope clips are used to secure end connections.
  - Verify that wire rope clips are tight. Check tightness with a wrench. If system is in use for extended periods of time, inspect tightness once a week.
  - Visually inspect anchorage points for cracks, wear, deformation, or any structural deficiency.

## Rescue

The specific intent of any and all rescue efforts is to save a life. All too often would-be rescuers are willing to sacrifice a life. The contractor **will not request nor expect** any employee to jeopardize their well being to save the life of another. Keeping this in mind, the following rules apply:

- A backboard stretcher equipped with blankets and hoist straps will be readily available at each work site where rescue would require the use of a crane or some other hoisting device.
- First aid supplies will be available at all times. Kits can be located in the foreman's pickup or other construction vehicles.
- At least one extra type III harness with two lanyards will be available for emergency use.
- Rescue
  - All construction activities in the immediate area of the accident will be shut down.
  - All rescuers will remain 100% tied off while attempting the rescue, regardless of how long it takes to reach the accident site.
  - Fall victims will not be loaded onto a backboard while suspended in the air.
  - If at all possible, the victim will be hoisted to the nearest firm surface.
  - If at all possible, attach a secondary lanyard to the fall victim, in case the other line is damaged.

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## 12.4 Scaffolding

The contractor will follow OSHA's scaffolding standard, which includes the following key provisions:

- Each employee more than 10 feet above a lower level shall be protected from falls by guardrails or a fall arrest system, except those on single-point and two-point adjustable suspended scaffolds. Both a personal fall arrest system and a guardrail shall protect each employee on a single-point and two-point adjustable suspended scaffold.
- The contractor will train each employee who works on a scaffold on associated hazards and the procedures to control each hazard.

- Before each work shift and after any occurrence that could affect the structural integrity, a competent person must inspect the scaffold and scaffold components for visible defects.

## 12.5 Cranes

- A qualified person will address a list of key hazards associated with equipment assembly and disassembly.
- Only crane operators with a current crane operator's safety training card (as required by OAR 437-003-0081(s)) will be allowed to operate cranes.
- Ground conditions will be made adequate for crane set-up to help prevent tip-overs.
- In order to prevent electrocution, a leading cause of crane-related fatalities, the contractor will ensure that equipment does not come within at least 10 feet for lines rated 50 kilovolts or below. When lines are above 50 kilovolts, this 10 foot distance will be increased by adding 0.4 inches for each kilovolt above 50 kilovolts.
- When working closer than the prescribed distance, a specified list of measures will be taken. This means either that the electrical distribution and transmission lines must be de-energized and visibly grounded, or independent insulated barriers will be used to prevent physical contact.
- Signal persons will meet OSHA specified qualification requirements.
- The contractor will address issues related to safety devices, operational aids, signals, the specific type of equipment (such as derricks and tower cranes,) wire rope, crushing and overhead hazards, and fall protection and equipment modification before work with cranes begins and in "tool box" meetings.

## 12.6 Traffic

The contractor will submit a traffic control plan, and all appropriate controls will be installed and maintained by the contractor in accordance with their accepted plan.

Certified flaggers will be used as required.

The contractor will provide, in like new condition, and maintain all traffic control devices in conformance with the MUTCD approved plan.

## 12.7 Electrical/Hot Work

- All employees who face a risk of electric shock, burns or other related injuries, not reduced to a safe level by OSHA installation safety requirements, will be trained in safety-related work practices required by OSHA standard 29 CFR 1910.331-.335.

- In addition to being trained in and familiar with safety related work practices, unqualified employees must be trained in the inherent hazards of electricity, such as high voltages, electric current, arcing, grounding, and lack of guarding.
- The training of qualified employees must include at the minimum the following:
  - OSHA Instruction STD 1-16.7 JUL 1, 1991 Directorate of Compliance Programs
  - The ability to distinguish exposed live parts from other parts of electric equipment.
  - The ability to determine the nominal voltage of live parts.
  - The knowledge of clearance and/or approach distances specified in 1910.333(c).
- When working on BES facilities the BES Electrical Hot Work Policy will be followed.

## 12.8 Housekeeping/Site Security

- A. Sidewalk Cleanliness- The sidewalk will be swept or washed as needed, and will be kept open for pedestrians.
- B. The excavation will be secured from the public by a steel plate and/or fencing.
- C. Access to residences and businesses will be available at all times.
- D. The street will be kept clean and free of debris
- E. Sanitation facilities will be available for employees.
- F. During the course of work, work areas, passageways and stairs, in and around buildings, structures and railroads shall be kept clear of debris. Construction materials shall be stored in an orderly manner. Storage areas and walkways on the site shall be maintained free of depressions, obstructions and debris.
- G. Materials, tools, equipment, cords and electric lines shall be stored in an orderly and secure manner.
- H. Receptacles shall be placed at appropriate locations for the disposal of rubbish and debris.
- I. Trash and waste materials shall be promptly removed and disposed.
- J. Air and water lines and welding and burning leads shall be located to eliminate tripping hazards.
- K. Any protruding rails, etc. shall be immediately removed or completely bent over.
- L. Oil, grease and water spills shall be cleaned up immediately or covered with approved absorbent materials. Sewage spills will also be cleaned up immediately, after which contacted body surfaces should be washed with soap and water and tools should be cleaned with a fresh (made daily) solution of one part bleach to ten parts water.

- M. All tools, scaffolding, rubbish and materials shall be removed from the work area at the completion of the work.
- N. All reinforced steel and rebar shall be either: bent over or flat; use steel reinforcing caps; use wooden troughs; or provide other engineering controls that eliminate exposure to exposed reinforced steel.
- O. Spillage of earth, dusty materials, boulders, and mud on roads located on property outside of the construction site will not be permitted. If spillage cannot be prevented, the Contractor shall provide an hourly patrol to police and sweep such area throughout the work day, and at the conclusion of each work day, any paved roads located on property outside of the construction site which have been used by the Contractor shall be cleaned to the satisfaction of the Owner's Representative.

## 12.9 Fire Protection Program

The contractor shall have in place at the corporate office and on all job sites, a program of fire protection to eliminate or preclude injury to employees, interruption of work schedules, or damage to equipment or facilities.

In addition to the current electrical standards in subparts of the General Industry Standards, the following rules, procedures, and guidelines will be followed:

1. A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used. The suitability, distribution, and maintenance of extinguishers shall be in accordance with OSHA and Oregon State Regulations. (See extinguisher examples on following pages.)
2. Access to fire fighting equipment shall be maintained at all times.
3. All fire fighting equipment shall be periodically inspected and maintained in good operating condition. Extinguishers shall have inspection tags to reflect visual inspection frequency.
4. Only safely installed and approved heating devices shall be used in construction offices and sheds or on the premises of the corporate office. Heating devices shall be situated so they are not likely to overturn or cause a fire hazard.
5. Internal combustion engine powered air compressors, hoists, derricks, pumps, etc., shall be so located that the exhausts discharge well away from combustible materials.
6. Fuel for internal combustion equipment shall not be stored within buildings.
7. Use of gas operated welding or cutting equipment should be discontinued a minimum of one hour before quitting time whenever possible.

8. Refueling operations for oil burning equipment and liquefied petroleum gas burning equipment shall be safely conducted.

9. Smoking shall be prohibited at or in the vicinity of hazardous operations or combustible materials.

10. Where smoking is permitted, safe receptacles shall be provided for smoking materials.

11. Combustible waste material and rubbish shall not be stored or allowed to accumulate within or near buildings or on job sites, but shall be removed from the premises as soon as possible.

12. Rubbish shall not be burned on the contractor's premises or on job sites without prior approval from management and the proper authorities.

13. Flammable liquids shall be stored in proper containers with spark arrestors and properly labeled as to contents.

14. Potential sources of ignition shall be identified and safeguarded whenever necessary.

15. Electrical wiring and equipment for light, heat or power purposes shall be installed in compliance with the requirements of the National Electrical Code.

16. A suitable location at each job site shall be designated as a command post for emergencies and provided with plans, emergency information, keys (if applicable), and communications and emergency equipment as necessary.

17. During construction or demolition operations, free access to permanent, temporary, or portable first aid and fire equipment shall be maintained at all times.

18. Water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material accumulates.

19. A capable and qualified person having the necessary authority shall be placed in charge of fire protection at each job site.

20. There shall be a readily available public telephone service or equivalent - i.e. contractor radio/telephone available to a responding fire department.

Fire prevention is everyone's responsibility; please use caution when dealing with or around combustible materials.

#### 12.10 Assured Electrical Grounding Program

The contractor will establish and implement a ground fault circuit interrupter program and assured equipment grounding conductor program on their construction sites covering all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by their employees.

1. Each cord set, attachment cap, plug and receptacle of cords sets and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indication of possible internal damage. Equipment found damaged or defective may not be used until repaired.
2. All 125-volt single phase, 15-, 20-, and 30-ampere receptacles on construction sites, that are for temporary power use and are available for use by employees, must have approved ground-fault circuit interrupters (GFCI). GFI protection shall be at the outlet end of each circuit.
3. All receptacles over 125-volt, single phase, 30-amperes must follow the assured grounding program as listed below.
4. The following tests shall be performed on all cord sets, receptacles that are not a part of the permanent wiring of the building or structure, and cord and plug-connected equipment required to be grounded:
  - a. All equipment grounding conductors shall be tested for continuity and shall be electrically continuous; and
  - b. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.
5. All required tests shall be performed:
  - a. Before first use;
  - b. Before equipment is returned to service following any repairs;
  - c. Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over); and
  - d. At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.
6. Tests performed as required in this paragraph shall be recorded. Each cord set will be color coded with a color tape on the cord near the male end of the cord as follows:

***White . . . . January through March***  
***Green . . . . April through June***  
***Red . . . . July through September***

### ***Orange. . . . October through December***

A poster will be posted on the Contractor's jobsites showing these colors.

7. The tests of each receptacle and attachment cap or plug will be done on each construction job the first day of each quarter. The Contractor will start testing and marking each receptacle and attachment cap or plug on the 20th day of the last month in each quarter for the new quarter.

#### 12.11 Hazardous Communication

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##### Hazardous Communication Employee Training Program

This program has been prepared to comply with the requirements of the federal OSHA standard 1926.59 and to insure that information necessary for the safe use, handling and storage of hazardous chemicals is made available to employees.

Training will include guidelines on identification of chemical hazards and on the preparation and proper use of container labels, placards and other types of warning devices.

The Primary Safety Person shall be responsible for the employee-training program. He/she will ensure that all elements specified below are carried out. Prior to beginning employment every employee will be give a health and safety lecture and will receive information and/or training on the following:

1. An overview of the Hazardous Communication Rules
2. Location and availability of written Hazard Communication Program
3. Review of the chemicals used on the Contractor's job sites.
4. Hazardous container labeling requirements.
5. How to read and use hazardous communication labels and MSDS to obtain hazard information.
6. The physical and health effects of the hazardous materials used in the workplace
7. How to detect the release of hazardous chemicals in the Employee's work area
8. How to lessen or prevent exposure to the chemicals through the use of assigned personal protective equipment and proper work procedures
9. Emergency and first aid procedures
10. A list of hazardous chemicals used

In addition, review of safe work procedures and use of required PPE will be conducted prior to the start of new tasks that will involve potential exposure to hazardous materials. Where necessary, areas will be posted to indicate the hazard involved.

##### Overview of the hazard communication rules

The Hazard Communication Rules are intended to ensure that both employers and employees are aware of the dangers associated with hazardous chemicals in their workplace. The following outline provides a review of the specific requirements including container labeling, MSDS, and training.



## Chemicals used in the workplace

A variety of products will be used in construction, many of which contain one or more hazardous chemicals. Most of the products can be grouped by their basic function or use. Once the products are placed in groups, the contractor can determine what kinds of hazards these chemicals represent, how to control, and how to detect the presence of these materials.

### Chemical Inventory

The contractor will maintain an inventory of all known chemicals in use on the work-site. A chemical list will be available from the Primary Safety Person. Chemicals brought onto the worksite by the contractor will be included on the hazardous chemical inventory list.

### Container labeling

1. Other than small quantities for immediate use, all chemicals on site will be stored in their original or approved containers with proper labeling attached. Any container not properly labeled should be given to the employee's immediate Supervisor or the Primary Safety Person for proper labeling and/or disposal.
2. Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemical left after work is completed must be returned to its original container.
3. No unmarked containers of any size are to be left in the work area unattended.
4. The contractor will rely on manufacturer-applied labels whenever possible, and will ensure that these labels are maintained. Containers that are not labeled or on which the manufacturer's label has been removed will be relabeled.
5. The superintendent or supervisor of each project or site will ensure that all secondary containers are labeled properly.

On the occasions when a chemical is purchased directly for a project by the field personnel, the on site superintendent shall be responsible for the following actions:

1. Confirm that chemicals are delivered with adequate labeling as described above.
2. Insist that the vendor of the chemical provide a MSDS if one is not already in the project files.
3. Forward to the corporate office a copy of the MSDS.

The Primary Safety Person, or his/her designated substitute, shall review the contractor labeling system every six months and update as required.

### **How to read labels and MSDS:**

Labels: A product label on both the original and/or secondary containers (if applicable) should be reviewed prior to working with the material. Each label will have two important pieces of information with which employees should be familiar.

1. The identity of the hazardous chemical
2. The hazard warning

Original container labels will also state the name and address of the manufacturer.

The label should act as a visual reminder of the information that has been presented in contractor training sessions and of the information found in more detail on the MSDS.

The key to employee safety is to read the Hazard Warning Labels and use the chemical as prescribed by the label. The only exception to following the warning label instructions is when the Contractor has provided special written procedures and has provided specialized equipment or processes to protect the user.

Material Safety Data Sheets (MSDS): The MSDS is the primary means that will be used to convey the necessary information about the hazards of the chemicals that will be used. The chemical manufacturers are responsible for providing MSDS's.

The Primary Safety Person or a person designated by him/her shall be responsible for obtaining and maintaining the MSDS system for the contractor. This person will also review incoming MSDS's for new significant information. He/she will see that any new information is passed on to the supervisors and employees responsible for handling these materials.

MSDS's for all hazardous chemicals to which employees of the contractor may be exposed will be kept in a master catalog compiled in the corporate office. In addition, each job site or area where there is contractor activity shall have a Hazardous Chemical Notebook that includes copies of all MSDS's that are appropriate for the site.

MSDS's will be available to all employees in their work area for review during each work shift. If MSDS's are not available or new chemicals in use do not have MSDS's, please immediately contact the Primary Safety Person.

Employees working with a Hazardous Chemical may request a copy of the Material Safety Data Sheet (MSDS). Requests for these MSDS's should be made to the Primary Safety Person.

### **Personal Protective Equipment**

Employees will report to work each day wearing at a minimum long pants, shirts that cover the shoulders and midsection, and work boots. All of these items will be made of durable materials, free of holes, and in good repair. The work boots will have ankle support, non-slip soles, and steel toes. The contractor will provide all other required Personal Protective

Equipment (PPE). Any employee found in violation of PPE requirements may be subject to disciplinary actions up to and including discharge.

### **Emergency Response**

Any incident of over exposure or spill of a hazardous chemical/substance must be reported to the Primary Safety Person at once.

The foremen or immediate supervisor will be responsible for insuring that proper emergency response actions are taken in leak/spill situations.

### **Hazards of Non-routine Tasks**

Supervisors will inform employees of any special tasks that may arise which would involve possible exposure to hazardous chemicals.

Review of safe work procedures and use of required PPE will be conducted prior to the start of such tasks. Where necessary, areas will be posted to indicate the hazard involved.

**Supervisors will review the following items for each type of chemical employees will be exposed to:**

- Health Effects**
- Physical Hazards**
- Detection of Release**
- Protective Equipment**
- Work Practices**
- Appropriate Emergency and First Aid Procedures**

### **List of Hazardous Chemicals:**

The Primary Safety Person will make an analysis of those MSDS sheets that will be needed on the job site. Copies will be made available at the job site. The foreman and superintendent will also have a copy. Another copy will be given to the City of Portland Project Manager. The Primary Safety Person and the Superintendent will confer with each subcontractor to inform them of the location where the MSDS sheets will be readily available to them.

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## **APPENDIX SECTION**

### **1.0 Checklist of Required Submittals and Documentation**

- Job Area Survey and Project Map
- Safety Personnel Documentation

- \_\_\_ Designation of Competent Persons
- \_\_\_ CPR and First Aid Trained Employees
- \_\_\_ Names and Contact Information of All Safety Personnel
- \_\_\_ Construction Manpower
- \_\_\_ Ambulance/Emergency Response Service
- \_\_\_ Address of and Map to Hospital
- \_\_\_ Fire Prevention Plan Layout Drawing Insert (showing storage and volume of all flammable and/or combustible liquids, gases, or other hazards.)
- \_\_\_ Confined Space Entry Permits
- \_\_\_ Emergency Response Plan
- \_\_\_ Project Security Plan
- \_\_\_ Job Safety Analyses
- \_\_\_ Respiratory Protection Program
- \_\_\_ Hazard Communication Program
- \_\_\_ Drug and Alcohol Program
- \_\_\_ Traffic Control Plan

## 2.0 Job Area Survey and Project Map

The job area survey should describe the location of the areas in which the work will be performed, and the scope of the work. For each area the program for shored excavation, traffic control, storm water diversion, and erosion control should be identified.

## 3.0 Safety Personnel Documentation

A Primary Safety Representative must be designated for each project location. A resume of the experience and qualifications for all Contractor Safety Representatives must be submitted.

## 4.0 Designation of Competent Persons

A Competent Person must be designated for each shift of work, for each Project location. The Competent Person shall meet OAR 437, Division 3, Subdivision P, 1926.650, and comply with the BES special specifications.

## 5.0 CPR and First Aid Trained Employees

The Contractor shall have at least one CPR and First Aid Trained Employee available for each work shift.

## 6.0 Names and Contact Information of All Safety Personnel

The names and contact information of all safety personnel must be submitted to the City of Portland and also posted where they can be easily found at each job site. The location of a first aid facility should also be indicated. The following is an example of a possible submittal or posting:

It is this Company's responsibility to provide adequate personnel, facilities, and equipment to assure for the safety and health of our employees. To meet this responsibility, the following personnel, facilities and equipment are involved:

Owner's Safety Contact Person _____	Contact info _____
Safety Director _____	Contact info _____
Primary Safety Person _____	Contact info _____
Contractor Project Manager _____	Contact info _____
Project Manager for City of Portland _____	Contact info _____
Job Superintendent/Foreman _____	Contact info _____
Competent Persons _____	Contact info _____
- _____	Contact info _____
- _____	Contact info _____

Location of First Aid Facility\*

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Will post a list of supervisors and employees trained in first aid

**COMPETENT PERSONS/PERSONS DEDICATED TO PROGRAMS**

<u>Name</u>	<u>Record of Training</u>	<u>Area of Competence</u>
		<i>CSE</i>
		<i>Excavation</i>
		<i>Fall Protection</i>
		<i>Scaffolding</i>
		<i>Cranes</i>
		<i>Traffic</i>
		<i>Soils</i>
		<i>Electrical/Hot Work</i>
		<i>Fire Protection Program</i>
		<i>Assured Electrical Grounding</i>
		<i>Hazardous Communication</i>
		<i>Scaffolding</i>

**7.0 Construction Manpower**

A breakdown of how many employees will be working in each type of job should be submitted. The following is an example:

Pipe Crew	_____	Person(s)
Traffic Control Setup Crew	_____	Person(s)
Supervision	_____	Person(s)

**MAXIMUM DAILY CREW: \_\_\_\_\_ Persons\***

*\*The above is an approximate list. Actual manpower during different phases of the project will vary.*

## 8.0 Ambulance/Emergency Response Services

In addition to adopting section 8.0 of the main document, the resources that will be used in the event of an emergency should be specified. The following is an example:

In the event of a major accident or injury requiring outside services, the contractor will utilize the following:

1. City of Portland Emergency Response System – DIAL 911
2. Emergency phone numbers of the contractor. Also, management personnel will be notified.
3. Notify the BES Project Manager of all accidents that require ambulance, fire, or police response and/or where the media is involved.

Contact Information for:

\*Hospital/Clinic/Doctors \_\_\_\_\_

Ambulance \_\_\_\_\_

Fire \_\_\_\_\_

Police Department \_\_\_\_\_

*\*A map from the job site to the hospital must also be submitted with this safety plan and posted at the job site.*

## 9.0 Fire Prevention Plan Layout Drawing

In addition to adopting the fire protection program in section 12.10, a fire prevention plan layout drawing should be included in the site-specific safety plan. This drawing should show the storage and volume of all flammable and/or combustible liquids, gases, or other hazards.

## 10.0 Confined Space Entry Permits

Permits for confined space entries will be provided by BES.

## 11.0 Emergency Response Plan

An emergency response plan must be submitted with the Site-Specific Safety Plan. This can be written using the following guidelines:

1. The Contractor's Safety and Health Plan shall incorporate a plan for safely and expeditiously handling possible emergency situations such as floods fires, sewer gases, earthquakes, cave-ins, slides, explosions, power outages, accidental chemical release, windstorms, and similar catastrophic occurrences.

2. An emergency response plan shall be developed and implemented to handle anticipated emergencies. The emergency response plan shall address, as a minimum, the following:

- a. Pre-emergency planning.
- b. Personnel roles, lines of authority, and communication.
- c. Emergency recognition and prevention.
- d. Safe distances and staging areas (safety zones.)
- e. Site security and control.
- f. Evacuation routes and procedures.
- g. Decontamination procedures.
- h. Emergency medical treatment and first aid.
- i. Emergency alerting and response procedures.
- j. Critique of response and follow-up.
- k. Personal protective and emergency equipment.
- l. Site topography, layout, and prevailing wind conditions.
- m. Procedures for reporting incidents to State and local governments.
- n. Injuries to the general public on or adjacent to the Project Site.
- o. Property damage with particular emphasis on utilities.
- p. Injuries to employees.
- q. Fire.

3. The plan shall be in writing and shall be available for inspection by the Owner's Representative.

4. Procedures shall be provided for emergency response at all times, including non-work periods at night, weekends, and holidays. It is essential that the response be on a 24-hour basis. In the event that work is not conducted on a 24-hour, 7-day basis, provision for notification of responsible personnel shall be included in the procedure.

## 12.0 Project Security Plan

The Contractor will submit a Project Security Plan that will include a description of the methods that will be used to secure the work area and excavations from public access as per the BES special specifications.

## 13.0 Job Safety Analyses

A job safety analysis (JSA) must be developed for all operations prior to their commencement and these should be discussed with the employees involved. Upon request, JSA's will be submitted to the Owner's representative for approval. Other rules pertaining to JSA's are outlined in the safety section of the BES special specifications. A sample JSA form is included in this appendix.

## 14.0 Respiratory Protection Program

Establish and maintain a respiratory protection program, which shall include the requirements outlined in OAR 437, Division 3, Subdivision D, 1926.103.

## 15.0 Hazardous Communications Program

The contractor should submit an MSDS for each product that is to be used on the project. Located in this appendix are a sign-off sheet for employees to indicate that they have received the training specified in section 12.12 of this document and a sample letter for requesting an MSDS from the manufacturer

## 17.0 Traffic Control Plan

Comply with all the requirements with regard to traffic control and traffic plans in the Standard Construction Specifications. Submit a traffic control plan to BES.

\*

### TRAINING RECORD FOR HAZARD COMMUNICATIONS

This is to certify that I have been trained and informed on the hazards and precautions associated with the use of hazardous chemicals in my work as required in the Contractor's written hazard communication program.



To confirm my understanding of such training and instructions,

Reviewed them with me and he/she indicated his/her satisfaction by checking each of the topics below:

- \_\_\_ Overview of the requirements contained in the Hazard Communication rules, CRF 1910.1200.
- \_\_\_ Chemicals present in my workplace operations.
- \_\_\_ Locations and availability of our written hazard communication program and the MSDSs for the hazardous chemicals.
- \_\_\_ Physical and health effects of these hazardous chemicals.
- \_\_\_ Methods and observation techniques used to determine the presence or release of hazardous chemicals in my work place.
- \_\_\_ How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment.
- \_\_\_ Steps the Contractor has taken to lessen or prevent exposure to these chemicals.
- \_\_\_ Safety emergency procedures to follow in the event of exposure to these chemicals.
- \_\_\_ How to read container labels, review, and interpret MSDS's to obtain appropriate hazard information.

Employee's name \_\_\_\_\_ Date \_\_\_\_\_

Attested \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
Trainer

\_\_\_\_\_  
Date

## TRAINING RECORD FOR FALL PROTECTION

This is to certify that I have been trained and informed on the hazards and precautions associated with working at sites that require fall protection as required in the Company's written fall protection program.

To confirm my understanding of such training and instructions,

\_\_\_\_\_  
Reviewed them with me and he/she indicated his/her satisfaction by checking each of the topics below:

\_\_\_ General Information

\_\_\_ Fall Exposure

\_\_\_ Fall Protection Systems

\_\_\_ Fall Restraint

\_\_\_ Fall Protection System Inspection

\_\_\_ Rescue

Employee's name \_\_\_\_\_ Date \_\_\_\_\_

Attested \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
Trainer

\_\_\_\_\_  
Date

ABC, Inc.  
P.O. Box 30569  
Portland, Or 97294-3569  
Office: 503-252-1180 Fax: 503-252-1730

Re: MSDS FOR \_\_\_\_\_

Please send a copy of your Material Safety Data Sheet (MSDS) for your product \_\_\_\_\_ . The MSDS is needed for compliance with the State of Oregon's Hazard Communication rule, Division 3, Subdivision D (Federal OSHA 29 CFR 1926.59).

Please fax the MSDS to me at 555-123-4567 or mail the MSDS to me at the address listed below:

ABC, Inc.  
P.O. Box 12345  
Portland, OR 97801

If you have any questions regarding my request, please contact me.

Sincerely,

**Name of Safety Director**  
Safety Director

cc: MSDS file(s)

UTILITY LOCATION REQUEST

PHONE NUMBER: \_\_\_\_\_

CALLER NAME: \_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_

ALTERNATE CONTACT NAME: \_\_\_\_\_

DATE WORK TO BEGIN: \_\_\_\_\_

TIME WORK TO BEGIN: \_\_\_\_\_

TYPE OF WORK: \_\_\_\_\_

WORK BEING DONE FOR: \_\_\_\_\_

COUNTY:

CITY/PLACE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ STREET:

NEAREST STREET INTERSECTION:

LOCATION OF WORK:

Note: If no house number is available, additional information is needed, i.e. what side of which road the work is on, and approximately how far and in which direction is the work site from the nearest intersection. Has the excavation area been pre-marked in white? \_\_\_\_\_

Remarks:

YOUR REQUEST NUMBER IS \_\_\_\_\_ PLEASE WRITE THIS NUMBER  
DOWN FOR FUTURE REFERENCE

ADDRESS:

EXT:

STATE:

ZIP: \_\_\_\_\_

— PHONE #:\

## Employee Report of Hazard

Hazard or Problem

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Area Where Hazard Was Observed

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Date & Time

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Suggested Action

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Employee Signature (Optional)

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**EMPLOYEE: COMPLETE THE ABOVE AND GIVE TO SUPERVISOR**



Action Taken

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Department

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Signature and Date

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NEAR MISS NON-MEDICAL INCIDENT

Employee Name \_\_\_\_\_

Employer Name \_\_\_\_\_ Job Title \_\_\_\_\_

Date of Incident \_\_\_\_\_ Time \_\_\_\_\_

Where and how did the incident occur?

Equipment Involved (*if applicable*):

Nature and extent of injury:

Name of Witness(es):

Preventative measures recommended (*To be completed by manager*):

If you visit a doctor or hospital as a result of this incident, you must complete an 801 form (Report of Occupational Injury or Disease).

Date \_\_\_\_\_ Manager \_\_\_\_\_

**Tailgate Safety Meeting**

Project/Group \_\_\_\_\_ Date \_\_\_\_\_

Project Manager(s) \_\_\_\_\_ Meeting Leader \_\_\_\_\_

Safety Topic Reviewed: \_\_\_\_\_

Items Discussed: (Recent incidents, upcoming hazards, etc.)  
\_\_\_\_\_  
\_\_\_\_\_  
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Safety Concerns / Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Suggestions to Safety Committee:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Employees in Attendance (Legible Signatures Please):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Job Safety Analysis Form

Job Title: \_\_\_\_\_ Job Location: \_\_\_\_\_

Analyst: \_\_\_\_\_ Date: \_\_\_\_\_

Task #: \_\_\_\_\_

Task Description:

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Hazard Types: \_\_\_\_\_

Hazard Descriptions:

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Consequences: \_\_\_\_\_

Hazard Controls:

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Rationale or Comments:

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