

# CITY OF BOARDMAN

## OCCUPATIONAL SAFETY AND HEALTH MANUAL

2024

Updated July 30, 2024



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# **INTRODUCTION**

## **Management Commitment to Health and Safety**

The safety and health of our employees is very important to the City of Boardman. No employee will be required to do a job that he or she considers unsafe. The City of Boardman will comply with all applicable Oregon OSHA workplace safety and health requirements and maintain occupational safety and health standards that equal or exceed those best practices.

The City of Boardman has established a safety committee, consisting of management and labor representatives, whose responsibility will be identifying hazards and unsafe work practices, removing obstacles to preventing accidents, and helping evaluate our efforts to achieve an accident and injury-free workplace.

We will strive to achieve the goal of zero accidents and injuries. In doing so, City of Boardman pledges to do the following:

1. Recognize that management and employees share responsibility for a safe and healthy workplace. This is documented in our Health and Safety Manual, under the safety responsibility section.
2. We support City of Boardman Safety Committee by encouraging employee participation, considering all employee suggestions for achieving a safer, healthier workplace and regularly reviewing City of Boardman safety and health program. This is documented in our safety committee meeting notes.
3. Supervisors are responsible for training workers in safe work practices at hire and as policies, processes or equipment changes. Supervisors are held accountable by Brandon Hammond, City Manager. This is documented in end of year performance reviews, completed annually.
4. Manager/supervisors will enforce City of Boardman safety rules and ensure that employees follow safe practices. If work rules or practices are not adhered to, the manager or supervisor will follow the employee handbook/ collective bargaining agreement when taking any corrective measures. Supervisors evaluate on a case-by-case basis. Any discipline will be documented in the employee's personnel files located in Human Resources.
5. Provide mechanical and physical safeguards wherever they are necessary. Provide employees with necessary protective equipment and train them to use and care for it properly. Documentation of necessary personal protective equipment (PPE Evaluation) is located in the Health and Safety Manual.
6. Conduct routine safety and health inspections to find and eliminate unsafe working conditions, identify health and safety hazards, and comply with all applicable Oregon OSHA safety and health requirements. The safety committee will conduct quarterly worksite inspections. Employees can also make suggestions to the supervisor or safety committee. This is documented in our safety minutes and the results are maintained by the safety committee.
7. Investigate accidents to determine the cause and to prevent similar accidents from occurring in the future. Accident investigations are conducted by the immediate supervisor and reviewed by the safety committee. Any suggestions that are made are documented in safety minutes and maintained by the safety committee in the accident report form.

8. Evaluate workplace design, layout and operations utilizing an ergonomic approach. We have trained ergonomic responders who evaluate new employee workstations upon hire and if there are concerns as needed. If the on-site responder is unable to resolve the concern, we will contact our CIS Risk Management Consultant for assistance. This documentation is located in the CIS Learning Center.
9. Remind employees that they are expected to participate in safety and health program activities including immediately reporting hazards, unsafe work practices and accidents to supervisors or a safety committee representative, wearing required personal protective equipment, and participating in supporting safety committee activities. This is encouraged and documented through the CIS Learning Center.
10. Conduct an annual evaluation of the company's loss prevention goals and activities based on entity or department specific concerns and current entity needs. The annual evaluation will be conducted by the safety committee and reviewed by the City Manager. This is documented in the safety committee minutes.
11. Ensure that employees can report hazards and injuries in an environment free from retaliation or harassment. (See employee handbook for policy on "Protection against Retaliation")
12. CIS provides our Workers' Compensation coverage. They have risk management and safety services, as well as access to industrial hygiene services that our entity may utilize.

CIS Risk Management Consultant is Lisa Masters and can be reached at 503-763-3859

City of Boardman's designated Safety Officer/Risk Manager is Brandon Hammond  
Located in Boardman City Hall and can be contacted at: 541-481-9252

# **SAFETY RESPONSIBILITIES**

## **Safety Responsibilities**

Most public employees are covered under OR-OSHA Division 2, the General Industry Standard. This health and safety manual complies with the requirements of the OR-OSHA Division 2 standard. [Link to OR-OSHA's Division 2 Standard](#)

1. Employees or contractors who are engaged in construction work including demolition, blasting and use of explosives, and power transmission distribution and maintenance work. These employees will need to comply with the OR-OSHA Division 3, Construction Standard. [Link to OR-OSHA Division 3 Construction Standards](#)
2. [Link to OR-OSHA Construction Info and Resources](#)
3. Employees who conduct ocean and navigable waterway rescues. These employees need to comply with the OSHA Division 5 Maritime Activities Standard (29 CFR 1915, 1917, and 1918) and applicable Coast Guard regulations. [Link to OR-OSHA Division 5 Regulations](#)
4. Employees who are responsible for operation and maintenance of electric power generation, control, transformation, transmission, distribution lines and equipment. These employees are required to comply with the OR-OSHA Electric Power Generation, Transmission and Distribution Standard, Chapter 437, Division 2 Subdivision RR. This includes those employees who conduct line-clearance tree-trimming operations. [Division 2, Subdivision RR](#)
5. Employees who perform work in underground mines, sand and gravel pits, including the rock crusher if it is in or near the pit are required to comply with MSHA regulations and are subject to inspection by MSHA compliance inspectors. (Portable rock crushers that are not connected to a sand or gravel pit will be subject to OR-OSHA compliance inspections). [Link to MSHA Regulations](#)

[Program Directive Outlining MSHA vs. OR-OSHA Jurisdiction](#)

## **Management Commitment**

Management and supervisory personnel are accountable for the safety of employees working under their supervision and will be expected to conduct operations in a safe manner at all times. Management has the overall responsibility for the establishment, implementation, administration, and governance of the City of Boardman entire safety program. Management staff responsibilities include:

1. Ensuring that safety and health regulations are observed.
2. Developing and implementing the safety program.
3. Assisting in preparation and revision of safety policies and implementation of the safety rules.
4. Monitoring and auditing each department or facility for safety and health hazards.
5. Establishing or approving procedures for hazardous operations.
6. Monitoring and auditing the operation for safety and health hazards.
7. Overseeing the investigation of all accidents, reporting near misses or hazardous conditions, and assuring that appropriate steps for corrective action are implemented in a

timely manner. In the event of an accident, conducting a complete and thorough investigation before leaving work for the day.

8. Reviewing and approving the safety aspects of any facility layout, design, and alteration.
9. Maintaining weekly contact with any worker who is away from work due to a work-related injury or illness and documenting the contact in a written record.
10. Completing the safety orientation of new employees and conducting mandatory safety meetings and training.
11. Recommending safety procedures and practices.
12. Maintaining the OR-OSHA injury and illness logs and complying with state and federal injury reporting requirements.
13. Retaining exposure and medical monitoring records.
14. Managing our workers' compensation program.
15. Assisting supervisors with safety performance issues if requested, or in the event of a specific trend of injury types or sources.

### **Employees' Responsibilities**

Employees' role in safety is critical. Employees are responsible for following proper safety and health practices. It is important that everyone reports unsafe conditions to their supervisor and the Safety Committee so that the condition or facility can be corrected. Safe work practices are for all our employees' benefit.

Employees are responsible for:

1. Carrying out each task using every required and reasonable precaution to protect themselves and co-workers from injury.
2. Being alert to and reporting any unsafe conditions or practices observed to the immediate supervisor.
3. Immediately reporting all injuries to their supervisors.
4. Being familiar with and abiding by the safety policies.

### **Safety Committee Responsibilities**

The Safety Committee's responsibility is to advise management on safety related issues in the workplace and to provide leadership in protecting the safety and health of all employees. The Safety Committee plays an essential role in the overall safety effort and serves as the primary means of communicating and exchanging information on safety issues. Safety Committee responsibilities include:

1. Recommending programs for the safety and health of employees.
2. Monitoring the programs and work procedures designed for employee safety and health.
3. Considering individual employee concerns and suggestions regarding safety and health, communicating with the management team regarding concerns and suggestions, and reporting to the individual employee in a timely manner.
4. Reviewing employee safety input forms and recommending appropriate corrective action in writing.
5. Promoting programs to improve the safety, health, training, and awareness of all employees.
6. Participating in the investigation of safety hazards as needed.
7. Providing a means for employees to work together on identifying hazards and developing acceptable solutions to safety problems.
8. Safety Committees meet monthly and will provide reports to the management team(s).

Though the Safety Committee's role is advisory, all reasonable means will be taken by the management to address the concerns of the committee. The Safety Committee Charter is defined in detail in [Chapter 6](#).

### **Safety Committee Chair Responsibilities**

1. Presenting to the management team(s) safety policies to meet OR-OSHA compliance.
2. Assisting the Safety Committee with the implementation of all safety policies and procedures.
3. Evaluating safety performance issues upon request or if specific injury trends are identified.
4. Working with the Safety Committee to develop or recommend safety-training programs.
5. Developing and or maintaining educational and instructional materials.
6. Developing safety committee meeting agendas and leading the safety committee meetings.

### **Safety Communication Network**

As reflected in the management commitment statement, maintaining a safe place of employment requires a cooperative effort on the part of each employee. Essential for such cooperation is a communication system capable of conveying safety information. The following outlines our communication network:

1. Written communications (either on paper, via email or the entity's intranet), to be available to the employees in each department, regarding major and/or complex issues.
2. Safety Committee meetings should be held as needed but at least every month unless all employee safety meetings are held. These meetings will have a standard agenda that shall be revised as appropriate, and participants will report on various safety/health related issues. The agenda for Safety Committee meetings should include (but are not limited to):
  - a. Review of old business from prior safety committee meetings.
  - b. Review of applicable regulatory issues.
  - c. Status of current safety issues.
  - d. Review of accidents that have occurred and corrective actions taken. This includes a discussion of any trends or near-miss reports.
  - e. Discussion of any major process and operational changes that may affect safety or environmental pro- grams or result in additional planning.
  - f. Each department representative or the supervisor will report on the status of on-going safety training and any assistance needed.
  - g. Review of walkthrough reports and corrective actions taken.
3. Getting safety input from individual employees can be accomplished through a variety of avenues including:
  - a. Addressing the issue with the immediate supervisor.
  - b. Reviewing with any level of management, via our open-door policy.
  - c. Submitting a written safety recommendation.
  - d. Reviewing with a safety committee representative.

## **Disciplinary Actions For Unsafe Practices**

Employees are expected to act in accordance with all appropriate codes, laws, regulations, and policies, regardless of whether they are set by the City of Boardman or outside regulatory or legislative bodies. Violation of any safety, health, security or policy, rule or procedure will result in potential discipline or termination of employment. (Contact CIS Pre-Loss for assistance with disciplinary actions.)

**Note:** Always get HR and legal advice before taking any disciplinary action. CIS pre-loss legal services are available to members with general liability / workers. With the exception of employees subject to a collective bargaining agreement or contract of employment, City of Boardman remains free to terminate the employment relationship at any time, with or without cause or notice. For employees subject to a collective bargaining agreement or contract of employment, please refer to those agreements or contracts prior to acting.



[Use on official letterhead]

Date

To: [Employee]

From: [Supervisor]

Subject: Written Warning

You are being issued this Written Warning pursuant to Article \_\_\_ of the Personnel Policy Manual for a violation of City policy and for unsatisfactory job performance.

1. Section 3.1.3 of the Personnel Policy Manual states: "Employees shall be courteous, efficient and helpful to every- one in their work and shall do the best job possible on every assignment." It was reported to me that you [Describe what happened, using the five "w"s.]
2. Supervisors are expected to know and enforce the policies contained in the Personnel Policy Manual, and at a minimum, not take actions that are contrary to the policies. See also Policy 3.4.2 ("It shall be the duty of all City employees to comply with and assist in carrying into effect the provisions of the City's personnel rules and regulations.") Based on my investigation and reports I received; I have concluded that you [describe what the employee did wrong]. This is contrary to the policy, and contrary to the performance expected of a supervisor and [insert title].

This is your opportunity to correct these performance issues and behavior. You will be expected to abide by Section 3.1.3 on a going forward basis and to familiarize yourself with the policies in the Personnel Policy Manual. Failure to adhere to the conditions of this Written Warning, or any of the City's Personnel Policy Manual policies, will result in more serious corrective action, up to and including discharge.

By signing below, I acknowledge receipt of this memorandum on the date listed above, and I acknowledge that a copy of this memorandum will be placed in my personnel file. I further acknowledge that if I wish to respond to anything written in this memorandum, I am welcome to do so in writing, which will also be placed in my personnel file.

---

Employee Signature

# **SELF-INSURED LOSS PREVENTION PROGRAM**

## **Self-insured Loss Prevention Program**

OR-OSHA requires specific Loss Prevention Activities to be performed by group self-insured employers. As a member of CIS workers' compensation trust, City of Boardman is considered a self-insured employer and must comply with the specific OR-OSHA self-insured employer rules. This includes a written plan and specific activities.

OSHA 437-001-1050 & 1060: <http://osha.oregon.gov/OSHArules/div1/437-001-1050-1060.pdf>

## **Written Occupational Health and Safety Loss Prevention Program**

The program's function is to address the loss prevention effort and inform management and employees of the availability and process for requesting loss prevention services.

## **Self-Insured OR-OSHA Required Loss Prevention Elements**

The following elements are required by OR-OSHA for each self-insured group and self-insured employer. The overall operation of our safety program and recordkeeping will meet these elements.

1. Management commitment to health and safety.

*Method of compliance:* The statement of commitment is primarily our Safety Manual, but commitment is also shown by our responsiveness to the Safety Committee's concerns and recommendations.

*Recordkeeping:* The Safety Manual and written responses to Safety Committee concerns and recommendations are maintained by the administration.

2. Accountability system for employers and employees.

*Method of compliance:* Each employee's job performance includes review of safety behavior and activities.

*Recordkeeping:* Human Resources retain employee performance records and any record of discipline for safety issues.

3. Training practices and follow-up.

*Method of compliance:* Training is the responsibility of the department supervisor(s). We have developed a schedule for training and have identified the specific training needs.

*Recordkeeping:* The record of training is maintained by the department supervisor and/or Human Resources.

4. A system for hazard assessment and control.

*Method of compliance:* The Safety Committee's quarterly inspections and supervisor's routine review of their work activities at the various locations will serve to ensure that we have appropriate auditing. OR-OSHA expects that the quarterly inspection assesses all the employer's locations/operations. In addition, our CIS Risk Consultant conducts periodic inspections at our facility.

*Recordkeeping:* The primary records of the inspection and audit services will be maintained by

the administration. The Safety Committee will make a record of each quarterly inspection. This will be placed in the Safety Committee Inspection file. Any written inspection report done by a supervisor (i.e. lock out tag out annual inspection) will be kept in the supervisor's/department's safety file.

5. A system for investigating all recordable occupational injuries and illnesses that includes corrective action and written findings.

*Method of compliance:* Management and/or the supervisors are responsible for completing accident investigations. The Safety Committee also reviews and comments on the accident investigations and they may participate in some of the investigations.

*Recordkeeping:* The primary accident investigation records maintained by administration.

6. A system for evaluating, obtaining and maintaining personal protective equipment (PPE).

*Method of compliance:* Each supervisor has an overall responsibility for ensuring the selection and purchase of appropriate PPE, and that the PPE is properly used and maintained. The Safety Committee and others conducting daily, or quarterly inspections will review the PPE program's adequacy. Section 13 provides a PPE policy, selection, maintenance, and training information.

*Recordkeeping:* The primary records for PPE inspection are maintained by the department supervisors.

7. On-site routine industrial hygiene and safety evaluations to detect physical and chemical hazards of the workplace, and the implementation of engineering or administrative controls.

*Method of compliance:* Basic occupational safety and health inspections are done by the Safety Committee and supervisors. More technical assistance is provided by our CIS Risk Management Consultants, OR-OSHA consultants and private safety and industrial hygiene consultants.

*Recordkeeping:* The primary records of the inspection and audit services will be maintained by the managers, supervisors and Safety Committee.

8. Evaluation of workplace design, layout and operation, and assistance with job site modifications utilizing an ergonomic approach.

*Method of compliance:* Basic ergonomic inspections are done by the Safety Committee. More technical assistance is provided by our CIS Risk Management Consultants, OR-OSHA consultants and private consultants.

*Recordkeeping:* The primary records of the ergonomic survey and findings will be maintained by the supervisor or manager of the group or department receiving the evaluation.

9. Employee involvement in health and safety efforts.

*Method of compliance:* This is a primary concern for management and the Safety Committee. Routine meetings or staff meetings are the primary focus for employee involvement. Safety is a daily activity, and our employees are expected to perform their work as instructed for their own and coworker's safety. Additionally, use of employee safety suggestion forms, hazard reporting forms, as well as encouraging employee input and feedback on matters presented to the safety committee are other ways to involve employees in the safety effort. Lastly, ensuring that safety committee members rotate every few years allows other employees the opportunity to participate in the safety committee.

*Recordkeeping:* The primary records of employee involvement are found in the supervisor's safety inspection records, minutes of staff meetings, in Safety Committee minutes, employee

safety suggestion forms, and hazard reporting forms.

10. An annual evaluation of the employer's loss prevention activities based on the location's current needs.

*Method of compliance:* An annual report will be prepared in January or June of each year for the previous year's activities. The report will be prepared by the management staff, the Safety Committee, department managers and/or supervisors. The reports will provide feedback on the entity's loss prevention activities, policies, and procedures on areas of improvement or change.

*Recordkeeping:* The annual reports will be maintained by the Administration and available to the Safety Committee and OR-OSHA upon request.

## Appendix 2: Employee Training Materials

Each employee must be trained in the Emergency Action and Fire Protection Plan when hired and every year thereafter. Additional training may also be needed whenever the employee's responsibilities change and whenever the plan is changed.

### **Emergency Response Training Overview:**

The location and use of fire extinguishers. This includes the following information on types, stages of fires, and reactions to fires and emergencies:

1. In order to have a fire, three components are needed (see fire triangle): fuel (paper, wood, oil, grease, etc.), oxygen (air) and heat (source of ignition). Take away any one of these and your chances of a fire are eliminated.
2. Review the class of fire extinguishers and method of use.
3. Discussion on the dangers of:
  - a. Becoming disoriented in the panic of a fire.
  - b. The use of the fire hose as an escape aid.
  - c. Going onto a roof, or into a basement to fight a fire.
  - d. Exploding chemical containers such as acetylene, oxygen, propane, barrels.

Limit our staff firefighting to incipient fires. Employees will only be trained to use an extinguisher or in some cases smaller fire hoses to put out an incipient fire. Employees are not trained in structural firefighting.

Every training session will emphasize employee safety and prevention of emergencies and fires. Employees are trained in the use of fire extinguishers at the time of hire and annually thereafter. Basic training on fire extinguishers should include the following information:

Extinguishing agent training:

1. Class A Fires: Ordinary combustible fire
2. Class B Fires: Flammable liquid and gas fires
3. Class C Fires: Electrical fires; usually Class A or B fires involving energized electrical wiring and equipment
4. Class D Fires: Combustible metals

Employees with specific fire duty assignments will receive special training on their responsibilities.

1. The location of fire exits and emergency evacuation routes, which should also be

- noted on building evacuation maps posted in throughout the buildings.
2. Rescue and medical duties.
  3. Procedures to follow should a facility evacuation be needed including:
    - a. Evacuation routes.
    - b. Method for reporting to the Emergency Coordinator after an evacuation
    - c. Means of reporting fires and other emergencies

Each supervisor will ensure that his/her employees receive the proper training and will keep a record of the training.

## **RECORD KEEPING**

<http://osha.oregon.gov/OSHArules/div1/437-001-0700.pdf>

<http://osha.oregon.gov/OSHArules/div1/437-001-0704-0742.pdf>

The OR-OSHA recordkeeping rules/regulations require that many different types of records be retained. This safety manual has been written so that the [Company] and/or department initiating the records are required to keep a copy and forward a copy to the department head or HR as the primary “keeper of records”.

All work-related fatalities, injuries, and illnesses will be immediately recorded and reported on an accident/incident reporting form. If the employee misses time from work or seeks medical treatment from a physician, a DCBS Form 801 must be completed within five calendar days (or preferably sooner) from the time the fatality, injury, or illness occurred and submitted to CIS utilizing the online 801 claims form. Supporting information (accident/incident reporting form and accident investigation report) will be submitted to CIS along with the 801 claims form. The 801 claims form can be found at <https://www.cisoregon.org/ClaimSubmission>

OAR 437-001-0704 requires an employer to report any work-related incident that results in the death (fatality) of any employee or the inpatient hospitalization of three or more employees (catastrophe) to Oregon OSHA within 8 hours of the incident or employer knowledge. This includes heart attacks and motor vehicle accidents. Fatalities and catastrophes must be reported if they occur within 30 days of the incident that lead to the work-related incident that results in an in-patient hospitalization, death or multiple hospitalizations of employees, loss of an eye, or amputation or avulsion includes bone or cartilage loss, to Oregon OSHA within 24 hours of the incident or employer knowledge. These events only need to be reported when they occur within 24 hours of the event that caused the hospitalization, amputation/avulsion, or eye loss.

Injuries or illnesses are work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. These incidents can result in one or more of the following:

1. Death
2. Days away from work
3. Transfer to another job
4. Medical treatment beyond first aid
5. Loss of consciousness
6. Diagnosis of a significant injury or illness

Recordable injuries and illnesses must be reported on an OSHA 300 Log. To determine which injuries and illnesses must be reported on the OSHA 300 Log, see the instructions and OSHA 300 log at <http://osha.oregon.gov/OSHAPubs/3353.pdf>.

Hearing loss is recorded on the OSHA 300 and 300A Logs when an annual audiometric test reveals a Standard Threshold Shift (STS) in either or both ears of 10 decibels (dBa) from the previous year’s audiometric test.

Needle stick and sharps injuries must be tracked on a Needle Stick Log. These injuries that are

diagnosed later as an infectious blood borne disease must be updated on the 300 Log to reflect the new status or classification.

In addition, health care employers as defined in ORS 654.001 to 654.295 must record assaults against employees on the Health Care Assault Log. If the incident results in a serious injury or fatality, it must be immediately reported to OR-OSHA, and recorded on the OSHA 300 Log. A copy of the Health Care Assault Log can be found on the OR-OSHA website at <http://osha.oregon.gov/Pages/topics/recordkeeping-and-reporting.aspx> as well as the instructions for completing the log.

At the end of the year, management will review the OSHA 300 Log to verify its accuracy, summarize the 300 Log information onto the 300A summary form, and certify the summary. This information will then be posted for three months, from February 1st to April 30th. These records will be kept for five years following the calendar year covered by them.

Employers who have 250 employees or more at any one location, or is the employer has 20 to 250 employees and are listed in Table 8 in the recordkeeping regulations below, they are required to submit their 300 Log, 300A and 801 claims information via electronic submission to Federal OSHA. See information in (24) Electronic Submission of injury and illness records to OSHA <http://osha.oregon.gov/OSHARules/div1/437-001-0700.pdf>

## **WRITTEN PROGRAM REQUIREMENTS**

This list includes all Oregon OSHA rules that have requirements for programs (generally applies for employers with 10 or more employees).

\*A paragraph mark (¶) in the first column indicates that at least one of the program-related requirements must be in writing.

<b>*</b>	<b>Division</b>	<b>Subdivision</b>	<b>Rule #</b>	<b>Rule Description</b>
¶	1		437-001-1035	Loss prevention services
¶	1		437-001-1040	Required loss prevention services
¶	1		437-001-1055	Self-insured and group self-insured employer loss prevention programs
	1		437-001-1060	Self-insured and group self-insured employer loss prevention effort
¶	2	E	437-002-0042	Emergency action plan
¶	2	E	437-002-0043	Fire prevention plan
¶	2	F	1910.66	Powered platforms for building maintenance
	2	G	1910.94	Ventilation
¶	2	G	1910.95	Occupational noise exposure
¶	2	H	1910.109	Explosives and blasting agents
¶	2	H	1910.119	Process safety management of highly hazardous chemicals
¶	2	H	1910.120	Hazardous waste operations and emergency response
	2	H	437-002-0118	Oregon rules for reinforced plastics manufacturing
¶	2	I	1910.134	Respiratory protection
¶	2	J	1910.147	The control of hazardous energy (lockout/tag out)
	2	J	437-002-0141	Additional Oregon sanitation requirements
¶	2	J	437-002-0146	Confined spaces
	2	K	437-002-0161	Medical services and first aid
¶	2	L	437-002-0182	Oregon rules for firefighters
	2	L	437-002-0187	Portable fire extinguishers
	2	N	1910.177	Servicing multi-piece and single-piece rim wheels
¶	2	N	1910.178	Powered industrial trucks
¶	2	N	1910.179	Overhead and gantry cranes
	2	N	1910.181	Derricks
¶	2	O	1910.217	Mechanical power presses
¶	2	O	437-002-0256	Stationary compactors, self-contained compactors and balers
¶	2	R	1910.272	Grain handling facilities
	2	R	437-002-0310	Work procedures
¶	2	RR	437-002-2302 1910.304	Hazardous energy control procedures
¶	2	S		Wiring design and protection
¶	2	Z	1910.1001	Asbestos
¶	2	Z	1910.1003	13 carcinogens
¶	2	Z	1910.1004	Alpha-naphthylamine
¶	2	Z	1910.1006	Methyl chloromethyl ether
¶	2	Z	1910.1007	3,3'-dichlorobenzidine
¶	2	Z	1910.1008	Bis-chloromethyl ether
¶	2	Z	1910.1009	Beta-naphthylamine
¶	2	Z	1910.1010	Benzidine
¶	2	Z	1910.1011	4-aminodiphenyl
¶	2	Z	1910.1012	Ethyleneimine



<b>*</b>	<b>Division</b>	<b>Subdivision</b>	<b>Rule #</b>	<b>Rule Description</b>
¶	2	Z	1910.1013	Beta-Propiolactone
¶	2	Z	1910.1014	2-acetylaminofluorene
¶	2	Z	1910.1015	4-dimethylaminoazobenzene
¶	2	Z	1910.1016	N-nitrosodimethylamine
¶	2	Z	1910.1017	Vinyl chloride
¶	2	Z	1910.1018	Inorganic arsenic
¶	2	Z	1910.1025	Lead
¶	2	Z	1910.1027	Cadmium
¶	2	Z	1910.1028	Benzene
¶	2	Z	1910.1029	Coke oven emissions
¶	2	Z	1910.1043	Cotton dust
¶	2	Z	1910.1044	1,2-dibromo-3-chloropropane
¶	2	Z	1910.1045	Acrylonitrile
¶	2	Z	1910.1047	Ethylene oxide
¶	2	Z	1910.1048	Formaldehyde
¶	2	Z	1910.1050	Methylenedianiline
¶	2	Z	1910.1051	1,3 butadiene
¶	2	Z	1910.1052	Methylene chloride
¶	2	Z	1910.1200	Hazard communication
¶	2	Z	437-002-0364	MOCA (4,4'-Methylene BIS (2-Chloro-Aniline)
	2	Z	437-002-0373	Oregon rules for Thiram
¶	2	Z	437-002-1025	Lead respiratory protection program
¶	2	Z	437-002-1027	Cadmium
¶	2	Z	437-002-1028	Benzene
¶	2	Z	437-002-1029	Coke oven emissions respiratory protection program
	2	Z	437-002-1044	1,2-Dibromo-3-Chloropropane respiratory protection program
	2	Z	437-002-1045	Acrylonitrile respiratory protection program
	2	Z	437-002-1047	Ethylene Oxide respiratory protection program
	2	Z	437-002-1050	Methylenedianiline respiratory protection program
	2	Z	437-002-1051	1,3-Butadiene respiratory protection program
	2	Z		Methylene Chloride respiratory protection program
	3	C	437-002-1052 1926.20	General safety and health provisions
	3	C	1926.24	Fire protection and prevention
	3	D	1926.59	Hazard communication
¶	3	D	1926.60	Methylenedianiline (MDA)
¶	3	D		Lead
	3	D	1926.62 437- 003-0062	Lead Respiratory Protection Program
	3	C	437-003-0920	Project plans

<b>*</b>	<b>Division</b>	<b>Subdivision</b>	<b>Rule #</b>	<b>Rule Description</b>
	3	D	437-003-3060	Methylenedianiline respiratory protection program
	3	F		Fire protection
¶	3	K	1926.150 437-003-0404	Branch circuits
¶	3	M	437-003-0503	Training requirements
	3	R	1926.761	Training
	3	X	1926.1060	Training requirements
¶	3	Z	1926.1101	Asbestos
¶	3	Z	1926.1126	Chromium (VI)
¶	3	Z	1926.1127	Cadmium
¶	3	Z	1926.1152	Methylene Chloride
	3	Z	437-003-1101	Asbestos respiratory protection program
¶	3	CC		Operator qualification and certification
¶	3	CC	1926.1427 437-003-0081	Crane Operator Safety Training Requirements
	4	C	437-004-0251	Safety committees and safety meetings
	4	G	437-004-0630	Noise exposure
¶	4	I	437-004-1041	Respiratory protection
¶	4	J	437-004-1275	The control of hazardous energy (lockout/tag out)
¶	4	N	437-004-1700	Forklifts and other powered industrial trucks
¶	4	W	170.104	Exemptions, workers
¶	4	W	170.130	Pesticide safety training for workers
¶	4	W	170.204	Exemptions, pesticide handlers
¶	4	W	170.230	Pesticide safety training for handlers
¶	4	W	170.240	Personal protective equipment
	4	Z	437-004-9720	Thiram
¶	4	Z	437-004-9800	Hazard communication
¶	7	B	437-007-0100	Safety and health program
	7	B	437-007-0110	Supervisory responsibilities
¶	7	B	437-007-0145	Annual program evaluation
¶	7	B	437-007-0105	Management commitment
¶	7	N	437-007-1305	General requirements

## Table of Required Records

The following chart shows what records must be maintained under the General Industry Standards. The Construction Standards have additional records that include these listed.

\* *Chemical Substances Specific Standards include acrylonitrile, asbestos, anhydrous ammonia, arsenic, benzene, carcinogens, ethylene oxide, formaldehyde, lead, inyl chloride, DBCP, cadmium.*

\*\* *Crane Regulation 1910.179-.182 requires daily visual inspections and CIS recommends daily inspections should be recorded*

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
1. Injury Records 437-001-700 a. Form 300 b. Form 801 c. Form 300A d. Accident Investigation 437-001-0760(3)  *In addition, health care employers as defined in ORS 654.001 to 654.295 must record assaults against employees on the Health Care Assault Log. See OAR 437-001-0706.	x (complete w/in 7 days) x (complete w/in 7 days) x (post February - April) x each time loss accident		x	5 years 5 years 5 years 5 years
2. Employee Exposure 1910.20(d)		x		30 yrs + emp.
3. Bloodborne Pathogens 1910.1030(c)(1)	x	x	x (incident investigation)	30 yrs + emp.
4. Medical Plan & Records 1910.20(d) & 1910.151 & 437-02-161(4)	x			30 yrs + emp.
5. Emergency Plan 1910.38(a)(2)	x			Not specified
6. Fall Protection 1926.502(k)	x	x	x	Not specified

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
7. Fire Plan 1910.38(b)(2)	x			Not specified
8. Specific Chemical Subs. (minimum requirements)* a. Exposure Record b. Medical Exams c. Resp. Fit Testing (in some cases) Example: Formaldehyde 1910.1048(m)(5)			x x x	30 yrs. 30 yrs + emp. most current
9. Asbestos Plan 1910.1001 1926.1101(k)	x	x	x	Current + 30 yrs
10. Hazard Communication 1910.1200(e) a. Written Plan b. MSDS or list c. Employee Training	x	x	x	Need current 30 yrs + emp. not specified
11. Lockout/Tag out a. Written Procedures b. Periodic Audit c. Employee Training 1910.147(c)(4)		x	x (annually)	Not specified Not specified Not specified

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
12. Hazardous Materials a. Written Plan b. Employee Training 1910.120(p)(8)(ii)	x	x (annually)		Current plan Current plan
13. Laboratories 1910.1450(e)	x	x	x annual review	30 yrs + emp.
14. Noise & Hearing Cons. a. Employee Exposure b. Audiogram c. Calibration Data 1910.95(c)			x <del>x</del> <del>x</del>	2 yrs 5 yrs + emp. Current levels
15. Personal Protective Equipment 1910.132(d)	x	x	x	Not specified
16. Respirators a. Written Program b. Inspection Maintenance c. Emergency Use Resp. 1910.134(b)(1)	x		Monthly	Not specified Not specified
17. Safety Committees 437-001-0765	x	x	x (minutes)	3 yrs
Record/Plan	Overall Plan	Written Type of Record		Retention Time
12. Hazardous Materials a. Written Plan b. Employee Training 1910.120(p)(8)(ii)	x	x (annually)		Current plan Current plan
13. Laboratories 1910.1450(e)	x	x	x annual review	30 yrs + emp.
14. Noise & Hearing Cons. a. Employee Exposure b. Audiogram c. Calibration Data 1910.95(c)			x <del>x</del> <del>x</del>	2 yrs 5 yrs + emp. Current levels
15. Personal Protective Equipment 1910.132(d)	x	x	x	Not specified
16. Respirators a. Written Program b. Inspection Maintenance c. Emergency Use Resp. 1910.134(b)(1)	x		Monthly	Not specified Not specified
17. Safety Committees 437-001-0765	x	x	x (minutes)	3 yrs
Record/Plan	Overall Plan	Written Type of Record		Retention Time
25. Lead Plan Gen. Industry 1910.1025(e)(3) and 1926.62 (maintenance or removal of lead painted or containing building materials)	x	x	x	Current + 30 yrs
26. Hexavalent Chrome Plan Gen. Industry 1910.1026	x	x	x	Current + 30 yrs
27. General Instruction Supervision & Training 437-001-0760(1)	x	x		Not specified

# **SAFETY AND HEALTH TRAINING PROGRAM**

## **Safety And Health Training Program**

A major component of this safety program is employee training. Training efforts will be directed at developing each employee's knowledge, skills, and understanding to allow them to work safely. Training will be provided through various means; however, the primary instruction will be given by their direct supervisor.

## **New Employee Orientation**

All new employees will participate in a "New Employee Orientation Program." Such training is conducted in a two-phase approach:

1. The new worker will receive general information on Entity culture policies and benefits from the HR representative.
2. Department-related rules and information will be given by the supervisor of the department. Training will include a general understanding of all related safety programs and policies.
3. Facility and job specific training will be given by the employee's immediate supervisor or lead worker before the employee will be allowed to begin actual work, and the training will be documented in the employee or department's training file.

## **Training Requirement Matrix**

The safety manual and training matrix listed below identifies the possible training requirements for employees.

1. Some subjects are mandatory in nature, with OR-OSHA requiring their annual review:
  - a. Emergency Action, Fire Prevention Plan and First Aid ([Chapter 7](#))
  - b. Emergency Action, Fire Prevention Plan and First Aid ([Chapter 7](#))
  - c. Hazard Communication Program ([Chapter 10](#))
  - d. Hazardous Energy Control - Lockout/Tag out ([Chapter 11](#))
  - e. Noise Exposure and Hearing Conservation Program ([Chapter 12](#))
  - f. Personal Protective Equipment ([Chapter 13](#))
  - g. Respiratory Protection Program ([Chapters 14](#))
  - h. Asbestos Maintenance Program ([Chapter 17](#))
2. Other subject areas are deemed mandatory only for selected operations, or when employees change, such as:
  - a. Confined Space Entry
  - b. Hazardous Energy Control - Lockout/Tag out
  - c. Blood borne Pathogen Training
  - d. Hazardous Materials - Waste Handling
  - e. Welding Safety
  - f. Safety Committee Training
  - g. Forklift Operations

The following document is an employee-training checklist used to track training needs and training dates.

## OR-OSHA Basic General Industry Training Requirements

\* Specific chemical substance standards include acrylonitrile, asbestos, anhydrous ammonia, arsenic, benzene, cadmium, carcinogens, ethylene oxide, formaldehyde, lead, methylene chloride, vinyl chloride, DBCP, Pesticides.

**NOTE:** This listing did not include a variety of the posting records and does not include all references to competent or qualified employees. Further, there are additional occupational health rules such as asbestos, which require trained employees but were not listed separately.

Program	Training Frequency			Written Program
	Initial	Annual	Retraining Required	
General Duty to Train	X		If program/hazards change	no
Accident Signs	X		If signs change	no
Crane Operator	X		Construction - 3 yrs General if changes or problems	yes
Electrical	X		Job duties change	no
Emergency Medical Plan	X		If plan changes - update	yes
Emergency/Fire Prevention	X		If plan changes - update	yes
Fall Protection (construction related)	X		If plan/equipment change or inadequacies found	yes
Fire Extinguishing System	X	X		no
First Aid/CPR	X		1-3 years	no
Forklift Operator	X		Every 3 yrs classroom & practical	yes
Lockout	X		If plan changes or problems noted	yes
Mech. Power Press	X		Initial must remain competent	no
Power Platforms	X		Initial must remain competent	no
Pressure Vessels		Competent person required		no
Safety Committee	X		New members annual	yes
Welding	X		Initial must remain competent	no

Program	Training Frequency			Written Program
	Initial	Annual	Retraining Required	
<b>Occupational Health</b>				
Access to Exposure & Medical Records	X	X		no
Asbestos (awareness) Note: Extensive training for actual abatement or renovation)	X	X		yes plan & notification
Blood borne Pathogens	X	X	When plan changes	yes
Confined Space	X		If plan changes/annual for rescue staff	yes
Chemicals *	X		If over action level	yes for some
Hazard Communication	X		If new chemicals are used	yes
HazMat's Response 5 levels 4 to 40 hours	X	X	Annual refresher is 8 hours	Yes
Hexavalent Chromium (employees who have the potential of being exposed above the action level)	X		Posting	yes
Laboratories	X		If plan changes/chemicals	yes
Lead (awareness) (note: extensive training for actual abatement and renovation)	X	X	Posting	yes
Noise	X	X		no
Personal Protective Equipment	X		If there are changes or problems noted	yes
Process Safety	X	X	Training certificate required	yes
Respirators	X	X	Or when changes or problems noted	yes

For additional resources, see [Sample HR Check-Off List in the H2R Toolbox](#)

**Office/Administrative Staff Additions:  
Place Under Safety Orientation**

Overview of General Safety Policy  
Access to Medical & Exposure Records  
Accident Reporting and Investigation  
Role of the Safety Committee  
Emergency Response & Medical Plans  
Fire Prevention/Fire Extinguisher Training  
Use of Personal Protective Equipment  
General Safety Hazards related to tools, Machines, electrical, etc.  
Hazardous Communication/Global Harmonization/Container Labeling  
Proper Lifting Techniques  
Accident Prevention (Discuss types of injuries common to office/administration)  
Driving Safety  
Will this employee be a first aid responder?       Yes       No  
If yes, Blood borne Pathogens \_\_\_\_\_

**Law Enforcement Staff Additions:  
Place Under Safety Orientation**

Overview of General Safety Policy  
Access to Medical & Exposure Records  
Accident Reporting and Investigation  
Role of the Safety Committee  
Emergency Response & Medical Plans  
Fire Prevention/Fire Extinguisher Training  
Use of Personal Protective Equipment  
General Safety Hazards related to tools, Machines, electrical, etc.  
Hazardous Communication/Global Harmonization/Container Labeling  
Proper Lifting Techniques  
Accident Prevention (Discuss types of injuries common to office/ administration)  
Driving Safety  
Will this employee be a first aid responder?       Yes       No  
If yes, Blood borne Pathogens \_\_\_\_\_  
Hearing Conservation/Hearing Protection Use  
Visibility Clothing  
Flagging Safety/Traffic Control  
First Aid/ CPR  
Defensive Driving  
Police Academy Training

**Public Works Staff Additions:  
Place Under Safety Orientation**

Overview of General Safety Policy  
Access to Medical & Exposure Records  
Accident Reporting and Investigation  
Role of the Safety Committee  
Emergency Response & Medical Plans  
Fire Extinguisher Training  
Use of Personal Protective Equipment  
General Safety Hazards related to tools, machines, electrical, etc.  
Plant Operation and Process Hazard  
Hazardous Communication/Global Harmonization/Container Labeling  
Proper Lifting Techniques  
Accident Prevention (Discuss types of injuries common to Public Works)  
Driving Safety  
Hearing Conservation/Hearing Protection Use Visibility/Protective Clothing  
Flagging Safety/Traffic Control First Aid/ CPR  
Footwear Requirements Lab Chemical Safety  
Transportation and Storage of Compressed Gas/Air

Lockout/Tag out: Will the employee be authorized?  Yes  No  
If yes, training and assignment of locks are required.

Crane & Forklift Training: Will the employee be authorized?  Yes  No  
Additional training and demonstration of skills on equipment required.

Confined Space Entry: Will the employee be authorized?  Yes  No  
Additional training for specific entry role(s) required.

Respiratory Protection: Will the employee be assigned a respirator?  Yes  No  
Medical clearance, training and fit test will be required. If respirator use if voluntary, provide information in 1910.134 Appendix D.

HAZMAT Training for selected staff: Will the employee be a hazmat team member?  
 Yes  No

Develop additional info for Fire Department, Streets/Roads, Code Enforcement, Planning, Assessors...



# **ACCIDENT INVESTIGATION PROCEDURES**

## **Accident Investigation Procedures**

OSHA 437-001-0760 Investigations of Injuries:

<http://osha.oregon.gov/OSHArules/div1/437-001-0760.pdf>

The foremost goal is to prevent and eliminate workplace accidents/illnesses. However, should they occur, management will thoroughly investigate to determine the cause(s) and appropriate corrective action to be taken to prevent future recurrence.

Focus is not simply on unsafe acts or conditions that may have led to the accident, but also on why the unsafe acts or conditions were present. From this perspective, we are better able to identify any changes that are necessary.

Every employee's work-related lost time injury is investigated to determine the means that should be taken to prevent recurrence. We will promptly install any safeguard or take any corrective measure indicated or found advisable.

The Safety Committee will establish procedures for investigating all safety-related incidents including injury, illness, and deaths. Management will delegate who will conduct these accident investigations.

OSHA 437-001-0052 Reporting an Occupational Fatality, Catastrophe, or Accident:

<http://osha.oregon.gov/OSHArules/div1/437-001-0704-0742.pdf>

We are responsible to notify OR-OSHA within 8 hours of a workplace fatality or catastrophe, and within 24 hours of an injury resulting in overnight or longer hospital admission.

## **Definitions**

**Accident:** An unplanned event that results in personal injury or property damage.

**Catastrophe:** An accident in which two or more employees are fatally injured or five or more employees are admitted to a hospital or equivalent medical facility.

**First Aid:** Any one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care. Such treatment and observation are considered first aid even though provided by a physician or registered professional person.

**Lost Workday Case:** An injury, which involves days away from work or days of restricted work activity, or both.

**Medical Treatment:** Includes treatment of injuries administered by physicians, registered professional persons, or lay persons (i.e., non-medical personnel). Medical treatment does not include first aid treatment (see above) even though provided by a physician or registered professional personnel.

**Near miss:** Any unplanned event, which could potentially have resulted in personal injury or property damage but based upon “good fortune”, did not.

**Occupational Illness:** Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases, which may be caused by inhalation, absorption, ingestion, or direct contact.

**Recordable Case:** All work-related deaths, illnesses, and those work-related injuries, which result in loss of consciousness, restriction of work motion, transfer to another job, or require medical treatment beyond first aid.

### **General Responsibilities**

**Management:** It is the direct responsibility of department heads or managers to ensure that all reported injuries, illnesses, near misses, or reports of property damage, are promptly investigated as to cause and that any necessary corrective measures are implemented to reduce the likelihood of recurrence.

**Immediate Supervisor:** It is the responsibility of the supervisor or group leader to promptly perform the initial accident investigation of all reported injuries, illnesses, near misses, or reports of property damage, and arrive at recommendations to reduce recurrence.

**Management Team:** The Management Team shall be involved in the investigation of all seriously disabling claims, fatalities, and catastrophes.

**Safety Committee:** The Safety Committee will review all written accident investigation reports, and associated recommendations, and provide additional insight as to methods which might assist in reducing the incidence of recurrence.

**Employee:** The employees are responsible for immediately reporting to their supervisor any injury, illness, near miss, or any accident involving property damage, sustained in the scope of their employment.

### **Accident Investigation Procedure**

#### **Accident Reporting: Personal Injury**

If an employee is injured, suffers an occupational illness, or near miss, the following reporting procedures shall be carried out:

1. The incident and/or condition will be immediately reported to the worker’s supervisor who will complete the Employee Accident/Incident Report, regardless of the severity of the injury.
2. All injuries regardless of how insignificant they initially may appear must be immediately reported to the supervisor. An Employee Accident/Incident Report must be completed by the supervisor and employee by the end of the shift.
3. The supervisor must review the Employee Accident/Incident Report submitted by the employee and sign where indicated. The supervisor must ensure immediate transmittal of the report to the Administration and the Safety Manager for safety committee review.
4. Any time that the work-related condition should necessitate the services of a medical

provider, the employee is required to contact their supervisor and complete a Workers' Compensation Claim Form 801. The 801 must be filed with Administration within five days of the accident (but preferably within 24 hours). A copy of the Employee Accident/ Incident Report should accompany the 801 claims form to Administration and also be filed to CIS (workers' compensation carrier) within that five-day time period, but preferably within 24 hours.

5. The 801 claims form can be completed online at the CIS website at <https://www.cisoregon.org/ClaimSubmission>. Completing the 801 claims form online helps speed the processing of the claims form by immediately creating a claim number and assigning a claims examiner to review the information.
6. The Administration or designee is required to report all workplace fatalities and catastrophes to OR-OSHA within eight hours of knowledge at OR-OSHA's central office (800-922-2689 or 503-378-3272).
  - a. OR-OSHA requires that employers and their representatives not disturb the scene of a fatality or catastrophe other than to conduct the rescue of an injured person until authorized by the OR-OSHA Manager (or designee) or directed by a recognized law enforcement agency to do so.
  - b. Further, all employee injuries resulting in overnight hospitalization or multiple employees being hospitalized also require notice to OR-OSHA within 24 hours of knowledge. Such notice will again be accomplished by the Administration's office or (designee).

**Note:** *The purpose of such reporting is to provide OR-OSHA with the opportunity to conduct an independent investigation, should they so choose. This form of reporting applies only to injuries requiring immediate hospitalization and not conditions that result in hospitalization weeks or months later.*

### **Accident Reporting: Vehicular Accidents**

In the event that a vehicle is involved in a traffic accident, the driver will immediately call 9-1-1 and notify his/her supervisor. No vehicle will be moved from the scene until law enforcement arrives or photographs are taken, unless a greater hazard would be created by failure to remove the vehicle(s) from the scene.

The following procedures apply:

1. All drivers should notify the Local Law Enforcement Agency (9-1-1) of any of the following accidents:
  - a. Collision with any object or person involving an entity owned or leased vehicle, or other vehicles being used on official business.
  - b. Any event where damage results to a vehicle being operated by an employee while on business, whether being driven or parked.
  - c. Any involvement in an accident where damage claims may be made against our organization, even though your vehicle had no contact with other objects or vehicle.
  - d. Damage or loss to one of our owned or leased vehicles or contents due to fire or theft.
2. In all instances where:
  - a. The damage is determined to be in excess of \$1500; or
  - b. Damage to any vehicle over \$1,500, and any vehicle is towed from the scene as a result of damages from this accident; or
  - c. Injury or death resulted from this accident; or

- d. Damages to any one person's property other than a vehicle involved in this accident are over \$1,500, the driver shall complete a "State of Oregon Vehicle Accident Report" (Form 735-32).

<https://www.oregon.gov/ODOT/DMV/pages/driverid/accidentreport.aspx>

### **Investigation**

1. Upon notice of an accident, injury, illness, near-miss, or nonwork-related physical complaint, the supervisor will ensure that the accident investigation procedure is implemented in a timely fashion. (Use the Accident Investigation Form.)
2. The supervisor will complete the accident investigation based on the facts surrounding the incident, including any nonwork-related issues or off-the-job exposure or events that might have contributed to the incident as well as work related issues.
3. The supervisor will ensure that all the facts are presented in the investigation report, including the statements of any witnesses to the accident/incident. The purpose of the accident investigation is to determine the root cause of the accident (not the surface causes) that led to the accident occurring. This information will be included in the accident investigation report, including any recommendations that the supervisor has to remove the hazard associated with the accident or address any administrative or engineering measures that can be implemented to ensure similar accidents do not happen in the future.
4. After the report is adequately completed, the supervisor's report will be attached to the Employee Accident/Incident Report and submitted to the Safety Committee. A copy of the accident investigation form will be maintained in the supervisor's investigation file.
  - a. The supervisor will further ensure that the necessary corrective action is taken through the completion of a work order, purchase order, etc., where appropriate.
  - b. Alternatively, the supervisor may, at their discretion, request a follow-up investigation due to shortcomings associated with the original effort, complexity of the issues, recurrent nature of the problem, etc. Such a follow up investigation shall be completed by the supervisor or Safety Committee.
  - c. In those instances, in which the Safety Committee conducts an investigation, the results will be submitted to the supervisor in a written narrative format, inclusive of all factual information gathered and specific recommendations for remedy in a timely fashion.
5. All fatalities, catastrophes, cases of serious disabling injury, multiple injury victims, or any instance in which the circumstances surrounding the event are suggestive of potential entity involvement, the supervisor will provide timely notice to the Safety Committee who will become involved if appropriate, in the investigation process.
6. In any instance where the supervisor deems appropriate, they will encourage the involvement of at least one member of the Safety Committee in the accident investigation process.

### **Posting Requirements**

1. All required posting will be on the employee bulletin boards at each of the Department offices.
2. Injury and Illness Summary Report on the OSHA 300A are posted from February 1st to April 30th.
3. Any OR-OSHA employee complaint, citation or variance will be posted for at least 60 days or until they become a final order or are corrected.
4. The Oregon Safe Employment Act "It's the Law" poster shall be continuously posted.

## 5. Workers' Compensation Insurance Notice of Compliance

**Notice:** This manual is not intended to outline every specific rule requirement that may apply to our operations but is to establish the basic safety rules and procedures. For a specific rule question, please refer to the various Safety Regulations.

# City of Boardman

## Employee Accident/Incident Report

All overnight hospitalizations must be reported to OR-OSHA within 24 hours. Any fatality or catastrophes involving three or more hospitalizations must be reported within 8 hours. Contact OR-OSHA at (800) 922-2689.

**PLEASE COMPLETE ALL OF THE FOLLOWING INFORMATION:**

Employee Name: \_\_\_\_\_ Incident RPT #: \_\_\_\_\_

Dept.: \_\_\_\_\_ Job Title: \_\_\_\_\_

**To Be Completed by Employee:**  
(Attach second page if more space is required)

When did the Incident Occur? Date: \_\_\_\_\_ Time: \_\_\_\_\_ am/pm

Accident/Incident Location: \_\_\_\_\_

When was the incident reported? Date: \_\_\_\_\_ To Whom: \_\_\_\_\_

Witnesses Information:

Witness #1 (Name, Phone): \_\_\_\_\_

Witness #2 (Name, Phone): \_\_\_\_\_

List all Parts of the Body Affected: \_\_\_\_\_ Left side  Right side

Type of Injury/Illness/Exposure: (i.e. strain, cut): \_\_\_\_\_

What were you doing just before the Incident occurred?

\_\_\_\_\_

\_\_\_\_\_

Describe what happened (include sequence of events; equipment, materials, and substances being used; and environment – PLEASE BE SPECIFIC):

\_\_\_\_\_

\_\_\_\_\_

Was the incident caused by defective equipment, another person, or during training? Yes No

If yes, equipment info, name of person (suspect) or instructor name: \_\_\_\_\_

Reporting information (If known and applicable): Vehicle #: \_\_\_\_\_ Case#: \_\_\_\_\_

Have you injured this part(s) of your body previously or is there any pre-existing condition that could affect the injury?

Yes No (if yes, please explain): \_\_\_\_\_

\_\_\_\_\_

What do you think can be done to prevent this Incident from reoccurring? \_\_\_\_\_

\_\_\_\_\_

*If seeking medical attention or unable to return-to-work, complete form 801 (Report of Job or Illness for Workers' Compensation Claim).*

Employee's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*Distribution of Copies: Original: Entity Contact within 24 hrs. 1st copy: Employee 2nd copy: Supervisor 3rd Copy: Safety Committee*

**To Be Completed by Employee's Site Supervisor:**

What was the Root Cause of this Incident?

Lack of Training  Supervision  Rule Enforcement  Maintenance  Other

What was the Surface Cause of this Incident?

Unguarded Machine  Broken Tools  Defective PPE  Horseplay  Fails to Enforce  Other

Did the worker report the incident within 24 hours? Yes    No

Supervisor Review of Incident and Findings:

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What could have been done, or should be done, to prevent this accident/incident?

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Site Supervisor's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Department Head Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Safety Committee Evaluation of Accident/Incident:**

Corrective Action Needed:

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Committee Recommendations:

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Estimated cost: \$ \_\_\_\_\_

Safety Committee Chair Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Administrator Signature of Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

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**Safety Committee Follow-up:**

Corrective Action Assigned To (if applicable): \_\_\_\_\_

Date Completed: \_\_\_\_\_

## Accident Investigation Checklist

When you are informed of an accident, you must investigate. This checklist outlines the basic steps to follow. Remember, Accident Investigation is "fact-finding" not "fault-finding."

- Determine if any employees require medical attention.
  - a. Administer first aid, if required, and/or
  - b. Call 9-1-1 for emergency response
  
- Assure that hazard or danger is abated. Examples:
  - a. For gas leak/fumes, evacuate, call for appropriate service.
  - b. Rope/cordon/cone off dangerous areas (spills, holes, etc.)
  - c. Fire is put out.
  
- Secure and document the scene (see Accident Investigator's Kit Appendix 3).
  - a. Take pictures or video.
  - b. Preserve area until investigation is complete, if possible
  - c. Diagram scene, take measurements as needed (see Sketching Techniques, Appendix 4)
  - d. Document the location of:
    - Victim
    - Witnesses
    - Machinery
    - Energy sources
    - Hazardous materials
  
- Determine who was involved or has relevant information and take statements** (see **Interviewing Techniques & Skills Appendix 5**). **Could include:**
  - a. Injured worker
  - b. Eyewitnesses
  - c. Co-workers
  - d. Management
  - e. Police/First Responders
  
- Evaluate Causal factors** (see **Surface and Root Causes Appendix 6**):
  - a. People
  - b. Equipment
  - c. Material
  - d. Environment
  
- Prepare Report** (see Accident Investigation Report Appendix 2). Identify, at a minimum:
  - e. What happened.
  - f. What should have happened.
  - g. What can be done to prevent another accident:
    - Change in policies, procedures or practices
    - Equipment repair
    - New or remedial training
    - PPE
    - Discipline
    - Management involvement
  - h. Make recommendations.

**Reminder:** As the Manager, the responsibility for correction of unsafe work practices and conditions lies with YOU.



# **SAFETY COMMITTEE AND SAFETY MEETINGS**

## **Safety Committee and Safety Meetings**

<http://osha.oregon.gov/OSHARules/div1/437-001-0765.pdf>

*The purpose of Safety Committees and Safety Meetings is to bring workers and management together in a non-adversarial, cooperative effort to promote safety and health. Safety Committees and safety meetings will assist you in making continuous improvements to your safety and health programs.*

It is our policy at the City of Boardman for the Safety Committee and Safety Meetings to communicate and evaluate safety and health issues to protect the safety and health of all of our employees. Injuries and property loss from accidents are needless, costly, and preventable. Therefore, we must adhere to fundamental safety concepts that will help prevent injury and loss due to recognized hazards.

## **General Responsibilities**

1. Overall Management: The overall management is responsible for preventing accidents and injuries. Our management provides direction and full support for all safety procedures, job training and hazard elimination practices.
2. Supervisors: Supervisors are directly responsible for jobtraining of their workers. Job training will include proper procedures, work practices and safe methods to carry out jobs. Supervisors must enforce our safety rules and take immediate corrective action to eliminate hazardous conditions.
3. Safety Committee: The Safety Committee's responsibility is to advise management on safety and health issues, safe work practices, and to provide leadership in protecting the safety and health of all employees. The Safety Committee plays an important role as the prime forum for communication and exchange of information on all safety issues.
  - a. The committee is charged with the responsibility to define problems and obstacles for loss prevention; identify hazards and suggest corrective actions; help identify employee safety training needs, and to develop accident investigation procedures.
  - b. The Safety Committee will be kept fully informed on health and safety issues throughout our organization in order to constantly review the effectiveness of the safety and health program.
  - c. All personnel are expected to cooperate in all aspects regarding safety and health issues. Some of the fundamental safety concepts are:
    - i. Accidents must be reported immediately to the supervisor, on the same day they occur.
    - ii. Required personal protective equipment will be worn by all employees. There are no exceptions.
    - iii. Machines or equipment without adequate guarding, or in questionable condition, will not be used. Report hazardous equipment to the supervisor.
    - iv. Hazardous conditions, or other safety concerns, are to be reported to the supervisor immediately.

## **The Safety Committee's Goals and Duties**

The following obligations have been assigned to the Safety Committees in compliance with Oregon Administrative Rule 437-001-0765:

1. Work with management to establish, amend, or adopt accident investigation procedures that will identify and correct hazards.
2. The committee, or its members, will not interfere with the work of staff and they will not disturb the affairs of any department, or challenge supervisor authority.
3. Have a system that allows employees an opportunity to report hazards, as well as safety and health related suggestions.
4. Establish procedures for reviewing inspection reports and for making recommendations to management.
5. Evaluate all accident and incident investigations and make recommendations for ways to prevent similar events from occurring.
6. Make Safety Committee meeting minutes available for all employees to review.
7. Evaluate management's accountability system for safety and health and recommend improvements. Examples include use of incentives, discipline, and evaluating success in controlling safety and health hazards.

### **Safety Committee Responsibility and Authority**

1. The Safety Committee does not make policy, but it is responsible for recommendations to Management on employee safety and health issues. The supervisor will consider each recommendation and notify the Safety Committee what action will be taken, why, and when by the next scheduled safety meeting. (See Appendix 3, page 47)
2. The committee, or its members, will not interfere with the work of staff and they will not disturb the affairs of any department, or challenge supervisor authority.

### **Committee Membership**

1. The committee will be composed of an equal number of employer-selected members and employee-elected or volunteer members. If both parties agree, the committee may have more employee-elected or volunteer members. Safety Committee members can be volunteers, or elected by their peers, and represent the various departments in our organization.  
**Note:** If you have 20 or fewer employees, your committee needs at least 2 members. If you have more than 20 employees, your committee needs at least 4 members. However, it is generally recommended that there is a member from each functional area or department represented on the safety committee.
2. Employee members must represent major activities of our operations.
3. Management representatives should have authority to make decisions regarding unsafe acts and hazards identified by committee members.
4. Safety Committee participation will be used to provide positive reinforcement to those who take the extra effort to make our facilities a safe environment, thus making committee participation a valued activity.
5. Employees shall be encouraged to submit safety recommendations, concerns, etc. to their Safety Committee representative.

### **Safety Committee Organization and Operational Procedures**

A centralized Safety Committee must make certain that the committee membership represents the safety and health concerns of all locations. Per OR-OSHA requirements, fire departments are

required to have their own safety committee, but it is recommended that it have a representative that reports to the central safety committee as well.

### **Basic Operations**

1. The Safety Committee will meet monthly on entity time.
2. The committee will have a chairperson elected by the committee members, and this person will serve as the chairperson for one to two years.
3. Employee representatives attending Safety Committee meetings required by OAR 437-001-0765 or participating in Safety Committee training or instruction shall be compensated at their regular rate of pay.
4. Employee representatives will serve a continuous term of at least one (1) year.
5. Safety Committee members will receive training in Safety Committee operations, the principles of accident/incident investigations for use in evaluating those events, and hazard identification.
6. Safety Committee Member duties:
  - a. Be active in completing assignments given by the chairperson, as well as acting as an area representative in matters pertaining to health and safety.
  - b. Observe how the safety and health policies are enforced in the work environment.
  - c. Advise supervisors about situations which could lead to injury or illness.
  - d. Recommend safeguards and warn of potential hazards.
  - e. Be open to education and training.
  - f. Conduct quarterly workplace inspections.

### **Meeting Conduct**

The meeting shall be conducted following a prescribed format:

1. The committee shall hold regular meetings at least once a month, except in those months in which the mandatory quarterly safety inspections are made. Quarterly inspections can be substituted for the monthly meeting in the month the inspection is made.
2. Committee Written Records:
  - a. Minutes will be kept for each meeting and will be maintained for three years for inspection by OR-OSHA. The records will be kept in the [location of minutes]. The minutes for each meeting should include the following:
    - i. A record of who attended the meeting.
    - ii. Meeting date and time.
    - iii. All safety and health issues discussed, including tools, equipment, work environment, and work practice hazards.
    - iv. Recommendations for corrective action and a reasonable date by which management agrees to respond.
    - v. Person responsible for follow-up on any recommended corrective actions.
    - vi. All reports, evaluations, and recommendations made by the committee.
    - vii. Copies of the meeting minutes will be given to all committee members, the Supervisor, and additionally made available to all employees through posting on the appropriate bulletin boards.

### **Conducting Inspections**

1. The committee will have established procedures for workplace inspections, which will be conducted by a Safety Committee team in order to assist in locating and identifying safety and health hazards.

2. The inspection team shall include management as well as employee representatives.
3. Any safety deficiencies identified will be made known to the supervisor so that corrective action may be taken.
4. Inspections will be completed on a quarterly basis for all primary fixed locations.
5. The committee will additionally implement procedures for the review of all safety inspections and means of making appropriate recommendations to the supervisor or managers as to how to eliminate hazards and unsafe work practices in the workplace.
6. A written record of all such inspections, related recommendations and the Management's response will be maintained by the committee as a part of its normal recording procedures.

### **Accident Investigations**

1. The Safety Committee shall work with management to establish procedures for the investigation and review of all safety-related incidents including injury, illness, and deaths. (See Chapter 2 of the Safety Manual)
2. Accident investigations done by management will be reviewed as part of the monthly safety meetings. The committee will evaluate all injuries/illnesses and "near-miss" accidents reported to the supervisor and/or committee and any related investigations completed.
3. If upon review, the committee feels additional information is required, they may send representatives to the accident site to ensure that the actual root cause of the event has been identified.
4. The committee, upon such review, will make recommendations to the supervisor as appropriate for the purpose of preventing recurrence of such events.
5. At least annually the committee will review and provide comment as it relates to:
  - a. The injury and illness statistical analysis.
  - b. Our overall safety program – which includes policies, procedures, and training.
  - c. Management's accountability system for safety and health.

### **Safety Committee Training**

6. Members of the Safety Committee will receive required periodic training as relates to the following areas:
  - a. The function and duties of the Safety Committee.
  - b. Hazard identification in the workplace.
  - c. The principles regarding effective accident investigation.
7. A written record of the training needs to be maintained.
8. The Supervisor or Department managers will ensure that training is provided.

### **Effective Safety Committee Operation**

Only the planning and effective joint leadership of management and staff who are on the Safety Committee can build a program which lasts. The Safety Committee will be constructive, providing guidance and leadership in matters pertaining to the overall health and safety of our organization.

### **Safety Meetings**

An employer who has 10 or fewer employees can hold Safety Meetings in lieu of having a Safety Committee.

1. Attendance:
  - a. Include all available employees.
  - b. Include at least one employer representative authorized to ensure correction of safety and health issues.

- c. Be held on company time and attendees will be paid at their regular rate of pay.
  - d. Meetings will be held at least monthly.
2. Safety meetings will discuss:
- a. Safety and health issues.
  - b. Accident investigation causes and the suggested corrective measures.
3. Meeting Minutes:
- a. A written record of each meeting will be documented, made available to all employees, and kept for three years that includes the following:
    - i. Hazards related to tools, equipment, work environment and unsafe work practices identified and discussed during the meeting.
    - ii. The date and time of the meeting.
    - iii. The names of attending employees.

### **Safety Committee Forms**

- 1. Safety Committee Standard Minutes Form
- 2. Hazard Report Form
- 3. Safety Committee Inspection Form

## Safety Committee Minutes

Meeting was opened by \_\_\_\_\_, Chairperson,  
On \_\_\_\_\_ with the following members present:

Name	Work Title	Department
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		

### Minutes/Dates

Minutes were adopted as written or changed per the Safety Committee amendments.  
The chairperson read the minutes of the previous meeting, which were adopted as read or changed per the committee amendments.

	Business Items	Action Completed
<b>Old Business</b>		
• Item:		
• Item:		
• Item:		

**Note:** for additional old business use back of the page

### New Business

- Item:
- Item:
- Item:

**Note:** for additional new business use back of the page

### Accident Reports:

	Business Items	Action Completed
<b>Old Business</b>		

- Item:
- Item:
- Item:
- Item:
- Item:
- Item:

**New Business**

- Item:
- Item:
- Item:
- Item:
- Item:
- Item:

**Accident Reports:**

**Additional Comments:**

**Hazard Notification Report Form**

Person Initiating the Report: \_\_\_\_\_ Date: \_\_\_\_\_

Equipment/Operation system involved:

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

Description of hazard and/or accident which might result:

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

Conditions which might contribute to the hazard or accident:

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

Possible Means to Control Hazard or Accident Potential:

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

Report Given to: \_\_\_\_\_ Date: \_\_\_\_\_

Action Taken:

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

Reviewed by Supervisor / Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed by Reporting Employee: \_\_\_\_\_ Date: \_\_\_\_\_



## Safety Committee Inspection Form

Location: \_\_\_\_\_ Date: \_\_\_\_\_

Inspection Team:

1. \_\_\_\_\_ 3. \_\_\_\_\_

2. \_\_\_\_\_ 4. \_\_\_\_\_

The following items were noted during Safety Committee inspection walk through of our facilities:

### 1. Hazard /OR-OSHA Rule Violation Issue:

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Committee Recommendation:

---

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Management Response/Planned Action:

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Completion Date: \_\_\_\_\_

### 2. Hazard /OR-OSHA Rule Violation Issue:

---

---

Committee Recommendation:

---

---

Management Response/Planned Action:

---

---

Completion Date: \_\_\_\_\_

**3. Hazard /OR-OSHA Rule Violation Issue:**

\_\_\_\_\_

Committee Recommendation:

\_\_\_\_\_

Management Response/Planned Action:

\_\_\_\_\_

Completion Date: \_\_\_\_\_

**4. Hazard /OR-OSHA Rule Violation Issue:**

\_\_\_\_\_

Committee Recommendation:

\_\_\_\_\_

Management Response/Planned Action:

\_\_\_\_\_

Completion Date: \_\_\_\_\_

**5. Hazard /OR-OSHA Rule Violation Issue:**

\_\_\_\_\_

Committee Recommendation:

\_\_\_\_\_

Management Response/Planned Action:

\_\_\_\_\_

Completion Date: \_\_\_\_\_

# **EMERGENCY ACTION, FIRE PREVENTION PLAN, AND FIRST AID**

## **Emergency Action, Fire Prevention Plan, and First Aid**

<http://osha.oregon.gov/OSHARules/div2/div2L.pdf>

<http://osha.oregon.gov/OSHARules/div2/div2E.pdf>

<http://osha.oregon.gov/OSHARules/div3/div3C.pdf>

<http://osha.oregon.gov/OSHARules/div2/div2K.pdf>

We have adopted this Emergency Action and Fire Prevention Plan to assist in preventing an emergency from occurring and if one should occur, to minimize the impact on our staff, our property and equipment and the public using our facilities. This plan is supported by maps that are posted in each of our buildings. Our main responder in all emergencies is the local Fire Department or other local Emergency Responder (i.e. Coast Guard, See Appendix 1 Listing Emergency Response Personnel, page 7.9).

## **Definitions**

The following are OR-OSHA definitions that are key to understanding the legal requirements for this plan.

**Emergency Action Plan:** A plan for a workplace describing what procedures the employer and employees must take to ensure employee safety from fire or other emergencies.

**Emergency Escape Route:** The route that employees are directed to follow in the event they are required to evacuate the workplace or seek a designated refuge area.

**Exit Access:** A means of egress, which leads to an entrance or exit.

**Exit:** A means of egress that leads employees out of the building.

**Fire Inspection:** A visual check of fire protection systems and equipment to ensure that they are in place, charged, and ready for use in the event of fire.

**Fire Protection System:** This includes fire extinguishers and automatic fire sprinkler systems.

**Incipient Stage Fire:** A fire, which is in the initial or beginning stage and can be controlled or extinguished by portable fire extinguishers without the need for protective clothing or breathing apparatus.

**Maintenance:** The performance of services on fire protection equipment and systems to assure that they will perform as expected in the event of a fire. Maintenance differs from inspection in that maintenance requires the checking of internal fittings and devices.

## **Responsibilities**

(See Appendix 1 Listing Emergency Response Personnel, page 57)

1. **Management:** Management is responsible for ensuring that all employees are trained and informed about this Emergency Action Plan. Employees will be updated when the plan

changes. Management will ensure that the proper safeguards and fire protection systems are maintained.

2. Supervisor: The supervisor plays a critical role in ensuring that all appropriate outside responders are notified. The supervisor will implement the call outs for emergency notification and to outside responders if employees have not already made the 911 call.
3. Emergency Coordinator: The Emergency Coordinator is appointed by the supervisor. The Emergency Coordinator's responsibilities include:
  - a. Assessing the situation and determining if the Emergency Action Plan should be implemented.
  - b. Directing the evacuation of personnel.
  - c. Making sure that Management has been notified to ensure that appropriate outside emergency services have been notified.
  - d. Directing the shutdown of operations when necessary.
  - e. Accounting for personnel involved in the incident including outside contractors and visitors to our facilities.

**Note:** The coordinators are not to enter a situation with uncontrolled emergency. These employees will be trained as to the limitations of their role.

4. Fire Protection System Maintenance: This individual ensures that all the fire protection systems are maintained and tested as required by OR-OSHA regulations and as outlined by the insurance representatives.
5. All Employees are to follow this plan for preventing emergencies and conform to the plan's evacuation and emergency notification as outlined in the plan. All employees are encouraged to bring up any questions or suggestion on how to improve the plan with their supervisor.

### **Potential Emergencies**

The following are the main type of potential emergencies at our facilities:

1. Fire
2. Chemical Spills or Releases
3. Medical Emergency due to an accident or illness
4. Bomb Threat
5. Workplace Violence
6. Terrorism that would be covered by Homeland Security requirements.
7. Environmental Emergency: Windstorm, Flood, Earthquake, Tsunami, Tornado, Snowstorms

### **Overall Policy**

1. All losses including fire, explosion, windstorm, flood damage, electrical, etc. shall be reported to the supervisors or managers. Report any incident which results in the operation of fire extinguishers even though there may not be an actual loss sustained.
2. Selected employees shall receive fire extinguisher training and the training will be updated once a year (if employees are required to extinguish the fire in the incipient stages).

### **General Procedures: Fire and Other Significant Chemical Releases**

1. Emergency escapes procedures and emergency escape route assignments.

The types of immediate actions are based on the nature of the emergency.

  - a. For incipient fires, immediately implement fire control action and clear all non-essential personnel and public from the area.

- b. For chemical spills, our responders will initiate a defensive action to contain the spill from migrating. Depending on the nature of the chemical and extent of the spill, the immediate employees may clean-up the spill or call in the Fire Department or HAZMAT contractor.
  - c. No employee is to perform hazardous chemical clean-up duties that he/she is not trained in nor has the appropriate personal protective equipment.
  - d. Use the nearest exit which will take personnel away from the fire.
  - e. For an **immediate total site emergency evacuation** employees and public are to all leave by using the nearest exit doors and assemble in the areas shown on building evacuation maps that are posted at the main exits on each floor of the buildings.
  - f. For a **non-immediate controlled evacuation**, (e.g. advance notice of a flood condition) employees and the public will be given instructions by the supervisor on how to proceed. For **localized evacuations** (only one **building**) the notification message will be given, and everyone will move into the pre-planned sites as described next.
  - g. Report to the Emergency Coordinator and wait for further instructions during emergency evacuation.
  - h. Maps outlining places of refuge will be posted in each building at the exit doors.
  - i. Maps of the building, including chemical and explosive materials, have been provided to emergency services so that they are aware of the layout of the facility and any hazards inside.
2. Procedures to be followed by employees who remain to perform critical operations before they evacuate.
- a. Supervisors and trained personnel are responsible for ensuring that critical operations are shut down before they evacuate (if it can be done without harm to the individual). Those operations could include the following depending on the emergency:
    - i. Isolating power to equipment which is on fire or related to the emergency. Employees expected to terminate power in emergency affected areas will be trained in how to shut off electrical power, especially during a fire or flood.
    - ii. If there is a motor fire, the motor should be turned off. **Never spray water on live electrical connections or motors. (Electrical shock hazard will occur.)**
3. Procedures to account for all employees after emergency evacuation.
- a. The Emergency Coordinator and/or supervisors will account for the employees or public in their work areas. If a person is missing, the information will be communicated to the outside emergency responders. Our employees are not to re-enter any facility that has been evacuated due to an emergency, as we do not have the proper equipment or training.
  - b. The Emergency Coordinators will designate someone to direct the fire department to the fire and show them where the water hook-up is located.
  - c. No one is to leave the evacuation area site unless instructed by the person in charge.
4. The preferred means of reporting fires and other emergencies:  
**Calling 911 will get immediate emergency services.**  
 (See Appendix 1 for basic response and call list, page 57)

## **Fire Protection Plan**

The following procedures are additional policy issues that relate directly to fire protection and fire response actions.

### **Fire Extinguishers**

1. Access to, or visibility of, the fire extinguisher should not be obstructed. If the visibility is obstructed, a "fire extinguisher" sign should be mounted in plain view so that employees or citizens can see their location.
2. It is recommended that the fire extinguisher location be shown on the evacuation maps.
3. The operating instructions of the fire extinguisher name-plate should be legible and facing outwards.
4. Fire extinguishers should be visually inspected monthly to ensure they are fully charged and in their designated locations. The locations will be clearly marked.
5. They should be accessible and in operable condition at all times.
6. Ensure that the fire extinguisher is fully charged (indicator pointing to the green).
7. Ensure that the locking pin is intact, and the tamper seal is unbroken.
8. All fire extinguishers should be mounted on the wall or secured in a vehicle/equipment.
9. If the service tag shows that the licensed fire extinguisher maintenance contractor has not inspected and serviced the fire extinguisher in the past 12 months, notify your supervisor/manager.

The overall fire protection system is managed by the supervisor, who hires a fire extinguisher contractor to perform the following activities:

1. Full annual maintenance check on each extinguisher that includes:
  - a. Inspecting and/or testing external and internal parts, checking the quantity and quality of the contents and assuring operational capability.
  - b. A qualified person must do the maintenance check. Persons deemed qualified by the Oregon Office of State Fire Marshal or local fire authorities will do the annual maintenance checks.
  - c. Keep a record of the maintenance check until a new check record replaces it. This record will be available to OR-OSHA on request.
  - d. Replacement extinguishers will be provided, or some other method of coverage will be used for the affected area while extinguishers are out of service for the maintenance check.
  - e. The inspection date and the initials of the person performing this inspection will be recorded on a tag attached to the extinguisher.
2. Any extinguisher that is not fully operable will be removed and replaced.
3. Internal examinations of fire extinguishers will be done at intervals not longer than the requirements set in Table 2 of the OR-OSHA Standard 437-002-0187 Portable Fire
4. Extinguishers or when the extinguished shows corrosion or physical damage. Stored pressure dry chemical extinguishers require a 12-year hydrostatic test and are subject to maintenance every 6 years. Most other types of fire extinguishers are hydro tested every 5 years.
5. Non-rechargeable extinguishers are good for 12 years from the date of manufacture and then will be taken out of service.
6. Proper maintenance of equipment and systems installed on heat-producing equipment to prevent accidental ignition of combustible materials in accordance with established procedures.

## **Selection of Portable Fire Extinguishers**

Portable extinguishers have been selected on the basis of the classes of anticipated fires as follows:

1. **Class A Fire:** Ordinary combustible materials (paper, wood, cloth, some rubber and plastics).
2. **Class B Fire:** Flammable or combustible liquids and gases, greases and similar materials and some rubber and plastics.
3. **Class C Fire:** Energized electrical equipment where the safety of the employee requires use of electrically non-conductive extinguishing media such as carbon dioxide or dry chemical.

**Note:** Multipurpose, dry chemical extinguishers designated ABC are approved for use on Class A, B, and C fires.

4. **Class D Fire:** Combustible metals

## **Distribution of Portable Fire Extinguishers**

The proper distribution of portable fire extinguishers depends on three criteria:

1. How far an employee must travel to the extinguisher.
2. How large an area is to be protected per extinguisher.
3. How the hazard has been classed (A, B, C or D).
4. Our policy on the distribution and sizes of portable fire extinguishers is:
  - a. Fire extinguishers will be distributed in sufficient locations so that the actual travel distance employees must walk to reach an extinguisher (i.e., around partitions, through doorways and aisle ways) is not greater than 50 feet. Exception: For areas where there is a potential for a fire involving combustible cooking material (class K fires), fire extinguishers will be within 30 feet.
  - b. Distribution: extinguishers are located at all major door entrances and exits in each of our facilities.
  - c. See posted maps outlining locations.

## **Fire Exits**

All fire exits will be visibly marked with signs and kept accessible at all times.

1. All fire exits will be unlocked from the inside to allow for a quick exit. No deadbolts or locks that cannot be unlocked by turning the handle or pushing on a panic bar can be present on exit doors.
2. All non-exits which could be mistaken for an exit will be marked with a sign stating "Not an Exit" to reduce confusion should an evacuation be needed.

## **Welding Safety System**

Maintenance personnel are responsible for conducting welding in a safe manner and ensure that combustibles in the welding area are removed or protected. The staff is required to:

1. Assign a Fire Watch for hazardous areas due to wood dust, combustible materials or debris.
2. Wet area down prior to welding with hoses if the structure or area contains combustible materials.
3. Keep a fire hose or extinguisher in the immediate area.

Outside contractors are expected to follow Fire Watch procedures. The Project Manager in charge of any outside contractor operations will ensure that the contractors are informed and equipped to handle necessary Fire Watch and site preparation.

## **First Aid for Medical Emergencies**

First-aid trained personnel are not required at every place of employment. Our Emergency Medical Plan must identify either the use of a qualified first-aid person on site, or use of an outside service. If an outside service is considered, the plan must include the identity of the service, and the methods used to access it. Employers must be able to identify the location of the nearest emergency response provider and the expected response time of that system. If local outside services are not available, or response times are not considered satisfactory, a qualified first-aid person(s) must be available.

1. **Emergency Number Posting.** The emergency telephone number – 911 shall be posted next to every plant phone. The names of first aid/CPR trained personnel are to be posted on the lunchroom or other bulletin boards or on the first-aid kits.
2. **First-Aid Supplies.** First-aid supplies will be in proximity to all employees. The supplies will be located in labeled safety supply/first-aid cabinets at the following areas in our facilities (location will also be shown on our evacuation maps).

The first-aid supplies will be monitored by the department supervisors or Safety Committee. Supplies will be replenished on a regular basis (i.e. monthly, quarterly, etc.) The eye wash solution must be current, and any expired solution should be thrown away and replaced. (Please note that when a building is plumbed, a plumbed eye wash is required).
3. **General Equipment Available for Blood borne Pathogens.** The supervisor will ensure that employees required to respond or provide CPR and first aid are provided appropriate personal protective equipment. This includes:
  - a. Two pairs of disposable latex gloves
  - b. Disposable safety goggles
  - c. Disposable micro shield with one-way valves for use in giving CPR.
4. **Sharps containers** will be located in the appropriate locations within our facilities. Sharps containers will be properly disposed of immediately when they are full and will be replaced with new containers immediately.
5. **Blood spill kits** will be provided to clean up large blood or body fluid spills.

## **Basic Employee Emergency Action Response**

Emergency escape procedures and emergency escape route assignments (including but not limited to maps outlining exits, location of fire emergency pull down stations, first aid kits, and fire extinguishers) will be posted in work areas.

1. During emergency evacuations, employees will:
  - a. Use the nearest exit that will take you away from the fire, or chemical leak/release.
  - b. Move to the refuge area outlined on the evacuation maps for your work area in the event of a fire/chemical or other emergencies.
  - c. In a chemical gas emergency, move up wind of the leak.
  - d. Report to the Emergency Coordinator and wait for further instructions.
  - e. No employee is to leave the grounds until cleared by the Emergency Coordinator.
2. Upon discovering a fire that is not readily controllable with the materials and equipment at hand, the employee must call 911.
3. Upon discovering an incipient (small) fire, the employee should use the fire extinguisher and notify the supervisor.
  - a. The procedure is:
  - b. Use a fire extinguisher and alert fellow employees.



- c. Immediately notify the Emergency Coordinators through the call list.
  - d. Provide the following information:
    - i. Location of emergency—be as specific as possible
    - ii. Type and severity of the fire, chemical release, medical emergency or other.
    - iii. If electrical equipment is threatened
    - iv. Actions currently being taken, if any.
4. Upon discovering a chemical spill:
- a. Immediately notify the Emergency Coordinators through the call list. If emergency, call 911 (or 9-911 if dialing 9 is required to reach an outside line) for Fire Department and Hazmat Team response.
  - b. If trained in the Spill Control plan, immediately begin procedures to contain and control the release.
  - c. If significant release, immediately evacuate the area.
5. Medical Emergency
- a. Immediately notify the designated first aid personnel (supervisors) through the call list.
    - i. Call 911 (or 9-911 if dialing 9 is required to reach an outside line) emergency as to the need for emergency medical treatment.
    - ii. Other emergency number: 541-676-5317
  - b. The supervisor appoints Emergency Coordinators.
  - c. For further information or explanation of duties under the plan or copy of the plan, contact your supervisor.

## **LISTING EMERGENCY RESPONSE PROCEDURES AND PERSONNEL**

FIRE & MEDICAL EMERGENCIES 911

CHEMICAL SPILL OR CONFINED SPACE RESCUE 911

### MANAGEMENT PHONE NUMBERS:

Name	Cell Phone
Brandon Hammond, City Manager	541-303-5557
Richard Stokoe, Chief of Police	541-212-5523
Rolf Prag, Public Works Director	541-314-2507

# **BLOOD BORNE PATHOGEN EXPOSURE CONTROL PLAN**

## **Bloodborne Pathogen Exposure Control Plan**

29 CFR 1910.1030 OR-OSHA blood borne Pathogens Standard OAR 437 Division 2, Subdivision Z <http://osha.oregon.gov/OSHArules/div2/div2Z-1030-blood-borne.pdf>

This Blood borne Pathogen Exposure Control Plan covers all our staff with potential blood or body fluid exposure. The Plan Coordinator is the supervisor, assigned to see that this plan is followed, reviewed, and updated annually.

The training required by the Blood borne Pathogen Plan will be arranged or coordinated through your supervisor. The training will occur at the time of initial assignment and annually thereafter for all covered staff.

This Blood borne Pathogen program describes the essential elements needed to protect our employees who might, in the expected course of fulfilling their everyday staff responsibilities, come in contact with human blood or body fluids.

It is our policy that all our employees will be trained in our Blood borne Pathogen Program. There will be an annual refresher-training program.

This Exposure Control Plan includes the following topics:

1. Universal Precautions (Engineering Control Methods)
2. Work Practices: Handwashing techniques.
3. Personal Protective Equipment: Selection & Limitations
4. Housekeeping & Methods of Decontamination
5. Infective Waste Handling/Disposal Procedures
6. Hepatitis B Virus Vaccinations: Medical Surveillance
7. Hepatitis C Virus
8. Post Exposure Evaluation & Follow-up
9. Recordkeeping
10. Employee Training

### **Exposure Determination**

1. The OR-OSHA Bloodborne Pathogen standard applies to all employees whose routine job duties may result in potential exposure to human blood or other potentially infectious body fluids (OPIMs). OR-OSHA defines occupational exposure as meaning anticipated skin, eye, mucous membrane, or piercing of the skin contact with blood or other potentially infectious materials that may result from the performance of an employee's routine job duties.
2. **Note:** Employees who perform first aid as a "Good Samaritan Act" and not as an assigned responsibility will be provided training, and first aid kits are available in designated areas. These employees, however, will not be part of the pre-exposure Hepatitis B vaccinations. Any workplace exposure incident will be treated as listed in this plan's medical response section.
3. General "self-help" first aid kits and supplies are found in various locations in our facilities and buildings. These kits provide basic first aid supplies but are not indicated for use by

designated first aid provider. Those designated first aid providers will have specially assigned first aid kits, which include basic barrier protection.

### **Definitions**

**Bloodborne Pathogens:** Any pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

**Hepatitis B and C VIRUS (HBV and HCV):** Diseases spread through sexual contact, blood transfusions, contaminated needles, and contact with body fluids on non-intact skin and mucous membranes. (Viral infection of the liver.)

**Human Immunodeficiency Virus (HIV):** The virus that can cause Acquired Immune Deficiency Syndrome (AIDS) and is spread in the same manner as HBV or HCV.

**Exposure Incident:** A specific eye, mouth, other mucous membrane, non-intact skin, or skin piercing contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

**Engineering Controls:** Controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogen hazard from the workplace.

**Needleless systems:** A device that does not use needles for:

1. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established.
2. The administration of medication or fluids
3. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

**Universal Precautions:** A set of protocols that are recommended by the Center for Disease Control and Prevention and now required by OR-OSHA to prevent skin and mucous membrane exposure when potential contact with blood or body fluids are anticipated.

### **Overall Responsibilities**

The following exposure control plan has been developed in compliance with the OR-OSHA standard. Our plan is designed to minimize or eliminate our employees' exposure to blood borne pathogens.

1. A copy of this plan is in the Safety Manual and will be on file in the supervisor's office.
2. All new employees will read this plan at the time of their initial safety orientation and may have a copy if he/she wishes.
3. All employees will use "universal precautions" to prevent contact with blood and other potentially infectious body fluids. Where it is difficult to differentiate between body fluid types, all such body fluids shall be considered potentially infectious materials.
4. The supervisor will be responsible to:
  - a. Coordinate and provide resources to ensure that employee training is provided and documented.
  - b. Maintain a list of affected employees in a confidential and locked file.

- c. Coordinate and provide resources to ensure Hepatitis B vaccinations are offered and records are maintained.
- d. Coordinate with the supervisor exposure incident investigations and appropriate medical treatment and follow-up for hepatitis and HIV seroconversion. Confidential and locked records will be maintained by the Human Resource Department.
- e. The supervisors will ensure that appropriate equipment is provided to employees to protect against contact with blood or other infectious body fluids, which includes:
  - i. Personal protective equipment required for protecting employees from blood or other infectious body fluids when performing their routine duties.
  - ii. Placement of first aid kits, including infection control materials in all vehicles.
  - iii. Appropriate personal protective equipment for use during accident investigation when blood may be present.

### **Methods of Compliance**

Universal Precautions: Any employee providing help to anyone who is injured or has blood or body fluids on them must use Universal Precautions. Universal Precautions are a set of protocols that are recommended by the Center for Disease Control and Prevention and now required by OR-OSHA to prevent skin and mucous membrane exposure when potential contact with blood or body fluids is anticipated.

### **The protocols are based on three basic premises:**

1. Treat all blood or body fluids as potentially infectious.
2. Protective barriers must be used which reduces the risk of exposure.
3. The barriers only supplement existing infection control measures such as hand washing.

### **Universal Precautions specifically include:**

1. Gloves must be worn when touching blood or body fluids or non-intact skin.
2. Gloves must also be worn when handling items or surfaces obviously soiled with blood or body fluids.
3. Bandage any cut, wound or break in the skin with water- tight bandages to prevent contact with blood or body fluids.
4. Wash hands thoroughly with soap and water for at least 10-20 seconds after contact with blood or body fluid or handling contaminated articles. This procedure should be done even after wearing gloves.
5. Employees shall use a CPR face shield with a one-way flow valve when performing CPR.

### **The following procedures need to be used when washing hands/body as part of our Universal Precaution measures:**

1. Remove gloves after first washing with soap and water. Washing only helps reduce the risk of contracting blood/ body fluids when removing the gloves. (Disposable gloves are not being washed for re-use.)
2. Pull gloves from skin using the outer top part of glove so the other glove does not contact the skin. To pull off the glove with the other ungloved hand place your fingers at the top interior of the glove and pull off the glove.
3. Wash hands after removal of gloves or whenever you have contact with body fluids. If water is not immediately available, then alcohol or antiseptic towelettes may be used.

4. Use soap and warm water (hot water removes oil from the skin). The hands and forearms should be washed.
5. Rub your hands vigorously in a circular motion and rinse under running water. This aids in the mechanical removal of bacteria.
6. Wash all surfaces, including the back of hands, wrists, between fingers, under fingernails. Your hands should be washed well for 10 to 20 seconds.
7. Rinse well.
8. Dry hands with paper towel.
9. Turn off the water using a paper towel instead of bare hands. Disinfect the water faucet with bleach solution and towel.
10. Full showering should be done as soon as possible if body contamination occurred.  
**Note:** Frequent hand washing destroys the natural oils and causes drying and cracking of the skin. Keeping the skin intact helps to prevent the invasion of bacteria and possible secondary infections. Hand lotion should be applied.
11. If you have open cuts or wounds, you should be wearing waterproof bandages.

**Engineering and Work Practice Controls** will be used to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment will also be used.

1. The supervisor will identify, evaluate, and select engineering and work practice controls including safer medical devices on an annual basis. This evaluation will involve non-managerial front-line employees who are responsible for direct patient care. An evaluation will be conducted at each facility that involves direct patient care.
2. After a device is evaluated and selected, management will make a decision on implementing that device.
3. If a device is not purchased because of employee or employer concerns, those concerns will be documented by the supervisor. However, if the employer does not purchase a device that had employee support, the employer must also document the employee support as well as the justification for not purchasing that device.
4. If a device is purchased without the consent of the employees who evaluated it, the employer must document the employees' concerns as well as the employers' justification for purchasing that device.
5. All documentation required will be kept as part of this written Exposure Control Plan.

## **Personal Protective Equipment**

### General Equipment Available

The supervisor or your supervisor will ensure that employees are provided appropriate personal protective equipment. This includes:

1. First aid kits designated for authorized first aid providers will include at least:
  - a. Two pairs of disposable latex gloves (more for police, fire, EMT's who are exposed to bloodborne pathogens on a regular basis)
  - b. Disposable safety goggles
  - c. Disposable CPR face shield with one-way flow valves for use in giving CPR.
2. Sharps containers will be in the appropriate locations within our facilities. Sharps containers shall be discarded immediately when they are full and will be replaced with new containers immediately.

3. The sharps containers are to be maintained in upright position, closeable, puncture resistant, leak proof on the sides and bottom, and clearly labeled "Biohazard" or red in color.
4. When picking up sharps (such as hypodermic needles) and broken contaminated glass, employees need to wear latex gloves and use tongs, rather than their fingers. Contaminated needles must not be broken, bent, recapped, or removed.

### **Limitations of Personal Protective Equipment**

1. **Gloves:** Gloves can be torn or punctured. Gloves should be changed after contact. Disposable gloves should not be washed or disinfected for reuse. They also should not be used when visibly soiled, punctured, or when their ability to function as a barrier is compromised. Hands should be washed as soon as possible after removing gloves. If water is not available, then disposable disinfecting hand washing wipes should be used.
2. **Face/Eye Protection:** These items also need to be clean and maintained in good repair. They should be discarded if they do not function as indicated by the manufacturer's use and maintenance documentation.

### **Location of Personal Protective Equipment**

Proper PPE is located in the first aid kits that are in each department.

Other locations as listed:

1. Public Works Shop – new supply above office in storeroom
2. Public Works Vehicles
3. Water Building

PPE needs to be maintained, cleaned, and kept in sanitary condition.

### **Housekeeping Requirements**

1. The Hepatitis virus can survive for at least a week in a dried state at room temperature on work surfaces. HIV survival is less: 24 to 48 hours. As a result, it is important to ensure proper cleaning of all materials or surfaces contaminated with blood or body fluids.
2. Cleaning up blood or body fluids will be done as soon as possible. The chemical products use instructions need to be followed for proper dilution and application methods.
3. If the commercial disinfectants are not available, fresh bleach solution can be made and is effective. Approximately 13 ounces of bleach per one gallon of water) is effective. The bleach solution must be made fresh each day and kept in a shaded area (as sunlight breaks down the effectiveness of the bleach).
2. Employees will ensure that all garments penetrated by blood or body fluids are removed immediately or as soon as possible.
3. Contaminated laundry will be placed and transported in bags that are labeled or color-coded biohazard symbols. Whenever the laundry is wet and may soak through or leak from the container, it shall be placed and transported in leak proof red biohazard labeled bags.
4. Costs for laundering and cleaning of employee clothing or uniforms contaminated during work performance will be paid by our organization.

### **Cleaning and disposing of PPE**

1. Disposable latex or vinyl gloves or clothes should be disposed of in the regular trash after use and cleaning unless soaked with blood or OPIM. If the latter, dispose in a bio-hazards container.
2. Goggles (that are not disposable) should be cleaned with soap and water and then wiped down with bleach solution, alcohol or other germicides if contaminated with blood or OPIM.
3. Puncture resistant gloves that become soiled will need to be disposed of, unless they are coated with a plastic material that is cleanable or are of washable leather.

### **Biohazard Waste Handling/Disposal Procedures**

1. A biohazard waste which requires special handling and disposal is defined as "any liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other infectious materials and are capable of releasing these materials during handling; will be disposed of immediately in the proper containers."
2. The biohazard containers or bags must be able to contain all contents and prevent leakage of fluids during handling, storage, transport, or shipping.
3. Blood and other body fluids can be disposed of down the sanitary sewer in Oregon.
5. Though we do not expect to encounter any syringes (sharps), if they are found the following procedure must be followed. Sharps, including blood contaminated utility knives or broken pop bottles that are found will be disposed of in a closeable, puncture resistant, disposable container that is labeled and color coded as biohazard (red).
6. Procedures for picking-up sharps:
  - a) Have sharps container ready.
  - b) Use latex gloves or vinyl gloves.
  - c) Use mechanical equipment (pliers, shovels, tongs, or dustpans) to pick up contaminated sharps, utility knives or scissors.
  - d) Dispose of needle in sharps container.
7. When transporting containers of contaminated sharps and other regulated wastes from the use area, the containers will be closed to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
8. The method of removing "contaminated waste" containers will include:
  - a) Refer to definition of Biohazard waste, listed above.
  - b) Sealing the sharp containers and any Biohazard bags (red bags) containing infectious waste materials.
  - c) The containers or bags will be picked up when they are full by calling our local waste management company.
  - d) The containers will be handled separately from the routine waste disposal system.

### **Hepatitis B Virus (HBV) Vaccination**

1. All employees listed under the Exposure Determination are eligible to obtain the vaccination series at no cost and during normal working hours.
2. First Aid providers, as incidental to the employee's job duties, are not required to be provided HBV pre-vaccinations. Our operations will currently not provide the vaccinations unless there is a workplace exposure incident. If the employee declines to be vaccinated after an incident, a declaration declining will need to be signed.

3. The employees being offered pre-vaccinations series will go through their supervisor within 10 working days of initial assignment. An exception will be made if the employee can provide documentation of having previously received the complete hepatitis B vaccination series, and antibody testing shows that the employees is immune, or the vaccine is not allowed for medical reasons.
4. Employees will incur no cost for the medical evaluations, medical procedures including the hepatitis B vaccination series and post exposure follow-up or laboratory tests. All the procedures will follow the U.S. Public Health Service recommendations and under the supervisor of a licensed physician.
5. Employees who decline the hepatitis B vaccination offered them will sign the required waiver indicating their refusal. At any time, the employee may change his/her mind and the vaccination series will be offered. (See APPENDIX 2).
6. If a routine booster of hepatitis B vaccine is recommended by the U.S. Public Health Service at a future date, such booster will be made available to all affected employees.
7. Any employee who has a workplace exposure is covered by the incident and medical surveillance provisions of this plan and if they have not previously taken the HBV vaccination will be urged to be vaccinated immediately.

### **Exposure Incident Evaluation and Follow Up**

Any employee who has an exposure incident (they are exposed to blood or body fluids) will immediately notify their supervisor, who will refer the employee to their private physician or to our local health care facility for a complete medical evaluation and follow up. (See APPENDIX 1, 68).

1. The supervisor will provide the treating physician or healthcare facility with:
  - b. A copy of the Bloodborne Pathogens rule.
  - c. A copy of the Bloodborne Pathogen Exposure
  - d. Incident/Accident Report.
  - e. Any medical records on the exposed employee regarding HBV vaccine status.
2. The health care provider will provide the employee with a written opinion of the evaluation. (See APPENDIX 2).

### **Post Exposure Investigation**

As part of the follow-up on an "exposure incident" the Safety Committee will conduct a confidential investigation (keeping all personal health information confidential).

1. It is critical to remember that an exposure incident is an unprotected exposure to blood or other body fluids including a skin exposure involving contact with blood, especially when the exposed skin is chapped, scraped, or afflicted with dermatitis, or a needle/sharp exposure to blood or body fluids during the course of their work.
2. Additionally, exposure to the eyes or mouth is also considered an exposure incident.
3. Small splashes of blood on intact skin are not usually classed as an exposure incident.

The following steps are to be taken as part of the post exposure.

Investigation:

1. Report the incident/accident immediately to your supervisor, who will begin the process of investigating the incident and scheduling a confidential medical evaluation and follow-up activities for the employee.
2. The supervisor and employee will ensure that the circumstances of exposure are recorded and investigated. The enclosed Exposure Incident Form (APPENDIX 1) will be used to ensure that relevant information including the routes of exposure, the activity in



which the employee was engaged at the time of exposure, and the extent to which appropriate work practices and protective equipment were used and a description of the source exposure will be recorded.

3. Treatment will be sought as soon as practical but at least within 24 hours of the incident.
  - a. Treatment involves information, if possible, about the source person and employee's medical condition and vaccination status.
  - b. Once an exposure has occurred, a blood sample will be drawn after consent is obtained from the source.
4. Individual unless identification is infeasible. The blood will be tested for Hepatitis B and antibody to HIV as soon as feasible. The arrangement to obtain consent and testing will be performed by the Human Resource Department in conjunction with hospital, coroner or treating Physician. (The physician or clinic will provide the consent form.)
  - a. Results of the source individual's testing will be made available to the exposed employee, and the employee will be informed of applicable laws and regulations concerning disclosure of the identity of the infectious status of the source individual. This will be done by the health care professional treating the employee.
  - b. An exposed employee's blood will be collected as soon as feasible and tested after consent is obtained. If base-line blood is drawn, but the employee does not consent for HIV serologic testing, the sample will be preserved for at least 90 days. If within 90 days of the exposure incident, the employee elects to have the sample tested, such testing will be done as soon as feasible. Additional HIV follow-up testing will be offered based on the USPHS recommended schedule. Currently that includes a 6-week, 12 week and 6-month HIV test.

### **Recordkeeping**

Medical Records will be established and maintained for each employee with occupational exposure.

The Human Resource Department will maintain the current employee medical records during length of employment. We will keep the records after employment for a minimum of 30 years.

The record will be confidential and will contain the following information:

1. Name and social security number.
2. Copy of employee's vaccination status and any medical records that are relative to employee's ability to receive the vaccination.
3. Copy of the results of examinations, medical testing, and follow up procedures as the result of a post-exposure incident medical treatment.
4. Copy of medical professional's written opinion. A copy of the information provided to the medical professional.

### **Sharps Injury Log**

The employer will establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharp's injury log will be recorded and maintained in such a manner as to protect the confidentiality of the injured employee. The sharps injury log shall contain, at a minimum:

1. The type and brand of device involved in the incident.
2. The department or work area where the exposure incident occurred.
3. An explanation of how the incident occurred.

## **Training Records**

The Human Resource Department and Supervisor will maintain the training records for minimum of 3 years. This includes:

1. Dates of the training sessions.
2. Contents or summary of the training.
3. Names and qualifications of the people conducting the training.
4. The names and job titles of all people attending training sessions.

## **Training and Communication**

The following lists the topics required to be covered in the annual Bloodborne Pathogen Program initial and annual training.

1. An accessible copy of the bloodborne standard and an explanation of its contents.
2. A general explanation of the epidemiology and symptoms of bloodborne diseases.
3. An explanation of the modes of transmission of bloodborne pathogens.
4. An explanation of the exposure control plan and how the employee can obtain a copy of the written plan.
5. An explanation of the appropriate methods of recognizing tasks and other activities that may involve exposure to blood or other potentially infectious materials.
6. An explanation on the use and limitation of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.
7. Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment.
8. An explanation of the basis for selection of personal protective equipment.
9. Information on the hepatitis B vaccine, including information on its effectiveness, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
10. Information on the appropriate actions to take and people to contact in an emergency involving blood or other potentially infectious materials.
11. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and medical follow-up that will be made available.
12. Information on the post-exposure evaluation and follow-up is required to be provided for the firefighter following an exposure incident.
13. An explanation of the signs and labels and /or color coding for biohazardous material.
14. An opportunity for interactive questions and answers with the training instructor. The training program will be given initially and annually or all staff who may have blood or infectious body fluid contact.

The training is to be documented and a written record kept in the employee's training file for at least 3 years. Each employee is provided access to all the training materials including video tape program and instructor's background information.

# Bloodborne Pathogen Exposure Incident/Accident Report

- Immediate supervisor should complete this form promptly with employee input.
- Please print clearly and forward to the Supervisor

Employee: \_\_\_\_\_ Supervisor: \_\_\_\_\_  
Date of Incident/Accident \_\_\_\_\_ Time of Incident/Accident: \_\_\_\_\_  
Incident/Accident Location and case number (if applicable) \_\_\_\_\_

Describe the incident fully (route of exposure, circumstances, describe type of controls in place at time of incident including engineering controls and personal protective equipment worn, identify unsafe conditions and/or actions, relevant police reports). \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe employee's injury (part of the body/type of injury): \_\_\_\_\_  
\_\_\_\_\_

Describe first aid/medical treatment (when and by whom): \_\_\_\_\_  
\_\_\_\_\_

When was the accident reported: \_\_\_\_\_ To whom? \_\_\_\_\_

If not immediately reported, WHY? \_\_\_\_\_

List Names of Witnesses: \_\_\_\_\_  
\_\_\_\_\_

Is the source individual known? Yes\_\_\_ No\_\_\_ If so please provide name/address so that consent for blood testing can be obtained.

Name: \_\_\_\_\_ Address: \_\_\_\_\_

What corrective action was taken or is planned, to prevent similar accidents from occurring in the future? \_\_\_\_\_  
\_\_\_\_\_

Referral to medical evaluator has been done. Yes\_\_\_ No\_\_\_ Date of referral \_\_\_\_\_

If not explain: \_\_\_\_\_  
\_\_\_\_\_

Note: The Oregon health division "source consent" form will be sent to the source or his/her medical provider to attempt to obtain permission for source HIV/HBV blood testing. **The medical evaluator has been informed as to our policy and the OR-OSHA rules. All medical data is confidential.**

Name of investigator: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Additional Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# **Healthcare Professionals Written Opinion for Post-Exposure Evaluation and Follow-up**

**DIRECTIONS:** This form needs to be filled out by the healthcare professional following an exposure incident and returned to the employer. The employer will maintain a copy of this form PLUS give the exposed employee a copy within 15 days.

The employee has been informed of the results of the evaluation. Yes:  No:

The employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment. Yes:  No:

Healthcare Provider's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

The blood or body-fluid source individual will be asked to consent to having their blood collected and tested for HBV and HIV. For our clients under 18 years of age, if they are the **source individual**, **their legal guardian will be asked to give consent for testing. The following information must be recorded:**

Name: \_\_\_\_\_

Blood Taken: Yes:  No:  Date taken: \_\_\_\_\_

Written/Oral Consent Given For: HBV Testing: Yes:  No:   
HIV Testing: Yes:  No:

Results Made Available to The Employee: Yes:  No:  Date Made Available: \_\_\_\_\_

Name of Medical Center: \_\_\_\_\_

Name of Treating Physician: \_\_\_\_\_

## **Employee Declaration Declining Hepatitis B Vaccination**

### **Employee Declaration Declining the Hepatitis B Vaccination**

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

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_

Department Manager: \_\_\_\_\_

# **CONFINED SPACE ENTRY PLAN**

## **1 Purpose**

This procedure provides the process for safely entering or working in confined spaces.

### **1.1 Scope**

- 1.1.1 This procedure addresses confined space entry according to OR-OSHA Oregon Administrative Rule Division 2, Subdivision J, 1910.146, Confined Spaces

## **2 Responsibilities**

### **2.1 Site Personnel**

- 2.1.1 Maintains awareness that confined spaces exist, how these spaces are identified, and that there is a restricted process to enter the confined spaces safely.
- 2.1.2 Ensures they and their coworkers only enter confined spaces under the requirements of this procedure.

### **2.2 Authorized Entrant**

- 2.2.1 Understands the potential hazards faced during entry, as well as the signs, symptoms, and consequences of exposure to those hazards.
- 2.2.2 Maintains communication with Attendant so Attendant can monitor the Authorized Entrant's status and alert Authorized Entrant of the need to evacuate the space if necessary.
- 2.2.3 Alerts the Attendant whenever the Authorized Entrant detects a dangerous or hazardous condition or warning sign or symptom of exposure to a dangerous situation.
- 2.2.4 Exits from the confined space as quickly as possible whenever they:
  - 2.2.4.1 Receive an order to evacuate from the Attendant or the Entry Supervisor, or
  - 2.2.4.2 Recognize any warning sign or symptom of exposure to hazards of the confined space, or
  - 2.2.4.3 Detect a dangerous or hazardous condition, or
  - 2.2.4.4 Hear an evacuation alarm.

### **2.3 Attendant**

- 2.3.1 Knows the hazards that may be faced during entry, including information on the type of hazard, as well as the signs, symptoms, and consequences of exposure to those hazards.
- 2.3.2 Fulfills Attendant duties, including:
  - 2.3.2.1 Ensures continuous air monitoring is performed when required.
  - 2.3.2.2 Controls access, including maintaining the "Confined Space Entry Roster" (F04), and addressing unauthorized persons.
  - 2.3.2.3 Orders evacuation, if needed.
  - 2.3.2.4 Conducts or summons rescue when needed.

### **2.4 Entry Supervisor**

- 2.4.1 Knows the hazards that may be faced during entry, including information on the type of hazard, as well as signs, symptoms, and consequences of exposure to those hazards
- 2.4.2 Understands the means and methods to control and/or eliminate the hazards of the confined space.

- 2.4.3 Verifies that the appropriate information has been placed on the permit, that all tests specified by the permit have been conducted, that all procedures, precautions, and equipment specified by the permit are in place, and that all hazards of the confined space have been controlled or eliminated before endorsing the permit and allowing entry to begin.
  - 2.4.4 Informs Authorized Entrants and Attendants of the hazards and conditions associated with the space and the methods used to eliminate and/or control those hazards.
  - 2.4.5 Remains available when Authorized Entrants are in the space to respond to the confined space and maintains an awareness of all activities inside the confined space.
  - 2.4.6 Terminates the entry and closes the permit as required by this procedure.
  - 2.4.7 Verifies that rescue services are available, when required, and that the means for summoning them are operable.
  - 2.4.8 Removes unauthorized individuals who enter or who attempt to enter the confined space during entry operations.
  - 2.4.9 Reevaluates the conditions within space whenever responsibility for a confined space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space.
  - 2.4.10 Reviews the confined space entry documents for accuracy
  - 2.4.11 Verifies all terms specified by the entry documents are complete.
  - 2.4.12 Signs the entry documents and allows entry to begin.
  - 2.4.13 Verifies all field-posted documents have been returned when permit released.
- 2.5 Management/Public Works Director
- 2.5.1 Ensures personnel and contractors at the site are trained to comply with the confined space entry procedure.
  - 2.5.2 Ensures periodic review of confined space process.
  - 2.5.3 Ensures the workplace is surveyed to identify confined spaces and creates and maintains an accurate "Site Listing of Confined Spaces" using the "Confined Space List Template" (F07).
  - 2.5.4 Ensure all confined spaces are marked with labels, signs, or tags, as appropriate to identify confined spaces.
  - 2.5.5 Ensures entry to all confined spaces is restricted by means of barriers and/or entry closures.
  - 2.5.6 Retains the original "Confined Space Entry Permit" (F03), "Alternate Entry" form (F02), and associated "Confined Space Evaluation Form" (F01), and other forms used for at least one year.
- 2.6 Document Owner
- 2.6.1 Assigns resources to implement the procedure.
  - 2.6.2 Maintains the procedure and coordinates revisions with Site Management and Program Owner
  - 2.6.3 Updates the procedure to reflect protocol changes.
  - 2.6.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
  - 2.6.5 Obtains confined space entry documents annually for review.
- 2.7 Program Owner
- 2.7.1 Assigns resources to manage the program.

2.7.2 Oversees and reviews program to ensure the program is compliant and effective.

### **3 Definitions and Acronyms**

#### **3.1 Definitions**

- 3.1.1 Acceptable Entry Conditions: Conditions that must exist in a confined space to allow entry and ensure that employees can safely enter into and work within the space.
- 3.1.2 Alternate Entry: An alternative process, defined within this procedure, for entering a confined space under very specific conditions.
- 3.1.3 Attendant: A designated individual stationed outside one or more permit-required confined spaces who monitors Authorized Entrants and performs all Attendant's duties assigned in the confined space program.
- 3.1.4 Authorized Entrant: An employee who is authorized by the Entry Supervisor to enter a confined space, as noted in the "Confined Space Entry Roster" (F04).
- 3.1.5 Configuration Hazard: Has an internal configuration such that an Entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section.
- 3.1.6 Confined Space: A space that:
  - 3.1.6.1 Is large enough and so configured that an employee can fully enter and perform assigned work.
  - 3.1.6.2 Has limited or restricted means for entry or exit (for example: tanks, vessels, ventilation or exhaust ducts, vaults, pits, and trenches are spaces that may have limited means of entry).
  - 3.1.6.3 Is not designated for continuous employee occupancy under normal operating conditions.
- 3.1.7 Emergency: Any occurrence (including any failure of hazard control or monitoring equipment) or event, internal or external to the confined space that could endanger entrants.
- 3.1.8 Engulfment: The surrounding and effective capture of a person by a 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
- 3.1.9 Entry: The action by which any part of an employee's body breaks the plane of an opening into a confined space. Entry (or entry operations) also refers to the period during which an employee occupies a confined space.
- 3.1.10 Entry Supervisor: A person responsible for determining if acceptable entry conditions are present at a confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.
- 3.1.11 Hazard: A physical hazard or hazardous atmosphere.
- 3.1.12 Hazardous Atmosphere: An atmosphere that may expose employees to a risk of death, incapacitation, and impairment of ability to self-rescue (that is – escape unaided from a confined space), injury, or acute illness from one or more of the following causes:
  - 3.1.12.1 A flammable gas, vapor, or mist in excess of 10% of its Lower Explosive Limit (LEL).

- 3.1.12.2 Airborne combustible dust at a concentration that meets or exceeds its LEL
- 3.1.12.3 An atmospheric oxygen concentration below 19.5% or above 23.5%.
- 3.1.12.4 Atmospheric concentration of any substance for which an employee exposure would exceed the Permissible Exposure Limit (PEL).
- 3.1.12.5 Any atmospheric condition recognized as immediately dangerous to life or health.
- 3.1.13 Isolation: The process by which a confined space is removed from service and completely protected against the release of energy and material into the space. Control of the release of energy and material into the space is accomplished by means of a lockout/tagout.
- 3.1.14 Permit-Required Confined Space (PRCS): A confined space that has one or more of the following characteristics:
  - 3.1.14.1 Contains or has the potential to contain a hazardous atmosphere.
  - 3.1.14.2 Contains a material that has the potential for engulfing an Entrant
  - 3.1.14.3 Has a configuration hazard
  - 3.1.14.4 Contains any other recognized serious safety or health hazard.
- 3.1.15 Physical Hazard: An existing or potential hazard that can cause death or serious physical harm in or near a confined space, or a hazard that has a reasonable probability of occurring in or near a confined space, and includes, but is not limited to:
  - 3.1.15.1 Explosives; mechanical, electrical, hydraulic, and pneumatic energy; radiation; temperature extremes; engulfment; noise; and entrapment such as inwardly converging surfaces; and
  - 3.1.15.2 Chemicals that can cause death or serious physical harm through skin or eye contact (rather than through inhalation).
- 3.1.16 Ventilation: Controlling an actual or potentially hazardous atmosphere using either powered equipment, such as fans and blowers, or reliable natural air flow, or a combination of the two, to reduce an otherwise hazardous atmosphere below the level that makes it a hazardous atmosphere. Ventilation is a method of hazard control, not hazard elimination.

### 3.2 Acronyms

- 3.2.1 CSEP: Confined Space Entry Permit (F03)
- 3.2.2 LEL: Lower Explosive Limit (aka LFL, lower flammable limit)
- 3.2.3 LOTO: Lockout/Tagout
- 3.2.4 IDLH: Immediately Dangerous to Life or Health
- 3.2.5 PEL: Permissible Exposure Limit
- 3.2.6 PRCS: Permit Required Confined Space

## 4 Precautions and Limitations

### 4.1 Precautions

- 4.1.1 OSHA requires:
  - 4.1.1.1 All employees shall be trained to acquire knowledge, and skills necessary for the safe performance of the duties prior to confined space work.



- 4.1.1.2 Training shall establish employee proficiency in the duties required by confined space work
- 4.1.1.3 Employer shall certify that required training has been accomplished
- 4.1.1.4 Training whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained

#### 4.2 Limitations

- 4.2.1 None

## 5 Procedure

### 5.1 Prerequisite Actions

- 5.1.1 Train Authorized Entrants, Attendants, Entry Supervisors, CSEP, and rescue teams if applicable so they acquire the understanding, knowledge, and skills necessary to safely perform their duties and assigned responsibilities
- 5.1.2 During orientation/onboarding training, make persons aware that confined spaces exist, how these spaces are identified, and that there is a process to enter confined spaces safely.
- 5.1.3 Provide additional training when:
  - 5.1.3.1 There are changes to the written confined space program.
  - 5.1.3.2 A review of a confined space entry permit identifies problems with an entry.
  - 5.1.3.3 When there is a deviation from established procedures or an employee's knowledge of the procedures is inadequate.
- 5.1.4 Survey the workplace to identify confined spaces.
  - 5.1.4.1 Identify spaces meeting the definition of confined space and identify hazards that can be anticipated to exist in each confined space.
  - 5.1.4.2 Add details to "Confined Space List" (F07) for each identified space
  - 5.1.4.3 Maintain the "Confined Space List" (F07) up to date of all identified confined spaces.
  - 5.1.4.4 Use labels, signs, or tags to identify all confined spaces
  - 5.1.4.5 Restrict entry to all confined spaces by means of barriers and/or entry closures.

### 5.2 Procedure

- 5.2.1 Identify if work is to be performed within a confined space by filling out Part 1 of the "Confined Space Entry Evaluation" (F01).
- 5.2.2 If the evaluation performed in Part 1 indicates that the space is not a confined space, the space may be entered (without using this procedure) to perform work after all hazards of the space have been addressed and any other requirements have been met.
- 5.2.3 If the evaluation performed in Part 1 indicates that the space is a confined space, evaluate the confined space for hazards and document the hazards in Part 2 as follows.
  - 5.2.3.1 Perform initial atmospheric testing of the space:
    - Eliminate any conditions that make removal of the entrance cover unsafe prior to removal of the entrance cover for testing.
    - Obtain approval for and/or notify Entry Supervisor prior to performing initial atmospheric testing.

- Establish guarding, barricades, or other means to prevent unauthorized entry into the space.
  - Establish guarding to protect against falls into the opening and to protect confined space Authorized Entrants from falling objects if they will be working below an entrance or other Authorized Entrants.
  - Open the confined space.
  - Perform the initial atmospheric sampling/analysis without forced-air ventilation. If the space is large, and workers will be spread out inside the space, test the atmosphere in each area where workers will be located.
  - **NOTE:** Atmospheric testing shall include Oxygen (O<sub>2</sub>), explosive (LEL), carbon monoxide (CO), and hydrogen sulfide (H<sub>2</sub>S)
  - **NOTE:** If atmospheric readings are taken in more than one location, the "Confined Space Air Sampling Results" (F05) should be used to record the additional readings and this form shall be kept with the "Confined Space Entry Evaluation" (F01) and considered part of the form.
  - Document test results on the "Confined Space Entry Evaluation" (F01). Determine if a hazardous atmosphere is detected.
- 5.2.3.2 Identify any known hazards or potential hazards by:
- Reviewing the Hazards column for the confined space on the "Confined Space List Template" (F07).
  - Reviewing any information available from previous entries into the confined space.
  - Evaluating the work to be performed in the space to identify hazards that may be introduced during entry.
- 5.2.3.3 Determine acceptable entry conditions, including any necessary means of controlling or eliminating hazards
- 5.2.4 Using the results from Part 2, fill out the last section of the form to indicate if entry into the space will be made under an alternate entry process or if a CSEP is required. The confined space **Entry Supervisor** shall sign the "Confined Space Entry Evaluation" (F01) and fill in the time and date.
- 5.2.5 If the confined space will be entered:
- 5.2.5.1 Using a "Confined Space Entry Permit" (F03), continue with step 5.2.6;
  - 5.2.5.2 Using the "Alternate Entry" (F02) with forced-air ventilation, skip to step 5.2.7;
  - 5.2.5.3 Using the "Alternate Entry" (F02) without forced-air ventilation, skip to step 5.2.8.
- 5.2.6 If conducting a permit entry:
- 5.2.6.1 The "Confined Space Entry Evaluation" (F01) must be kept with the "Confined Space Entry Permit" (F03).
  - 5.2.6.2 Enter the required information about the confined space entry into a "Confined Space Entry Log" (F06).
  - 5.2.6.3 Establish the required rescue equipment and system of rescue documented on the permit

- 5.2.6.4 Post the "Confined Space Entry Evaluation" (F01), the "Confined Space Entry Permit" (F03), and a blank "Confined Space Sampling Results" (F05) at the entrance to the confined space.
- 5.2.6.5 Maintain guarding, barricades or other means at all times to prevent unauthorized entry into the permit-required confined space.
- 5.2.6.6 Conduct a documented job briefing with the Entry Supervisor, Authorized Entrants, Attendants and any other personnel for entry under a CSEP.
- 5.2.6.7 Ensure a knowledgeable Attendant is stationed outside the confined space at all times when Authorized Entrants are inside. The Attendant shall perform the following duties:
- A. Monitor activities inside and outside the space to determine if it is safe for Authorized Entrants to remain in the space, and orders the Authorized Entrants to evacuate the confined space immediately under any of the following conditions:
    - 1) The air monitor alarms
    - 2) A dangerous or hazardous condition is detected either inside or outside the confined space that could endanger the Authorized Entrants or the Attendant
    - 3) Behavioral symptoms of hazard exposure are observed in an Authorized Entrant
    - 4) Attendant for any reason is unable to safely perform required duties and cannot immediately be relieved by another trained Attendant
    - 5) An Authorized Entrant becomes ill
    - 6) A general site evacuation alarm
    - 7) An emergency situation in another permit entry confined space that requires emergency action
  - B. Remain outside the confined space while Authorized Entrants are inside the space until relieved by another Attendant
  - C. Recognize possible behavioral effects of hazard exposure in Authorized Entrants.
  - D. Use the "Confined Space Entry Roster" (F04) to keep an accurate record of all Authorized Entrants inside the space and the times each Authorized Entrant enters and leaves the space
  - E. Maintain communication with Authorized Entrants as necessary to monitor authorized Entrant's status and to alert Authorized Entrant of the need to evacuate the space.
- NOTE:** For some entries, the Attendant may provide rescue if they are trained and capable of using non-entry retrieval systems.
- F. Effect rescue as needed, either by performing non-entry rescue or summoning a rescue team. Summon rescue and other emergency services as soon it has been determined that Authorized Entrants may need assistance to escape from confined space hazards.
  - G. Take the following actions when unauthorized persons approach or enter a confined space while entry is underway:

- 1) Warn the unauthorized persons that they must stay away from the confined space.
- 2) Advise the unauthorized persons that they must exit immediately if they have entered the confined space.
- 3) Inform the Authorized Entrants and the Entry Supervisor if unauthorized persons have entered the confined space
- 4) The Attendant has the authority to remove unauthorized individuals who enter or who attempt to enter the confined space during entry operations, provided the Attendant does not enter the space.

5.2.6.8 Authorized Entrants shall ensure their names are recorded on the "Confined Space Entry Roster" (F04) and that the times they enter and exit the confined space are recorded on the form in real time.

Caution: Do Not Enter a Confined Space if:

- Atmospheric testing indicates unsafe conditions.
- Abnormal conditions have been identified
- There is a bad or unfamiliar odor or other evidence of atmospheric hazards

5.2.6.9 If forced-air ventilation is being used to control atmospheric hazards during the permit entry:

- A. Use continuous atmospheric monitoring while Authorized Entrants are inside the permit entry space
- B. Eliminate any detectable hazardous atmosphere before entering
- C. Supply air for forced-air ventilation from a clean source
- D. Direct forced air ventilation to the immediate work area and continue until all employees have left the space
- E. Exit the space if forced-air ventilation is lost

**NOTE:** Consider using a dedicated power circuit for ventilation fans to minimize accidental loss of power

5.2.7 If conducting an entry using the alternate entry form and forced-air ventilation is being used to control atmospheric hazards:

**NOTE:** If the atmosphere cannot be made safe for entry without entering the space, treat the space as a permit-required confined space and enter only after all requirements for a permit entry have been completed.

**NOTE:** Enter the space under alternate entry procedures only after all physical hazards have been eliminated and all atmospheric hazards have been eliminated or controlled. Maintain forced-air ventilation continuously while workers are inside the space. If possible, continue ventilation during breaks and lunch periods.

**NOTE:** Consider using a dedicated power circuit for ventilation fans to minimize accidental loss of power

5.2.7.1 The "Confined Space Entry Evaluation" (F01) must be kept with the "Alternate Entry" (F02).

5.2.7.2 Enter the required information about the confined space entry into a "Confined Space Entry Log" (F06).

5.2.7.3 Fill out sections 1–4 of the "Alternate Entry" (F02). Check Mechanical Ventilation in section 4.

5.2.7.4 Choose continuous air monitoring in section 5.

5.2.7.5 Fill in any additional safety requirements in section 6

5.2.7.6 Obtain the signature approval of the Entry Supervisor

- 5.2.7.7 Post the "Confined Space Entry Evaluation" (F01), the "Alternate Entry" (F02), and a blank "Confined Space Air Sampling Results" (F05) at the entrance to the confined space.
- 5.2.7.8 Eliminate any detectable hazardous atmosphere by supplying forced-air ventilation from a clean source. Direct the ventilation to the immediate area where workers will be located.
- 5.2.7.9 Conduct a documented job briefing as needed with the entrants and any other personnel.
- 5.2.7.10 Use continuous atmospheric monitoring while Authorized Entrants are inside the space. The results of the atmospheric monitoring shall be recorded on the "Air Sampling Results Log" (F05) posted at the confined space:
  - Within 15 minutes before first entry into the space
  - Before entering the space after breaks and lunch periods
  - At least every two hours while Authorized Entrants are inside the space.

- 5.2.8 If conducting an entry using the "Alternate Entry" (F02) without forced air:
  - 5.2.8.1 The "Confined Space Entry Evaluation" (F01) must be kept with the "Alternate Entry" (F02).
  - 5.2.8.2 Enter the required information about the confined space entry into a "Confined Space Entry Log" (F06).
  - 5.2.8.3 Fill out sections 1-4 of the "Alternate Entry" (F02)
  - 5.2.8.4 Choose the desired air monitoring interval in section 5.
  - 5.2.8.5 Fill in any additional safety requirements in section 6
  - 5.2.8.6 Obtain the signature approval of the Entry Supervisor
  - 5.2.8.7 Maintain these forms at a designated location: the "Confined Space Entry Evaluation" (F01), the "Alternate Entry" (F02), and a blank "Confined Space Air Sampling Results" (F05) at the entrance to the confined space.

**NOTE:** Prior to entering the confined space, all entrants shall examine the "Alternate Entry" (F02), section 5 to identify the required interval for testing the confined space atmosphere. Each entrant shall then check the "Confined Space Air Sampling Results" (F05) to verify that the required testing has been performed and that the atmosphere is safe for entry.

- 5.2.8.8 Do not enter a confined space if:
  - Atmospheric testing has not been performed as required on the "Alternate Entry" (F02), section 5
  - Atmospheric testing indicates unsafe conditions
  - Abnormal conditions have been identified
  - There is a bad or unfamiliar odor or other evidence of atmospheric hazards
- 5.2.8.9 Conduct a documented job briefing as needed with the entrants, and any other personnel
- 5.2.8.10 Sample the atmosphere per the monitoring requirements on the "Alternate Entry" (F02), section 5. Record the sample results on the "Confined Space Air Sampling Results" (F05) posted at the entrance.
  - 5.2.8.11 If there is a bad odor in the confined space or a gas monitor alarm is triggered, do the following:
    - Exit the space if you have already entered.

- Ensure the gas monitor is functioning properly
- If ventilation is needed to remove a bad or unfamiliar odor or to obtain an acceptable reading, ventilate the space with fresh air for a minimum of five minutes.
- Do not enter unless odors have been eliminated, and gas monitor readings are acceptable

5.2.9 When work is complete:

5.2.9.1 Remove all paperwork posted at the confined space and return it to the Entry Supervisor

5.2.9.2 Complete all documentation on the original "Confined Space Entry Permit" (F03) or "Alternate Entry" (F02)

A. Obtain signatures for closeout

B. Document any conditions that required evacuation and any problems encountered regarding maintaining acceptable entry conditions.

5.2.10 Maintain the Listing of Confined Spaces

5.2.10.1 Update any required changes to the "Site Listing of Confined Spaces" (F07), including:

- New spaces that meet the definition of confined space
- Hazards that can be anticipated to exist in each confined space
- Confined spaces that have been eliminated

5.3 Acceptance Criteria

5.3.1 Work is performed according to the CSEP or Alternate Entry process forms

5.3.2 Upon completion of work, retain completed CSEP or Alternate Entry process forms at an appropriate worksite location for a period of one year for the purpose of review.

5.4 Post-Performance Activity

5.4.1 At least once a year the Confined Space program should be reviewed for compliance and to address any changes in regulations or work site conditions.

## 6 References

6.1 Industry Standards or Codes

6.1.1 OSHA 1910.146 Permit Required Confined Spaces

6.1.2 Oregon Administrative Rule (OAR) 437-002-0146, Confined Spaces

6.2 City of Boardman

6.2.1 Occupational Safety and Health Manual 2017 Revision

A. 9. Confined Space Entry Plan: 9.1 – 9.28.

## 7 Forms

7.1 Forms

7.1.1 F01: Confined Space Entry Evaluation

7.1.2 F02: Alternate Entry

7.1.3 F03: Confined Space Entry Permit 7.1.4 F04: Confined Space Entry Roster

7.1.5 F05: Confined Space Air Sampling Results

7.1.6 F06: Confined Space Entry Log

7.1.7 F07: Confined Space List Template

## 8 Appendix

None

City of Boardman		<b>F01 Form</b>	
<b>Confined Space Evaluation Form</b>			
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Use this form to determine if work is to be performed inside a confined space (Part 1), and if space qualifies as a PRCS, or if an alternate entry process may be used for entry (Part 2)

<b>Name of Space to Be Entered:</b>			
<b>Purpose of Entry:</b>			
<b>PART 1</b>	<b>Determine if Confined Space Criteria A or Criteria B Apply</b>		
	<b>A. Is space listed as a confined space on the Site Listing of Confined Spaces?</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<b>- OR -</b>		
	<b>B. Is the answer YES to ALL of the following three (3) criteria?</b>		
	Space is large enough to fully enter and perform work?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	There is limited means of entry and exit that hinders the ability to escape?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	The space is <b>NOT</b> designed for continuous occupancy and is unsuitable for occupancy under normal operating conditions without safety and health considerations?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<b>Based on the results above, check one of the two boxes below:</b>			
<input type="checkbox"/> <b>Neither Criteria A nor Criteria B apply.</b> Space is NOT a regulated confined space. Confined space rules do not apply. You can enter the space after addressing any safety and health hazards.		<input type="checkbox"/> <b>Criteria A or B apply.</b> Space IS a regulated confined space. Proceed to Part 2 below to determine if entry will be made under permit or by alternate entry method.	
<b>PART 2</b>	<b>Initial atmospheric testing</b>	Oxygen (19.5–23.5%)	%
	<b>Sampled by:</b>	Explosive (LEL <10%)	%
	<b>Date/Time:</b>	Carbon monoxide (<25 ppm)	PPM
		Hydrogen sulfide (<10 ppm)	PPM
	<b>Monitor ID:</b>	Sulfur dioxide (<2 ppm)	PPM
	<b>Permit-required/alternate entry criteria (See procedure for definitions):</b>		
	1. Is there an <b>engulfment hazard?</b> (Trapped or buried?)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	2. Is there a <b>configuration hazard?</b> (Trapped or asphyxiated?)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	3. Is there or could the space have a <b>hazardous atmosphere?</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	4. Are there other recognized safety or health hazards?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<b>If the answer to ALL of the four (4) above is No, Entry may be made by Alternate Entry Process (F02)</b>			
<b>If the answer to ANY of the four (4) above is YES:</b>			
5. Can <b>atmospheric hazards</b> be controlled or eliminated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
6. Can all <b>physical hazards</b> be eliminated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
<b>If the answer to BOTH 5 and 6 above is YES: Entry may be made by Alternate Entry Process (F02).</b>			
<b>If the answer to EITHER 5 or 6 is NO: Entry may only be made under a Confined Space Entry Permit (F03).</b>			
<b>Based on the Results of Part 2 Above:</b>			
<input type="checkbox"/> <b>Entry Allowed Using Alternate Entry (F02)</b> (one of the conditions checked below must apply) <input type="checkbox"/> No physical hazards or hazardous atmospheres were identified <input type="checkbox"/> All physical hazards are eliminated, <u>AND</u> hazardous atmospheres are controlled or eliminated		<input type="checkbox"/> <b>Entry allowed only under a Confined Space Entry Permit (F03).</b> <b>Job Briefing Required.</b>	
<b>Entry Supervisor Signature:</b>		<b>Time/Date:</b>	

	City of Boardman	<b>F02 Form</b>	
	<b>Alternate Entry</b>		
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Copies of the approved form must be labeled "Copy" and posted at entry points with an attached copy of the completed "Confined Space Entry Evaluation" (F01). Original forms must be retained for at least 12 months

Number of Copies: \_\_\_\_\_

1. Confined Space Description/Location		Permit #	
2. Purpose of Entry:			
3. Date:		Expiration Date:	
4. Hazard Isolation Measures and Acceptable Entry Conditions			
LOTO # <input type="checkbox"/> N/A	Hot Work Permit # <input type="checkbox"/> N/A		
purge, flush or drain? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Secure Area? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Ventilation: <input type="checkbox"/> Natural <input type="checkbox"/> Mechanical	Non Sparking Tools? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
NOTE: If necessary, initial entry under a Confined Space Entry Permit may be required to verify conditions are acceptable for Alternate Entry.			
5. Air Monitoring Requirements (select one):			
<input type="checkbox"/> Continuous (required if ventilation is being used to control atmosphere hazard)			
<input type="checkbox"/> Daily <input type="checkbox"/> Start of shift <input type="checkbox"/> Prior to each entry <input type="checkbox"/> Other frequency			
6. Other safety precautions:			
7. Approval			
Entry Supervisor:		Date:	
8. Work Completed and ALL Primary Point of Entry Forms have been returned			
Entry Supervisor:		Date:	
Did conditions in the space require evacuation during entry or work in space? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If Yes, describe:			



City of Boardman		<b>F03 Form</b>	
<b>Confined Space Entry Permit</b>			
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1. Confined Space Description		Permit #	
2. Purpose of Entry:			
3. Permit Start Date/Time:		4. Permit Expires date/Time:	
5. Hazard Isolation Measures and Acceptable Entry Conditions			
LOTO # <input type="checkbox"/> N/A		Hot Work Permit # <input type="checkbox"/> N/A	
purge, flush or drain? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Secure Area? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Ventilation: <input type="checkbox"/> Natural <input type="checkbox"/> Mechanical		Non Sparking Tools? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Other safety precautions to be used if applicable:			
Entry Team Communication Method: <input type="checkbox"/> Radio <input type="checkbox"/> Phone <input type="checkbox"/> Line of Sight			
6. Rescue Plan: Brief description: _____ or _____ <input type="checkbox"/> See attached Rescue Plan			
<input type="checkbox"/> Fall Arrest Harness <input type="checkbox"/> Lifeline <input type="checkbox"/> Tripod <input type="checkbox"/> Haul mechanism			
Description of Rescue/Emergency Service:			
Contact Method: <input type="checkbox"/> Radio <input type="checkbox"/> Phone <input type="checkbox"/> Other:			
7. Air Monitoring Requirements (select one):			
<input type="checkbox"/> Continuous (required if ventilation is being used to control atmosphere hazard)			
<input type="checkbox"/> Daily <input type="checkbox"/> Start of shift <input type="checkbox"/> Prior to each entry <input type="checkbox"/> Other frequency			
8. List Authorized Entrants and Attendants:			
Authorized Entrants		Attendants	
9. Entry Supervisor—Print name(s), list all entry supervisors for the entry:			
10. Approval: Entry Supervisor:		Date:	
11. Work Completed and ALL Primary Point of Entry Forms have been returned			
Entry Supervisor:		Date:	
Did conditions in the space require evacuation during entry or work in space? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If Yes, describe:			

Copies of the approved form must be labeled "Copy" and posted at entry points with an attached copy of the completed "Confined Space Entry Evaluation" (F01). Original forms must be retained for at least 12 months.  
Number of Copies: \_\_\_\_\_

	City of Boardman	<b>F04 Form</b>	
	<b>Confined Space Entry Roster</b>		
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Entrant (worker)	IN Date/Time/Initial	Out Date/Time/Initial	Permit #
	/   /	/   /	
	/   /	/   /	
	/   /	/   /	
	/   /	/   /	
	/   /	/   /	
	/   /	/   /	
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		City of Boardman		<b>F05 Form</b>	
		<b>Air Sampling Results Log</b>			
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Permit #

Date/Time	Sampled By Initials	O2 (%) 19.5 – 23.5	Combustible Gas (% LEL) <10% LEL	CO <25 ppm	H2S <10 ppm	SO2 <2 ppm	Monitor ID

	City of Boardman	<b>F06 Form</b>	
	<b>Confined Entry Log</b>		
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Permit #	Space Entered	Date Open	Date Closed	Review Date & Initials

	City of Boardman	<b>F07 Form</b>	
	<b>Confined Space List</b>		
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Confined Space	No.	Entry Locations	Potential Hazards

# HAZARD COMMUNICATION PROGRAM AND CHEMICAL HAZARDS

*(This chapter does not cover the requirements of OAR 437: Division 2 and 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals. Water treatment facilities will need to comply with this standard if they are using 1500 pounds or more of chlorine.)*

*The Hazard Communication Program is an integral part of our employee safety and health awareness program. We have adopted chemical hazard control programs to ensure our compliance with various state and federal hazardous material regulations\*\* and the safety of our employees.*

*\*\* For more information, please refer to Oregon OSHA's and Federal OSHA standards pertaining to Hazard communication and pipe labeling listed below:*

[Oregon OSHA's Hazard Communication Rule Division 2/Z, 1910.1200](#)

[Oregon OSHA Rules for Pipe Labeling](#)

The purpose of this program is to provide information about chemical hazards and the control of hazards via our comprehensive Hazard Communication Program, which includes container labeling, Safety Data Sheets (SDS) and employee training. The goal of the program is to eliminate the possibility of illnesses and injuries caused by exposure to chemicals.

This written program will be available at:

Facility Location	Contact Person

The program is available for review by any employee, outside contractors, or the Oregon OSHA compliance staff during an inspection.

## **Definitions**

**Hazardous Chemical:** Any chemical which is a physical hazard or a health hazard (potential injury or disease agent). HCS defines a hazardous chemical as any chemical that is classified as a physical hazard, a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or a

hazard not otherwise classified.

**Hazard warning (label):** Any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning to convey the hazards of the chemical in the container.

**Health Hazards (chemicals):** Chemicals are health hazards when they are classified as posing one of the following hazardous effects: acute toxicity (any route of exposure), aspiration toxicity, carcinogenicity, germ cell mutagenicity, reproductive toxicity, respiratory or skin sensitizations, serious eye damage or eye irritation, skin corrosion or irritation, or specific toxic organ toxicity (single or repeated exposure). Can range from acute to chronic.

**Physical Hazards (chemicals):** Chemicals are physical hazards when they are classified as posing one of these hazardous effects: corrosion to metals, explosive, flammable (includes aerosols, gases, liquids, and solids), pressurized gases, organic peroxides, oxidizers (includes gases, liquids, and solids), pyrophoric (includes liquids and solids), self-heating substances, self-reactive substances, and substances that emit flammable gases in contact with water.

**Safety Data Sheet (SDS):** Formerly known as a material safety data sheet (MSDS). Written or printed material concerning a hazardous chemical which is prepared in accordance with Oregon OSHA rule Division 2/z, 1910.1200. Identify hazardous properties of chemicals that may pose a health or physical hazard. Provide appropriate information on appropriate personal protective equipment and first aid treatment is exposed to the chemical.

## General responsibilities

**Management:** It is the management's overall responsibility to see that hazardous materials are handled safely and that employees are trained in the physical and health hazards associated with the chemicals.

**Supervisor and/or Department Manager:** The supervisor and the Department managers will work together to ensure employee training, appropriate container labeling, availability of the SDS, maintenance of the chemical inventory, and information is provided to outside contractors. The supervisor will see that the initial Hazard Communication orientation for all new employees, volunteers, and temporary employees is given.

**Supervisor:** Each supervisor is responsible for maintaining SDSs for their work areas. The supervisor will ensure that all their employees are trained in specific chemical hazards and necessary precautions. They are also responsible for seeing that secondary containers are labeled.

**Staff who order chemical products:** Staff who order chemical products are to ensure that original containers have legible labels and that SDS have been received when that product is delivered.

**All Employees:** All Employees are responsible for reading the labels and SDS for products they use. They are also required to attend our hazard communication training and properly handle chemicals per the labels, SDS and training. Employees generating secondary containers are responsible for labeling the containers or see that they are using properly labeled containers.

## Container Labeling

**Primary Container Labeling:** (Chemical container as received by manufacturer)

In 2012, Oregon OSHA revised the Hazard Communication Standard (HCS) to be consistent with the United Nation' Globally Harmonized System (GHS). This required a standardized approach to label elements and calling MSDS sheets by the term safety data sheets (SDS). As of June 1, 2015, all chemical manufacturers, importers, distributors, and employers were required to use the GHS labeling, which includes the following items:

- Pictograms
- Signal words
- Hazard and precautionary statements
- Product identifier
- Supplier identification information including name, address and telephone number



## CHEMICAL X



## DANGER

### HAZARD STATEMENTS:

- Fatal if swallowed.
- Causes severe skin burns and eye damage.

### PRECAUTIONARY STATEMENTS:

- Wear protective gloves.
- Wear face protection.
- Do not eat, drink, or smoke when using this product.
- Wash hands thoroughly after use.
- Store in a sealed container.
- **IF ON SKIN:** Rinse immediately with cool water.
- **IF IN EYES:** Rinse thoroughly with water and seek medical attention.
- **IF SWALLOWED:** Do not induce vomiting. Seek medical attention.

**Dispose of contents container in accordance with local regulations.**

**Chemical X Manufacturing, 1234 Over There St., 123-555-5555**

**See the SDS for more information.**

No container of hazardous chemicals will be released for use until the label information is verified by department staff who ordered the product and an SDS is onsite. SDS sheets will be readily available for employees during each work shift when they are in their work areas.

All employees are to be aware that the chemical label must be maintained on the chemical



container and will notify their supervisor or environmental services/safety representatives if any unlabeled container(s) are discovered in their work area.

### **Secondary Container Labeling:**

(Containers that hold transferred hazardous materials from the original to a secondary use container are required to be labeled)

The employee in charge of the transfer of the chemical into the secondary container from its primary container must ensure that a hazard warning label is placed on the container. Portable containers which only one employee uses and is transferring chemicals to be completely used during his or her shift (immediate use) are not required to be labeled. But if more than one employee uses the containers or material is stored over to the next shift, it must be labeled. The hazard warnings must be legible, in English and prominently displayed. This includes labeling the product name and hazard warning. If a label becomes torn or not legible, the employee using the product must relabel it. Permanent marking pens should be used to label the secondary containers.

Each secondary container must be marked with either of the following items:

- All information specified for the labels on shipped containers
- The product identifier/words, pictures, symbols, or a combination that provide at least the general information about the hazards of the chemicals.

### **Department of Transportation Placards Requirements**

Vehicles that are transporting hazardous materials are required to have Oregon Department of Transportation placards. The exceptions for public sector entities include people responsible for determining whether or not placarding is required on a vehicle should have a good understanding of the Department of Transportation placarding regulations.

### **Safety Data Sheets (SDS)**

As of June 1, 2015, the Hazard Communication Standard requires that all safety data sheets be in a uniform format and includes the following:

1. Identification including the product identifier; manufacturer or distributor name, address, phone number, and emergency phone number; recommended use; and restrictions on use.
2. Hazard identification which includes all the chemical hazards and required label elements.
3. Composition / information on ingredients, including any information on chemical ingredients or trade secret claims.
4. Firefighting measures (including the most suitable fire extinguisher to use, equipment and chemical hazards from fire).
5. Accidental release measures (i.e. emergency procedures, proper protective equipment, and proper methods of cleanup/containment).
6. Handling and storage lists precautions for safe handling and storage, including chemical incompatibilities.
7. Exposure controls/personal protection lists OSHA's permissible exposure limits (PELs), American Council of Governmental Industrial Hygienists' threshold limit values (TLVs), appropriate engineering controls, and personal protective equipment (PPE).

8. Physical and chemical properties list the chemicals characteristics.
9. Stability and reactivity list chemical stability and possibility of hazardous reactions.
10. Ecological information\*
11. Disposal considerations\*
12. Transport information\*
13. Regulatory information\*

*\*OSHA does not enforce sections marked with the asterisk because this information is regulated by other agencies.*

Chemical manufacturers and importers are required by these rules to develop a SDS for each hazardous chemical product. The SDS contains detailed information about the health and physical hazards associated with the product. It is the responsibility of the individual ordering or purchasing the chemical to ensure that they receive an SDS with the shipment of new chemicals or provide the SDS where there has been a change. To ensure that we receive the SDS, the following notification should be added to all chemical purchase orders:

Safety Data Sheets will be sent to VelocityEHS for each new chemical product purchased and an updated SDS will be sent when the manufacturers or importers change the SDS.

If SDS is not given to receiving, then receiving will notify the individual who ordered the chemical and the product will not be released for use until the SDS is available. When SDSs are received by the various departments they are to be forwarded to the VelocityEHS for copying, distribution and inclusion in the SDS binders and on the inventory list. SDSs are available to all our employees for review during each work shift. If SDSs are not available or new chemicals in use do not have SDSs, immediately contact your **supervisor**.

A list of Hazardous Chemicals must be kept as part of the SDS index: table of contents. The lists (index) will be updated as new chemicals are purchased. The Supervisor is responsible for maintaining the current inventory list of chemicals. Lists of chemicals and SDS are stored electronically at <https://chemmanagement.ehs.com/9/d7881a84-5f22-4dd7-b231-d830eeb01a85/ebinder>

There must be a way that staff can access these electronically stored chemical lists and SDS at any time, otherwise hard copies should be maintained and stored in a visible and easy to find location. If SDS are kept electronically or accessed on the Internet, a backup copy or system must be in place in case the primary system becomes inoperable (i.e. power loss, network outage, computer crash, etc.). That way the information can still be accessed by the employees.

## **Employee Training and Information**

A key component of this program is training employees in the hazardous chemicals which they may come in contact with. Our training program is done in two parts.

The initial orientation is done by the Department Supervisor. The training will include the location and availability of our written hazard communication program, as well as how to read labels and review an SDS to obtain appropriate hazard information.

The employee's supervisor will review the specific chemicals, hazards and precautions needed in the employee's work area. The training program will cover the following elements:

1. The details of the hazard communication program, including:

- a. The location of the hazard communication program and SDS sheets.
- b. An explanation of the labels on shipped containers you receive.
- c. Labeling system used on in-house containers and piping systems.
- d. Information presented on SDS sheets, including the order of the information.

How to obtain and use the SDS information.

1. Review of the chemicals present in the workplace.
2. Any operation in their work area where chemical hazards are used.
3. Physical and health effects of hazardous chemicals.
4. Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area.
5. How to lessen or prevent exposure to these hazardous chemicals through usage of engineering control/work practices and personal protective equipment.
6. Steps we have taken to lessen or prevent exposure to hazardous chemicals.
7. Emergency procedures to if our employees are exposed to these hazardous chemicals.
8. Extent necessary to protect them in the event of a spill or leak of a hazardous chemical.

It is critically important that all employees understand the training. If you have any additional questions, please contact your supervisor. Each employee will fill out a training verification form which asks the employee if he or she understood the training.

When new chemicals are introduced, supervisors will review the above items as they relate to the work area. Some employees may also require additional training depending upon their job tasks. Employees who are involved with process safety chemicals, e.g. 1500 pounds of chlorine, and employees who are involved with hazardous waste operations and emergency response will need to have 4 to 8 hours of hazardous material training. \*\*

*\*\*Please refer to the Federal OSHA 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals and 1910.120 Hazardous Waste Operations and Emergency Response for the additional training requirements.*

### **Hazardous Non-Routine Tasks**

Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each affected employee will review information about hazards to which they may be exposed to during such an activity. This will be the responsibility of each supervisor.

The training information will include but not limited to:

1. Specific chemical hazards.
2. Protective equipment and safety measures which must be utilized should accidental exposure occur.
3. Measures that have been taken to lessen the hazards include ventilation, respirators, presence of another employee and emergency procedures.
4. The SDS for employees to review.

### **Hazardous Substances in Pipes**

#### **[Oregon OSHA Rules for Pipe Labeling](#)**

All hazardous materials carried in piping systems are required to be labeled under [Division 2/Z, OAR 437-002-0378 Oregon Rules for Pipe Labeling](#).

Pipes and piping systems that contain hazardous substances (any health or physical hazardous agent) or transport substances in hazardous state will be labeled. The pipes must be colored coded or have lettered labels. The label will give the name of the contents in full or abbreviated form. The labels may be posted in the area of the pipe/piping systems. The labeling will be applied, at a minimum, at the beginning and end of continuous pipe runs. A complete hazard label is not required on pipes. If the pipe is above or below the normal line of vision, the label must be applied above or below the horizontal center line of the pipe so that employees can see it.

### **Pipes Insulated with Asbestos-Containing Material**

Pipes that are insulated or contain asbestos materials/products must be labeled with such language as "Danger, contains asbestos fibers. May cause cancer. Causes damage to lungs. Do not breathe dust. Avoid creating dust."

Warning labels must be applied every 75 feet on continuous pipe runs. As mentioned above, if the pipe is above or below the line of sight, the label must be applied above or below the horizontal center line of the pipe so that the employees can see them.

### **Informing Contractors**

Our organization occasionally uses outside contractors for some projects, as a result, we must inform the contractor of any chemical hazards his/her employees may be exposed to. The following methods will be used to inform outside contractors of the potential chemical hazards in their work areas:

To ensure that outside contractors work safely in our plant, it is the responsibility of the supervisor to ensure that we provide the required chemical information:

1. Hazardous chemicals to which they may be exposed to while on the job site.
2. Precautions the employees may take to lessen the possibility of exposure.
3. Location of SDS for chemicals they may potentially be exposed to.

If additional information is needed, the safety manager should be contacted for assistance.










### **Chemical Hazards Requiring Additional Compliance Issues**

There are potential chemical exposures that have additional OR-OSHA requirements that our employees may be exposed to. (Examples: Hexavalent chromium, lead, asbestos, silica, vinyl chloride, cadmium, benzene etc.) If there are job tasks that have potential exposures to these chemicals, the following will be conducted.

1. Exposure monitoring is representative of employee exposures.
2. Recordkeeping: maintain all exposure monitoring records.
3. If exposures exceed the OR-OSHA exposure limits, we will implement all required protective measures in compliance with the applicable OR-OSHA standard. This may include:
  - a. Written Compliance Plan
  - b. Personal Protective Equipment
  - c. Engineering Controls
  - d. Medical Monitoring
  - e. Employee Training



## Examples of Pictograms

 <p><b>Health Hazard</b></p> <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	 <p><b>Flame</b></p> <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	 <p><b>Exclamation Mark</b></p> <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
 <p><b>Gas Cylinder</b></p> <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	 <p><b>Corrosion</b></p> <ul style="list-style-type: none"> <li>• Skin Corrosion/Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metal</li> </ul>	 <p><b>Exploding Bomb</b></p> <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
 <p><b>Flame Over Circle</b></p> <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	 <p><b>Environment (Non-Mandatory)</b></p> <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	 <p><b>Skull and Crossbones</b></p> <ul style="list-style-type: none"> <li>• Acute Toxicity</li> <li>• (Fatal or Toxic)</li> </ul>



### Health Hazard

**Carcinogens:** A chemical substance or mixture that can cause cancer.

**Respiratory Sensitizer:** A chemical that if inhaled may lead to an allergic-type reaction of the lungs (respiratory system) if inhaled again.

**Reproductive Toxicity:** Harmful effects to sexual function and fertility in adult males and females, or on development of the offspring.

**Target Organ Toxicity (Single exposure):** The significant health effects that can impair the function of a specific target organ (for example, the eyes or the kidneys) caused by a single exposure to a chemical. Toxic effects may be reversible or irreversible, immediate or delayed.

**Target Organ Toxicity (Repeated exposure):** The significant health effects that can impair function of a specific target organ (for example, the eyes or the kidneys) caused by repeated exposure to a substance or mixture. Toxic effects may be reversible or irreversible, immediate or delayed.

**Mutagenicity:** Chemical exposure causing permanent changes in the amount or structure of the genetic material in a cell.

**Aspiration Toxicity:** The harmful effect of a liquid or solid chemical when it enters the oral or nasal cavity directly by being breathed in or indirectly entering the respiratory system as a result of vomiting.



## **Flame**

**Flammable Gases:** A gas that forms a flammable mixture with air at ambient temperature and pressure.

**Flammable Aerosols:** A chemical in a non-refillable container with a gas compressed, liquefied, or dissolved under pressure and fitted with a release device allowing the contents to be ejected as particles in suspension in a gas, or in another form; and meeting flammability test criteria.

**Self-Reactive:** Thermally unstable liquid or solid chemicals likely to undergo decomposition: even without interaction with air. These chemicals that are likely to undergo a stronger exothermic decomposition are classified under explosives.

**Pyrophoric Liquids:** A liquid chemical that, even in small quantities, is likely to ignite within five minutes after coming into contact with air.

**Pyrophoric Solids:** A solid chemical that even in small quantities is likely to ignite within five minutes after coming into contact with air.

**Self-Heating:** A solid or liquid chemical (other than a pyrophoric liquid or solid) that, without energy supply, is likely to react with air and generate heat. Differs from a pyrophoric liquid or solid because it will ignite only when in large amounts and after long periods of time (hours or days).

**Emits Flammable Gas:** Solid or liquid chemicals that, when in contact with water, emit flammable gases or that, by interaction with water, are likely to ignite spontaneously or to give off flammable gases in dangerous quantities.

**Organic Peroxides:** A carbon-containing compound having two oxygen atoms joined together (-O-O-) called a "peroxy" group. Organic peroxides can be severe fire and explosion hazards.



## **Exclamation Mark**

**Irritant (Skin or Eyes):** Reversible damage to the skin or eyes following exposure to a chemical substance.

**Dermal Sensitizer:** An allergic-type reaction of skin tissue after repeated exposure to a chemical substance.

**Acute Toxicity (Harmful):** Harmful, health effects that occur soon after a single oral or dermal exposure to a chemical substance; or multiple doses given within 24 hours; or an inhalation exposure of four hours.

**Narcotic Effects:** Depression of the central nervous system, exhibited as sleepiness, reduced alertness, loss of reflexes, lack of coordination, and dizziness caused by chemical exposure. Can also be shown as severe headache or nausea and can lead to irritability, fatigue, and worsen memory, perception, and reaction time.

**Respiratory Tract Irritants:** Chemical exposure effects, characterized by localized redness, swelling, and fluid build-up that weakens respiratory function with symptoms such as cough, pain, choking, and difficulty breathing.



### **Gas Cylinder**

**Gas Under Pressure:** Gases in a container at a pressure of 29 psi (gauge) or more, are liquefied, or are liquefied and refrigerated.



### **Corrosion**

**Corrosive (destructive) to skin or eyes:** Irreversible damage to the skin or eyes, including visible, localized death (necrosis) of skin tissue, burns, or serious eye damage following exposure to a chemical substance.

**Corrosives:** A chemical that will by chemical action materially damage or destroy metals.



### **Exploding Bomb**

**Self-Reactive:** Thermally unstable liquid or solid chemicals likely to undergo a strongly exothermic decomposition even without participation of oxygen (air). This definition excludes chemicals classified under this section as explosives, organic peroxides, oxidizing liquids, or oxidizing solids.

**Organic Peroxides:** Any organic (carbon-containing) compound having two oxygen atoms joined together (-O-O-) called a "peroxy" group, where one or both hydrogen atoms have been replaced by organic radicals (with an unpaired electron). Organic peroxides are thermally unstable chemicals, which may undergo exothermic self-accelerating decomposition. In addition, they are likely to have one or more of the following properties:

- Likely to explode
- Burn intensely
- Be sensitive to impact or friction
- React dangerously with other substances





### **Flame Over Circle**

#### **Oxidizers**

**Explosives:** A solid or liquid chemical that is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic chemicals are included even when they do not evolve gases.

**Oxidizer:** A substance that readily yields oxygen to cause or intensify the combustion of organic material. Includes gases, liquids, and solids.

**Acute Toxicity (Severe or Fatal):** Severe, harmful health effects (that may include death) occurring soon after a single oral, dermal, or inhalation exposure to a chemical substance, or multiple exposures within a 24-hour period.

# **HAZARDOUS ENERGY ISOLATION—LOCK OUT TAG**

## **1 Purpose**

This program addresses equipment and system isolation, using a Lockout/Tagout (LOTO) process, to ensure the safety of all workers who service and maintain City of Boardman systems and equipment. The LOTO program consists of this document and all associated forms, LOTO templates and Hazardous Energy Removal Verification (HERV) requirements used

- 1.1 Scope  
None

## **2 Responsibilities**

- 2.1 Site Personnel
  - 2.1.1 Understands the importance of isolating hazardous energy and complies with this LOTO procedure.
  - 2.1.2 Does not start or operate locked/tagged out equipment or introduce hazardous energy into the LOTO boundary.
  - 2.1.3 Completes LOTO awareness training.
- 2.2 Group Worker
  - 2.2.1 Recognizes the applicable hazardous energy sources in the workplace and the typical means and methods of isolating and/or controlling the energy.
  - 2.2.2 Obtains permission from the Lead Worker (LW) to work under the applicable Group Safe Work Permit (GSWP)
  - 2.2.3 Understands the LOTO boundary and ensures their work remains within the LOTO boundary.
  - 2.2.4 Applies their personal lock to the applicable LOTO lockbox prior to beginning work.
  - 2.2.5 Participates in any associated Job Briefings
  - 2.2.6 Informs LW when work is complete, or when leaving site without the intention of returning, and removes their personal lock.
  - 2.2.7 Completes LOTO training
- 2.3 Lead Worker (LW)
  - 2.3.1 Assures the GSWP provides a safe and adequate boundary and verifies HERV is adequate and was completed for the identified scope of work.
  - 2.3.2 Performs a Job Briefing with Group Worker(s).
  - 2.3.3 Conveys LOTO boundaries to Group Worker(s).
  - 2.3.4 Maintains the GSWP, including Group Worker list on the "Group Safe Work Permit (GSWP)" (F03).
  - 2.3.5 Works or directs work within the GSWP boundary.
  - 2.3.6 Verifies, prior to closing the GSWP, that the scope of work is complete, and Group Workers have been checked off GSWP.
  - 2.3.7 Requests change of status, if needed.
  - 2.3.8 Notifies Group Workers of change of status.
  - 2.3.9 Completes LOTO training
- 2.4 LOTO Approver (LA)
  - 2.4.1 Verifies that equipment can be isolated for work.
  - 2.4.2 Provides coordination when multiple crews or work groups are working simultaneously on equipment and systems that require LOTOs

- 2.4.3 Determines LOTO boundary and develops HERV requirements that are safe and adequate.
- 2.4.4 Informs LOTO Installer of HERV requirements.
- 2.4.5 Ensures personnel working under a LOTO have been trained per this procedure.
- 2.4.6 Authorizes and approves all LOTO forms
- 2.4.7 Ensures all personal locks are removed prior to approving removal of tags and equipment locks, and release of LOTO
- 2.4.8 Authorizes LOTO release
- 2.4.9 Maintains the "LOTO Log" (F01).
- 2.5 LOTO Installer (LI)
  - 2.5.1 Positions energy-isolating devices and installs equipment locks and danger tags.
  - 2.5.2 Initials danger tags during installation.
  - 2.5.3 Conducts HERV or verifies HERV was completed by a qualified individual and installs HERV tags.
  - 2.5.4 Documents the installation on the "LOTO Form" (F05) and "LOTO Isolation List" (F06).
  - 2.5.5 Removes locks and danger tags and restores energy-isolating devices to required positions.
  - 2.5.6 Returns equipment locks and tags to the LOTO Approver and initials for removal on "LOTO Isolation List" (F06).
- 2.6 LOTO Verifier (LV)
  - 2.6.1 Verifies isolation position, danger tag, and equipment lock placement, independently from the LOTO Installer.
  - 2.6.2 Initials danger tags after verification of correct installation.
  - 2.6.3 Verifies personal lock placement and isolation position on individual LOTOs.
  - 2.6.4 Documents verification on "LOTO Isolation List" (F06) and "LOTO Form" (F05).
- 2.7 Management/Public Works Director
  - 2.7.1 Ensures personnel and contractors are trained and comply with the LOTO program.
  - 2.7.2 Provides all required locks, lockboxes, tags, or other hardware for isolating, securing, or blocking of machines or equipment from energy sources
  - 2.7.3 Ensures that energy-isolating devices on all equipment undergoing major repairs, renovations, modifications, or replacement include provisions for lockout devices.
- 2.8 Document Owner
  - 2.8.1 Assigns resources to implement the procedure.
  - 2.8.2 Maintains the procedure and coordinates revisions with Management and Program Owner
  - 2.8.3 Updates the procedure to reflect protocol changes.
  - 2.8.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
  - 2.8.5 Ensures annual review of LOTO program and LOTO templates is completed.
- 2.9 Program Owner

- 2.9.1 Assigns resources to manage the program.
- 2.9.2 Oversees and reviews program to ensure the program is compliant and effective.

### **3 Definitions and Acronyms**

#### **3.1 Definitions**

- 3.1.1 **Affected Person:** A worker who
  - A. Operates or uses machines or equipment that have service or maintenance performed under LOTO or works in an area where servicing or maintenance is performed.
  - B. An affected person must become an Authorized Worker when their duties include performing service or maintenance on machines or equipment.
- 3.1.2 **Authorized Worker:** A person who locks out or tags out machines or equipment or performs service or maintenance on machines or equipment under a LOTO. To be an Authorized Worker you must receive applicable training on this procedure.
- 3.1.3 **Boundary Expansion:**
  - A. Emergent or unplanned work: Boundary expansion isolation points were not part of the original approved template.
  - B. Pre-planned work: boundary expansion isolation points were part of the original approved template.
- 3.1.4 **Cascading Lockbox:** A lockbox that uses an existing lockbox as an isolation point. Potential uses may be to connect jobs through lockboxes; to ensure the release of one job or piece of equipment before another; to expand boundaries of an existing LOTO.
- 3.1.5 **Change of Status:** The documented change of the LOTO isolation points after the LOTO has been issued by the LOTO Approver (LA). changes of status include the following:
  - A. LOTO boundary expansion
  - B. Temporary energization of equipment in order to conduct testing within the boundaries of a LOTO
  - C. Adding or releasing grounds on an issued LOTO
- 3.1.6 **Confined Space Lock:** See Lock.
- 3.1.7 **Danger Tag:** See Tag
- 3.1.8 **Energy-Isolating Device:** A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:
  - A. An electrical circuit breaker
  - B. A disconnect switch
  - C. Removed fuse or lifted lead
  - D. Valves, excluding check and relief valves
- 3.1.9 **Equipment Lock:** See Lock.
- 3.1.10 **Exclusive Control:** LOTO does not apply to servicing or maintaining cord and plug-connected electrical equipment when the equipment is unplugged from its energy source and the plug is under the exclusive control of the Authorized Worker performing the service and/or maintenance activity. "Under the exclusive control" refers to instances where the plug is physically in the possession of the Authorized Worker, or

within arm's reach and in the line of sight of the employee to prevent re-energizing equipment during servicing or maintenance.

- 3.1.11 Full-Employee Protection: When an energy-isolating device cannot be locked, full-employee protection includes one or more of the following, as appropriate:
  - A. At least one additional energy-isolation device with a tag affixed to it.
  - B. At least one additional safety measure that will provide the equivalent safety available from the use of a lock.
    - 1. There are many acceptable "additional measures", including, but not limited to: the removal of an isolating circuit element; blocking of a control switch; opening an extra disconnecting device; or the removal of a valve handle.
- 3.1.12 Ground Tag: See Tag
- 3.1.13 Group Safe Work Permit (GSWP): "Group Safe Work Permit" (F03) that:
  - A. Authorizes hanging any personal locks on a lockbox.
  - B. Records approvals to perform a specific scope of work.
  - C. Lists specific danger tag numbers and HERV for a given purpose or scope of work on a LOTO.
  - D. Lists workers covered for a given purpose or a scope of work on a LOTO.
- 3.1.14 Group Worker: An Authorized Worker working under the direction of a Lead Worker within an established LOTO boundary
- 3.1.15 Hazardous Energy: Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, radiological, or other sources that can be hazardous to workers.
- 3.1.16 Hazardous Energy Removal Verification (HERV): Actions taken to verify and document hazardous energy has been eliminated or reduced to a non-hazardous state for the task being performed. There are many possible tests including:
  - A. Test start
  - B. Gauge or digital control indications
  - C. Opening drains or vents
  - D. Visual indications
  - E. Using electrical test equipment to verify no voltage etc.
- 3.1.17 HERV Tag: See Tag.
- 3.1.18 Individual LOTO: A double-verified LOTO, using five or less isolation points that are secured with personal locks and recorded on an "Individual Safe Work Permit (ISWP)" (F04). An individual LOTO cannot be used to expand the boundaries of an existing group or individual LOTO.
- 3.1.19 Individual Safe Work Permit (ISWP): (F04) that:
  - A. Authorizes hanging any personal locks on isolation points for an individual LOTO.
  - B. Records approvals to perform a specific scope of work.
  - C. Indicates individual LOTO isolation points and HERV for individual LOTO.
- 3.1.20 LA Lock: see lock
- 3.1.21 Lead Worker (LW): An Authorized Worker who is responsible for directing work within the established LOTO boundary.

- 3.1.22 Lock: Locks defined below shall only be used in the hazardous energy isolation program and cannot be used for any other purpose.
- A. Confined Space Lock: An orange lock that is informative only and indicates a confined space permit is active on the LOTO.
  - B. Equipment lock: Serial numbered locks that are red in color and are fastened to energy-isolating devices to indicate that the energy-isolating devices and the equipment being controlled may not be operated until the lock is removed. Any duplicate keys will be controlled by Site Management.
  - C. Ground Lock: A yellow lock that is informative only and indicates grounds have been installed on the LOTO.
  - D. LA Lock: A black lock that secures a lockbox. This lock is issued by the LOTO Approver who controls the key. This is the first lock on and the last lock off
  - E. Personal Lock: A lock that is attached to a lockbox for each Authorized Worker working under a LOTO. Personal locks may be used as an equipment lock when using an Individual LOTO. The Personal Lock must be identifiable to the individual. Locks for personnel are typically blue in color, but may be any color other than red, orange, yellow, purple, or black.
  - F. Remote Lockbox Lock: An individually keyed purple lock that enables the use of a remote lockbox on a LOTO.
- 3.1.23 Lockbox: A box used to secure keys to equipment locks through the application of LOTO, personal, ground, confined Space Locks, and remote lockbox locks.
- 3.1.24 Lockout/Tagout (LOTO): A mandatory, systematic process for isolating, controlling, and eliminating hazardous energy prior to working on equipment.
- 3.1.25 Lockset: A set of two or more locks that are keyed alike.
- 3.1.26 LOTO Approver (LA): An Authorized Worker who is designated by Site Management to perform responsibilities outlined in Section 2.4.
- 3.1.27 LOTO Boundary: A boundary that begins at the point where hazardous energy sources are isolated and danger tags and/or locks are hung, encompassing the equipment and/or area in which the energy sources have been controlled and/or eliminated.
- 3.1.28 LOTO Installer (LI): An Authorized Worker who is designated by Site Management to perform responsibilities outlined in Section 2.5.
- 3.1.29 LOTO Verifier (LV): An Authorized Worker who is designated by Site Management to perform responsibilities outlined in Section 2.6. For each LOTO, the LOTO Installer and LOTO Verifier are separate individuals.
- 3.1.30 LOTO Template: An independently verified list of specific isolation points required to safely allow work on equipment or systems identified in a scope of work.
- A. Approved LOTO Template: A LOTO template is approved when two (2) qualified individuals independently review and agree with the "LOTO Isolation List" (F06).
- 3.1.31 Personal Lock: See Lock.
- 3.1.32 Personal Tag: See Tag.

3.1.33 Remote Lockbox: A lockbox that is used to accommodate work groups in a remote location.

3.1.34 Tag: Labels serving the following specific purposes:

NOTE: All tags must be capable of withstanding the environment to which they are exposed. When used without locks, tags shall be attached with a device capable of resisting a 50-pound force and withstanding the environment to which they are exposed.

- A. Danger tag: A red tag that is fastened to an energy-isolating device to indicate that the energy-isolating device may not be operated until the tag is removed.
- B. Ground Tag: A red and yellow tag that is attached to a ground and used for the purpose of identifying grounds hung in association with a LOTO.
- C. HERV Tag: An optional green tag that may be fastened to an energy-isolating device and indicates that HERV has been completed. HERV tags are useful when HERV cannot be completed after the energy isolation point has been positioned, and there is the possibility of an overlapping LOTO.
- D. Personal Tag: A tag that can be attached to a personal lock for the purpose of identifying the Authorized Worker to whom the lock belongs if the lock does not have any other means of identifying the lock's owner.

3.1.35 Testing Protocol: A process to allow the temporary removal of lockout or tagout devices to allow temporary energization of the machine or equipment isolated by a LOTO for the purpose of testing or positioning the machine, equipment, or component.

## 3.2 Acronyms

- 3.2.1 CSP: Confined Space Permit
- 3.2.2 GSWP: Group Safe Work Permit
- 3.2.3 GW: Group Worker
- 3.2.4 HERV: Hazardous Energy Removal Verification
- 3.2.5 ISWP: Individual Safe Work Permit
- 3.2.6 LA: LOTO Approver
- 3.2.7 LI: LOTO Installer
- 3.2.8 LOTO: Lockout/Tagout
- 3.2.9 LV: LOTO Verifier
- 3.2.10 LW: Lead Worker
- 3.2.11 OAR: Oregon Administrative Rules
- 3.2.12 OR-OSHA: Oregon Occupational Safety and Health Administration

## 4 Precautions and Limitations

### 4.1 Precautions

- 4.1.1 Push buttons, selector switches and other control circuit type devices cannot be used as stand-alone energy-isolating devices. They can be used as an additional safety measure in conjunction with a locked-out/tagged-out breaker, disconnect, fuse, etc.
- 4.1.2 Individual Safe Work Permits (ISWP) are not allowed for any work requiring grounds or confined space permits.
- 4.1.3 Every Authorized Worker participating in LOTO must be informed of their right to verify the effectiveness of the lockout measures, and every

Authorized Worker must be allowed to personally verify, if they so choose, that hazardous energy sources have been effectively isolated.

- A. An Authorized Worker who opts to verify the effectiveness of the isolation measures can perform this verification simultaneously with installation of LOTO or after the LOTO Approver verifies the accomplishment of energy isolation and after the Authorized Worker affixes their personal lockout to the LOTO lockbox
- B. These steps must be taken before an Authorized Worker performs servicing/maintenance activities

#### 4.2 Limitations

4.2.1 For each LOTO, the LOTO Installer and LOTO Verifier cannot be the same person

4.2.2 For each GSWP, the Lead Worker and the LOTO Approver cannot be the same person.

4.2.3 LOTO applies to all types of energy including:

- A. Electrical
- B. Mechanical (both potential and kinetic energy, e.g., springs, reels, stored tension, moving objects, etc.)
- C. Hydraulic (pressure)
- D. Pneumatic (pressure)
- E. Chemical
- F. Thermal (heat)
- G. Radiation
- H. Other (any release of energy that can harm workers)

4.2.4 LOTO is intended for personnel protection. It shall not be used for equipment protection.

4.2.5 LOTO is NOT required for the following items:

- A. Rolling stock and vehicles.
- B. Electrical equipment and tools that can be unplugged and under exclusive control.
- C. Minor servicing activities, which take place during normal production operations, are not required by this procedure if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection (for example: cleaning or replacing filters, cleaning duplex strainers, replacing pressure gauges, hose fittings etc.).

4.2.6 If Site Personnel are not required to remove or bypass a guard or other safety device, and the work does not extend beyond the end of the shift that it starts on, LOTO will not be required for the following items:

- A. Calibrating pressure, level, flow, and temperature instrumentation.
- B. Calibrating, testing, or troubleshooting instrument loops (pneumatic/electronic), including AC and DC power supplies to the instruments.
- C. Working on instruments where the process flow stream is isolated by a thermo-well.
- D. Changing out gas bottles.
- E. Limit and torque switch adjustments.
- F. Electric circuits under 50 volts AC or DC.



- G. Activities addressed in the Electrical Safety Procedure
  - 1. Changing fuses in systems with less than 300 volts.
  - 2. Opening electrical panels.
  - 3. Lifting/landing of leads for troubleshooting or maintenance.
  - 4. Taking voltage or current readings for equipment troubleshooting or monitoring
  - 5. Lifting/landing leads and thermal overload removal/replacement using approved instructions.
  - 6. Station battery testing.
- H. Changing light bulbs.
- I. Pneumatic actuator work in which the local air isolation is controlled with an isolation valve within reach of the worker.
- J. Replacing handwheels on manual valves.
- K. Adjusting packing glands on in-service pumps and valves so long as machine guarding remains in place.
- L. Cleaning/replacing ventilation filters where the worker is not exposed to rotating machinery.
- M. Connecting and disconnecting hoses to equipment and wash down hoses
- N. Air, water, and oil (under the 120 Under Direct Control Rule) if:
  - 1. The substance doesn't present a health hazard and is below 120°F and 120 PSI.
  - 2. The air, water or oil isolations are under direct control of a valve, in line of sight, and close enough to intervene should someone attempt to manipulate an isolation boundary.

## 5 Procedure

### 5.1 Prerequisite Actions

- 5.1.1 Management will provide training to ensure that the purpose and function of the hazardous energy isolation program are understood by personnel and that personnel have the knowledge and skills required for the safe application, usage, and removal of energy controls. The training will include the following:
  - A. Each Authorized Worker must receive training in the recognition of applicable hazardous energy sources, the type and magnitude of energy available in the workplace, and in the methods and means necessary for energy isolation and control.
  - B. Each affected person must be instructed in the purpose and use of the energy isolation procedure
- 5.1.2 Obtain authorization prior to taking equipment out of service.
- 5.1.3 When an energy-isolating device does not have a lockable feature and can only be tagged out, full-employee protection must be used.
- 5.1.4 Development of LOTO templates
  - A. LOTO Approver reviews the scope of work to identify the presence, potential release, and control of hazardous energy. Review includes the work area limits, the equipment and isolation points to be locked/tagged and the lock/tag locations
  - B. LOTO Approver creates a LOTO template that lists isolation points that provide an adequate boundary for the scope of work.

- C. LOTO templates shall be reviewed for approval by a second LOTO Approver. Review and approval shall be done using system descriptions, operating instructions, piping, and instrument diagrams (P&IDs), electrical schematics, system walkdowns etc.
- D. To remain as approved templates, LOTO templates shall be reviewed and approved annually. Use of approved templates provides the initial review of the boundary for the scope of work.

5.2 Procedure

5.2.1 Request LOTO

- A. Authorized workers may request a LOTO either in writing, verbally, digitally to a LOTO Approver
- B. Determine if an approved LOTO template is available:
  1. The LOTO Approver will research if an approved LOTO template is available for the scope of work.
  2. If a LOTO template is available, the LOTO Approver creates the LOTO and enters the LOTO template number on the "LOTO Form" (F05), indicating an approved template has been used.
  3. If an approved LOTO template is not available, the LOTO Approver creates one, using steps in Section 5.1.4, and enters the LOTO template number on the "LOTO Form" (F05), indicating an approved template has been used.

5.2.2 Create LOTO

- A. Use "LOTO Form" (F05) and "LOTO Isolation List" (F06) to generate a LOTO to document the process and establish controls

NOTE: The LOTO Approver will specify the isolation points on the "LOTO Isolation List" (F06) in the order of intended installation and removal.

- B. The LOTO Approver documents HERV energy sources, methods of HERV, and locations of tests in the Hazardous Energy Removal Verification table on "LOTO Form" (F05).

NOTE: If no lockable points are included in the LOTO, the LOTO procedure will be completed with the exception of using equipment locks. There will be no equipment lock key(s) in the lockbox.

- C. LOTO Approver Prepares Tags, Locks and Lockbox
  1. Identify locks or lockset for use with the LOTO.
  2. Create danger tags for each isolation point.

NOTE: An optional "Tag 0" can be created on the "LOTO Isolation List" (F06) to place on the lockbox for easier identification.

- 3. If using a lockset, record the lockset number on "LOTO Form" (F05).
- D. When creating a LOTO using a cascading lockbox:
  1. Note a cascading lockbox LOTO in the "Special requirements or remarks" section of "LOTO Form" (F05)
  2. Include the primary LOTO and lockbox number in the "Special requirements or remarks" section of "LOTO Form" (F05).
  3. List the primary LOTO and lockbox number on the "LOTO Isolation List" (F06) for the cascading LOTO. List the position for the equipment lock as "locked".

### 5.2.3 Install LOTO

- A. The LOTO Approver provides the HERV requirements to the LOTO Installer.
- B. The LOTO Approver provides the LOTO Installer with the "LOTO Isolation List" (F06).

NOTE: A verified copy of the "LOTO Isolation List" (F06) can be used in the "field" to conduct the LOTO installation steps. The LI and LV will initial the main copy of the "LOTO Isolation List" (F06) to officially document completion.

- C. Using the "LOTO Isolation List" (F06), in the order indicated, the LOTO Installer:
  - 1. Positions energy-isolating devices to positions identified on the "LOTO Isolation List" (F06).
  - 2. Completes or verifies completion of HERV.
  - 3. Hangs HERV tags, if being used.
  - 4. Records or verifies the equipment lock number on the "LOTO Isolation List" (F06).
  - 5. Verifies the isolation point label, danger tag and equipment lock number against each other and the "LOTO Isolation List" (F06).
  - 6. Hangs an equipment lock and/or a danger tag on the isolation points. Danger tags shall be attached with a lock, through the tag grommet when possible.
  - 7. Hangs danger tags without locks, using full-employee protection, if a lockable point is not available.
  - 8. Initials danger tags when installation is complete.
  - 9. Initials the "LOTO Isolation List" (F06) in the "Installed & Tagged (LI)" column, for each point indicating that installation is complete.
- D. The LOTO Installer prints name on the "LOTO Form" (F05) and includes the date and time.
- E. The LOTO Installer documents test results and LI prints name in the Hazardous Energy Removal Verification table on "LOTO Form" (F05) or "HERV Addendum" (F10).
- F. The LOTO Installer transfers possession of equipment lock key(s) to the LOTO Approver to be placed in the lockbox.
- G. A LOTO Verifier uses the "LOTO Isolation List" (F06) to verify the correct isolation point, position, danger tag and equipment lock number.
- H. The LOTO Verifier initials danger tags following verification.
- I. The LOTO Verifier initials for each isolation point in the "Verified Installed (LV)" column on the "LOTO Isolation List" (F06) and prints name, date, and time on "LOTO Form" (F05) documenting that verification is complete

NOTE: Any inaccuracies found in the LOTO will be reported immediately to the LOTO Approver before being corrected.

- J. The LOTO Approver verifies all keys associated with equipment locks are secured in the lockbox prior to hanging the LA Lock.
- K. The LOTO Approver hangs the LA Lock on lockbox, and then initials the "LA lock installed by" line on the "LOTO Form" (F05).

- L. The LOTO Approver verifies all documentation is complete and issues the LOTO by printing their name and recording date and time on the "LOTO Form" (F05). The key for the LA Lock on an issued LOTO shall be kept under the control of the LOTO Approver.

#### 5.2.4 Safe Work Permit Process

- A. The LOTO Approver and the Lead Worker will discuss the scope of work, and identify boundary, HERV, and grounding requirements to determine whether an individual or group safe work permit is required.
  - 1. If an adequate, issued LOTO exists, go to Section 5.2.5, GSWP for Group LOTO.
  - 2. If an issued LOTO does not cover the requirements for the scope of work, and there are 5 or less isolation points and only one person will be working, and there are no grounding requirements, and there are no confined spaces, go to Section 5.2.7, ISWP for Individual LOTO.
  - 3. If an issued LOTO does not cover the requirements for the scope of work, go to Section 5.2.1.B, LOTO template. Once the LOTO is created and installed, proceed to Section 5.2.5, GSWP for Group LOTO

#### 5.2.5 GSWP for Group LOTO

- A. The Lead Worker and LOTO Approver will work together to create a "Group Safe Work Permit (GSWP)" (F03), that includes the following information:
  - 1. A description of the equipment to be worked on.
  - 2. The purpose or scope of the work.
  - 3. The Lead Worker's name.
- B. The LOTO Approver will request authorization to work on the equipment from management
- C. Enter the LOTO number that covers the scope of work on the "LOTO number" line and enter the associated lockbox number on the "Lockbox number" line.
- D. Document specific danger tag numbers required for scope of work on the GSWP.
- E. If Confined Space Permits (CSP) are required for this work, check the "Confined Space Permit Required" checkbox, and place the confined space lock on the lockbox
- F. If grounds are required for this work, check the "Grounds Required" checkbox.
- G. If the Lead Worker is not qualified on the system defined in the scope of work, a second LOTO Approver shall review that the boundary is adequate and document that this review was completed on the GSWP.
- H. The LOTO Approver documents hazardous energy Sources on the GSWP.
- I. The LOTO Approver reviews the applicable "LOTO Form" (F05) and "HERV Addendum" (F10) to verify HERV is adequate. If additional HERV is required, a qualified worker shall complete HERV and document on the "HERV Addendum" (F10).

- J. The LOTO Approver documents that adequate HERV is completed by printing their name in the "Adequate HERV completed on LOTO" box on the GSWP.
- K. The Lead Worker accepts the GSWP by printing name in the "Permit Accepted LW (print)" box. By accepting the permit, the Lead Worker is indicating that a second review of boundary was completed.
- L. The LOTO Approver approves GSWP by printing name in "Permit Issued LA (print)" box
- M. If using a remote lockbox see Section 3.2.6. If not using a remote lockbox, the Lead Worker will now put their lock on the lockbox.
- N. The LOTO Approver updates the "Safe Work Permit Log" (F02) for the LOTO.
- O. The Lead Worker is responsible for ensuring all workers covered by a GSWP are legibly documented on the permit.
- P. The Lead Worker is responsible for maintaining the GSWP.
- Q. Group Workers identified on GSWP may now hang personal locks on the associated lockbox for the identified LOTO.
- R. Work can now begin.
- S. When work is complete:
  1. Group Workers check the "off" box on the GSWP. If not working on any other GSWPs under the LOTO, Group Workers remove personal locks from the applicable lockbox.
  2. The Lead Worker will clear the machine or equipment of tools and ensure scope of work is complete prior to closing out GSWP.
  3. The Lead Worker will ensure all Group Workers listed on the GSWP have removed personal locks and have checked the "off" box on the GSWP.
  4. The Lead Worker will print name in the "Permit Closed LW (print)" box on the GSWP and remove their personal lock from the lockbox.
  5. The LOTO Approver will review the GSWP and ensure all documentation is complete.
  6. The LOTO Approver will print name in the GSWP "Permit Closed LA (print)" box.
  7. The LOTO Approver will GSWP "Permit Closed LA (print)" box.
  8. The LOTO Approver will archive GSWP as required by Management.

#### 5.2.6 Remote Lockbox

NOTE: The following process requires a remote lockbox lock to be used.

NOTE: If using a remote lockbox, the Lead Worker and Group Workers must be locked onto the designated remote lockbox and documented on the associated GSWP.

- A. After following the process in sections 3.2.5.A – 3.2.5.M for accepting a GSWP, the following process can be followed to use a remote lockbox
  1. The LOTO Approver will check the "Remote Lockbox Utilized Yes" checkbox on the GSWP.

2. The LOTO Approver will place a remote lockbox lock on the associated LOTO lockbox.
3. The LOTO Approver places the key to the remote lockbox lock inside the remote lockbox designated on the GSWP and secures the remote lockbox with an LA Lock
4. The LOTO Approver documents the remote lockbox and remote lockbox lock numbers on the GSWP and prints their name on the installed by line.
5. The Lead Worker verifies the remote lockbox lock, and LA Lock are installed correctly according to the GSWP and prints their name on the verified by line.
6. The Lead Worker can now place their personal lock on the designated remote lockbox.

NOTE: The Lead Worker is responsible for ensuring all workers covered by the GSWP are legibly documented on the permit.

NOTE: The Lead Worker is responsible for maintaining the GSWP along with the remote lockbox

7. Group Workers identified on the GSWP may now hang personal locks on the associated remote lockbox.
- B. Work can now begin
- C. When work is complete:
1. Group Workers check the "off" box on the GSWP. If not working on any other GSWPs using the same remote lockbox, Group Workers remove their personal locks from the applicable remote lockbox
  2. The Lead Worker will clear the machine or equipment of tools and ensure the scope of work is complete prior to closing out the GSWP.
  3. The Lead Worker will ensure all Group Workers listed on the GSWP have removed personal locks and have checked the "off" box on the GSWP.
  4. The Lead Worker will print name in the "Permit Closed LW (print)" box on the GSWP. The Lead Worker can now remove their personal lock from the applicable remote lockbox.
  5. The LOTO Approver will review the GSWP and ensure all documentation is complete.
  6. The LOTO Approver can now remove the LA Lock from the applicable remote lockbox, retrieve the key to the remote lockbox lock, and then remove the remote lockbox lock from the LOTO lockbox.
  7. The LOTO Approver will print name on the "Remote lockbox lock/LA lock removed by LA (print):" line of the GSWP.
  8. The LOTO Approver will print name in the GSWP "Permit Closed LA (print)" box
  9. The LOTO Approver will archive GSWP as required by Management.

#### 5.2.7 ISWP for Individual LOTO

- A. The Lead Worker and LOTO Approver work together to create a "Individual Safe Work Permit (ISWP)" (F04), that includes the following information:
  - 1. A description of the equipment to be worked on.
  - 2. The purpose or scope of the work.
  - 3. The Lead Worker's name.
- B. The LOTO Approver requests authorization to work on the equipment from management
- C. Determine if an approved LOTO template is available:
  - 1. The LOTO Approver research if an approved LOTO template is available for the scope of work.
    - a. If an approved LOTO template is not available, create one using steps in Section 3.1.5, Development of LOTO Templates
    - b. Document the LOTO template number on the ISWP.
- D. LOTO Approver documents boundary isolation points and positions on the ISWP.
- E. LOTO Approver documents HERV energy sources, methods of HERV, and locations of tests in the Hazardous Energy Removal Verification table on the ISWP.
- F. After the isolation device has been positioned as indicated on the ISWP, the Lead Worker hangs personal locks or equipment locks
- G. The Lead Worker initials the "Installed and Locked" column on the ISWP.
- H. The Lead Worker completes or verifies completion of HERV, documents test results, and prints name in the table on the ISWP.
- I. The LOTO Verifier uses the ISWP to verify each isolation point, position, and personal lock installation and initials the "Verified (LV)" column on the ISWP and prints their name on the "Verified Installed (print)" line. The LOTO Verifier and LOTO Approver can be the same person.
- J. The Lead Worker prints name in the "Permit Accepted LW (print)" box on the ISWP.
- K. The LOTO Approver prints name in the "Permit Issued LA (print)" box, issuing the individual LOTO.
- L. Work can now begin.
- M. If testing is required, the Lead Worker will perform the following:
  - 1. The LOTO Approver and Lead Worker will determine if the equipment can safely be energized for testing and, if so, which isolation points will need to be unlocked/untagged.
  - 2. The LOTO Approver will check the box on the ISWP indicating the "LOTO Change of Status" (F08) is required.
  - 3. The LOTO Approver will document the test and the isolation points affected on the "LOTO Change of Status" (F08).
  - 4. The Lead Worker and the LOTO Approver initial the "LOTO Change of Status" (F08) for the request and approval of the test.
  - 5. The Lead Worker will notify affected people that a test is needed.

6. The Lead Worker makes the change in accordance with the "LOTO Change of Status" (F08).
  7. The LOTO Verifier will verify that changes are correct based on the "LOTO Change of Status" (F08).
  8. Testing will be coordinated by the Lead Worker.
- N. X Following the completion of testing:
1. The Lead Worker will return to the LOTO Approver and notify that testing is complete.
  2. The Lead Worker will restore or release the ISWP.
- O. If ISWP will be restored:
1. The Lead Worker will document the request and the isolation points being restored on the "LOTO Change of Status" (F08) and both the LOTO Approver and Lead Worker will initial the form.
  2. The LOTO Approver will discuss the HERV and grounding requirements (if needed) with the Lead Worker
  3. Using the "LOTO Change of Status" (F08) the Lead Worker will reposition isolation points and hang personal locks.
  4. The Lead Worker will initial the "LOTO Change of Status" (F08) in the "Complete (LI) initial" column for the isolation points tested and restored.
  5. Using the "LOTO Change of Status" (F08), the LOTO Verifier will verify the correct isolation point, position, and personal lock number.
  6. The LOTO Verifier will initial the "LOTO Change of Status" (F08) in the "Verified (LV) initial" column, indicating that they verified each isolation point.
  7. The Lead Worker can continue work under ISWP.
  8. When work is complete, the Lead Worker shall inspect the work area to ensure that nonessential items have been removed and that machine or equipment components are operationally intact.
    - a. The Lead Worker removes all personal locks and initials the "Unlocked (LW)" column on the ISWP.
    - b. If qualified, the Lead Worker can restore and verify the isolation positions while removing locks and initials the "Verified Restored (LV)" column on the ISWP.
    - c. Isolation points must be restored in the order identified on the ISWP.
  9. The Lead Worker shall ensure affected persons have been notified that the lockout or tagout devices have been removed
  10. The Lead Worker prints name in the "Permit Closed LW (print)" box on the ISWP.
  11. If restoration has not been verified, a LOTO Verifier uses the ISWP to restore isolation points to the required positions and initials the "Verified Restored (LV)" column on the ISWP.



12. The LOTO Approver reviews the ISWP and ensures all names and initials are present.
13. The LOTO Approver prints name in the "Permit Closed LA (print)" box on the ISWP.
14. The LOTO Approver archives the ISWP as required by Management.

#### 5.2.8 Release LOTO

- A. The LOTO Approver
  1. Confirms all GSWPs are closed prior to releasing LOTO.
  2. Confirms all confined spaces associated with the LOTO are closed out and confined space locks are removed.
  3. Confirms all grounds, ground tags, and ground locks associated with the LOTO are removed using the "LOTO Grounds List" (F07).
  4. Verifies that only the LA Lock is on the lockbox.
  5. Removes the LA Lock from the lockbox. and initials the "LA Lock removed by" line on the "LOTO Form" (F05).
  6. Prints name on the "LOTO Protection Release" line on the "LOTO Form" (F05).
- B. The LOTO Installer:
  1. Picks up the equipment locks and danger tags in the required restoration order using "LOTO Isolation List" (F06).

NOTE: The restoration order will be reverse of the LOTO installation order unless otherwise specified on the "LOTO Isolation List" (F06).

2. Returns all equipment locks and danger tags to the LOTO Approver, after the equipment locks and danger tags are picked up and the isolation points are restored to the indicated position.
3. Initials the original "LOTO Isolation List" (F06) in the "Lock & tag Removed (LI)" column for each isolation position restored.
- C. The LOTO Approver
  1. Inventories all equipment locks and danger tags and ensures they are all present.
  2. Reviews all LOTO forms and ensures all documentation is complete.
  3. Prints their name on the "LOTO Closed" line of the "LOTO Form" (F05).
  4. Records "Closed date" in the "LOTO Log" (F01).
  5. Archives LOTO documents and GSWPs as required by Management.

#### 5.2.9 Grounds

NOTE: Grounds are not considered part of the hazardous energy isolation boundary. They are an additional measure for worker protection. Grounds can be added or removed during an active LOTO with approval from the LOTO Approver and affected Lead Workers.

- A. Adding Grounds to a LOTO
  1. Grounds shall only be installed by an electrically qualified worker, at the direction of the LOTO Approver

2. To install grounds for a GSWP, the electrically qualified worker will create a GSWP specifically for installing and removing grounds.
3. The electrically qualified worker installing the grounds will be listed as Lead Worker or a Group Worker on the grounds GSWP.

NOTE: If the work requiring grounds is expected to be completed during a single shift, and if the Lead Worker for the GSWP will be the Lead Worker for grounds installation, then a common GSWP for grounds install/removal and the work tasks may be utilized with LA approval.

4. The electrically qualified worker who is installing the grounds will place their personal lock on the lockbox providing protection for the task.
5. After the grounds are installed:
  - a. A qualified worker will attach a ground tag directly to the ground cable(s) with a zip-tie and initial the tag.
  - b. Another qualified worker will verify the grounds installation. If the qualified worker is required to enter the LOTO boundary to verify the grounds installation, then they will add their name to the grounds GSWP and place their personal lock on the lockbox. They will verify the grounds are properly installed and initial the ground tag(s).
  - c. For each LOTO listing the set of grounds, the LOTO Approver or designee will install a grounds lock on the associated lockbox(es).
  - d. The key for each grounds lock will be controlled by the LOTO Approver

NOTE: Each defined set of grounds requires one lock on the lockbox

#### B. Removing Grounds

1. Grounds shall only be released by an electrically qualified worker, at the direction of the LOTO Approver
2. The LOTO Approver will review the "LOTO Grounds List" (F07) and all open, associated GSWPs prior to granting permission to remove grounds.
3. The electrically qualified worker who is removing the grounds will be listed as a Lead Worker or a Group Worker on a GSWP.
4. The electrically qualified worker who is removing the grounds will place their personal lock on the lockbox providing protection for the task.
5. For grounds used on multiple LOTOs, the qualified workers will only remove the ground tag associated with the LOTO being released.
6. If there are no other LOTOs associated with the grounds, an electrically qualified worker will remove the grounds.
7. The grounds remover will return ground tag(s) to LOTO Approver and initial for removal on the "LOTO Grounds List" (F07).

8. The LOTO Approver will review the "LOTO Grounds List" (F07). The LOTO Approver can now remove the ground lock(s) from the lockbox(es).

#### 5.2.10 Confined Space Indication

- A. When a Confined Space Entry Permit is associated with a LOTO, a confined space lock will be applied to the corresponding lockbox by the LOTO Approver
- B. Confined space locks are removed by the LOTO Approver after all associated confined space permits are closed.

#### 5.2.11 Testing Protocol

- A. Any Lead Worker with an active GSWP can request a test.
- B. The LOTO Approver and Lead Worker will determine if the equipment can safely be energized for testing and, if so, which isolation points will need to be unlocked/untagged.
- C. The LOTO Approver will check the box on the "LOTO Form" (F05) indicating the "LOTO Change of Status" (F08) is required.
- D. The LOTO Approver will document the test and the isolation points affected on the "LOTO Change of Status" (F08).
- E. The Lead Worker and the LOTO Approver initial the "LOTO Change of Status" (F08) for the request and approval of the test.
- F. The LOTO Approver will notify all affected Lead Workers that a test is needed.
- G. The Lead Worker will notify affected people that a test is needed.
- H. The Lead Worker will clear the machine or equipment of personnel and tools to ensure the equipment being tested is in a condition that is safe for testing.
- I. All confined space entries associated with the LOTO will be evaluated and suspended, if necessary, during testing.
- J. All grounds affected by testing will be removed and documented on the "LOTO Change of Status" (F08).
- K. The Lead Worker will have all Group Workers remove personal locks from the lockbox
- L. The LOTO Approver will verify that only the LA Lock is on the lockbox.
- M. The LOTO Approver will provide the LOTO Installer with a "Test Tag List" (F12) which lists the isolation points that require lockout/tagout device removal for testing.
- N. The LOTO Approver will remove the operations lock from the lockbox and provide the necessary equipment lock key(s) to the LOTO Installer.
- O. The LOTO Installer conducts the change in accordance with the "LOTO Change of Status" (F08) and "Test Tag List" (F12)
- P. The Lead Worker will inform affected persons that the lock/tags have been removed.
- Q. The LOTO Installer returns equipment locks, keys, and danger tags to LOTO Approver prior to testing and initials the "LOTO Change of Status" (F08) and "Test Tag List" (F12)

- R. The LOTO Verifier will verify that changes are correct based on the "LOTO Change of Status" (F08) and "Test Tag List" (F12) and initial forms
- S. The LOTO Approver will place equipment keys into the lockbox and install the LA Lock
- T. Testing will be coordinated by the Lead Worker.

NOTE: The Lead Worker and Group Worker(s) may be required to hang personal locks on the lockbox containing remaining equipment lock keys to safely perform the test.

- U. Following the completion of testing:
  - 1. The Lead Worker will return to the LOTO Approver and notify that testing is complete.
  - 2. The Lead Worker will request full LOTO restoration or GSWP release from the LOTO Approver.
- V. If LOTO will be restored:
  - 1. The LOTO Approver will document the request and the isolation points being restored on the "LOTO Change of Status" (F08) and both the LOTO Approver and Lead Worker will initial the form.
  - 2. The LOTO Approver will reissue equipment locks and danger tags for the tested isolation points.
  - 3. The LOTO Approver will discuss the HERV and grounding requirements (if needed) with the LOTO Installer.
  - 4. The LOTO Installer will verify the isolation point danger tag and equipment lock number against each other on the "LOTO Change of Status" (F08) and "Test Tag List" (F12)
  - 5. Using the "Test Tag List" (F12) as directed by the LOTO Approver, the LOTO Installer will reposition isolation points and hang equipment locks and/or danger tags.
  - 6. The LOTO Installer will give initial danger tags when installation is complete.
  - 7. The LOTO Installer will verify completion of HERV on the items identified by the LOTO Approver, re-hang HERV tags, if needed, and document on the "HERV Addendum" (F10).
  - 8. The LOTO Installer will initial the "LOTO Change of Status" (F08) and the "Test Tag List" (F12) for the isolation points restored.
  - 9. Using the "Test Tag List" (F12), the LOTO Verifier will verify the correct isolation point, position, danger tag and equipment lock number and initial for each item.
  - 10. The LOTO Verifier initials danger tags upon verification.
  - 11. The LOTO Verifier will initial the "LOTO Change of Status" (F08) indicating that they verified each isolation point.
  - 12. The equipment lock key(s) will be returned to the lockbox
  - 13. The LA Lock will be re-installed by the LOTO Approver
  - 14. Any grounds that were removed prior to testing will be reinstalled and documented on the "LOTO Change of Status" (F08) at this time.
  - 15. Before restoration, confined spaces will be reevaluated as needed per Confined Space Entry Procedure. Confined

space permits that were released prior to testing can be reissued.

16. The Lead Worker will inform the Group Workers that they can apply personal locks to the lockbox and begin work again.

#### 5.2.12 Boundary Expansion

WARNING Reduction of identified isolation boundaries is not permitted after the LOTO has been issued.

NOTE: Refer to Section 3.1.3 for definition of unplanned and pre-planned work.

- A. For emergent or unplanned work: boundary expansion can be handled by utilizing cascading lockboxes with a new GSWP and LOTO.
- B. For pre-planned work: boundary expansion can be handled by adding isolation points to the existing LOTO using "LOTO Change of Status" (F08) or adding an additional LOTO with cascading lockboxes.

#### 5.2.13 Absentee Notification

- A. If a worker loses their personal key, or is absent when a LOTO must be released, or is absent during a change of status, Management initiates a "LOTO Absentee Notification" (F09)
- B. If a personal lock must be removed without use of the key
  1. Management contacts absentee and obtains verbal authorization to remove personal lock.
  2. If absentee cannot be reached, Management may authorize a LOTO release or change of status after the equipment and/or area within the LOTO boundary has been inspected to verify the absentee is not present.
- C. Management must notify the absentee of the change of status or LOTO release upon return to the site and prior to resuming work.

### 5.3 Acceptance Criteria

5.3.1 Work is performed according to LOTO, ISWP, and GSWP process forms

5.3.2 Upon completion of work, retain completed forms at an appropriate worksite location for a period of one year for the purpose of review

### 5.4 Post-Performance Activity

5.4.1 At least once a year the Hazardous Energy Isolation: LOTO program should be reviewed for compliance and to address any changes in regulations or work site conditions (OR-OSHA Requirement)

5.4.2 Annually review and approve the LOTO Isolation List Templates

## 6 References

### 6.1 Industry Standards or Codes

6.1.1 Institute of Electrical and Electronics Engineers, Inc. (IEEE), National Electrical Safety Code, C2, 2012

6.1.2 Oregon Occupational Safety and Health Administration (OR-OSHA), Oregon Administrative Rules (OAR)

- A. Fact Sheet, The Control of Hazardous Energy, 2002.
- B. Subdivision J, General Environmental Controls, 29 CFR 1910.147 The control of Hazardous Energy (lockout/LOTO).
- C. Grounding for the Protection of Employees, OAR 437-002-2313

- 6.2 City of Boardman
  - 6.2.1 Occupational Safety and Health Manual 2017 Revision
    - A. 11 Control of Hazardous Energy-Lockout Tagout: 11.1 - 11.16

## **7 Forms**

- 7.1 Forms
  - 7.1.1 F01: LOTO Log
  - 7.1.2 F02: Group Safe Work Permit Log
  - 7.1.3 F03: Group Safe Work Permit (GSWP)
  - 7.1.4 F04: Individual Safe Work Permit (ISWP)
  - 7.1.5 F05: LOTO Form
  - 7.1.6 F06: LOTO Isolation List
  - 7.1.7 F07: LOTO Grounds List
  - 7.1.8 F08: LOTO Change of Status
  - 7.1.9 F09: Absentee Notification
  - 7.1.10 F10: HERV Addendum
  - 7.1.11 F11: LOTO Isolation List Template
  - 7.1.12 F12: Test Tag List

## **8 Appendix** NONE

# LOTO Log – Form F01

LOTO Number	Equipment Isolated	Issued Date	Closed Date	Reviewed & Closed By

# Group Safe Work Permit Log – Form F02

LOTO number: \_\_\_\_\_ Lockbox number: \_\_\_\_\_

Equipment: \_\_\_\_\_

Purpose/Scope: \_\_\_\_\_

Lead Worker Name	Safe Work Permit Number	Closed
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
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		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>



# Group Safe Work Permit (GSWP) – Form F03

Safe Work Permit number: \_\_\_\_\_

Equipment: \_\_\_\_\_

Purpose/Scope: \_\_\_\_\_

Lead Worker: \_\_\_\_\_

LOTO Number: \_\_\_\_\_

Lockbox number: \_\_\_\_\_

Danger Tag number (s): \_\_\_\_\_

Confined Space Permit Required       Grounds Required

If Lead Worker is not qualified on the system, secondary review of boundaries for scope of work performed by: Second LA (print): \_\_\_\_\_

Hazardous Energy Sources: \_\_\_\_\_

HERV completed on LOTO:  
LA (print): \_\_\_\_\_

Permit Accepted LW (print): _____	Permit Issued LA (print): _____
Permit Closed LW (print): _____	Permit Closed LA (print): _____

Remote Lockbox Utilized: Yes  No  Remote Lockbox # \_\_\_\_\_ Remote Lockbox Lock # \_\_\_\_\_  
 Remote lockbox lock/LA Lock installed by LA (print): \_\_\_\_\_  
 Verified Installed by LW (print): \_\_\_\_\_  
 Remote lockbox lock/LA Lock removed by LA (print): \_\_\_\_\_

**Group Worker List (Print Legibly)**

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



# Individual Safe Work Permit (ISWP) – Form F04

LOTO number: \_\_\_\_\_

Equipment: \_\_\_\_\_

Purpose/Scope: \_\_\_\_\_

Lead Worker: \_\_\_\_\_

LOTO Template number: \_\_\_\_\_ LOTO Change of Status (F08) required?  Yes  No

Individual LOTO with (5) or less isolations – complete section below Verified Installed (print): \_\_\_\_\_

Install Order	Equipment or location	Position	Installed and locked (LW)	Verified (LV)	Unlocked (LW)	Verified Restored	Restore order

### Hazardous Energy Removal Verification

1. OBSERVED VENTED OR DRAINED 2. METER SHOWS VOLTAGE NOT PRESENT 3. MONITOR SHOWS GAS AT ACCEPTABLE LEVEL 4. GAUGES SHOW SYSTEM FREE OF PRESSURE 5. COOLED SUFFICIENTLY FOR WORK	6. ATTEMPT TO START 7. MECHANICALLY SECURED 8. Control/HMI INDICATIONS 9. ELECTRICAL AIR GAP 10. OTHER (DESCRIBE): _____
--	--

Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	VERIFIED BY:

Permit Accepted LW (print):	Permit Issued LA (print):
Permit Closed LW (print):	Permit Closed LA (print):

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# LOTO Form – Form F05

LOTO number: \_\_\_\_\_

Equipment: \_\_\_\_\_

Purpose/Scope: \_\_\_\_\_

Lockbox number: \_\_\_\_\_ Lockset number: \_\_\_\_\_

Special requirements or remarks: \_\_\_\_\_

\_\_\_\_\_

LOTO Template number: \_\_\_\_\_

**LOTO Installation**

LI (print): \_\_\_\_\_ Date/Time complete: \_\_\_\_\_

**LOTO Verification**

LV (print): \_\_\_\_\_ Date/Time complete: \_\_\_\_\_

**Hazardous Energy Removal Verification**

1. OBSERVED VENTED OR DRAINED 2. METER SHOWS VOLTAGE NOT PRESENT 3. MONITOR SHOWS GAS AT ACCEPTABLE LEVEL 4. GAUGES SHOW SYSTEM FREE OF PRESSURE 5. COOLED SUFFICIENTLY FOR WORK		6. ATTEMPT TO START 7. MECHANICALLY SECURED 8. Control/HMI INDICATIONS 9. ELECTRICAL AIR GAP 10. OTHER (DESCRIBE): _____	
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:

HERV Addendum (F10) required

LOTO Grounds List (F07) required

LA Lock installed by: _____ LOTO Protection Issued LA (print): _____ Date/Time: _____
---

Change of Status Form (F08) required

LA Lock removed by: _____ LOTO Protection Release LA (print): _____ Date/Time: _____ LOTO Closed LA (print): _____ Date/Time: _____
---







# LOTO Absentee Notification – Form F09

LOTO number: \_\_\_\_\_

Equipment: \_\_\_\_\_ LOTO Type:  Individual  Group

Purpose/Scope: \_\_\_\_\_

Lockbox number: \_\_\_\_\_ Safe Work Permit number: \_\_\_\_\_

Absentee: \_\_\_\_\_  Lost Personal Lock Key: \_\_\_\_\_

Reason for notification: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

	Signatures & Printed Name	Time/Date
Absentee Notified by:		
LOTO Boundary Inspected by:		
Safe Work Permit Closed by:		
Management Approval:		
Management Notified of Lost Key by:		
Absentee Notified on Return to Work by:		

**NOTE:**

If an AW is absent when a LOTO is released or its status changed, Management will obtain verbal authorization by telephone from the individual prior to making the change and initiate this form. If unable to contact absentee, Management will perform an inspection within the boundary of the LOTO to verify the absentee is clear and verify they are off site. After absent person notified or verified not on site, management will then authorize the release of or the change status and complete this form. Lost personal lock keys will be reported to Management immediately and documented on this form.

LA = LOTO Approver LI = LOTO Installer LV = LOTO Verifier LW = Lead Worker, GW= Group Worker



# Hazardous Energy Removal Verification Addendum – Form F10

LOTO number: \_\_\_\_\_

Lockbox number: \_\_\_\_\_

1. OBSERVED VENTED OR DRAINED 2. METER SHOWS VOLTAGE NOT PRESENT 3. MONITOR SHOWS GAS AT ACCEPTABLE LEVEL 4. GAUGES SHOW SYSTEM FREE OF PRESSURE 5. COOLED SUFFICIENTLY FOR WORK	6. ATTEMPT TO START 7. MECHANICALLY SECURED 8. Control/HMI INDICATIONS 9. ELECTRICAL AIR GAP 10. OTHER (DESCRIBE): _____		
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:
Energy Source:	METHOD USED/LOCATION OF TEST:	Results:	CONFIRMED BY LI:





# **NOISE EXPOSURE AND HEARING CONSERVATION**

## [Division 2 \(29 CFR 1910\), Subdivision G](#)

We have adopted this Noise Exposure and Hearing Conservation program to protect our employees from hearing loss and ensure compliance with the Oregon OSHA Noise regulations. The regulations require that each employer implement a hearing conservation program if an employee's noise exposure levels exceed 85 decibels (dBA) for a time weighted average of 8 hours.

We have completed noise testing of our workplace and have identified the following positions that are affected and that must comply with the hearing conservation program.

1. Law Enforcement
2. Public Works (working around pumps, law maintenance equipment, chain saws, etc.)
3. Maintenance staff

Current noise level survey reports are contained in this chapter of the Safety Manual and are used to ensure that noise exposed employees are part of the hearing conservation program.

There are two different instruments that can measure the sound levels in the work environment. They are listed below:

**Noise Dosimeter:** A device worn by a worker that measures the sound levels over a period of time to determine the noise exposure. It is a form of personal monitoring as it measures sound levels near individual workers.

**Sound Level Meter:** An instrument that uses a microphone, amplifier, and output meter to measure instantaneous sound pressure levels. Sound level meters are usually used to do area monitoring, which is exposure monitoring that measures sound levels at various locations in the workplace, usually at a single point of time.

### **General Responsibilities**

**Management:** It is the responsibility of management to see that noise controls are implemented and maintained, and that all employees at noise exposures in excess of 85 dBA time-weighted average are part of an effective hearing conservation program. This includes auditing the on-going program and training employees in the hazards of noise and required controls.

**Supervisor:** It is the responsibility of the supervisor to ensure that representative noise surveys are conducted. The supervisor also maintains records of employee training and audits the overall program. In addition, he/she is responsible for the following tasks:

1. Overseeing the program and ensuring that employees are following the Oregon OSHA standards and that employees' hearing is being protected.
2. Assuring that employee medical records and all past employee records per the Oregon OSHA standard are maintained by the Administration or HR.
3. Assuring that their employees wear hearing protection, have annual hearing tests, and are part of the annual hearing conservation training.

## **All Employees Covered by a Hearing Conservation**

**Program:** All employees that have been identified to be covered under our hearing conservation program are responsible for wearing appropriate hearing protection, taking an active part in the annual training and getting annual hearing tests.

**All Other Noise Exposed Employees:** All other employees not covered under our hearing conservation program that are exposed to noise are responsible for wearing their hearing protection in noisy work locations or when using noisy equipment.

## **Procedures**

### **Noise Level Surveys**

Noise level surveys are required to be done on work operations that have potentially high noise levels (85 dBA and above). The noise measurements will be included in the Safety Manual. Additional noise surveys are required when additional equipment is purchased, or processes are implemented which could result in higher noise levels. Additionally, periodic noise level surveys must be completed to re-verify the test results.

Assistance with noise monitoring can be obtained through our CIS (our insurance pool), Oregon OSHA Industrial Hygiene Consultants, or through outside consultants. Noise level surveys will be kept on file in each employee's file. Each employee exposed to noise at or above the 85 dBA average is to be informed of the results. Hearing protection is required to be worn during the operation of equipment or processes that exceed 85 dBA noise levels as a time weighted average exposure. The hearing protection (ear barrier plugs, muffs, and foam plugs) is available in each department where its use is required. The use and availability of the hearing protection will be pointed out to each new employee during their initial safety orientation. Employees required to wear hearing protection will be informed by their supervisor.

Employees will be trained in how to properly fit the hearing protectors by their supervisor or with assistance from outside safety/health consultants. If anyone has problems with the devices, please contact your supervisor. Employees will be provided with at least **two styles** of protection (plugs or muffs) to try on in order to determine which device would be best for them. All the devices provided will be evaluated to determine if they provide adequate noise attenuation for the noise exposure levels.

Each employee will be responsible for the maintenance of his/her assigned hearing protective devices. Disposable plugs will be discarded at the end of shift or when they become excessively soiled.

Inserts or barriers will be checked prior to each use for any defects. If barriers are used, the head band needs to be checked to ensure that it is tight and the insert is not torn, disfigured or does not properly seal. New devices will be obtained and used. Follow manufacturer's recommendations on maintenance.

### **Audiometric (Hearing) Testing**

New employees assigned to a noise area (where the time weighted exposure to noise is above 85 dBA) will be given a baseline hearing test and then will be tested annually thereafter. The tests require that the employee not be in an occupational noise area for 14 hours prior to the

test or wear hearing protection during this time. This test will be the reference for further tests to determine if hearing levels change.

The hearing test will be given by contract certified audiometric technicians. Hearing tests showing a significant hearing loss

are reviewed by a certified audiologist or equivalent. Baseline or initial tests may be given to new employees at the time of hire even if they are not working in a noisy area.

Significant threshold shift (STS) criterion hearing loss is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more in 2000, 3000, and 4000 hertz (Hz) in either ear. The employee may be re-tested within 30 days and consider the results of the retest to determine if a permanent shift has occurred.

Employees will be informed if their tests show significant changes in their hearing levels based on Oregon OSHA standards by written letter and follow-up by the employee's supervisor once notified of that change by our contract audiologists.

In all cases of hearing loss, the employee will be re-instructed on how to properly wear hearing protection. The supervisor will follow-up on all hearing tests that show a reduction in the employee's hearing from the baseline. (See Appendix 1, page 131)

Contract audiologists will determine if additional tests are needed and the status of the employee's hearing.

### **Employee Training**

New employees will receive Hearing Conservation Training at initial assignment to a noise area that falls within the hearing conservation program guidelines. The training will be repeated annually for these employees. The specific training materials are provided in this manual and are to be a guideline for supervisors and/or safety committee representatives to use.

A copy of the training materials will be available to our employees by contacting his/her supervisor or safety committee member. A copy of the Oregon OSHA Noise & Hearing Conservation Rules will be posted on the safety bulletin board at each of our locations where employees are potentially exposed to hazardous noise levels.

### **Noise Engineering Controls**

The supervisor is responsible to determine if there are feasible engineering controls that could reduce noise levels to below 90 dBA as a time-weighted 8-hour average.

In some cases, there may be records of noise control studies done on pieces of equipment or processes. These records should be kept showing compliance with Oregon OSHA's noise engineering control standard. The records should be maintained for the duration the equipment or process is in use.

### **Recordkeeping**

Records must be maintained for the various elements of the program. Noise exposure measurement records must be kept for 2 years and maintain records of the audiometric testing results for the duration of the affected employee's employment. The audiometric testing records must include the employee's name and job classification, date of test, the examiner's name, the date of the last acoustic or exhaustive calibration, the measurements of the background sound

pressure levels in the audiometric testing room, and the employee’s most recent exposure measurement.

Maintain exposure measurements for at least two years and keep the training records for each employee for the duration of employment and then forward all records to HR.

Hearing loss is recorded on the OSHA 300 Log when an annual audiogram reveals a Standard Threshold Shift (STS) in either or both ears and the hearing level in the same ear is 25 decibels (dBA) above audiometric zero. Employees must be informed in writing within 21 days of the determination of permanent hearing shift. Then the test results will either be accepted, or a retest will be employee within 30 days.

Human Resources is assigned responsibility for maintaining the OSHA 300 and 300A Injury and Illness Log.

### Sound Level Measurements

The following pieces of equipment were measured and found to produce high levels of noise:

Equipment	Sound Level	Allowable Time of Exposure	Date Measurements Were Taken

### Hearing Conservation Forms

- A. Appendix 1: Employee Notification of a Hearing Threshold Shift & Formal Notification Letter, page 12.6
- B. Appendix 2: Noise Compliance Checklist, page 12.8
- C. Appendix 3: Hearing Conservation and Noise Test Results, page 12.11

# Employee Hearing Test Notification Form

Employee Name:		Date of Hearing Test Notification:
<p>The annual audiogram taken on (Date) _____ shows a hearing level change greater than Oregon OSHA's permitted level as compared to the baseline. Your audiogram was reviewed by a certified audiologist, who provided us with a report. You have also received notification of the shift by the supervisor.</p> <p>Because of the change in hearing, we need to ensure that you are wearing proper hearing protection, you are trained how to fit the protection, and understand the potential effects of noise on your hearing.</p>		
Refitting of Hearing Protection:		
Type of Hearing Protector:	Training on How to Don/Insert Hearing Protection? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Follow the Manufacturer's Recommended Procedures	
<b>Basic Noise Training Review</b> The following issues were reviewed with the employee regarding noise exposure in their work area.		
<input type="checkbox"/> Overexposure to noise can cause noise-induced hearing loss (which can be permanent). <input type="checkbox"/> Effect of noise damage to the inner ear nerve cells. <input type="checkbox"/> Hearing protection is required to protect your hearing. <input type="checkbox"/> Hearing loss due to noise is cumulative (including on and off the job exposure) <input type="checkbox"/> Hearing loss is not evident to you during the early stages of hearing damage <input type="checkbox"/> A person generally hears better in a noisy environment with hearing protection <input type="checkbox"/> Noise exposure increases general fatigue, and in some cases, blood pressure during the noise exposure.		
Supervisor (who reviewed information):		Date:
Employee Signature:		Date:



## **Employee Notification Letter Regarding Significant Threshold Change in Hearing**

The following letter will be sent to employees who have been identified by the contract audiologist as having a significant threshold shift on his/her annual audiogram as compared to the baseline test. We have 21 days to notify the employee of the change once we receive notification. The supervisor will be notified of the change by the manager or HR so the employee's supervisor can ensure proper follow-up training.

Follow-up will be done by the supervisor or other representative.

There are two formats for the notification letter.

1. The first format in which the employee has a significant threshold shift, but no further medical evaluation is recommended by the audiologist reviewer.
2. The second format in which the professional reviewer recommends that the employee have further medical follow-up. If the reviewer makes this type of recommendation, we are responsible to notify the person and pay the employee's medical expenses for the referral.

### **Format 1**

#### **Significant Threshold Shift but *No* Additional Medical Testing Recommended**

During the month of \_\_\_\_\_, your hearing was tested by a certified audiometric technician. Your hearing test was reviewed as standard procedure by \_\_\_\_\_, Audiologist. \_\_\_\_\_ has notified the entity that your hearing threshold has decreased in comparison to the original baseline test.

At this point, the audiologist has recommended that we ensure you are properly wearing hearing protection during all exposures to noise. We recommend you wear protection even off the job if you are exposed to high noise levels. The audiologist has not recommended further testing at this point.

You will be refitted and retrained in how to wear hearing protection by your supervisor. A different type of hearing protection with a greater noise reduction rating (NRR) may also be needed. This is a policy of our organization and required by Oregon OSHA.

### **Format 2**

#### **Significant Threshold Shift *and* Additional Medical Testing Recommended**

During the month of \_\_\_\_\_, your hearing was tested by a certified audiometric technician. Your hearing test was reviewed as standard procedure by \_\_\_\_\_, Audiologist. \_\_\_\_\_ has notified us that your hearing threshold has decreased in comparison to the original baseline test.

The audiologist has recommended that unless you are currently under the care of an audiologist or otolaryngologist (ear specialist), that you need further medical evaluation. Our organization will cover the expense of the referral to an audiologist for follow-up based on the audiologist's referral. HR can assist you with making an appointment with Dr. \_\_\_\_\_.

Please contact HR for assistance.

You will also be refitted and retrained in how to wear hearing protection. A different type of protection with greater protection may also be needed.

## Noise Compliance Checklist

The following checklist can be used by management and safety committee members when conducting an overall audit on noise and hearing conservation programs. A second checklist titled "Checklist for Determining Validity of Audiometric Tests" will also be used when evaluating the audiogram tests for compliance with Oregon OSHA. This checklist is based on the Oregon OSHA standards.

Compliance is explained on the back of the checklist. Recommendations for corrections should also be made.

<b>A. Noise Exposure Monitoring</b>	<b>Compliance</b>	<b>Yes</b>	<b>No</b>
1. Current noise exposure levels are available for all work positions that may be over 85 dBA as an <u>8 hour</u> time-weighted average.			
2. The noise readings were conducted with a calibrated instrument.			
3. Noise <u>measurement</u> are retained and will be available to employees and Oregon OSHA compliance inspectors.			
4. The noise readings are noted on the employee's audiogram record.			
5. Employees are notified of the noise exposure level results.			
6. Employee representatives were allowed to observe noise exposure monitoring procedures.			
<b>B. Noise Control Measures &amp; Hearing Protection</b>	<b>Compliance</b>	<b>Yes</b>	<b>No</b>
1. All feasible noise controls have been implemented for employees whose noise exposures exceed 90 dBA.			
2. Records of noise control measures are maintained and will be available for an Oregon OSHA compliance inspector.			
3. All employees whose noise exposure exceeds 90 dBA or 85 dBA TWA with hearing loss are wearing hearing protection.			
4. Employees were trained and fitted in hearing protectors.			
5. Employees were offered a variety of suitable protections to choose from.			
6. Hearing protection attenuation was calculated and provides adequate protection for the employee's noise exposure (at least to less than 85 dBATWA).			
7. Employees are wearing protection per manufacturer's requirements.			
<b>C. Hearing Conservation Program</b>	<b>Compliance</b>	<b>Yes</b>	<b>No</b>
1. All employees whose exposure exceeds 85 dBA TWA are part of the Hearing Conservation Program. (Includes hearing tests, noise protection, and annual employee training).			
2. Only audiometric technicians or audiologists, or physicians meeting state certification requirements are conducting the hearing tests.			
3. Baseline audiograms are obtained within 180 days of assignment to noise areas over 85 dBA.			
4. The Baseline audiogram is taken with the employee away from workplace noise for 14 hours.			
5. The employees are receiving annual audiograms which are compared to the baseline audiogram.			
6. The audiograms are taken with audiometers that are properly calibrated:			
• Functional before use test			
• Annual calibration			
• Exhaustive calibration every 2 years			
7. All significant threshold shift audiograms are evaluated by an audiologist, otolaryngologist, or a qualified physician.			
8. Recommendations of professional reviewer were implemented.			

9. Proper follow-up is done for all employees showing a significant threshold shift.		
• Employee is notified of the change within 21 calendar days		
• Employee is retrained and refitted in hearing protection		
• Employee is referred for medical attention as necessary		
• The STS is recorded on the OSHA 300 Injury/Illness log		
<b>D. Employee Training Program</b>	<b>Compliance</b>	<b>Yes No</b>
1. All employees with noise exposures equal to or greater than TWA of 85 dBA have received initial and annual noise training.		
2. Training covers the following topics		
• Effects of noise on hearing		
• Hearing protector use, maintenance, advantages/disadvantages		
• Purpose of hearing testing		
<b>D. Access to Information</b>	<b>Compliance</b>	<b>Yes No</b>
1. The noise standard is <u>posted</u> and copies are available to employees or their representatives.		
2. Training and educational materials are available to an Oregon OSHA Compliance inspector.		
<b>F. Recordkeeping</b>	<b>Compliance</b>	<b>Yes No</b>
1. Noise exposure monitoring records are maintained and available.		
2. Audiometric test record must have the following:		
• Audiogram		
• Name & job classification of the employee		
• Date of audiogram		
• Examiner's name and certification number		
• Date of last acoustic or exhaustive calibration		
• Employee's most recent noise exposure assessment		
3. Sound readings as octave band levels in test room are available.		

## Employee Hearing Conservation & Noise Test

Employee Name		
Date	Initial Training Date	Annual Refresher Date
Question	True	False
1. Hearing protection is only required at the shop.		
2. Oregon OSHA requires that hearing protection be worn when employees' noise exposure exceeds 85 dBA for an <u>eight hour</u> average.		
3. The best way to determine noise exposure levels is to measure using a noise dosimeter (meter that integrates the noise levels).		
4. We <u>are able to</u> hear sound when the sound waves enter the ear and are transmitted through the middle ear into the inner ear (which transfers the noise as an electrical signal to our brain that interprets the sound).		
5. Prolonged exposure to excessive noise levels can cause a noise-induced hearing loss.		
6. When you are exposed to excessive noise levels, the first effect is usually a temporary hearing loss.		
7. Noise-induced hearing loss involves damage to the inner ear.		
8. Early noise-induced hearing loss normally is not detected by an individual, since it occurs above the speech range. By the time an individual is aware of a hearing loss, the amount of loss may be significant.		
9. Muffs provide the highest level of protection as compared to foam plugs.		
10. There are no disadvantages in using foam plugs.		
11. The reduction of noise by hearing protectors is called attenuation.		
12. Earplugs including foam plugs must fit tightly to provide a <u>good seal</u> .		
13. The reason we are generally not using earmuffs is because safety glasses interfere with the proper fitting of the muff over the ear.		
14. When hearing protectors are initially worn, it may take a short time to adjust to the new sounds.		
15. The primary type of hearing protectors we use are disposable, however, they can be reused, especially during the day <u>as long as they are clean</u> .		
16. Audiometric testing can protect your hearing.		
17. Audiometric testing is a means of determining your hearing ability.		
18. The accepted normal range of hearing is between 0 and 25 decibels.		
19. The audiometric test will show the amount of hearing loss. The higher the decibel reading, the greater the hearing loss.		

# **PERSONAL PROTECTIVE EQUIPMENT**

## **Division 2, Subdivision I**

We have adopted this Personal Protective Equipment (PPE) policy and procedures to ensure that when hazards cannot be fully controlled with engineering or process controls, that employees use appropriate personal protection. This chapter is also to assist in ensuring compliance with Oregon OSHA standards.

Our policy includes that appropriate training on the use and maintenance of PPE be provided by or arranged for by the supervisor. Employees are required to wear proper personal protective equipment. The PPE provided will be used as outlined by specific job procedures and maintained in a sanitary and reliable condition. If employees provide their own protective equipment, it is still our responsibility to assure its adequacy, including proper maintenance and sanitation of the equipment.

The selection of PPE will be made by our management staff and will be designed to match the hazard and allow employees to safely conduct their job tasks. The PPE is designed to protect the worker from injury or harm. However, it is not designed to prevent the occurrence of an incident which might cause harm

or injury, AND as a result, it is our policy to ensure that working conditions are safe and PPE is used as a back-up for additional protection.

### **Definitions**

***Personal Protective Equipment:*** Equipment worn by the employee to prevent injury or occupational illness wherever hazards from processes or equipment cannot be contained or eliminated at their source.

***Mandatory Respirator Use (based on Oregon OSHA standards):*** Respirators are required to be provided and worn when it is necessary to protect the health of an employee due to overexposure to air contaminants.

***National Institute of Occupational Safety and Health (NIOSH) Approved Respirators:*** NIOSH has established specific respirator approval standards that manufacturers must meet. Employers must select only NIOSH approved respirators based on the type of contaminant hazard.

This chapter reviews basic requirements for personal protective equipment including:

1. Head protection 437-002-0134(9)
2. Hearing and ear protection 29 CFR 1910.95
3. Eye and face protection 437-002-0134(8)
4. Hand protection 437-002-0134 (12)
5. Foot protection 437-002-0134(10)
6. Fall protection 437-002-0134(5)
7. Torso Protection 437-002-0134(6)(7) 437-002-0144(2)
8. Leg Protection 437-002-0134(11)
9. Respiratory Protection 437-002-0382 29 CFR 1910.134

## Procedures

Written certificates outlining work operations/jobs that require specific PPE are provided in Appendix 1, at the end of the PPE section. The certificate also provides basic description of the types of PPE that must be selected.

**Respiratory Protection** is covered separately in Chapter 14.

## General Responsibilities

**Management:** It is the responsibility of entity management to ensure that PPE evaluations have been completed for jobs/tasks that would potentially require or have hazards that require PPE. Additionally, management must ensure that proper PPE is made available in types and sizes to fit employees.

**Supervisor:** It is the responsibility of the supervisor to see that employees are trained in the use of personal protective equipment and are instructed on what is required for their work duties. Supervisors are responsible for completing and/or updating the PPE written certificates in Appendix 1, page 13.6. Direct supervisors will be responsible for ensuring all PPE is worn when the PPE Assessment indicates that PPE is necessary.

**All Employees:** Employees must follow all safety procedures as outlined in this chapter by Oregon OSHA rules and manufacturer's recommendations in regard to personal protective equipment. Employees are required to inspect their equipment daily/prior to use and ensure that the equipment is functional. Any problems with the equipment will be reported to the supervisor.

**Safety Committee:** The Safety Committee will include a review of personal protective equipment in their quarterly inspection activities.

**Head Protection:** OAR 437-002-0134(9)

Hard hats are to be used to protect the head from flying objects, impact, and electrical shock. Hard hats used at our work operations will meet ANSI standards for the job task.

Hard hats shall be used in the following jobs:

1. While working around construction or maintenance field projects or equipment.
2. While working outside and around heavy equipment.
3. Working inside a confined space below ground.
4. In addition, hard hats will be used by all employees when overhead hazards are present. This includes when working under floor openings or walkways, in areas with low ceilings, or in areas with protruding objects.

**Hearing Protection:** *(See Chapter 12 for overall instruction about hearing conservation and protection)*

Earmuffs and earplugs are used to protect against hazardous noise levels when noise exposure levels cannot be adequately controlled by various engineering controls.

Hearing protective devices are located at:

1. Supervisor's Office
2. Tool Room

If earmuffs are worn, the temple bars of glasses will interfere with the seal of the earpiece. As a

result, ear plugs should be worn by those required to wear safety glasses or glasses with corrective lenses.

**Eye & Face Protection:** OAR 437-002-0134(8)

Eye and face protection is to be worn where there is a reasonable probability of injury to the eyes and face from flying objects, glare, harmful liquids, or injurious light, such as arc welding flash.

Eye protection needs to meet the following criteria:

1. Provide adequate protection against the particular hazards for which they are designed.
2. Provide reasonable comfort and not unduly interfere with the movements of the wearer.
3. Be durable.
4. Be capable of being cleaned easily.
5. Be stored in clean containers or packaging and kept in good repair.
6. The specific type of eye and face protection needed depends on the type of hazard.
7. Particle hazards from grinding/chipping require safety glasses with side shields.
8. Face protection is worn when liquid splashes or significant particle matter could impact the face and cause injury.
9. Liquid splash hazards require chemical splash goggles or safety glasses with a face shield.
10. Gas welding requires welding goggles.
11. Safety glasses must be worn when an eye hazard exists.

**Hand Protection:** OAR 437-002-0134(12)(13)

Hand protection is worn to protect the hands from sharp wood/thorns, poison oak, and mechanical injury due to friction, heat, shearing/cutting actions, and for protection against chemicals.

Chemical protective gloves are selected based on the type of rubber/plastic material which affords proper protection against specific chemicals used. The selection will be made by the supervisor.

Chemical protective gloves will be worn when there is skin contact with the following chemicals:

1. Solvents
2. Corrosives
3. Chemical spill clean-up
4. Mechanical protective gloves will be worn when employees are exposed to wood splinters, friction, sharp metal edges, hot or cold materials, and moving heavy objects. Gloves will be available by job task or in the use areas.

**Foot Protection:** OAR 437-002-0134(10)

Special foot protection is necessary when there is a potential for foot injury, or slipping, or when the feet become wet due to the work environment. Your supervisor will work with employees who may have job assignments with special footwear.

The following footwear is expected to be worn:

1. Leather work boot when working on or around equipment. Safety steel toes when there is a hazard from dropping heavy objects.
2. Rubber boots when exposed to wet conditions.

The shoe policy will be periodically reviewed by the Safety Committee to ensure that appropriate footwear is used, preventing foot injuries.

**Fall Protection:** <http://www.oshatrain.org/courses/pdf/2824.pdf> OAR 437-002-0134(5) & 29 CFR 1926.502(d)437-003-0502

When it is not feasible to use physical barriers to protect employees from falls, personal protective equipment (PPE) will be used.

PPE will be chosen based on the following:

1. Intended use of PPE (stopping fall as opposed to retrieval from a confined space: see Chapter 5 Confined Spaces).
2. Fall arresting forces on the body
3. Distance of potential fall.
4. Impact on the body from the PPE during a sudden stop.

Type II chest harnesses will be worn for rescue purposes only and in no case are used to stop a vertical fall.

When a worker(s) enters a confined space, a helper wearing the same PPE will be stationed at the entrance to the confined space and will monitor those inside for the duration of the project (see Chapter 4).

Personal retrieval systems for rescue from below-ground level tanks or confined spaces.

1. Authorized personnel will ensure the use of a lifeline attached to a manual or power operated winch with a steel cable retracting lifeline. Alternatively, a block and tackle or ratchet winch can provide the lifting mechanism with limited human effort after the victim has been hooked up, provided a lock or overspeed mechanism is incorporated. An anchorage point, such as that provided by a seven or ten-foot tripod, should be available before work commences.
2. Full body harnesses, yokes, and wristlets will be used when retrieval is through narrow openings.
3. Strength Requirements. All components of the fall protection will meet the strength requirements of American National Standard A10.14-1991.

**Note:** *These strength requirements are based on one worker use. If multiple workers are tied off to a single lifeline, the strength requirement must be increased by the number of workers affected (i.e., two workers, one lifeline, minimum breaking strength must be 10,800 pounds at the center of line; three workers, one lifeline, minimum breaking strength must be 16,200 pounds, and so forth).*

4. When tied off while working on suspended scaffolding, each worker must use a separate line which is not connected to the scaffold.
5. Hardware for body belts/harnesses and lanyards must be drop-forged, corrosion resistant with smooth edges, and a minimum of 5,000-pound breaking strength without cracks or



breaks.

6. Knots will not be used in components of a fall protection system since a knot will reduce the strength by at least 50%.
7. Lanyards will be kept as short as possible and in no case will they exceed six feet to minimize the possibility for any length of a free fall.
8. Wire rope or rope-covered wire lanyards will not be used where impact loads are anticipated or where there is an electrical hazard.
9. Belts and lanyards that have been subjected to impact loading must be removed from service and destroyed or returned to the manufacturer for recertification.
10. Rope lanyards will not be stored in work pouches where they may be subject to deterioration.
11. Where there is exposure to abrasion, spun nylon rather than filament nylon will be used.
12. Only safety belts/harnesses with locking snaps will be used to prevent "rollout" or disengagement. All hardware will be compatible with the locking snap.
13. Only shock-absorbing lanyards will be used to reduce the fall arresting impact on the wearer.
14. Tongue-type buckles shall be used in lieu of friction buckles since friction buckles may lose the ability to stop detachment if contaminated with grease or oil.

### **Inspection and Recordkeeping**

The user will inspect the fall protection prior to each use.

1. A trained and competent person will inspect all components of the protection device at least once every six months. The dates of this biannual inspection will be recorded on a permanent tag attached to the harness.
2. Every five years, the fall protection system will be returned to the manufacturer for recertification.
3. Any defective body belt/harness or lifeline will be destroyed or returned to the manufacturer before use.
4. Any unit subjected to impact loading will be immediately removed from service and destroyed or sent to the manufacturer for recertification.

### **Road Worksite Protection**

All employees working around traffic will wear brightly colored vests or clothing with reflective striping to ensure that they are visible to traffic. This primarily includes road department, law enforcement and fire department staff. There may be other positions that may be required to wear this type of clothing as well. Any staff working around traffic and/or who will be involved in flagging or traffic control activities will be required to complete a flagging / traffic control school prior to being assigned to their duties. It is very important that appropriate notification distance is maintained prior to the work zone in order to protect the employees working in the area. These notification distances will be discussed in the flagging/traffic control school.

## Personal Protective Equipment Hazard Assessment

Use this sample form to identify hazards and to certify (document in writing) that you completed the assessment. Keep it on file in your workplace.

Survey your workplace as often as necessary to identify safety and health hazards that require personal protective equipment.

General information		
Department:	Location:	
Jobs included in the assessment:		
Person performing assessment:	Assessment date:	
Hazard assessment certification		
I certify that I performed this hazard assessment on the date indicated. Signed: :		
Printed name	Date:	
PPE Required?		
From the attached assessment worksheets	Yes	No
• Fall protection		
• Torso protection		
• Eye and face protection		
• Head protection		
• Foot protection		
• Leg protection		
• Hand protection		
• Hearing protection		
• Respiratory protection		

## Fall Protection

- All employees must be protected from fall hazards when working on unguarded surfaces more than 4 feet above a lower level or at any height above dangerous equipment.
- Fall protection systems must be provided, installed, and used according to the criteria in OAR 437, Division 2, Sections D, F, and I and construction is OA R437, Division 2, Section M.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards:</b> ☛ Unguarded surfaces more than 10 feet above a lower level or any height above dangerous equipment	<b>Likelihood of injury without PPE</b> ☛ High ☛ Medium ☛ Low
<b>Severity of a potential injury without PPE</b> ☛ Minor first aid required ☛ <u>Serious</u> , not life threatening ☛ IDLH: life threatening	<b>PPE required</b> ☛ Personal fall arrest system ☛ Personal fall restraint system ☛ None required

## Torso protection

- Clothing must be worn which is appropriate to the work performed and conditions encountered. Appropriate high temperature protective clothing must be worn by workers who are exposed to molten metals or other substances that can cause burns.
- Loose sleeves, ties, lapels, cuffs, or other loose clothing must not be worn near moving machinery. Clothing saturated or impregnated with flammable liquids, corrosive or toxic substances, irritants, or oxidizing agents must be removed immediately and not worn again until properly cleaned.
- Rings, wristwatches, earrings, bracelets, and other jewelry which might contact power driven machinery or electric circuitry, must not be worn.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> ☛ Extreme temperatures ☛ Hot splashes from molten metal and other hot liquids ☛ Impacts from tools, machinery, and materials ☛ Hazardous chemicals ☛ Ionizing radiation	<b>Likelihood of injury without PPE</b> ☛ High ☛ Medium ☛ Low
<b>Severity of a potential injury without PPE</b> ☛ Minor first aid required ☛ <u>Serious</u> , not life threatening ☛ IDLH: life threatening	<b>PPE required</b> ☛ Chemical resistant coveralls ☛ Cut-resistant sleeves, wristlets ☛ Flame-resistant jacket/ pants ☛ High visibility garment ☛ Insulated jacket, hood ☛ Lab coat or apron/ sleeves ☛ Long sleeves/ apron/ coat ☛ Static control coats/ coveralls ☛ None required

## Eye and Face Protection

- Employees must use appropriate eye or face protection when exposed to flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- Eye protection must have side protection when there is a hazard from flying objects. Detachable side protector meetings are acceptable.
- Employees who wear prescription lenses must wear eye protection that fits over the lenses without disturbing the proper position of the prescription lenses, or ANSI-approved prescription lenses with side shields.
- Employees who are exposed to potentially injurious light radiation must use filter lenses that have a shade number appropriate for the work being performed.
- Employees whose work exposes them to laser beams must wear laser safety goggles that protect the wavelength of the laser.

Department:	Location:
Jobs included in the assessment:	
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> Minor first aid required <input type="checkbox"/> Serious, not life threatening <input type="checkbox"/> IDLH: life threatening	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Potential hazards</b> <input type="checkbox"/> Dust, dirt, metal, or wood chips from chipping, grinding, sawing, hammering, and from power tools <input type="checkbox"/> Chemical splashes from corrosive substances, hot liquids, and solvents <input type="checkbox"/> Objects such as tree limbs, chains, tools, and ropes that swing into the eyes or face <input type="checkbox"/> Radiant energy from welding and harmful rays from lasers or other radiant light	<b>PPE required</b> <input type="checkbox"/> Chemical goggles/face shield <input type="checkbox"/> Chemical splash goggles <input type="checkbox"/> Glasses/goggles w/face shield <input type="checkbox"/> Glasses/goggles w/face shield <input type="checkbox"/> Impact goggles <input type="checkbox"/> Leather welding hood <input type="checkbox"/> Safety glasses w/side shields <input type="checkbox"/> Safety goggles w/face shield <input type="checkbox"/> Welding goggles <input type="checkbox"/> Welding helmet/shield w/ safety glasses and side shields <input type="checkbox"/> None required

## Head protection

- Employees must wear hardhats when they work where there is a potential for head injuries from falling or flying objects.
- Employees must use hard hats designed to reduce electrical shock hazards when they're working near exposed electrical conductors that could contact their heads.
- Employees who are exposed to power-driven machinery or to sources of ignition must wear caps or other head covering that completely covers their hair.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> <input type="checkbox"/> Overhead objects that could fall <input type="checkbox"/> Exposed pipes or beams (less than 6.5 feet overhead) <input type="checkbox"/> Energized electrical equipment	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> Minor first aid required <input type="checkbox"/> Serious, not life threatening <input type="checkbox"/> IDLH: life threatening	<b>PPE required</b> <input type="checkbox"/> Head protection that meets ANSI Z89.1 requirements: <input type="checkbox"/> Impact Type I <input type="checkbox"/> Impact Type II <input type="checkbox"/> Electrical Class G (general) <input type="checkbox"/> Electrical Class E (electrical) <input type="checkbox"/> Electrical Class C (conductive) <input type="checkbox"/> None required

## Foot protection

Employees must wear protective footwear when they work where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or electrical hazards.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> <input type="checkbox"/> Heavy objects such as barrels or tools that might roll onto or fall on a worker's feet <input type="checkbox"/> Sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes <input type="checkbox"/> Molten metal <input type="checkbox"/> Hot, wet, or slippery surfaces <input type="checkbox"/> Energized electrical equipment	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> Minor first aid required <input type="checkbox"/> Serious, not life threatening <input type="checkbox"/> IDLH: life threatening	<b>PPE required</b> <input type="checkbox"/> Steel toe safety shoes <input type="checkbox"/> Leather boots or safety shoes w/metatarsal guards <input type="checkbox"/> Slip resistant soles <input type="checkbox"/> Puncture resistant soles <input type="checkbox"/> Chemical resistant boots/covers <input type="checkbox"/> Rubber boots/closed top shoes <input type="checkbox"/> Insulated boots or shoes <input type="checkbox"/> None required

## Leg protection

- Workers exposed to hot substances or dangerous chemical spills must wear leggings or high boots made of leather, rubber, or other suitable material.
- Workers who use chain saws must wear chaps or leg protectors that cover the leg from the upper thigh to midcalf. Leg protectors must be made from material that resists cuts from the chain saw.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> <input type="checkbox"/> Hot substances <input type="checkbox"/> <u>Dangerous</u> chemicals <input type="checkbox"/> Cuts from chain saws	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> Minor first aid required <input type="checkbox"/> Serious, not life threatening <input type="checkbox"/> IDLH: life threatening	<b>PPE required</b> <input type="checkbox"/> Leggings or boots: penetration resistant <input type="checkbox"/> Leggings or boots: chemical resistant <input type="checkbox"/> Leggings or boots: molten metal resistant <input type="checkbox"/> Chaps or leg protectors: resists cuts from chain saws <input type="checkbox"/> None required

## Hand protection

- Employees must use appropriate hand protection when their hands are exposed to harmful substances; severe cuts or lacerations; abrasions; punctures; chemical burns; thermal burns; and extreme temperatures.
- Employers must base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task, conditions present, duration of use, and the hazards identified.
- Employees must not wear gloves when their hands could be caught in moving parts.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> <input type="checkbox"/> <u>Harmful</u> or hazardous temperatures <input type="checkbox"/> <u>Chemicals</u> that can be absorbed into the skin or cause burns <input type="checkbox"/> <u>Energized</u> electrical equipment <input type="checkbox"/> <u>Mechanical</u> equipment that can cause bruises, abrasions, cuts, punctures, fractures, or amputations	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> <u>High</u> <input type="checkbox"/> <u>Medium</u> <input type="checkbox"/> <u>Low</u>
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> <u>Minor</u> first aid required <input type="checkbox"/> <u>Serious</u> , not life threatening <input type="checkbox"/> <u>IDLH</u> : life threatening	<b>PPE required</b> <input type="checkbox"/> <u>Leather</u> /cut resistant gloves <input type="checkbox"/> <u>General-purpose</u> work gloves <input type="checkbox"/> <u>Chemical</u> resistant gloves <input type="checkbox"/> <u>Insulated</u> gloves <input type="checkbox"/> <u>Heat/flame</u> resistant gloves <input type="checkbox"/> <u>Latex</u> or nitrile gloves <input type="checkbox"/> <u>Electrician's</u> insulated rubber gloves; <input type="checkbox"/> <u>Cotton</u> , leather, or anti-vibration gloves <input type="checkbox"/> <u>None</u> required

## Hearing protection

- Hearing protectors (plugs or muffs) must be worn by workers exposed to an 8-hour time-weighted average of 85 decibels or greater.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> <input type="checkbox"/> <u>Harmful</u> or hazardous temperatures <input type="checkbox"/> <u>Chemicals</u> that can be absorbed into the skin or cause burns <input type="checkbox"/> <u>Energized</u> electrical equipment <input type="checkbox"/> <u>Mechanical</u> equipment that can cause bruises, abrasions, cuts, punctures, fractures, or amputations	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> <u>High</u> <input type="checkbox"/> <u>Medium</u> <input type="checkbox"/> <u>Low</u>
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> <u>Minor</u> first aid required <input type="checkbox"/> <u>Serious</u> , not life threatening <input type="checkbox"/> <u>IDLH</u> : life threatening	<b>PPE required</b> <input type="checkbox"/> <u>Leather/cut</u> resistant gloves <input type="checkbox"/> <u>General-purpose</u> work gloves <input type="checkbox"/> <u>Chemical</u> resistant gloves <input type="checkbox"/> <u>Insulated</u> gloves <input type="checkbox"/> <u>Heat/flame</u> resistant gloves <input type="checkbox"/> <u>Latex</u> or nitrile gloves <input type="checkbox"/> <u>Electrician's</u> insulated rubber gloves; <input type="checkbox"/> <u>Cotton</u> , leather, or anti-vibration gloves <input type="checkbox"/> <u>None</u> required

## Respiratory protection

Appropriate respirators are required when workers are exposed above permissible exposure limits(PEL) for specific air contaminants.

Department:	Location:
Jobs included in the assessment:	
<b>Potential hazards</b> <input type="checkbox"/> <u>Nuisance dust/mist</u> <input type="checkbox"/> <u>Welding fumes</u> <input type="checkbox"/> <u>Asbestos</u> <input type="checkbox"/> <u>Pesticides</u> <input type="checkbox"/> <u>Isocyanates</u> <input type="checkbox"/> <u>Paint spray</u> <input type="checkbox"/> <u>Organic vapors</u> <input type="checkbox"/> <u>Acid gases</u> <input type="checkbox"/> <u>Oxygen deficient/ toxic or IDLH atmosphere</u>	<b>Likelihood of injury without PPE</b> <input type="checkbox"/> <u>High</u> <input type="checkbox"/> <u>Medium</u> <input type="checkbox"/> <u>Low</u>
<b>Severity of a potential injury without PPE</b> <input type="checkbox"/> <u>Minor</u> first aid required <input type="checkbox"/> <u>Serious</u> , not life threatening <input type="checkbox"/> <u>IDLH</u> : life threatening	<b>PPE required</b> <b>Air-purifying respirators</b> <input type="checkbox"/> <u>Filtering</u> face piece (dust mask) <input type="checkbox"/> <u>Particulate</u> -removing respirator <input type="checkbox"/> <u>Gas-and-vapor</u> -removing respirator <input type="checkbox"/> <u>Combination</u> aerosol filter/gas or vapor-removing respirator <input type="checkbox"/> <u>Powered</u> air-purifying respirator <b>Atmosphere-supplying respirators</b> <input type="checkbox"/> <u>Supplied</u> -air respirator <input type="checkbox"/> <u>Self-contained</u> breathing apparatus (SCBA) <input type="checkbox"/> <u>Combination</u> self-contained breathing apparatus and air-line respirator <input type="checkbox"/> <u>Combination</u> air-purifying and atmosphere-supplying respirators <input type="checkbox"/> <u>None</u> required



## **PPE ASSESSMENT CRITERIA**

### **Eye & Face Protection**

[OAR 437-002-0134](#) (8)

#### **Impact**

Flying fragments, objects, chips, particles or dirt from work operations (i.e. chipping, grinding, machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.

**Type Of Protection:** Safety glasses with side shield protection, splash goggles, sand blasting helmet. For severe exposure add the use of face shield.

#### **Heat**

Hot sparks, splashes from molten material, high temperature exposure (i.e. furnace operations, pouring, casting, hot dipping, and welding.

**Type Of Protection:** Face shields, goggles, or safety glasses with side protection. For severe exposure add the use of face shield.

#### **Chemicals**

Splash or irritating mists (i.e. acid and chemical handling: transferring, degreasing)

**Type Of Protection:** Chemical splash goggles. For severe exposure add the use of face shield.

#### **Dust**

Nuisance dust: irritation of the eyes (i.e. woodworking, buffing, general dusty conditions that can cause eye irritation.)

**Type Of Protection:** Goggles, safety glasses with side shields, sand blasting helmets. .

#### **Light and/or Radiation (optical damage)**

such as UV or IR light (see Table 2-I 1 Filter Lenses for Protection Against Radiant Energy in OAR 437, Division 2, Subdivision I)

#### **Welding: Arc**

**Type Of Protection:** Welding helmets or welding shields: typical minimum protective shades 7-11

#### **Welding: Plasma Arc Welding**

**Type Of Protection:** Welding helmets or welding shields: typical minimum protective shades 6-11

#### **Welding: Gas**

**Type Of Protection:** Welding goggles or welding shields: typical minimum protective shades 4-6

#### **Cutting, torch brazing, torch soldering**

**Type Of Protection:** Welding glasses or welding shields typical minimum protective shades 2-5

#### **Glare**

**Type Of Protection:** Glasses with shaded or special purpose lenses

## Head Protection

### [OAR 437-002-0134 \(9\)](#)

Head protection must comply with any of the following consensus standards:

- *ANSI Z89.1-2009, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6; or*
- *ANSI Z89.1-2003, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6; or*
- *ANSI Z89.1-1997, American National Standard for Industrial Head Protection, which is incorporated by reference in 1910.6.*

## Impact and penetration hazards caused by falling objects

### Electrical shock and burn hazard

**Type Of Protection:** Head protection that meets ANSI Z89.1 requirements:

- Impact Type I
- Impact Type II
- Electrical Class G (general)
- Electrical Class E (electrical)
- Electrical Class C (conductive)

## Foot Protection

### [OAR 437-002-0134 \(10\)](#)

Protective footwear must comply with any of the following consensus standards:

- ASTM F-2412-2005, Standard Test Methods for Foot Protection, and ASTM F-2413-2005, Standard Specification for Performance Requirements for Protective Footwear, which are incorporated by reference in 1910.6; or
  - ANSI Z41-1999, American National Standard for Personal Protection: Protective Footwear, which is incorporated by reference in 1910.6; or
  - ANSI Z41-1991, American National Standard for Personal Protection: Protective Footwear, which is incorporated by reference in §1910.6
1. Impact and Compression: Safety shoes or boots with impact protection are required for carrying or handling materials such as packages, parts or heavy tools, which could be dropped and for other activities where objects might fall onto the feet.
  2. Puncture protection is needed where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal, etc. could be stepped on by employees, causing a foot injury.
  3. Electrical: If there are electrical hazards from live wires, then boots rated for protection against electrical hazards are needed.

## Electrical Protection

### [OAR 437-002-0134 \(1910.137\)](#)

This is special protection for working on or near exposed energized conductors or systems. Only qualified electrical workers are permitted. The type of equipment includes non-conductive head protection, insulated tools or handling equipment, fuse handling equipment insulated for circuit

voltage, nonconductive ropes and handlines, protective shields/barriers or insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber. The specific criteria and approvals are provided in the rules that must be followed.

## **Hand Protection**

### ***OAD 437-002-134 (12)***

Gloves may be needed for the prevention of cuts, abrasions, burns, and skin contact with chemicals that can cause local or systemic effects following skin exposure. Selection of the glove material and style depend on type of contact, duration of exposure, and type of material. Glove selection charts that are published by glove manufacturers and technical bulletins will be used. The selection of appropriate hand protection will be based on evaluating characteristics of the hand protection based on the task to be performed, the type of conditions that are present, the duration of the use of the protection, and any potential hazards that have been identified. Gloves will not be worn by employees who are exposed to equipment or tools with rotating or moving parts in which the gloves could be caught up in.

## **Respiratory Protection Program**

### ***OAD 437, Division 2, Subdivision I (1910.134)***

This written program establishes policies and procedures for the effective use of respirators to protect our employees from airborne contamination exposures. These procedures are mandatory.

## **Definitions**

***Air purifying:*** Air purifying respirators use chemical or mechanical filter cartridges to clean the contaminated air before it is breathed in by the wearer.

***Atmosphere supplying:*** Atmosphere supplying respirators provides the wearer with uncontaminated breathing air and includes supplied air respirators (SARs) and self-contained breathing apparatus (SCBA).

***Assigned protection factor (APF):*** The workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program.

***Canister or cartridge:*** A container worn on the respirator which contains a filter, sorbent or catalyst or a combination which removes specific contaminants from the air drawn through it.

***End of Service Life Indicator (ESLI):*** System that warns the user of the respirator that the end of adequate respiratory protection is approaching (i.e. sorbent is approaching saturation and is no longer effective).

***Facepiece:*** The main part of the respirator which fits tightly on the face and includes the headband, exhalation and inhalation valves and connection place for the canister or cartridges.

***Filtering Facepiece:*** Dust mask typically where the entire facepiece is composed of a filtering medium.

***Demand Respirator:*** Atmosphere supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

***High efficiency particulate air filter (HEPA):*** A type of filter that removes from the breathing air, 99.97% or more particles 0.3 micrometers in diameter or larger.

**Maximum use concentration (MUC):** The maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance.

**Note:** *The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC based on relevant available information and informed professional judgment.*

**NIOSH:** The National Institute of Occupational Safety and Health is a Federal Agency who conducts research and tests certain types of safety equipment, including respirators.

### **General Responsibilities**

**Supervisor:** It is the direct responsibility of the supervisor to ensure the respiratory protection program is implemented and that all employees are trained in the use of respiratory protection. In addition, the supervisor is also responsible for the following things:

1. Ensuring that appropriate respirators are chosen for use in the workplace.
2. Ensuring that medical evaluations are conducted to identify if employees are medically able to wear respirators in the workplace.
3. Conducting fit testing for tight fitting respirators.
4. Ensuring employees are trained in the use of respiratory protection.
5. Conducting employee training on the use respiratory hazards that employees are potentially exposed to, what respirators would be used based on the hazard, the proper use of respirators (including how to put them on and take them off, their limitations, how to maintain them, and when to replace them.)
6. Maintaining written records on the monthly inspection of emergency use respirators.
7. Maintaining the respiratory protection written program and annual evaluations of the program.

**Employees:** Employees must follow all safety procedures as outlined in this program, Oregon-OSHA rules, and manufacturer's recommendations regarding respiratory protection. Employees are required to inspect their equipment prior to use each day to ensure that the equipment is functional. Any problems found with the equipment need to be reported to your supervisor. Employees who are required to use tight fitting respirators are responsible for completing a medical questionnaire and examination to ensure they can use a respirator. Additionally, the employee will be fit tested prior to the use of the respirator, whenever a different respirator facepiece is used, and at least annually. Fit testing will also need to be repeated should the employee's physical condition change that could alter or affect the respirator fit. This would include changes in weight or facial hair, facial scarring, dental changes, etc.

## Selection of Respirators

**Types of respirators:** The following table outlines the respirator selection process.

Work Condition	Assigned Employees	Contaminant	Type of Respirator
<b>Non-Mandatory Respirator Selection (see information in Appendix D in Oregon OSHA Respiratory Protection Act Standard Regulations under 1910.134)</b>			

1. Only the National Institute of Occupational Safety and Health (NIOSH) approved respirators have been selected for usage. These respirators have been chosen based on the type of hazard, needed level of protection and maximum use concentrations. Different sizes and styles of respirators are
2. The specific selection will be based on the fit testing protocols to determine the best style for each employee to ensure proper fit and comfort.

## Protection Factors

We will use the assigned protection factors listed in Table 1 of the Oregon OSHA Respiratory Protection Standard to select a respirator that meets or exceeds the required level of employee protection. When using a combination respirator (e.g., airline respirators with an air-purifying filter), employers must ensure that the assigned protection factor is appropriate to the mode of operation in which the respirator is being used.

1. Dust masks are filtering face pieces and are the same as a half-face piece respirator which are approved for 10 times the limits.
2. The use life of each respirator or cartridge will vary depending on the job, duties and actual time in use. Each respirator will have some limitations; thus, the manufacturer's instructions and recommendations must be reviewed. Air purifying respirators (disposable dust mask, half or full face piece cartridge respirators) cannot be used in confined spaces where the environment may have less than 19.5% oxygen.

## **Lifespan of a Respirator**

The use life of each respirator or cartridge will vary depending on the job, duties and actual time in use. Each respirator will have some limitations; thus, the manufacturer's instructions and recommendations must be referred to. Air purifying respirators (disposable mask, half face piece cartridge respirators) cannot be used in confined spaces where the environment may have less than 19.5% oxygen or in hazardous chemical operations when the exposure levels are unknown.

## **Self-Contained Breathing Apparatus(SCBAs):**

In the following operations, respirators are for use during an immediately dangerous situation to life and health (IDLH). SCBAs are for use during the following operations:

1. Firefighters in firefighting situations and exercises
2. Public Works Sewer and Water Treatment Changeout of Chlorine Gas Tanks
3. Entering confined spaces where oxygen levels are low or toxic gas levels are high for rescue purposes

When entering IDLH environments, SCBA air tanks must be at least 90% full prior to entry. SCBA air tanks should be refilled according to the maximum time use as specified on the tank, or when the low air alarm sounds.

## **Chemical Canister/Cartridge Respirators**

These respirators are vapor and gas-removing, using a cartridge attached to the face piece containing chemicals to trap or react with specific vapors or gases, which remove it from the air breathed.

The specific use time will be provided to each chemical cartridge user based on a concentration mathematical model calculations of estimated use time and chemical concentrations. This information will be specific to a job or operation. Your supervisor will provide specific information but a general policy on use time of respirators is to replace the respirator or cartridge when:

Concentration mathematical model provides recommended end of service time.

1. An odor or taste is detected.
2. It becomes hard to breathe through.
3. The cartridge or respirator is damaged.

**HEPA Cartridge:** The HEPA cartridges should be changed whenever the operator notes any additional breathing resistance.

**Non-mandatory Dust Mask:** Dust masks should be changed whenever the operator notes any additional breathing resistance.

*There are several limitations in the use of chemical cartridge respirators, which are important to understand.*

1. They do not supply oxygen and thus cannot be worn in oxygen deficient atmospheres.
2. Respirators are designed for protection against specific gases or vapors. Thus, users must take care that the proper cartridge is selected.
3. Cartridges can only be used for protection against contaminants with good warning properties (smell, taste, and irritation).
4. The cartridges are not approved for high concentrations of the contaminant.

5. Respirators must be protected from the atmosphere while in storage because they tend to pick up water vapor from the air which reduces the service life.

## **Respirators for Particulate Exposures**

### **Filter Notation**

The service life of filters in all three of the approval categories of filter efficiency degradation (N, R, and P-series) is limited by hygiene, damage, and breathing resistance.

All filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance (e.g. causing discomfort to the wearer).

R (for Resistant to oil) and P (for oil Proof) series filters can be used for protection against oil or non-oil aerosols. N (for Not resistant to oil) series filter should be used only for non-oil aerosols.

### **Filter Efficiencies**

Each of the filter series (N, R and P) have three filter efficiencies that can be selected. These are based on how efficient the filter is with particles down to 0.3 microns. They can be 95%, 99%, and 99.97% (labeled 100% and commonly called HEPA filters).

For general wood dust and dust exposures 95% is effective. For paint spray mists, the 99% filter chemical cartridge is effective. For highly toxic dusts such as asbestos, lead, and silica, 99.97% (HEPA) filters are to be used. Dust masks also are available in each of these filter types and efficiencies.

### **Approval Notation**

Each respirator container for particle exposure protection now has a TC (testing & certification) number. The label will be TC-84A-00X. The 84A notes that this is a particulate filter that does not have any approval for use in atmospheres containing less than 19.5% oxygen. Additional limitations are provided on the label that the user needs to understand

### **Filter Replacement Time**

If the environment has high dust exposure (loading 200 mg) through the day's use, then all the filters need to be replaced after 8 hours or less usage.

If the R-series are used with oil exposures, they need to be replaced after 8 hours of service time. P-series is limited only by hygiene damage, and breathing resistance if the exposures are not high.

### **Summary Of Major Limitations**

1. Mechanical filters do not provide oxygen, so they must not be used in oxygen-deficient atmospheres.
2. They provide no protection against gases or vapors.
3. There is a pressure drop through the filter medium; therefore, there is some breathing resistance.

## **Use and Availability of Respirators**

1. Employees that are required to wear respirators will wear an approved respirator selected for the task exposure hazard. The respirator needs to be properly always fitted while in use.
2. Employees required to wear a respirator will be provided with a respirator issued by the supervisor with proper replacement parts, cartridges and filters, and cleaning materials as appropriate. The supervisor is responsible for ensuring that employees are provided respirators that are required by this policy.
3. The disposable respirators (dust masks) are available from the parts room or from the supervisor. These are to be used for low level dust exposures and are non-mandatory (voluntary). Employees need approval to use these respirators to ensure that they have received proper training and understand the maintenance and use of the dust mask, as well as the limitations.

## **Medical Evaluations for Respirator Use**

### **Purpose of Medical Evaluations**

1. Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Therefore, medical evaluations are required for all employees who wear a respirator. These medical evaluations determine the employee's ability to use a respirator before they are fittested or used on the job.
2. Oregon OSHA applies this standard if the air contamination level or conditions could result in overexposures to the permissible exposure limit or if the worker voluntarily wears the respirator. The voluntary use of dust mask does not require a medical evaluation, but it does require that basic information about the respirator be provided. See Appendix 6, page 184, for the Voluntary User Information.
3. The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the physician deems necessary to make a final determination, which will be provided at no cost to the employee.

### **Medical Certification**

Medical certification of an employee is required for respirator use. The purpose of a medical evaluation is twofold:

1. To determine if an individual is medically fit to wear a respirator.
2. To determine if an individual needs work restrictions, given the job that he or she is required to do.

**Note:** *Job descriptions or job analysis evaluations need to be available to the physician or licensed healthcare professional (LHCP) doing the evaluation.*

### **Administration of the Medical Questionnaire and Examinations**

The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. Employees will have the opportunity to discuss the questionnaire and examination results with the physician or LHCP. A sample respirator medical evaluation questionnaire can be found in Appendix C of the Oregon OSHA Respiratory Standard (1910.134). See <http://osha.oregon.gov/OSHArules/div2/div2I.pdf>



## **Additional Medical Evaluations**

Additional medical evaluations will be provided under the following conditions:

1. An employee reports medical signs or symptoms that are related to their ability to use a respirator.
2. A physician, manager, or HR representative will inform the supervisor that an employee needs to be re-evaluated.
3. Information from the respiratory protection program, including observations made during fit testing and program evaluation, that indicates a need for employee
4. re-evaluation.
5. A change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed on an employee.

## **Retention of Medical Records**

Preservation of medical records is required to be followed per Oregon OSHA's rule covering employees' access to medical records [OAR 437, Division 2, Subdivision Z \(1910.1020\)](#), which requires that the records be retained at least for the duration of employment plus 30 years. Employee exposure records must be retained for at least 30 years. The medical records can be kept by the evaluating physician and the medical clearance form is kept in a confidential medical file, if the employee signs the medical release form. If an employee works for one year or less, the rules allow an employer to give the employee his/her records and not retain them. If they are not given to the employee, then the 30-year retention time is in effect per the OR-OSHA requirements.

## **Training of Employees**

Each ***mandatory respirator wearer*** will receive initial training prior to being assigned work that requires use of a respirator and will receive annual training thereafter.

Each ***non-mandatory respirator wearer*** will receive information about the respirator in terms of protection limits, how to wear it and when to dispose of the mask or change cartridges. The non-mandatory respiratory users will also be provided the basic information on respirators found in Appendix D of the Oregon OSHA respiratory protection standard.

## **Training for Mandatory Respirator Users**

The mandatory respirator protection training includes the following training topics:

1. Contents of the written program and where it is located.
2. Respiratory hazards to which the employees are potentially exposed to.
3. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
4. How to put on and take off the respirator.
5. Respirator use and limitations.
6. Cleaning, maintenance, and storage.
7. How to recognize medical signs and symptoms that limit effective use of a respirator.
8. How to inspect a respirator.
9. Field fit tests (positive and negative pressure tests).

The supervisor will keep the training records. Each user must understand and apply the contents of this respirator program to the daily use, care and storage of the equipment. Written training

materials are available from the supervisor.

### **Fitting Of Respirators**

Respirator fit is extremely important. Respirator fit testing is used to test how well the tight-fitting respirator facepiece seals against the face. If there is not a good face-to-facepiece seal, the contaminants may pass around the facepiece and be breathed into the lungs.

It is important to realize that not everyone can wear a respirator. OR-OSHA specifically states that you should not wear a respirator if:

1. You wear glasses that break the skin to mask seal (inserts are available).
2. You have facial hair passing between the sealing surface of the respirator and the face.
3. You are unable to get an adequate fit on a respirator.
4. Your physician finds you medically unable to wear the respirator.

Respirator fit testing may be done using two basic methods: qualitative or quantitative. Most employers use qualitative methods since quantitative procedures may be expensive and require complicated equipment. Currently only certain rules require quantitative fit testing. These include lead and asbestos regulations once levels reach a certain exposure level.

### **Positive and Negative Pressure Tests**

Each time a respirator is put on, and prior to the qualitative fit testing procedures, the wearer should conduct a positive and a negative pressure test to ensure that the respirator is seated correctly against the face.

The negative pressure test is performed on any respirator with a tight-fitting facepiece. For cartridge respirators, the test consists of covering the air inlet lightly and inhaling lightly, then holding the breath for a few seconds. The common leak areas are around the nose and chin.

The positive pressure test is performed on respirators with tight-fitting facepieces and both inhalation and exhalation valves. It is done by blocking the exhalation valve and exhaling lightly. Again, air leakage can be felt if a leak is evident.

If such leaks are found, the respirator should be adjusted and retested. If a fit cannot be achieved, then a different size or style facepiece needs to be fitted.

### **Fitting of SCBA Respirators**

Fit testing of air supplying respirators will be done using the same qualitative fit test protocols as used for the air purifying respirators. SCBA facepieces used for fit testing will have cartridge sampling adapters so the facepiece can be worn and tested in the negative pressure mode.

### **Qualitative Fit Test Methods**

Qualitative Fit Testing is done with test agents. This test protocol will be used for all types of respirators.

#### **1. Banana Oil (isoamyl acetate) Test:**

Air purifying respirators must be equipped with organic vapor or pesticide cartridges for this test. The test chemical smells like ripe bananas. The test consists of administering the chemical and

having the respirator wearer determine whether he/she can smell the odor of bananas.

The banana oil test has certain disadvantages. Some individuals cannot smell the banana oil, so you need to test the individual after you have performed the fit test to ensure that they can indeed detect the odor. Also, if an individual smells higher concentrations of the banana oil, they can develop odor fatigue and upon immediate retesting, may not be able to detect the material.

## **2. Irritant Smoke Test:**

Smoke tubes (stannic oxychloride smoke tubes) used to test ventilation systems can also be used as an effective chemical to test a respirator wearer's fit. This test can be used for half or full-face air purifying respirators. The respirators must be equipped with high efficiency (HEPA) cartridge filters before starting the test.

Since the chemical used to produce the smoke is irritating to the eyes and mucous membranes, additional care must be taken in conducting this type of fit test. Smoke tubes are available from safety equipment supply stores.

***Prior To Fit-Testing, An Employee Must Pass the Medical Evaluation.*** Employees not capable of wearing a negative pressure respirator will not be assigned job tasks requiring respirator use.

Proper fitting of respirators is essential if employees are to receive the necessary protection from airborne contamination hazards. Air which passes around the facepiece of the respirator, rather than through it, is not being filtered. To ensure that a good face seal can be achieved, the respirator needs to be carefully fitted.

## **3. The following protocol will be followed to fit the initial wearer and then to be used each time the respirator is used:**

- The respirator straps must be worn in the correct place.
- Adjust the headband until they are tight yet comfortable.
- To adjust the facepiece properly, simply position the chin firmly in the chin cup and manually shift the facepiece until the most comfortable position is located. Make the final adjustments on the headbands and do not break the nose seal.
- A positive and negative pressure test needs to be performed every time a respirator is worn.
- The negative pressure test is performed on a half or full-facepiece respirator designed for filters or chemical cartridges. The test consists of covering the air inlet lightly and inhaling slightly. If a leak exists, the air can be felt as it enters. The common leak areas are around the nose and chin.
- The positive pressure test is performed by blocking the exhalation valve and exhaling lightly. Again, air leakage can be felt if a leak is evident. If such leaks are found, the respirator is to be adjusted and retested.
- If a fit cannot be achieved, then a different size or style facepiece needs to be fitted.

## **Maintenance of Respirators**

Respirators are to be cleaned after each day's use with alcohol preps and placed dry in a clean container or plastic bag for storage. More thorough cleaning is needed for dirty respirators or those shared which involves performing the following procedure:

1. Remove the cartridges or filters from the facepiece. The filters and cartridges must not be washed. All cartridges will be replaced during the weekly cleaning for respirators used

infrequently throughout the week. Respirators used in environments with high concentrations of air contaminants may need to have the cartridge changed daily or more frequently.

2. Immerse the respirator face piece in a warm water solution of commercial disinfectant liquid. The respirator should be scrubbed gently with a cloth or soft brush. Make sure that all foreign material is removed from all the surfaces of the rubber exhalation valve, plastic exhalation valve seats and face seal.

**Note:** *The inhalation, exhalation valves, and valve cover will be replaced during the quarterly cleaning.*

3. After washing and disinfecting the respirator, rinse in clean warm water and allow the respirator to air dry before storing.
4. After the respirator is dry, store it in a clean container. Respirators should not be stored where chemicals are used or stored. Respirators should not be hung from nails on the walls or in chemical storage areas. The respirators must be stored in a normal position (which means that they should not be stretched or stored under objects which could cause the facepiece to become warped).
5. Any respirator malfunction will be reported to your supervisor, who will evaluate the problem and ensure that proper replacement parts or a new respirator is supplied to the employee.

### **Respirator Inspection**

Each person assigned a respirator will be responsible for maintaining the equipment and routinely inspect the respirator before and after use for worn or dirty parts. ***Worn Parts Will Be Replaced Immediately.***

The inspection will include:

#### **Air-purifying Respirators:**

Check facepiece for:

1. Dirt
2. Cracks
3. Tears
4. Holes
5. Distortion

Check head straps for:

1. Breaks
2. Tears
3. Loss of elasticity
4. Broken buckles or attachments

#### **SCBA's and Airline Systems:**

SCBA's and airline systems used routinely are to be checked after each use. Those used for emergencies or infrequently need to be checked monthly. The checks are to assure that the equipment is kept clean and in proper working condition. The respirator inspection will include an evaluation of:

1. Tightness of the connections.

2. Condition of the facepiece.
3. Condition of the headbands.
4. Condition of the cartridges or tank pressure.
5. Condition of the valves.
6. Pliability and cleanliness of the facepiece material.

### **Respirator Program Evaluation**

It is important that both the respirator wearer and our managers evaluate respirator use and program effectiveness. It is critical that the appropriate respirator be worn correctly.

If an employee notices any of the following, they are to immediately leave the area and replace the respirator if:

1. Breathing becomes difficult.
2. Dizziness or other distress occurs (see your supervisor immediately).
3. You sense irritation, smell or taste contaminants.
4. The respirator becomes damaged.

The overall program will be evaluated by the supervisor. This will involve:

1. Conducting evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.
2. Regularly consulting employees are required to use respirators to assess the employee's views on program effectiveness and to identify any problems.
3. Program evaluation forms are in Appendix 2, page 14.17.
4. Factors to be assessed include, but are not limited to:
  - a. Respirator fit.
  - b. Appropriate respirator selection for the hazards.
  - c. Proper respirator use.
  - d. Proper respirator maintenance and inspections.

The supervisor will evaluate the program as needed to determine the overall effectiveness of the program and needed updates. If deficiencies are found, then additional employee training will be given, and more frequent evaluations will be made. An evaluation checklist is found in Appendix 5, page 14.26.

# RESPIRATORY PROTECTION PROGRAM

## Respiratory Protection Program Action Plan Summary and Forms

This chart describes the respiratory program’s responsibilities and identifies appropriate forms to be used as part of the respiratory protection program and evaluation.

Action	Responsibility	Form
1. Employee is assigned mandatory respirator use job functions and wears full or ½ face piece respirator.	Supervisor	Oregon OSHA medical questionnaire for medical evaluation.
2. The questionnaire is forwarded to the contract medical evaluator by the employee.	Employee sends questionnaire and based on evaluation, schedules a medical exam for the employee.	Sends appointment memo to employee regarding scheduled medical evaluation (in house memo or email).
3. Medical evaluation and medical clearance.	Supervisor receives medical clearance and schedules fitting and fit testing with employee.	Fit-Test Record (may be done by supplier or outside consultant).
4. Employee completes Respirator Training.	Supervisor provides or schedules training.	Respirator Training Record.
5. Respirator program evaluation.	Supervisor periodically evaluates respirator conditions, use, and employee’s understanding of program.	Respirator program periodic checklist.
6. Tracking employee for annual retraining and fit testing. Follows up on medical evaluation retest requirements per LHCP.	Manager	Maintains a data log to ensure that employees are re-fit and trained annually. Proper follow-up on medical evaluations.

## Appendices

**Appendix 1:** Emergency Use Monthly Inspection Record

**Appendix 2:** Respiratory Protection Program Evaluation

**Appendix 3:** Oregon OSHA Respirator Medical Evaluation

### Questionnaire (Mandatory)

**Appendix 3.1:** Medical Clearance Request for Respirator User

**Appendix 4:** Respirator Assignment & Fit Record

**Appendix 5:** Respirator Program Periodic Checklist

**Appendix 6:** Voluntary Respiratory User Information

# Emergency Use Monthly Inspection Record

Type of Emergency:	Location:
Employee(s) Involved:	Duration:
Date of Inspection:	Inspector:
Type of Respirator Worn:	
Cleanliness Of <u>The</u> Equipment:	
<b>Condition Of <u>The</u> Equipment</b>	
Facepiece:	Harness assembly:
Inhalation valve:	Hose Assembly:
Exhalation valve:	Gaskets:
Headbands:	Regulator Condition:
Cartridge holder or Tank Pressure:	Other defects:

# Respiratory Protection Program Evaluation

A. Program Administration	
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is there a written policy which assigns program responsibility, accountability, and authority?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is overall program responsibility given to one person who is knowledgeable and can coordinate all aspects of the program?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Can <u>feasible</u> engineering controls or work practices eliminate the need for respirators?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are <u>there</u> written procedures/statements covering the various aspects of the respirator program, including:
<input type="checkbox"/> Yes <input type="checkbox"/> No	designation of authority and responsibility
<input type="checkbox"/> Yes <input type="checkbox"/> No	fitting
<input type="checkbox"/> Yes <input type="checkbox"/> No	respirator selection
<input type="checkbox"/> Yes <input type="checkbox"/> No	training
<input type="checkbox"/> Yes <input type="checkbox"/> No	purchase of approved equipment
<input type="checkbox"/> Yes <input type="checkbox"/> No	maintenance, storage, and repair
<input type="checkbox"/> Yes <input type="checkbox"/> No	medical aspects of respirator usage
<input type="checkbox"/> Yes <input type="checkbox"/> No	inspection
<input type="checkbox"/> Yes <input type="checkbox"/> No	issuance of equipment
<input type="checkbox"/> Yes <input type="checkbox"/> No	use under special conditions
<input type="checkbox"/> Yes <input type="checkbox"/> No	when and where respirators are required
B. Program Operation	
<b>1. Respiratory protective equipment selection:</b>	
<input type="checkbox"/> Yes <input type="checkbox"/> No	Have work area conditions and worker exposures been properly evaluated?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are respirators selected <u>on the basis of</u> hazards to which the workers are exposed?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are selections made by persons knowledgeable of proper selection procedures?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are only NIOSH approved respirators purchased and used?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Do the respirators provide adequate protection for the specific hazard in the concentration found?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Has a medical evaluation of the prospective user been made to determine physical and psychological fitness to wear the selected respirator?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Where practical, have respirators been issued to single users?
<b>2. Respiratory protective equipment fitting:</b>	
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are the users given the opportunity to try on several respirators to determine the one with the best fit?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the fit test done before the wearer begins using the respirator in the work area, both on initial assignment and <u>on a daily basis</u> (positive and negative pressure tests)?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are users who wear glasses properly fitted?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the facepiece-to-face seal tested using one of the methods described earlier?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are workers prohibited from entering contaminated work areas when they have facial hair or other characteristics which prohibit the use of tight-fitting facepieces?
<b>3. Respirator use in the work area:</b>	
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are respirators being worn correctly?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Are workers keeping respirators on all the time while in the work area?



<b>4. Maintenance of respiratory protective equipment:</b>		
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are respirators cleaned and sanitized after each use (when different people use the same device) or as frequently as necessary (for devices issued to individual users)?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are respirators stored in a way that will protect them from dust, sunlight, heat, and chemicals?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Is storage in lockers, <u>tool boxes</u> , or work areas permitted only if the respirator is in a carton, carrying case, or closed container?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are respirators inspected before and after each use, and after cleanup?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are individuals instructed on inspection methods?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are cartridges and filters changed on a regular basis?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are respirators designated as "Emergency Use" inspected at least monthly (in addition to after each use). Is a record kept of monthly "Emergency Use" inspections?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are replacement parts the same brand as the respirator?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are repairs made by manufacturers or manufacturer-trained individuals?
<b>5. Special use conditions (if applicable):</b>		
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Is there a procedure for respirator use in atmospheres immediately dangerous to life and health?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Is there a procedure for confined space entry?
<b>6. Training:</b>		
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are users trained in proper respirator use, cleaning, and inspection?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are employees trained in the health effects of each respiratory hazard present in their work environments?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are users evaluated, using competency-based evaluation, before and after training?
<b>Overall Comments:</b>		

## Oregon OSHA Respirator Medical Evaluation Questionnaire(Mandatory)

This questionnaire is found as Appendix C TO 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:** \*\*If you are unable to read or need this information in another language (or read to you by an interpreter), please let your supervisor know.

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 Manager 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.

<b>Part A: Section 1. (Mandatory)</b> 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: <input type="checkbox"/> Male <input type="checkbox"/> 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: <input type="checkbox"/> Yes <input type="checkbox"/> No			
11. Check the type of respirator you will use (you can check more than one category): <input type="checkbox"/> a. N, R, or P disposable respirator (filter-mask, non-cartridge type only). <input type="checkbox"/> 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): <input type="checkbox"/> Yes <input type="checkbox"/> No If "yes," what type(s):			
<b>Part A: Section 2. (Mandatory)</b> Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").			
1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: <input type="checkbox"/> Yes <input type="checkbox"/> No			
2. Have you ever had any of the following conditions? <input type="checkbox"/> Yes <input type="checkbox"/> No    a. Seizures (fits); <input type="checkbox"/> Yes <input type="checkbox"/> No    b. Diabetes (sugar disease); <input type="checkbox"/> Yes <input type="checkbox"/> No    c. Allergic reactions that interfere with your breathing; <input type="checkbox"/> Yes <input type="checkbox"/> No    d. Claustrophobia (fear of closed-in places); <input type="checkbox"/> Yes <input type="checkbox"/> No    e. Trouble smelling odors:			

Part A. Section 2. continued

3. Have you ever had any of the following pulmonary or lung problems?

- Yes  No 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:

4. Do you currently have any of the following symptoms of pulmonary or lung illness?

- Yes  No 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:

5. Have you ever had any of the following cardiovascular or heart problems?

- Yes  No 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:

Part A. Section 2. continued

6. Have you ever had any of the following cardiovascular or heart symptoms?

- Yes  No 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 f. Any other symptoms that you think may be related to heart or circulation problems

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 (fits)

8. Have you ever used a respirator?

- Yes  No

(If no, skip a-e and move on to question 9.) If yes, have you ever had any of the following problems?

- Yes  No 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:

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-face piece 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?

- Yes  No a. Wear contact lenses
- Yes  No b. Wear glasses
- Yes  No c. Color blind
- Yes  No d. Any other eye or vision problem:

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?

- Yes  No a. Difficulty hearing
- Yes  No b. Wear a hearing aid
- Yes  No c. Any other hearing difficulties or ear problems

14. Have you ever had a back injury:  Yes  No

Part A. Section 2. continued

15. Do you currently have any of the following musculoskeletal problems?

- Yes  No a. Weakness in either 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:

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?

- Yes  No Asbestos:
- Yes  No Silica (e.g., in sandblasting)
- Yes  No Tungsten/cobalt (e.g., grinding or welding this material)
- Yes  No Beryllium
- Yes  No Aluminum
- Yes  No Coal (for example, mining)
- Yes  No Iron
- Yes  No Tin
- Yes  No Dusty environments
- Yes  No Any other hazardous exposures: 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):

Part B. continued

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)?

- Yes  No a. HEPA Filters  
 Yes  No b. Canisters (for example, gas masks)  
 Yes  No c. Cartridges:

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?

- Yes  No 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

12. During the period you are using the respirator(s), is your work effort:

- Yes  No a. Light (less than 200 kcal per hour)

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.*

- Yes  No b. Moderate (200 to 350 kcal per hour)

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 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 a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.*

- Yes  No c. Heavy (above 350 kcal per hour)

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° F):  Yes  No

15. Will you be working under humid conditions:  Yes  No

**Part B. continued**

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):

a. Name of the first toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

b. Name of the second toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

c. Name of the third toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

d. 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, and security):

## Medical Clearance Request for Respirator User

Employee (Print)		Soc. Sec. Number	Date Of Birth
Facility/Dept	Manager		Phone
<b>Check Respirator(s) To Be Used:</b> <input type="checkbox"/> Disposable Face Mask <input type="checkbox"/> Air-Purifying Half Face <input type="checkbox"/> Air-Purifying Full Face <input type="checkbox"/> Atmosphere Supply Respirator <input type="checkbox"/> Self-Contained Breathing Apparatus			
Nature of Air Contaminant:			
Level of Work Effort Associated with Respirator Usage <input type="checkbox"/> Light <input type="checkbox"/> Moderate <input type="checkbox"/> Heavy			
Length of Time of Anticipated Effort in Hours:			
Special Work Considerations (i.e. high places, temperature, hazardous material, hazardous process, protective clothing, etc.)			
Agency Representative			
Physician's Evaluation <input type="checkbox"/> No restrictions on respirator use <input checked="" type="checkbox"/> <u>Some</u> specific use restrictions <input type="checkbox"/> No respirator use permitted			
Explanation:			
Examining Physician			Date



# Respirator Assignment & Fit Record

Employee Name:		
Department/Operation for which respirator is used:		
Chemical Exposure:		
How often and what duration of time is respirator use needed?		
Date respirator issued:	Type & Size of respirator issued:	Respirator cartridges supplied:
<b>Fit Testing:</b>		
Date	Positive/Negative Fit Test	Qualitative Fit Test
Employee <u>Instructed On</u> The Following: <input type="checkbox"/> <u>Donning</u> and Doffing Methods <input type="checkbox"/> Cleaning <input type="checkbox"/> Maintenance		I understand that if any of the issues below become a problem and require my exit from the area, I will seek assistance from my supervisor: <input type="checkbox"/> Breathing becomes difficult <input type="checkbox"/> Dizziness or other distress <input type="checkbox"/> <u>Sense</u> irritation, smell or taste contaminants <input type="checkbox"/> <u>Respirator</u> becomes damaged
<p>I understand that a respirator must fit properly to be effective. I have had my respirator tested for <u>face</u>-to-facepiece seal. I have worn a respirator informally to familiarize myself with <u>it, and</u> have then worn it in a testing atmosphere.</p> <p>I have received instruction and observed practice in wearing a respirator. I know how to adjust it and determine if it is fitting properly. I am aware that I am in violation of safety rules if I wear <u>the</u> respirator with a beard, sideburns, or skullcap. I also understand that proper seal cannot be <u>accomplished</u> over the temples of eyeglasses.</p> <p>I understand that I am responsible for the daily maintenance, as well as the proper cleaning and storage of the respirator supplied to me.</p>		
Employee Signature		Date
Program Supervisor's Signature		Date

# Respirator Program Periodic Checklist

The following checklist is to aid the Supervisor/Manager in conducting periodic evaluations of the respiratory protection program's effectiveness.

Auditor:		Date:	
<b>Program Administration</b>			
Y	N	Is the written policy current and does it outline program responsibility, accountability, and authority?	
Y	N	Is overall program responsibility given to one person who is knowledgeable and can coordinate all aspects of the program? If yes, who? _____	
Y	N	Can <u>feasible</u> engineering controls or work practices eliminate the need for respirators?	
Y	N	Are there written procedures/statements covering the various aspects of the respirator program, including:	
	Y	N	designation of authority and responsibility
	Y	N	respirator selection
	Y	N	purchase of approved equipment
	Y	N	medical aspects of respirator usage
	Y	N	issuance of equipment
	Y	N	fit testing
	Y	N	training
	Y	N	maintenance, storage, and repair
	Y	N	inspection
	Y	N	use under special conditions
	Y	N	when and where respirators are required
<b>Program Operation</b>			
Respiratory protective equipment selection:			
Y	N	Have work area conditions and worker exposures been properly evaluated?	
Y	N	Are respirators selected <u>on the basis of</u> hazards to which the workers are exposed?	
Y	N	Are selections made by persons knowledgeable of proper selection procedures?	
Y	N	Are only NIOSH approved respirators purchased and used?	
Y	N	Do the respirators provide adequate protection for the specific hazard in the concentration found?	
Y	N	Has a medical evaluation of the prospective user been made to determine physical and psychological fitness to wear the selected respirator?	
Y	N	Where practical, have respirators been issued to single users?	

Respiratory protective equipment fitting:		
Y	N	Are the users given the opportunity to try on several respirators to determine the one with the best fit?
Y	N	Is fit testing completed before the wearer begins using the respirator in the work area, both on initial assignment, and <u>on a daily basis</u> (positive and negative pressure tests)?
Y	N	Are users who wear glasses properly fitted?
Y	N	Is the facepiece-to-face seal tested using one of the methods described earlier?
Y	N	Are workers prohibited from entering contaminated work areas when they have facial hair or other characteristics which prohibit the use of tight-fitting face pieces?
Respirator use in the work area:		
Y	N	Are respirators being worn correctly?
Y	N	Are workers <u>keeping respirators on at all times</u> while in the work area?
Maintenance of respiratory protective equipment:		
Y	N	Are respirators cleaned and sanitized after each use (when different people use the same device) or as frequently as necessary (for devices issued to individual users)?
Y	N	Are respirators stored to protect them from dust, sunlight, heat, and chemicals?
Y	N	Is storage in lockers, <u>tool boxes</u> , or work areas permitted only if the respirator is in a carton, carrying case, or closed container?
Y	N	Are respirators inspected before and after each use, and after cleanup?
Y	N	Are individuals instructed in inspection methods?
Y	N	Are cartridges and filters changed on a regular basis?
Y	N	Are respirators designated as "Emergency Use" inspected at least monthly (in addition to after each use), and is a record kept of such inspections?
Y	N	Are replacement parts of the same brand as the respirator?
Y	N	Are repairs made by manufacturers or manufacturer-trained persons?
Special use conditions (if applicable):		
Y	N	Is there a procedure for respirator use in atmospheres immediately dangerous to life and health?
Y	N	Is there a procedure for confined space entry?
Training:		
Y	N	Are users trained in proper respirator use, cleaning, and inspection?
Y	N	Are employees trained in the health effects of the respiratory hazard present?
Y	N	Are users evaluated, using competency-based evaluation, before and after training?
Overall Comments <u>And</u> Action Items For Program Improvement:		
Signature:		Date

# Respiratory Fit Testing

Employee Name:	Date:
Job Location & Title:	
Respiratory Protection Needed:	
Type of Respirator/Brand/Size:	
Passed Negative /Positive Pressure Fit:	
Qualitative Test Method:	
<b>Test Procedure:</b> <ol style="list-style-type: none"><li>1. Normal Breathing: 1 minute no talking</li><li>2. Deep Breathing: 1 minute breath slowly &amp; deeply</li><li>3. Turning Head Side to Side: Slowly turns head to extreme left, inhales and exhales, then slowly turns head to extreme right, inhales and exhales.</li><li>4. Moving Head Up &amp; Down: Slowly turns head up &amp; down for 1 minute while inhaling in the up position.</li><li>5. Talking: Talk slowly and loud enough for tester to hear. Read text or count to 100.</li><li>6. Bending Over: Bend over at waist as if to touch the toes. Once. Jogging in place may be substituted if bending is not done.</li><li>7. Normal Breathing: 1 minute to finish test.</li></ol>	
Employee Passes Test:	
Additional Comments:	
Name of Tester:	

## **Voluntary Respiratory User Information**

### **Information for employees using respirators when not required under the standard**

This information is from the Oregon OSHA standard 1910.134 Appendix D that is to be provided either orally or in writing to employees who request and are permitted the use of voluntary use dust masks. If employee exposure has not been evaluated, the Manager will arrange for evaluation of the exposure to ensure that the respirator use is voluntary. If the exposure exceeds the exposure limits, then the employee must be part of the full respiratory protection program.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit to provide an additional level of comfort and protection for workers exposed to dusty conditions. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposure to hazards, even if the amount of hazardous substance does not exceed the limits set by Oregon OSHA standards.

To ensure that you understand the basic use you need to understand the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. The dust masks or other filtering facepiece respirators have been chosen from respirators certified for use to protect against the contaminants in our facility. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. This certification is done by the National Institute for Safety and Occupational Health (NIOSH).
3. Do not wear your respirator in atmospheres containing contaminants which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. Dustmasks are disposable and should be properly disposed of after a day's use.

# **LEAD COMPLIANCE PLAN**

[OAR 437, Division 2, Subdivision Z \(1910.1025\)](#)

## **Introduction**

There are various job operations that may result in lead exposures to the Maintenance crews. These job tasks will require complying with the OR-OSHA Lead Regulations. Any questions about this program should be directed to the supervisor.

## **Responsibilities**

To ensure compliance activities are carried out and that proper recordkeeping is done, the following outlines the overall responsibilities of the staff regarding lead exposure.

**Management:** It is the direct responsibility of the facility's management to ensure that the lead compliance program elements are implemented and that employees follow all painting, renovation site and fire range procedures. They are also responsible to ensure that a lead exposure assessment is completed, and specific program elements are carried out, including:

1. Conducting air exposure monitoring during surface preparation or range qualifications where lead bullets are used.
2. Ensuring appropriate personal protective equipment is provided and used.
3. Proper engineering or work practices are implemented and maintained.
4. Engineering or work practices are implemented and maintained.
5. Conducting inspection audits to ensure lead compliance plans are implemented and followed.
6. Assisting in the development of lead compliance plans and the updating/revision of the plans.
7. Ensuring that biological monitoring and medical examinations are done for employees involved in job tasks with exposures at or above the lead action level standard.

**Maintenance, Public Works or Facility Supervisor:** It is the direct responsibility of the supervisor to review the lead compliance plan with the staff, conduct training about the hazards of lead, as well as the safe work practices to be used in lowering potential lead exposures. The supervisor is also responsible for providing safe equipment, instructing staff how to use the equipment and periodically auditing the work sites to ensure safe procedures are followed. The supervisor will also identify all potential lead-based paints. (See APPENDIX 1)

## **Law Enforcement**

### **Range Masters or Supervisors:**

1. Range masters or Supervisors are responsible for determining exposure or potential exposure to lead from range munitions and related activities.
2. If it is determined that there is potential or actual exposure to lead at or above the lead action level, management will be responsible for development of and compliance with the department lead compliance program.
3. Indoor firing ranges should have sufficient mechanical ventilation systems to reduce the exposure to lead and the air should be circulated in such a way through appropriate high efficiency filtration systems with a reliable backup filter to ensure that employees are not exposed to lead contaminated air supplies.

## **Exposure Assessment**

1. Initial Air Monitoring: The supervisor will identify specific job tasks with potential lead exposure. These operations will be scheduled for exposure monitoring. Until exposure levels are determined, respirators will be worn.
2. Re-monitoring of the work operations may be done based on the results of initial monitoring and on regularly updated information.
3. Monitoring: The supervisor or range master will inform the employees about the exposure monitoring.

**Notification of Results:** The supervisor or range master will provide employees with a copy of the sample results or post the result summary for five days in the work area.

If lead exposures exceeding the Permissible Exposure Limit (PEL) of  $50 \mu\text{g}/\text{m}^3$  are found, then the employees will be notified of protective actions that will be required and what those actions will be. The written compliance plan for each project/activity will be revised or developed if lead overexposures are found. The plan will be available from the Management.

## **Medical Surveillance Program**

1. All employees who may be exposed at or above the action level ( $30 \mu\text{g}/\text{m}^3$ ) for any day will be included in the biological monitoring. This is a blood test for lead and zinc protoporphyrin levels. Any employee exposed at or above the action level ( $30 \mu\text{g}/\text{m}^3$ ) for 30 days in any consecutive 12 months will be included in the medical surveillance program.
2. Management will identify the medical facility/provider that employees will use for any needed blood testing.
3. The entity will also maintain a list of all employees on medical surveillance and copies of the medical notification reports.
4. Lung Function Testing will be scheduled for all employees on mandatory negative pressure respirators. This procedure will follow Chapter 14 Respiratory Protection Program Procedures. The supervisor will maintain records of employees included in this program and physician notification.
5. The complete medical records will be maintained by the medical facility/provider.

## **Respirator Fit Testing and Training**

1. Respirators will be worn during work activities where lead-containing materials are used until exposure monitoring identifies the airborne levels are below Oregon OSHA threshold levels.
2. The supervisor will provide employee fit testing for employees included in this program.
3. This program will meet Chapter 14 Respiratory Protection Program Standards.
4. Physician responses to the individual respirator questionnaire will be kept in the employee's confidential medical records file located in Human Resources.

## **Employee Training**

1. All employees who work on lead containing materials will receive annual lead training.
2. A roster of employees trained will be maintained.

3. The Supervisor or a training consultant will provide employee training.

### **Compliance Plan Development, Implementation, and Audit**

1. The supervisor will develop a lead compliance plan for each job when exposure is expected to exceed the Permissible Exposure Limit.
2. The plans will be maintained by the supervisor. The plans are available for employee review.
3. The supervisor will conduct inspection audits to ensure that the plans are implemented and followed by the employees.

### **Recordkeeping**

1. The supervisor will maintain copies of the compliance plan, employee training records, names of those employees in medical surveillance program, and the current lead monitoring results.
2. All lead records must be kept for at least 40 years.



## Signage

Employers are responsible for posting warning signs in work areas where the lead PEL is exceeded. Below is sample verbiage that should be posted on the signs. The signs are required to be illuminated and readily visible.

### **DANGER:**

**LEAD MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM**

**DO NOT EAT, DRINK OR SMOKE IN THIS AREA**

## Clothing/Body Exposure to Lead

1. It is important that any clothing that might possibly be contaminated with lead be removed after the work shift and contained in a bag or container. The clothing should be washed in accordance with applicable local, state or federal regulations to prevent exposure to families (especially children) or lead contaminated water being released into the water supply or water table. Below is some sample language for labels on bags or containers that might be contaminated by lead:

### **DANGER:**

**CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.**

2. It is also important that law enforcement participating in range qualification exams not eat or drink or smoke while at the firing range. It is important to wash your hands and not participate in these activities until officers are away from the range. It is also advisable that officers change they're into other clothing after lengthy range qualification exams to reduce the potential of lead exposure.
3. Protective clothing may be provided to staff.
4. Wash hands thoroughly prior to eating, drinking, smoking.



## List of Test Results: Building Lead Based Paints

Building	Location	Amount of Lead in Paint

# Model Lead Compliance Program Plan

Plan Developed By:	Date:
Location/Operation Covered:	
Lead Person <u>And</u> Number Of Employees Impacted:	
Employee Responsibilities/Duties:	
<p>1. List each activity in which lead is emitted:</p> <ul style="list-style-type: none"> <li>a)</li> <li>b)</li> <li>c)</li> </ul>	
2. Type of equipment and/or materials in use:	
3. Describe controls in place & specific means being used to control lead exposures including work practices, Personal Protective Equipment, and the specific schedule for the implementation of all controls:	
Control Measures (List):	

Schedule For Implementation (Lead Compliance Plan Model)
1. Describe the operating procedures and maintenance practices:
2. Report of the technology considered in lowering the exposure levels to be below the PEL:
3. Record air monitoring plan and the data collected (use Lead Monitoring Report Forms for collection of specific sample data): Attach the monitoring data including summaries.
4. Describe any administrative controls in use:
5. Method of job site inspections:  a) List names of persons conducting inspections:

**Inspection Times and Procedures Include:** Review of the site safety compliance plan, activities of potentially exposed employees, personnel protective equipment, adequacy of controls, knowledge level of the employees involved.

**Note:** *Written programs will be established prior to commencement of a job, and revised/updated at least every 6 months to reflect the status of the program.*

# **LABORATORY SAFETY AND CHEMICAL HYGIENE POLICY AND PROCEDURES**

[OAR 437, Division 2, Subdivision Z \(1910.1450\)](#)

The purpose of the laboratory safety and chemical hygiene policy and procedures is to prevent injury to water and wastewater laboratory workers who use chemicals, and to protect others who may be exposed to hazards from the laboratory environment. Some of the most common items used in these lab environments include:

- Chlorine (as sodium hypochlorite and chlorine gas)
- Sulfur Dioxide
- Lime
- Polymer
- Methane
- Methanol
- Ferric Chloride
- Alum
- Ammonia
- Acids (sulfuric, hydrochloric, nitric)
- Bases (ammonium hydroxide, sodium hydroxide, potassium hydroxide, alkaline iodine-sodium aside solution)

Some of the top lab concerns are:

- Lack of fume hoods
- Improper use of fume hoods
- Using concentrated acids needlessly (such as 50 percent hydrochloric acid to rinse glassware for phosphorus testing when 10 percent is more than adequate and, in most cases, 1 percent is sufficient)
- Use of mercury thermometers in the lab, especially in TSS ovens.
- Old ovens and furnaces lined with crumbly flaking asbestos lining.
- Failure to wear safety glasses (which results in chemicals, acids, reagents and samples)
- Soaking pipettes and phosphorus glassware in acid bath in an unvented room
- Using hydrochloric acid (HCl) and bleach to clean BOD bottles (which when combined created chlorine gas)
- Rinsing glassware with HCl in sinks that are not vented
- Preparing dilute acids in the lab from concentrated sulfuric acid and HCl
- Not having SDS onsite and not understanding the hazards of handling the chemicals
- Storing acid and bases in the same cabinet (violent reactions can occur if these come in contact with each other)
- Storing reagents (acids, bases, etc.) above eye level (which increases chance of dangerous spills into the eyes)
- Mouth pipetting (which increases exposure to infectious bacterial materials or chemicals)
- Encountering biological organisms through samples and waste

The Chemical Hygiene Officer (CHO) or laboratory supervisor has overall safety responsibility for maintaining a safe laboratory working environment. The laboratory supervisor has been designated as the CHO, and will ensure:

1. That proper safety procedures are in place to protect his/her laboratory staff.
2. Workers know safety rules and procedures and follow them.

3. Adequate emergency equipment in proper working order is available.
4. Training in the use of emergency equipment and safety procedures has been provided.
5. Ensuring that SDS sheets are received with any chemicals that are ordered or used in the lab.
6. Information on special or unusual hazards and non-routine work has been distributed to the laboratory workers.
7. Routine safety inspections are conducted.
8. An appropriate safety orientation has been given to individuals when they are first assigned to the laboratory.
9. Ensuring that appropriate and operational safety showers and eyewash stations are available for staff.
10. Ensuring that staff are up to date on their immunizations
11. Ensure that a commercial emergency spill clean-up kit is available for staff, which can be used to neutralize acids in the event of an accidental spill.
12. A copy of this plan has been made available to all lab employees.
13. Prior approval of the Laboratory CHO must be obtained before working with any new chemicals or new procedures. Planning for work with such materials will provide for disposal, spill prevention, and control.
14. An annual review and update of the CHP is required.

#### **Laboratory Personnel General Safety Rules**

1. Know the safety rules and procedures that apply to the work being done (contained in this document). Determine the potential hazards (i.e. physical, chemical, biological) and appropriate precautions before beginning any new operation (see SDS).
2. Know the location of and how to use the emergency equipment in your area, as well as how to obtain additional
3. help in an emergency and be familiar with emergency procedures.
4. Know the types of protective equipment available and use the proper type for each job.
5. Be alert to unsafe conditions and actions, and call attention to them so that corrections can be made as soon as possible. Someone else's accident can also be dangerous.
6. Do not consume food or beverages or smoke in areas where chemicals are being stored.
7. Avoid hazards to the environment by following accepted waste disposal procedures. Chemical reactions may require traps or scrubbing devices to prevent the escape of toxic substances.
8. Be certain all chemicals are correctly and clearly labeled. Post warning signs when unusual hazards, such as radiation, chlorine gas, infrared, laser operations, flammable materials, biological hazards, or other special problems exist.
9. Remain out of the area of fire or personal injury unless it is your responsibility to respond to the emergency. Curious bystanders interfere with rescue and emergency personnel and endanger themselves.
10. Avoid distracting or startling any other worker. Practical jokes or horseplay will not be tolerated at any time.
11. Use equipment only for its designated purposes.
12. Position and clamp reaction apparatus thoughtfully to permit manipulation without the need to move the apparatus until the entire reaction is completed. Combine reagents in appropriate order.
13. Think, act, and encourage safety until it becomes a habit!

## Laboratory Health and Hygiene

1. Always wear appropriate eye and face protection.
2. Use protective apparel, including face shields, gloves and other special clothing or footwear as needed. Always wear a lab coat or apron in the lab to protect your skin and clothes.
3. Protective gloves should be worn when handling hot equipment or very cold objects, or when handling liquids or solids which are skin irritants. Protective gloves can also protect staff from constant handwashing that causes cracked skin, which in turn creates suitable environments for chemicals and biohazards to enter the body.
4. Confine long hair and loose clothing when in the laboratory.
5. Do not use mouth suction to pipet chemicals or to start a siphon; a pipet bulb or an aspirator should be used to provide a vacuum.
6. Avoid exposure to gases, vapors, and aerosols. Use appropriate safety equipment whenever such exposure is likely. Most often this can be done by using the fume hood.
7. Wash well before leaving the laboratory area, eating, drinking, or smoking. Avoid the use of solvents for washing the skin (they remove natural protective oils from the skin and can cause irritation and inflammation. In some cases, washing with solvent might facilitate absorption of a toxic chemical).
8. Never eat or smoke in the lab. Never use lab glassware for serving food or drinks.
9. Do not keep your lunch in the refrigerator that is used for sample and chemical storage. Refrigerators with samples should have a biohazard sign on them.
10. Change from working clothes into street clothes before leaving work to prevent carrying chemicals or unsanitary materials into your home.

## Laboratory Housekeeping

1. Work areas will be kept clean and free from obstructions. Clean-up should follow the completion of any operation or at the end of each day.
2. Waste should be deposited in appropriate receptacles.
3. Spilled chemicals should be cleaned up immediately and disposed of properly.
4. Unlabeled containers and chemical waste should be disposed of promptly. Other materials or chemicals no longer needed should not accumulate in the laboratory.
5. Store flammable liquids, acids, bases and oxidizing agents separate from each other.
6. Ensure that the chemical storage room is properly ventilated and well lit.
7. Store volatile liquids which may escape as a gas away from heat sources, sunlight and electrical switches.
8. Cylinders of gas in storage must be capped and secured with a chain to prevent rolling or tipping. They should also be placed away from any possible source of heat or open flame, such as in an appropriate chlorine room that has adequate fan ventilation system as required, with explosion proof wiring and lights, and appropriate alarm systems to identify leaks.
9. Transfer or transport cylinders of compressed gases on appropriate trussed hand trucks. Never move a cylinder without the valve protection hood in place and never roll a cylinder by its valve.
10. Any time you are moving chemicals, make sure to use appropriate protective gloves, safety shoes and rubber aprons in case of an accidental spill.
11. Floors should be cleaned regularly; accumulated dust, chromatography absorbents, and other assorted chemicals pose respiratory hazards.



12. Access to exits, emergency equipment, emergency showers/eyewash stations, and controls should never be blocked.
13. Equipment and chemicals should be stored properly; clutter should be minimized.
14. Do not store chemicals above eye level.

#### **Shield Use:**

1. For any operation having the potential for explosion.
2. Whenever a reaction is attempted for the first time.
3. Whenever a familiar reaction is carried out on a larger than usual scale.
4. Whenever operations are carried out under non-ambient conditions.

**Note:** Shields must be placed so that all personnel in the area are protected from the hazard.

5. Proper Handling of Glassware
6. Careful handling and storage procedures should be used to avoid damaging glassware. Damaged items should be discarded or repaired.
7. Hand protection should be worn when inserting glass tubing into rubber stoppers or corks or when placing rubber tubing on glass hose connections. Tubing should be held close together to limit movement of glass should a fracture occur.
8. **Note:** If possible, use plastic or metal connectors.
9. Vacuum-jacketed glass apparatus should be handled with extreme care to prevent implosions. Dewar flasks should be taped or shielded. Only glassware designed for vacuum work should be used.
10. Hand protection will always be worn when picking up broken glass.

#### **Working with Flammable Hazards**

1. Do not use an open flame to heat a flammable liquid or to carry out a distillation under reduced pressure.
2. Use an open flame only when necessary and extinguish it when it is no longer needed.
3. Before lighting a flame, remove all flammable substances from the immediate area. Check all containers of flammable materials in the area to ensure that they are tightly closed.
4. Notify other occupants of the laboratory in advance of lighting a flame.
5. Store flammable materials properly (using a flammable storage cabinet when quantities necessitate their use).
6. When volatile flammable materials may be present, use only non-sparking electrical equipment.

#### **Working With Cold Traps and Cryogenic Hazards**

1. Always use gloves and a face shield when preparing or using cold baths (severe burns if allowed to contact the skin).
2. Never use liquid nitrogen or liquid air to cool flammable mixtures in the presence of air because oxygen can condense from the air, causing an explosion.
3. Always wear dry gloves when handling dry ice. Never lower your head into dry ice chest as carbon dioxide is heavier than air and suffocation can result.

#### **Working Alone and Unattended Operations**

1. Generally, avoid working in laboratories alone unless arrangements have been made with co-workers to call in/check in periodically.
2. Never perform experiments or procedures with unknown hazardous materials.

3. For laboratory operations that are carried out overnight, a plan shall be developed to address utility service failure (i.e., electricity, water, inert gas, etc.). See APPENDIX 3.
4. Leave lights on and plan a periodic inspection of the operation with plant personnel.

**Note:** The CHO has the responsibility to determine whether the work requires special safety precautions.

### General Ventilation

1. All hazardous/toxic chemicals identified by OR-OSHA, Subdivision Z., will be used so that quantities of their vapors or dusts do not produce adverse toxic effects from entering the general laboratory atmosphere. Whenever feasible, a hood should be used when working with Subdivision Z chemicals. The established PEL (Permissible Exposure Limit) should not be exceeded.
2. Ventilation hoods should be checked annually to ensure that the airflow is appropriate (approximately 100 to 150 feet per minute) with the hood completely open. Strips of cloth can be hung on the door to continuously indicate that air is flowing.
3. Operations such as running reactions, heating or evaporating solvent, and transfer of chemicals from one container to another should be performed in the safest manner possible.
4. Chemical Procurement, Distribution, and Storage
5. Prior to ordering any new chemical/substance, the SDS should be reviewed for the following:
  - a. Potential hazards
  - b. Safe handling procedures and methods.
  - c. Waste disposal procedures.
  - d. Proper personal protective equipment.

**Note:** This information can be obtained from the label, manufacturer's insert, or the SDS.

6. When turning a requisition into the CHO, the requestor will inform the CHO of any hazards associated with the chemical or substance (i.e., attach SDS to requisition).
7. All chemical/substances will be received in a central location to aid in monitoring the chemical that may eventually enter the waste disposal stream. All chemicals identified under OR-OSHA Subdivision Z will be inventoried and quantities (gal., lbs., etc.) of chemical/substance recorded.
8. No container of a chemical or substance will be accepted unless an SDS accompanies the received order.
  - a. Safety Data Sheet (SDS) or satisfactory container labels must be written in English and will contain:
    - Chemical Identity
    - Manufacturer's Information
    - Hazardous Ingredients/Identity Information
    - Physical/Chemical Characteristics
    - Fire and Explosion Hazard Data
    - Reactivity Data
    - Health and Hazard Data
    - Precautions of Safe Handling and Use
    - Control Measures
    - Primary Routes of Entry (Inhalation, Absorption, etc.)
    - Emergency and First Aid Procedures

9. If chemicals have been stored beyond their appropriate shelf life or have deteriorated, they will be properly disposed of immediately.
10. Refer to the previous Hazard Communication policy for additional information on chemical use and appropriate labeling protocol.

## Procedures for Storing Chemicals

### 1. Annual audits will be conducted for inspecting:

- a. Chemicals stored beyond their appropriate shelf life or have deteriorated.
- b. Containers that have defaced or questionable labels.
- c. Containers that are leaking or have corroded caps.
- d. Containers that have developed any other problems and should be disposed of in a safe manner.

**Note:** A first-in, first-out system of stock keeping/Chemical use should be instituted.

### 2. General Considerations:

- a. Every chemical in the laboratory should have a specific use, definite storage place, and should be returned to that location after each use.
- b. Storage of chemicals on bench tops and hoods is forbidden.
- c. Laboratory refrigerators should be properly labeled as to their appropriate use (such as for the storage of chemicals only); food must not be placed in them. All containers placed in the refrigerator should be properly labeled (identification of contents and owner, date of acquisition or preparation, and nature of any potential hazard).
- d. Flammable liquids should not be stored in a laboratory refrigerator unless the unit is an approved, explosion-proof, or laboratory-safe type.
- e. Chemicals stored in the laboratory should be inventoried periodically, and at the same time, containers that have illegible labels and chemicals that appear to have deteriorated should be disposed of.
- f. An inventory sheet of chemicals should be kept in front of the SDS binder and updated annually with the audit. The list should be in an easy to find order (such as alphabetical), and the SDS will be kept in that order for easy location.

### 3. Flammable Liquids:

- a. Quantities of flammable liquids greater than one liter should be stored in approved containers (portable approved safety cans are one of the safest methods of storing flammable liquids).
- b. Flammable liquids received in large containers should be repackaged into safety cans for distribution to laboratories; such cans must be properly labeled to identify their contents.
- c. Large quantities of flammables should be stored in an appropriate flammable cabinet.
- d. Other considerations in the storage of flammable liquids in the laboratory include ensuring that aisles and exits are not blocked in the event of fire; that accidental contact with strong oxidizing agents such as chromic acid, permanganates, chlorates, per chlorates, and peroxides is not possible; and that sources of ignition are excluded.

**Note:** See Federal [OSHA 29 CFR 1910.106](#), NFPA No. 30-45 for further information and requirements.

### 4. Toxic Substances:

- a. Chemicals known to be highly toxic, including those

- b. classified as carcinogens, should be stored in ventilated storage areas in unbreakable chemically resistant secondary containers.
- c. Only minimum working quantities of toxic materials should be present in the work area. Storage vessels containing such substances should carry a label such as the following:  
**CAUTION: HIGH CHRONIC TOXICITY OR CANCER SUSPECT**
- d. Storage areas for substances that have high acute or chronic toxicity should exhibit a sign warning of the hazard, have limited access, and adequately ventilated.
- e. A current inventory of toxic materials should be maintained.
- f. Adequate ventilation must be maintained for hazardous materials that have a high vapor pressure (mercury and mercaptans).

**5. Compressed Gases:**

- a. Cylinders of compressed gases should be securely strapped or chained to a wall or bench top to prevent them being knocked over accidentally.
- b. When they are not in use, it is good practice to keep them capped.
- c. Care must be taken to keep compressed gases away from sources of heat or ignition.

**Inspections**

- 1. Should be conducted quarterly at the beginning of each calendar year.
- 2. Will be documented in the lab safety manual.
- 3. Deficiencies will be corrected immediately and noted on the inspection sheet or Safety Committee minutes.

**Maintenance**

- 1. All eye washes and safety showers will be checked and flushed weekly for adequate water flow and to insure cleanliness of the water. [OAR 437-002-0161\(5\)](#)
- 2. Fire extinguishers will be inspected monthly with date and initials on the back of the tag and serviced annually to insure they are full and operating properly. Ensure that the appropriate fire extinguishers are being used (see next page).
- 3. Fume hoods and other equipment should be inspected at least monthly to ensure proper operation.

**Note:** See APPENDIX 2 for inspection procedure and checklist.

**First Aid and Emergencies:**

[OAR 437-002-0161](#)

**Anticipated Emergencies:**

- 1. Thermal and chemical burns.
- 2. Cuts and puncture wounds from glass or metal, including possible chemical contamination.
- 3. Skin irritation by chemicals.
- 4. Poisoning by ingestion, inhalation, or skin absorption.
- 5. Asphyxiation
- 6. Injuries to the eyes from splashed chemical.

## Accident Reporting:

1. Follow lab Emergency Medical Plan. See APPENDIX 3.
2. Notify supervisor or CHO and fill out appropriate forms immediately.

## Fires and Explosions:

1. Alert all laboratory personnel and call 9-1-1 for assistance.
2. If authorized and trained in the use of portable fire extinguishers, try to extinguish fire immediately by:
  - a. Using correct fire extinguisher.
    - i. Class A Fire: ordinary combustible solids such as wood, paper, textiles, and similar materials.
    - ii. Class B Fire: diesel fuel, motor oil, paint, grease, volatile flammable solvents.
    - iii. Class C Fire: all fires in electrical equipment and in areas where live electricity is present.
    - iv. Class D Fire: fires involving sodium, zinc, magnesium, and other elements.
    - v. An all-purpose A-B-C chemical type extinguisher can be used to handle more laboratory fire situations.
    - vi. Using an inverted beaker or glass to suffocate the fire.
3. Ensure the laboratory is equipped with a fire blanket that can be used to smother clothing fires.
4. Avoid entrapment in a fire; always fight a fire from a position accessible to nearest exit.
5. If the fire cannot be controlled by available staff and equipment, the following action should be taken:
  - Call 9-1-1 or pull the fire alarm.
  - Assist injured personnel.
  - Confine the emergency (close hood sashes, door between laboratories, fire doors) to prevent further spread of the fire.
  - Evacuate the building to avoid further danger to personnel.
6. In case of explosion, **immediately**:
  - a. Call 9-1-1 or pull the fire alarm.
  - b. Turn off burners and other heating devices, if possible.
  - c. Stop reactions in progress.
  - d. Assist in treating victims.
  - e. Vacate the area until it has been decontaminated.

## First Aid:

1. Each laboratory person should be trained in emergency first aid, pulmonary and cardiac resuscitation and AED's if one is located on the premises.
2. Refresher training should occur as required by your employer's Emergency Medical Plan or every other year.
3. Training records should be documented and retained for a minimum of five years.
4. All trained personnel should carry a valid first aid card.

## **Medical Consultation and Medical Examinations**

1. All employers who work with hazardous chemicals will be given an opportunity to receive medical attention, including any follow-up examinations required, under the following conditions:
  - a. Development of signs or symptoms associated with a hazardous chemical to which they may have been exposed.
  - b. When exposure monitoring reveals exposure to an Oregon OSHA regulated substance routinely above the action level or PEL.
  - c. Whenever an event takes place such as a spill, leak, explosion, or other occurrence resulting in the likelihood of hazardous exposure.
2. All medical examinations or consultations will be by (or under the supervision of) a licensed physician and will be provided without cost or loss of pay at a reasonable time and place.
3. The employer will provide to the physician:
  - a. The identity of the hazardous substance and/or the SDS.
  - b. Description of the conditions causing the exposure, including quantitative exposure data if available.
  - c. Any medical condition which may be revealed might place the employee at increased risk because of exposure to a hazardous substance in the workplace.
  - d. A statement that the employee has been informed of the results of the medical examination or consultation and any medical condition that may require further examination or treatment.
  - e. The written opinion will not reveal specific findings of diagnosis unrelated to occupational exposure.

## **Records**

1. Accident records must be written and retained.
2. In work with chemicals of moderate, chronic or high acute toxicity, records will indicate amounts of these materials on hand, amounts used, and the names of the workers involved.
3. Medical records or copies thereof shall be retained in accord with state and federal regulations (30 years).

## **Signs and Labels**

1. Emergency telephone numbers to call in the event of fire, accident, flood, or hazardous chemical spill will be posted in the laboratory.
2. Labels on containers of chemicals must contain information on the hazards associated with the use of the chemical. Waste containers are labeled for the type of waste that can be safely deposited.
3. Emergency evacuation maps and signs will be posted to show the locations of safety showers, eyewash stations, exits, and fire extinguishers. Extinguishers are labeled to show the type of fire for which they are intended.
4. Laboratory areas that have special or unusual hazards will be posted with warning signs at the entrance. Standard signs and symbols have been established for many special situations such as radioactive hazards, biological hazards, fire hazards, and laser operations.

## Spills and Accidents

1. A written emergency plan is prepared for unexpected events such as fire or explosion. The plan includes procedures for evacuation, shutdown, return, start-up, and drills. See APPENDIX 3.
2. A spill control policy is developed which will include consideration of:
  - a. **Prevention:** Storage, operating procedures, monitoring, inspection, and personnel training.
  - b. **Containment:** Engineering controls on storage facilities and equipment.
  - c. **Clean-up:** Countermeasures and training of personnel to help reduce impact of a chemical spill.
  - d. **Reporting:** Provisions for internal and external reporting (e.g., to state and federal agencies).

**Note:** See APPENDIX 3.
3. All accidents or near accidents will be analyzed and the results of such analyses and recommendations for the prevention of similar occurrences will be distributed to all who might benefit.

## Information and Training Program

The laboratory safety training program was developed to assure that all individuals at risk are adequately informed about the work in the laboratory, its risks, and what to do if an accident occurs. Educational activities will be provided for all persons who may be exposed to potential hazards relating to laboratory operations. New employees assigned to the laboratory will be educated about safety procedures and the procedures used in the event of an accident.

1. **Emergency and Personal Protection Training:** Instruction on the proper use of protective apparel and safety equipment, emergency procedures, and first aid will be available to everyone who might need it. Full-time staff will be trained in the proper use of emergency equipment and procedures. Receiving room, storeroom, and stockroom personnel will be knowledgeable about or trained in the handling of hazardous substances. Such training will include the physical handling of containers of chemicals so that they are not dropped, bumped, or subject to crushing by being piled upon one another. Information will be provided about environmental and hazard initiating exposures that must be avoided. Some of the more common items which receiving room, storeroom, and stockroom personnel will be familiar with include the following:
  - a. The use of proper material-handling equipment, protective apparel, and safety equipment.
  - b. Emergency procedures, including proper clean-up of spills and the disposal of broken containers.
  - c. The meanings of the various DOT (Department of Transportation) labels on shipping packages and containers.
  - d. The proper methods of material-handling and storage, especially the incompatibility of some common substances; the dangers associated with alphabetical storage; and the sensitivity of some substances to heat, moisture, and other storage hazards.
  - e. The special requirements of heat-sensitive materials, including those shipped refrigerated or packed in dry ice.

- f. The problems associated with compressed gases, including unique situations such as the construction of an acetylene cylinder.
- g. The hazards associated with flammable liquids (especially the danger of their vapors catching fire some distance from the container), explosives and of toxic gases and vapors and oxygen displacement.
- h. Substances that react with water, giving rise to hazardous conditions (e.g., alkali metals, burning magnesium, metal hydrides, acid chlorides, phosphates, and carbides).
- i. The federal and state regulations governing controlled substances such as radioactive materials, drugs, ethyl alcohol, explosives, needles and syringes.
- j. Chemicals that have offensive smells.
- k. Packages that exhibit evidence that the inside container has broken and leaked its contents.

**2. Frequency of Training:**

Training and education will be regular, continuing activities. The employer will determine the frequency of refresher information and training.

**3. Literature and Consulting Advice:**

Literature and consulting advice on laboratory safety and on the physical and biological hazards of chemicals will be readily available to those responsible for laboratory operations and those involved. Laboratory workers will be encouraged to read about the potential hazards of the work going on in their laboratory and to know about the availability of various resources that describe safe operating conditions. This literature will be available in a form that is readily accessible both to those responsible for laboratory operations and to laboratory workers themselves.

**Waste Disposal Program**

Chemicals will be disposed of so that people, other living organisms, and the environment generally are subjected to minimal harm by the substances used or produced in the laboratory. Both the laboratory workers and the supporting personnel will know and use acceptable disposal methods for various chemicals.

**1. Content:**

The waste disposal program specifies how waste is to be collected, segregated, stored, and transported, and includes consideration of what materials can be incinerated. Transport forms at the institution will be in accordance with DOT regulations. See APPENDIX 3.

**2. Discarding Chemical Stocks:**

Unlabeled containers of chemicals and solutions will undergo prompt disposal. If partially used, they must not be opened.

**3. Frequency of Disposal:**

Waste will be removed from laboratories to a central waste storage area at least once per week and from the central waste storage area at regular intervals.

**4. Method of Disposal:**

- a. Incineration in an environmentally acceptable manner is the most practical disposal method for combustible laboratory waste.
- b. Disposal by recycling or chemical decontamination will be used when possible.
- c. Indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse for landfill burial is unacceptable.



d. Hoods will not be used as a means of disposal for volatile chemicals.

**OAR 437, Division 2., Subdivision Z. Air Contaminants**

This is a short list abstracted from Subdivision Z that contains the substances that are possibly found in a laboratory that tests water or wastewater. If you have any of these stored or used on site, obtain more information from OR-OSHA:

Acetic Acid	Cyanides	Phenol
Acetone	Ethanol	Phosphoric acid
Ammonia	Fluorides	Potassium hydroxide
Arsenic	Formaldehyde	Pyridine
Arsine	Hydrogen chloride	Selenium compounds
Barium compounds	Hydrogen peroxide	silver compounds
Benzene	Hydrogen Sulfide	Sodium aside
Bromine	Iodine	Sodium hydroxide
Butane	Isobutyl alcohol	Starch
Butyl alcohols	Ketone	Strychnine (Brucine Sulfate)
Cadmium compounds	Lead inorganic compounds	Sulfuric acid
Calcium carbonate	Manganese compounds	Sulfur dioxide
Calcium hydroxide	Mercury vapor or compounds	Trichloroethylene
Calcium oxide	Methyl alcohol	Toluene
Calcium sulfate	Methylene chloride	Xylenes
Carbon dioxide	Nickel compounds	Zinc compounds
Chlorine	Nitric acid	
Chromic acid and chromates	Nitrous oxide	
Chromium II and III compounds	Oxalic acid	

## Lab Inspection Checklist

Location:	Inspection Date:
<b>General:</b>	
<input type="checkbox"/> Emergency phone numbers are posted. <input type="checkbox"/> Warning signs are posted. <input type="checkbox"/> Exits are lighted and clear of obstruction. <input type="checkbox"/> Work area is free of debris and in good condition. <input type="checkbox"/> Inventory of all chemicals is maintained and updated annually for review. <input type="checkbox"/> Food is stored and consumed away from the work area. <input type="checkbox"/> Hand washing facilities are provided inside the lab. <input type="checkbox"/> Material Safety Data Sheets are readily available. <input type="checkbox"/> Labels on chemical containers are legible and firmly secured.	<input type="checkbox"/> Labels identify the degree of hazard. <input type="checkbox"/> Extension cords are not used in place of permanent wiring. <input type="checkbox"/> UL listed/FM approved electrical equipment is provided. <input type="checkbox"/> Electrical cords and equipment are protected against chemicals and temperature. <input type="checkbox"/> Fume hoods are not used for storage. <input type="checkbox"/> Personal Protective Equipment is provided and in use. <input type="checkbox"/> A written Chemical Hygiene Plan is in the lab and available for inspection. <input type="checkbox"/> Emergency numbers and evacuation procedures are posted in conspicuous locations in the lab.
<b>Storage and Handling:</b>	
<input type="checkbox"/> Gas cylinders are properly secured. <input type="checkbox"/> No leaking containers are present. <input type="checkbox"/> All chemical containers are properly labeled. <input type="checkbox"/> Chemicals are stored according to compatibility. <input type="checkbox"/> Peroxide forming reagents are dated when opened. <input type="checkbox"/> Peroxide forming reagents are disposed of or tested after expiration date. <input type="checkbox"/> Flammable and corrosive storage areas are labeled.	Flammables are kept away from sources of heat, ignition, flames, etc. Corrosive materials are stored low to the ground. <input type="checkbox"/> A flammable storage cabinet is provided for flammable liquids when required. <input type="checkbox"/> Carcinogen storage areas are labeled. <input type="checkbox"/> Chemicals in the open are kept to a minimum. <input type="checkbox"/> Flammable/Combustible liquids do not exceed NFPA storage limits.
<b>Chemical Waste:</b>	
<input type="checkbox"/> Hazardous waste containers are labeled and have closed lids.	

## Sample Laboratory Emergency Action Plan

Building:	Rm.:	Phone Number:
<b><i>The following people are designated and trained to assist Emergency Responders with <u>information</u> about this lab, including providing a hazardous material inventory, during an emergency</i></b>		
<b>Name</b>	<b>Title</b>	<b>24 Hour Contact Phone</b>
	Lab Director	
<b><i>When the fire alarm sounds, lab workers must EXIT the building, but first:</i></b>		
<ol style="list-style-type: none"> <li>1. Turn off all flames and other ignition sources</li> <li>2. Close all hazardous material containers</li> <li>3. Close sash on all fume hoods</li> </ol>	<ol style="list-style-type: none"> <li>4. Turn off all electrical equipment</li> <li>5. Other:</li> </ol>	
<b><i>The following emergency equipment is located in this room:</i></b>		
<input type="checkbox"/> Emergency Eyewash <input type="checkbox"/> Fire Extinguisher <input type="checkbox"/> Spill Kit/Control Equipment <input type="checkbox"/> Emergency Shower	<input type="checkbox"/> Phone <input type="checkbox"/> Fire Blanket <input type="checkbox"/> Other:	
<b><i>The following emergency equipment is not located in this room, but can be found at:</i></b>		
<b>Equipment</b>	<b>Location</b>	

**If your clothing catches on fire:**

1. "STOP, DROP and ROLL" (If someone else is on fire, place them on the ground, and instruct them to roll back and forth.)
2. Cover your face with your hands.
3. Use a fire blanket to help smother the flames.

**If there is a hazardous material spill:**

1. Determine if this is a "major" or "minor" spill.
2. Assist anyone who may have been contaminated or injured during the spill.
3. Clean up minor spills using appropriate spill control equipment.
4. Call 911 for all major spills. Evacuate the area and do not let anyone enter until Emergency Responders have cleaned up the spill.

**If you need to use the emergency shower or eyewash:**

Pull the handle to start the water flowing.

Hold your eyes open to get the water under your eyelids.

Remove all contaminated clothing and shoes.

Stay under the water for at least 15 minutes to get all the chemicals off.

**The quickest and safest way out of this room during an evacuation is:**

**If this primary route is not safe, the other way out is:**

**All lab staff are to meet at this location outside the building after evacuation. Take attendance to ensure that everyone has safely exited:**

# **ASBESTOS MAINTENANCE PROGRAM**

[OAR 437, Division 2, Subdivision Z \(1910.1001\)](#)

The purpose of this program is to ensure compliance with Oregon OSHA's Asbestos Standard. We have asbestos containing building materials which require that a basic asbestos program be maintained. The elements of a program include:

1. Inventory of asbestos-containing materials in our facilities.
2. Procedures for periodic examination of asbestos-containing materials to detect deterioration and need for repair or proper removal.
3. Written procedures for handling asbestos materials during maintenance and renovation activities.
4. Procedures for proper asbestos waste disposal.
5. Procedures for dealing with asbestos-related emergencies.
6. General asbestos awareness training will be provided to all maintenance staff who may encounter asbestos or be project managers ensuring that the outside asbestos abatement contractors follow our, Oregon OSHA, and DEQ procedures.

**Note:** This program does not meet DEQ asbestos worker training certification requirements nor it intended to meet all possible Oregon OSHA Asbestos Requirements.

## **Procedures for Conducting Asbestos Building Inventories**

### **Testing:**

1. Exposed building materials that are likely to contain asbestos will be tested by an outside source. The Supervisor will see that appropriate testing is done. The testing results will be retained by the management for 30 years. Sprayed on ceiling material containing asbestos and pipe insulation will be labeled.
2. Additional sampling will be done prior to removal, demolition, or renovation on all potential asbestos containing materials.
3. While many of our building materials have been tested, not all material may have been. Thus, it is our policy to test any of the following suspect building materials prior to removal.
  - a. Pipe Insulation Materials.
  - b. Floor Tiles and Mastic (tiles, mastic for molding, mastic for tiles or carpeting).
  - c. Sprayed on Asbestos containing ceiling materials.
  - d. Asbestos Containing Pipe.
4. Asbestos material inventory results are maintained by facility maintenance and are available for review. The inventories are done individually for each building.
5. Any removal and testing of asbestos containing materials will be done by outside contractors and testing labs who are certified asbestos removal contractors. In order to eliminate employee exposure to asbestos dust and materials, we have chosen to have outside contractors deal with these materials. They will practice appropriate containment procedures, including sealing off the area and separating the work from the HVAC/ventilation systems.

## Inspection Procedures

1. Outside asbestos abatement and inspection contractors who have asbestos certified staff have taken samples and either repaired or properly removed asbestos containing materials.
  - a. The maintenance staff is expected to note the condition of asbestos insulation and ceiling materials as part of their routine building maintenance. If upon visual inspection material is cracking, fraying, broken, or damaged they will report this to the Facility Manager.
  - b. Custodial staff is to immediately report broken insulated pipes and any broken or friable materials labeled as asbestos to their supervisor immediately.
  - c. If necessary, an asbestos abatement/inspection contractor's certified supervisor will determine the scale of the work. The work will be done by outside asbestos contractor(s). The asbestos supervisor will discuss interim measures necessary to protect all personnel that may be exposed to the material with management.

## Reinspection

Reinspection of all visible asbestos materials will be done by certified asbestos contractors based on frequency noted in the previous inspection report.

## Notice to All Building Occupants

Any damage to pipe insulation or other building surfaces and materials is to be reported to Management for review, in relationship to potential asbestos content. All asbestos insulation is labeled. Occupants in buildings with sprayed on asbestos containing ceiling material will be notified by the Management of the Building Manager. The building inventories will be available to all to occupants by contacting Management.

## Handling Asbestos Materials During Maintenance and Renovation Activities

Asbestos containing materials improperly handled can cause employee exposures to asbestos fibers and lead to building and surface contamination. **It is our policy that asbestos containing materials will only be handled or removed by certified asbestos contractors with proper equipment, training, and controls.**

1. **Asbestos Cement Pipe Work:** Jobs that entail removal of less than three square feet or three linear feet of asbestos-containing material (where the removal of asbestos is not the primary objective and methods of removal are complying). The work does not have to be performed by certified asbestos abatement workers. Employees who work on asbestos cement pipe must strictly follow the Department of Environmental Quality Standards on cutting or tapping the pipe. Power tools cannot be used to cut A-C pipes.

## Control Measures Used to Preclude Exposure & Appropriate Work Practices

1. We will hire contractors who use approved asbestos abatement methods. Projects may include either small scale or large-scale removal. Examples of **Class II to IV** projects include:
  - a. Pipe repair.
  - b. Valve replacement.
  - c. Installing electrical conduits.

- d. Installing or removing drywall, roofing and other general building maintenance.
  - e. Renovation which is small scale.
  - f. Removal of asbestos containing insulation on pipes using a glove bag.
  - g. Removal of small quantities of asbestos containing insulation on beams or above ceilings.
2. Safe Methods for Removal
- a. The methods of removal need to involve one or a combination of the following practices and engineering controls which can reduce employee exposure to below the action level of 0.1 fiber/cubic centimeter.
    - i. Wet method (asbestos containing pipes)
    - ii. Glove bag for small, isolated repairs
  - b. Maintenance staff **will not** use the following procedures when working with or around asbestos containing materials: Drill holes in asbestos material.
  - c. Sand asbestos containing floor tiles.
  - d. Dust surfaces that may contain asbestos with dry brushes or booms.
  - e. Use regular vacuum cleaners to collect asbestos dust or debris.
  - f. Remove material without proper respiratory protection and the proper type of clothing.
  - g. Damage asbestos containing materials when moving or conducting general maintenance.
  - h. Install curtains, drapes, or other dividers into asbestos containing materials.

### **Certified and Trained Asbestos Personnel**

Staff or contractors selected to remove or repair asbestos containing materials will be following the Oregon OSHA rules and Department of Environmental Quality (DEQ) Standards.

### **Asbestos Waste Disposal**

Our staff will follow the OR-OSHA, DEQ, and the available asbestos land fill requirements. Building materials containing asbestos can be legally disposed of using a disposal company to remove the waste bags and transport them to approved Oregon landfills. All asbestos abatement contractors will follow our rules as well as Oregon OSHA and DEQ's.

### **Potential Asbestos Emergencies**

1. Type of Emergencies:
  - a. Damage to asbestos containing building materials due to willful activities of the occupants or the public; or maintenance activities resulting in unplanned contact with asbestos materials.
2. Emergency Procedures:
  - a. Staff discovering an emergency will notify their supervisor, who will notify the entity's manager.
  - b. Seal off area or contain the problem. Proper danger/warning signs and area security will be implemented.
  - c. All clean-up, repair or removal will be done by an asbestos abatement contractor who is licensed and can be used on an emergency basis.
  - d. All Oregon OSHA and DEQ regulations will be followed and only asbestos certified workers with approved equipment will be allowed to contain and clean-up the emergency.

## General Asbestos Awareness Training

What is asbestos?

1. Asbestos is a generic term applied to naturally occurring fibrous hydrated mineral silicates. These minerals are regarded as hydrated because they are formed by their affinity for water.
2. Asbestos has been used widely in building materials and in products that needed to be fireproof. The EPA estimated in 1985 there were 31,000 schools and 733,000 commercial buildings that had asbestos products in them. Asbestos was used because the mineral is:
3. Fire Resistant.
4. May be woven or used to provide strength and consistency to a product.
5. Resistant to chemicals.

### In the United States two primary forms of asbestos were widely used:

1. **Amosite**
  - a. Resistant to heat and chemicals, and found extensively in pipe insulation, friction materials, roofing and flooring materials.
  - b. Characteristically a rigid, brittle fiber which cannot be woven.
  - c. Now banned in the U.S. due to the higher cancer health risk associated with amosite.
2. **Chrysotile**
  - a. A long, wavy, hair-like fiber that is easily woven. Chrysotile is used in asbestos clothing products and extensively in many forms of insulation.
  - b. The shorter mill-end material is now being substituted for amosite applications.

### Primary Health Effects

The primary effects from exposure to asbestos are to the respiratory system. Asbestos exposure is also linked to effects on the gastrointestinal system.

1. Particle Size
  - a. Asbestos is made up of fibers which are bundles of smaller and smaller fibers called fibrils. When asbestos material is disturbed countless numbers of very small fibrils, microns in size (millionths of a meter), are released into the air. Fibers 75 microns in size will get trapped in the nose and, Fibers 1-5 microns in size are trapped in the bronchioles and lungs.
  - b. The actual particle size of the asbestos that is released is important because:
    - i. Once a small particle becomes airborne it can remain suspended almost indefinitely, even in a very small environment.
    - ii. Particles of this size are carried into the deepest part of the lungs, past the protective mechanisms in the nose, sinuses, and larynx.
    - iii. The asbestos fibers are crystalline minerals and are very persistent, which means that the fibers do not degrade in biological tissue. Once breathed deep into the lungs, the fibers may remain there indefinitely.
    - iv. The mechanism of damage to tissue appears to be associated with the mechanical irritation caused by the sharp ends of the fibers.

### Diseases Associated with Asbestos Exposure

1. **Asbestosis of the lung:** A fibrotic degeneration of the lung is usually associated with chronic exposure to asbestos. The disease restricts the ability of the lungs to expand and causes scarring of the lung tissue. This causes progressive shortness of breath, respiratory



failure, and cardiac decompensation, which is the heart's inability to maintain circulation because of reduced oxygen levels. The disease is progressive even in the absence of continued exposure to asbestos.

2. **Lung Cancer:** Cancers of the lung are seen at higher incidence rates in individuals who have been exposed to asbestos. The incidence rate is 90 times greater for workers who smoked tobacco and were exposed to asbestos than workers only exposed to asbestos.
3. **Mesothelioma of the lung pleura:** A rare form of cancer which is almost entirely related to asbestos exposure. The disease is not curable and individuals with mesothelioma rarely live more than one year after diagnosis. Mesothelioma is not associated with smoking and may occur following exposure to low levels of asbestos and a level of dust exposure defined as a "safe" level for lung cancer risks.
4. **Gastrointestinal Cancers:** Asbestos workers exhibit higher rates of cancers of the stomach, intestines, bowel, and rectum.
5. **Pleural Plaques:** Plaques are seen on the X-Rays of asbestos workers. These are dense strands of collagen (connective tissue proteins) showing as opaque patches on the X-Rays. These plaques can be seen with no disease and do not reflect severity of disease tissue but indicate asbestos exposure.
6. **Asbestos:** There are those who contend that there is no safe limit for exposure to asbestos. The current epidemiological studies, however, do suggest a typical dose-response relationship for most of the asbestos related diseases. Thus, the higher the exposure, the higher the incidence of disease is seen. Studies have also indicated a higher incidence of disease associated with amosite-type asbestos.

## Relationship of Smoking and Asbestos Exposure

The 1985 Surgeon General's report on "The Health Consequences of Smoking: Cancer and the Chronic Lung Disease in the Workplace", reports on the research findings about the risk of developing lung cancer and lung diseases among asbestos exposed workers and asbestos exposed workers who smoke. The following conclusions were drawn by the report:

1. Asbestos exposure can increase the risk of developing lung cancer in both cigarette smokers and nonsmokers. The risk of cigarette smoking asbestos workers is greater than the sum of the risks of independent exposure.
  - a. The risk of developing lung cancer in asbestos workers increases with the increasing number of cigarettes smoked per day and increasing cumulative asbestos exposure.
  - b. The risk of developing lung cancer declines in asbestos workers who stop smoking; however, the risk of developing lung cancer appears to remain significantly elevated even 25 years after cessation of exposure.
  - c. Cigarette smoking and asbestos exposure appear to have an independent and additive effect on lung function decline. Nonsmoking asbestos workers have decreased total lung capacities (restrictive disease). Cigarette-smoking asbestos workers develop both restrictive lung disease and chronic obstructive lung disease.
  - d. Asbestos exposure is the predominant cause of interstitial fibrosis (asbestosis) in populations with substantial asbestos exposure.
  - e. The promotion of smoking cessation should be an intrinsic part of efforts to control asbestos-related death and disability. For workers for whom asbestos

exposure has ceased, the single most important intervention that would alter their future disease risk is the cessation of cigarette smoking.

**2. Latency of Disease to Exposure**

- a. Asbestos related diseases typically develop 30-40 years after the beginning of exposure. Workers who have been heavily exposed have shown symptoms within 5-10 years, but this is not typical.

**3. Personal Protective Equipment**

- a. Only asbestos abatement contractors who meet the PPE and respiratory protection rules shall be used. Contact the Supervisor for more details on the program requirements.

**Medical Surveillance**

There is no need for our employees to be part of an asbestos medical surveillance program but there is a requirement that the contractor's ensure that their employees are part of a comprehensive medical program.

**Recordkeeping**

**Exposure Measurements** (*records need to include*):

- 1. Date of measurements.
- 2. The operation was tested.
- 3. Sampling and analytical methods used.
- 4. Number, duration, and results of the samples.
- 5. Type of protective devices worn.
- 6. Name, social security number, and exposure of the employees whose exposures are represented.
- 7. The records need to be maintained for 30 years.
- 8. Where the records are stored.

**Medical Surveillance:**

The employer must ensure that the employees' medical records are maintained. The record needs to include:

- 1. Name and social security number.
- 2. Copy of the medical exams results.
- 3. Physician's written opinion.
- 4. Any employee medical complaints which relate to asbestos exposure.
- 5. Copy of information supplied to the physician
- 6. The records need to be maintained for the duration of employment plus 30 years.
- 7. Where and how the records will be securely stored.

**Training Records:** The training records need to be retained for one year beyond the last date of employment by that employee. Records are to be made available to Oregon OSHA, affected employees, former employees, and designated representatives.

# **ERGONOMICS PROGRAM**

[Oregon OSHA's Ergonomic Information Page](#)

[Self-Insured and Group Self-Insured Loss Prevention Programs](#)

This chapter has been implemented with the goal of strengthening our commitment to occupational injury prevention. The goal of ergonomics is to eliminate or reduce worker exposure to hazards or work conditions which lead to musculoskeletal disorders.

Musculoskeletal disorders are injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs.

## **Definitions**

1. ***Ergonomics***: The science that addresses human performance and well-being in relation to job, tools, equipment, and environment. Two additional terms that are commonly used in conjunction with ergonomics:
2. ***Biomechanics***: The study of movement of body segments (fingers, hands, arms, back) to describe the abilities and limitations of the human body.
3. ***Anthropometry***: The analysis of dimensions and proportions of the human body in relation to workstation design, equipment, furniture and tools.

***Ergonomic Assessment***: Method used for identifying ergonomic issues in an employee's workstations or work activities.

***Musculoskeletal Disorders (MSDs)***: Injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs. They do not include injuries resulting from slips, trips, falls, or similar accidents. Examples of MSDs include carpal tunnel syndrome, tendonitis, and low back pain.

## **Responsibilities**

**Management**: It is the direct responsibility of management to ensure that evaluations of workplace design, layout, operation, and assistance with job site modifications utilizing an ergonomic approach are conducted. The primary records of the ergonomic surveys and findings will be maintained by the supervisor or manager of the group or department receiving the evaluation.

**Employees**: It is the responsibility of the employee to report any discomfort to their supervisor that they feel is being caused or aggravated by their workstation. Employees are also responsible for participating in the job hazard analysis or ergonomic assessments of their workstation to assist with eliminating or reducing hazards and issues that are causing or contributing to their discomfort.

## **Ergonomic Responder Training**

Staff trained in ergonomic assessment are identified as Ergonomic Responders. They are trained to identify basic risk factors and provide recommendations to supervisors on how to improve employee workstations and work environments.

See: <https://osha.oregon.gov/OSHAPubs/1863.pdf>



citycounty insurance services  
cisoregon.org

## Workstation Ergonomic Evaluation For Employee and Ergo Responder

Employee Name:	Dept.:	Position:	
Employer:	Location:	Employer Contact Person:	
Ergo Responder Evaluator:	Phone:	Evaluation Date	
		Employee:	Ergo Responder:
Purpose for Evaluation	<input type="radio"/> New Hire <input type="radio"/> Workstation Change (New Equip or Duties) <input type="radio"/> Employee Request		
Concerns/Discomfort Experienced	Percentage of Time by Job Task		
	Keyboard Used: 0%	Mouse Used: 0%	
	Time Writing: 0%	Reading from Copy: 0%	
	Using Telephone: 0%	Input Documents: 0%	
	10-Key Used: 0%	Filing: 0%	
	Stapling/Removing: 0%		
	Vision Correction: 0%		



Employee Name:

Date:

## Chair

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Are shoulders relaxed and elbows approximately angled from 90° to 110° (not stretched forward or bent upward?) <input type="radio"/> Yes <input type="radio"/> No	Install an articulating (height & depth adjustable) keyboard/mouse tray or adjust chair height (if keyboard is on desktop) to achieve appropriate angles.		
Is curve of the lower back supported in chair? <input type="radio"/> Yes <input type="radio"/> No	Adjust or add lumbar support to chair to fit the lower curve of the back.		
Do feet rest firmly on floor or footrest? <input type="radio"/> Yes <input type="radio"/> No	Provide a footrest.		
Are hips and knees at comfortable angles when seated back in chair? <input type="radio"/> Yes <input type="radio"/> No	Adjust chair height, back tension, or tilt to achieve comfort in hips and knees. Sit back in chair to provide full support. Minimize sitting on chair's edge.		
Is there a fist distance of space between front of chair and back of knees when seated back fully? <input type="radio"/> Yes <input type="radio"/> No	If able, adjust seat pan depth. If <u>seat</u> pan is too deep, add a lumbar cushion to the back. If seat pan is too shallow, get a chair with a deeper seat.		
Does user perch toward front of chair? <input type="radio"/> Yes <input type="radio"/> No	Provide a footrest. Raising feet will force users back into the chair backrest.		
Is the seat pan adequately cushioned? <input type="radio"/> Yes <input type="radio"/> No	Add additional seat cushion or purchase new chair.		
Do thighs come in close contact with underside of desk or keyboard tray? <input type="radio"/> Yes <input type="radio"/> No	Remove obstructions that contact thighs, raise desk, or lower chair if able.		

## Keyboard and Input Devices

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Is user aligned in front of keyboard? <input type="radio"/> Yes <input type="radio"/> No	Align keyboard directly in front of user.		
Is mouse/input device at same level and close to keyboard? <input type="radio"/> Yes <input type="radio"/> No	Align mouse/input device on same level and as close as possible to minimize arm extension.		
Are wrists straight while keyboarding or using a mouse (not angled or drooping)? <input type="radio"/> Yes <input type="radio"/> No	Flatten keyboard tray angle. If helpful to guide wrists to a flat posture, use a gel-filled wrist/mouse support. Use good technique – float over the keys and use wrist support only during keying breaks. Do not deviate wrists side to side.		
Does mouse/input device fit user's hand? <input type="radio"/> Yes <input type="radio"/> No	Try out different sized/shaped devices.		
Is right hand tired from overuse? <input type="radio"/> Yes <input type="radio"/> No	Train left hand to use input devices.		
Are hard, sharp, or cold edges contacting arms, wrists, or elbows? <input type="radio"/> Yes <input type="radio"/> No	Cushion surfaces. Use wrist/mouse supports to prevent contact with body parts.		

## Monitor

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Is monitor an arm's distance away from user? <input type="radio"/> Yes <input type="radio"/> No	Position monitor 20 to 30 inches away from user.		
Is top of monitor screen at or slightly below eye level? <input type="radio"/> Yes <input type="radio"/> No	Position top of monitor no higher than eye level. <i>Bifocal wearers may need to lower monitor to desktop.</i>		
Is user aligned in front of monitor? <input type="radio"/> Yes <input type="radio"/> No	Align monitor directly in front of user.		
Are ears positioned over shoulders when looking at monitor (not bent up or down?) <input type="radio"/> Yes <input type="radio"/> No	Position top of monitor no higher than eye level. <i>Bifocal wearers may need to lower monitor to desktop.</i>		
Is screen free from any glare? <input type="radio"/> Yes <input type="radio"/> No	Position <u>monitor</u> parallel to windows, decrease overhead lighting, use window shades, tilt screen to a flat position, or use an anti-glare filter to reduce glare.		

## General/Accessories

Evaluation Points	Possible Solutions	Actions Taken/Date	
		Employee	Ergo Responder
Is there adequate leg clearance under desk to stretch legs while seated? <input type="radio"/> Yes <input type="radio"/> No	Remove clutter from under desk.		
Are input documents positioned to minimize head movement? <input type="radio"/> Yes <input type="radio"/> No	Use a document holder that is aligned under monitor or is next to and near the same level as monitor.		
Are frequently used work tools within easy reach of user? <input type="radio"/> Yes <input type="radio"/> No	Move frequently used items (phone, calculator, etc.) within easy reach to avoid over-reaching strains.		
Are tasks and postures shifted throughout the workday? <input type="radio"/> Yes <input type="radio"/> No	Alternate tasks and postures as a part of daily work plans. Give hands periodic rest breaks when keyboarding or using the mouse.		
Are head and neck aligned when using the phone? <input type="radio"/> Yes <input type="radio"/> No	Hold receiver upright when using the phone, <u>use</u> speakerphone, or telephone headset. <i>Determine the need for a telephone headset by user's average call frequency, duration, or whether multiple tasks are being performed while using the phone.</i>		

### Final Recommendations

# **CRANES, DERRICKS, AND HOIST OPERATIONS**

## [OAR 437, Division 2, Subdivision N](#)

The Crane, Derrick, and Hoist safety policy and procedures are designed to protect employees from potential hazards that can

### **Definitions**

**Authorized Employee (Designated personnel):** Employees who have been designated by management to operate a crane in their work area. They will be trained and supervised in proper operation and trouble shooting.

**Crane:** A machine for lifting and lowering a load and moving it horizontally, with the hoisting mechanism an integral part of the machine. Cranes, whether fixed or mobile, are driven manually or by power.

**Derrick:** An apparatus consisting of a mast or equivalent, held at the head by guys or braces (with or without a boom), for use with a hoisting mechanism and operating ropes.

**Hoist Motion:** The motion of a crane that raises and lowers a load.

**Preventive Maintenance:** The regularly required maintenance checks (required by Oregon OSHA rules) and recommended manufacturer's preventive maintenance

**Overhead crane:** A crane with a movable bridge carrying a movable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

### **General Responsibilities**

Only authorized employees are permitted to use any crane devices. If cranes of 5 tons or greater are used in construction activities, only licensed employees who have proof of certification by an identification card are permitted to operate the crane(s). All employees are required to follow the safeguards in this chapter.

**Manager:** It is the responsibility of the department manager to ensure that all employees who are permitted to operate a crane are trained and authorized for the equipment he/she is using. The manager is also responsible for ensuring that the required safety audits and preventive maintenance are completed in an appropriate and timely manner.

**Authorized Operator:** The operator will immediately report to the supervisor any unsafe conditions of equipment and will not use it until it is repaired.

**Licensed Construction Crane Operator:** The licensed construction crane operator must meet OAR 437-002-0228(2) [*Oregon General Requirements for Cranes* (Division 2: General Occupational Safety and Health Rules)] or 437-03-0081

[*Crane Operator Safety Training Requirements* (Division 3: Construction)] requirements.

**Supervisor:** The supervisor must include crane safety as part of their safety audit functions.

### **Inspections**

A crane in an unsafe working condition will not be used under any circumstances. All cranes and hoists will be thoroughly inspected annually by a competent person. Review of the crane's manual should occur during this time. Annual maintenance inspections should be documented as

well as monthly inspections, including results, by the supervisor. Issues should be addressed as soon as possible and prior to the next use of the crane. Cranes that are used around corrosives, water, etc. may need to be inspected more frequently.

The inspections include but are not limited to the following requirements (as required by Oregon OSHA rules):

1. A competent person to inspect all the crane equipment frequently prior to use and - during use to make sure it is in safe operating condition.
2. The frequency of inspections varies from daily to monthly depending on the type of crane and use conditions.
3. The operator will immediately report to the supervisor any unsafe conditions of equipment and will not use the crane again until it is repaired.
4. No unauthorized person will repair any electrical or mechanical lifting equipment.
5. The following inspection schedule will be implemented by the supervisor or a designated "Competent Person(s)" who will upon examination determine if deficiencies constitute a safety hazard:

#### **Daily Inspection (no written records required):**

1. All functional operating mechanisms which may interfere with the proper operation and for signs of excessive wear.
2. Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
3. Visual inspection of the hooks for deformation or cracks.
4. Visual inspection of hoist, load attachment chains, and slings for excessive wear, twist, distorted links interfering with proper function or stretch beyond manufacturer's recommendations.

#### **Monthly Inspections:**

1. Electrical apparatus, for signs of pitting or any deterioration of controller contactors, limit switches and push button stations.
2. Gasoline, diesel, electric, or other powerplants for improper performance or noncompliance with applicable safety requirements.
3. Load, wind, and other indicators over their full range, for
4. any significant inaccuracies.
5. Operating controls clearly identified
6. Fire extinguisher charged and unused
7. Rated capacity visibly marked on the crane
8. Boom stops on cranes with booms that could fall backwards
9. Load chart clearly visible to the operator
10. Electrically operated cranes effectively grounded
11. Deformed, cracked, or corroded members.
12. Loose bolts or rivets
13. Cracked or worn sheaves and drums
14. Worn, cracked or distorted pins, bearings, shafts, gears, rollers, locking and clamping devices.
15. Excessive wear on brake system parts, linings, pawls, and ratchets.
16. Excessive wear of chain drive sprockets and excessive chain stretch.
17. Visual inspection of the hooks for deformation or cracks.
18. Visual inspection of hoist and load attachment chains, and slings.



19. Detailed findings on an inspection report.
20. Any defects found need to be immediately corrected.
21. A record of all monthly inspections, dates, and results will be kept in the supervisor's office or in the equipment maintenance log.

### **Annual Inspection**

1. A thorough annual inspection of all cranes will be done by a competent person.
2. A record of the annual inspections, dates and results will be kept by the supervisor.

### **Procedures**

1. Cranes, derricks, and hoists will be operated by authorized personnel only in accordance with the manufacturer's specifications and limitations. Any trainee learning to use lifting equipment must be under the direct supervision of an authorized operator.
  - a. **Note:** 5-ton cranes used in construction activities have additional requirements not covered in this section. (See Division 3 Construction.)
2. Operation of Cranes and Derricks requires proper employee training which meets the requirements of 437-002-0228(2) Crane Operator Training Requirements.
3. The employer will establish written procedures for the safe operation of all cranes.
4. The employer will see that employees who operate cranes or derricks are properly trained, have sufficient practical experience, and follow the operating procedures for the safe operation of the crane or derrick.
5. The level of the training and experience determined by the employer as meeting section (2) above will be recorded in writing.
6. The manufacturer's rated load capacity will be conspicuously posted on all cranes and hoists.
7. The limit switch will never be used as an operating control.
8. If the power goes off while an electric crane is being operated, make sure to turn off all switches or operating buttons.
9. Before hoisting work begins, consideration must be given to the fact that stress is greatly increased if the leg of a hoisting chain, cable, or rope is rigged at an angle of less than 90 degrees. Avoid angles of less than 45 degrees. Angles less than 30 degrees will not be permitted.
10. The loads lifted should not exceed the maximum capacity of the crane or hoist and its lifting attachments. Side pull is prohibited. The load must be directly in line with the mast or boom.
11. No person will ride a load or hook.
12. Two or more separately rigged loads will not be hoisted at one time.
13. The person operating the crane is responsible for the load. Receiving signals or instructions will come from one authorized employee only.
14. The operator will always have a clear view of work and equipment.
15. The load will be attached to the crane by slings or by other approved devices.
16. Deformed or defective hooks, rings, or other lifting equipment links will not be used.
17. Hooks will be taken out of service when any of the following conditions exist:
  - a. The hook has more than 10° twist from the plane of the unbent hook.
  - b. The hook has more than 15% more than normal throat opening.
  - c. The hook has cracks.
18. Wire rope cables that appear to be cut, frayed, kinked, or rusted will not be used.
  - a. Wire rope will receive emphasis during daily, monthly and annual inspections.

19. Wire rope will be taken out of service when any one of the following conditions exist: In running ropes, 6 randomly distributed broken wires in 1 layer or 3 wires broken in 1 strand in 1 layer.
  - a. Wear of  $\frac{1}{3}$  the original diameter of outside individual wires. Kinking, crushing, bird-caging, or other damage resulting in distortion of the ropes structure.
  - b. Evidence of any heat damage from any cause.
  - c. Reduction from nominal diameter of more than  $\frac{1}{64}$ " from diameters up to and including  $\frac{5}{16}$ ";  $\frac{1}{32}$ " for diameters  $\frac{3}{8}$ " to and including  $\frac{1}{2}$ ";  $\frac{3}{64}$ " for diameters  $\frac{9}{16}$ " and including  $\frac{3}{4}$ ";  $\frac{1}{16}$ " for diameters  $\frac{7}{8}$ " to  $1\frac{1}{8}$ " inclusive;  $\frac{3}{32}$ " for diameters  $1\frac{1}{4}$ " to  $1\frac{1}{2}$ " inclusive.
20. Standing ropes will be taken out of service if any of the following conditions exist:
  - a. More than 2 broken wires in 1 lay in sections beyond end connections or more than one broken wire at an end connection.
  - b. Any rigging rope has 1 or more broken wires near an
  - c. attached fitting.
21. Corroded, damaged or improperly applied end connections.
22. Knots will not be used to shorten nylon or wire rope slings.
23. Chain links of a hoist will not be secured by a nut and bolt, nails, pins or other means not recommended by the manufacturer.
24. Chain slings lifting equipment should not be subjected to sudden shock by twisting, snapping or jerking into place.
25. The working line of the hoist will not be wrapped around the load.
26. Rope clips will be installed and used according to the safety codes found in 437-002-0228(9)(f)(h): see table below. When used for eye splices, the U-bolt will be applied so that the "U" section is in contact with the dead end of the rope.

Use this table to determine the number and spacing of U-bolt wire clips.

<b>Number And Spacing Of U-Bolt Wire Clips</b>			
<i>Number of Clips</i>			
<i>Improved Plow Steel Rope Diameter Inches</i>	<i>Drop Forged</i>	<i>Other Material</i>	<i>Minimum Spacing (Inches)</i>
$\frac{1}{2}$	3	4	3
$\frac{5}{8}$	3	4	$3\frac{3}{4}$
$\frac{3}{4}$	4	5	$4\frac{1}{2}$
$\frac{7}{8}$	4	5	$5\frac{1}{4}$
1	5	6	6
$1\frac{1}{8}$	6	6	$6\frac{3}{4}$
$1\frac{1}{4}$	6	7	$7\frac{1}{2}$
$1\frac{3}{8}$	7	7	$8\frac{1}{4}$
$1\frac{1}{2}$	7	8	9

1. Before a load is lifted, it will be inspected for loose parts or objects.
2. The safety latch on the hook of a hoist will be secured in every instance when lifting or moving a load.
3. The operator will see that the load is secure and properly balanced before it is lifted more than a few inches off the ground, floor, or support.

4. The operator will test the brake each time a load is lifted by raising the load a few inches and applying the brake.
5. Care will be taken to see that the equipment with which the load is lifted is not kinked or caught against obstructions while moving the load upward and that the load does not hit any obstructions.
6. Lifting equipment must not drag under a load.
7. The operator must refrain from getting between the load and a solid surface, to avoid being pinned or caught by a falling or moving load.
8. Do not grab the cable as it is being pulled through the sheave wheels.
9. Employees must stand clear of all suspended loads.
10. A loaded crane should never be left over machinery.
11. Suspended loads will not be left unattended.
12. When lowering a load, the operator will proceed carefully, making sure that he/she has always it under safe control.
13. Lifting hooks and fastenings will not be removed until material is at rest in a stable position or safely secured by other fastenings.
14. Before moving a crane on which an empty sling is hanging, the operator must secure the bottom ends of the sling to the block, hook, or sling ring.
15. When moving a crane make sure the hook and/or the load will clear all obstacles.

# Crane Operator Inspection Checklist (Fixed Facilities Crane)

Crane: \_\_\_\_\_ Date: \_\_\_\_\_

Operator: \_\_\_\_\_ Daily Inspection \_\_\_\_\_ Monthly Inspection \_\_\_\_\_

Complete a visual inspection of conditions listed below. Mark each item with a N (No) if there is no defect or Y (Yes) if a defect is identified. Communicate to your supervisor if any conditions are found and note the details (use back of form if need more space).

	Condition	Yes	No	If yes, details of identified condition
1	Bearings: Loose, worn			
2	Brakes: shoe wear			
3	Bridge: alignment out of true (indicated by screeching or squealing of wheels)			
4	Bumpers on bridge: loose, missing, improper placement			
5	Collector shoes or <u>bars</u> : worn, pitted loose, broken			
6	Couplings: loose, worn			
7	Drum: rough edges on cable grooves			
8	End stops on trolley: loose, missing improper placement			
9	Gears: lack of lubrication or foreign material in the gear teeth			
10	Guards: bent, broken, lost			
11	Hoisting cable: broken wires, kinked or twisted			
12	Hook Block: chipped sheave wheels			
13	Hooks: straightening (note when permanent set of <u>hook</u> is greater than 15% in excess of normal throat opening, the hook will be replaced.)			
14	Lights (if installed) are functional			
15	Limit switch: functioning improperly			
16	Lubrication: overflowing on rails, dirty cups			
17	Mechanical parts (rivets, covers, etc.) loose			
18	Overload relay: frequent tripping of power			
19	Rails (trolley or runway): broken, chipped, cracked			
20	Wheels: worn (indicated by bumpy riding)			
21	Electric control buttons are functioning improperly and/or not clearly marked as to direction of travel			
22	Functional operating mechanism: excessive wear of functional operating mechanisms			
23	Functional operating mechanism: deterioration of parts			
24	Functional operating mechanism: non-compliant hooks			
25	Functional operating mechanism: Hoist and load attachment chain: wires and slings for signs of wear or deterioration			

NOTE: The information on the Crane Inspection Source, Accident Prevention Manual for Industrial Operations, 8<sup>th</sup> Edition, National Safety Council, 1986.

\*\*Use Reverse For Additional Comments

# **CONTRACTOR SAFETY AND HEALTH HAZARD CONTROL NOTIFICATION POLICY**

Oregon OSHA regulations require notification of outside contractors regarding safety programs for Hazard Communication, Asbestos, Hazardous Waste, Hazardous Energy Control and Confined Space. In addition to these basic requirements all outside contractors performing work in our buildings or facility will be notified of the basic Emergency Action Plan and safety rules.

Contractors who are hired to perform maintenance work involving the need to control hazardous energy or enter confined spaces will be informed of the programs and the associated hazards of which the plant services staff is aware. The notification is not designed to take over the contractor's safety responsibilities to his or her employees, but rather to provide appropriate notification under the Oregon OSHA rules.

Appendix 1, page 20.5, provides the contractor notification information including: notification checklists for the overall safety rules, control of hazardous energy, and confined space entry, asbestos, and hazardous waste. Managers that are responsible for the outside contract will ensure that this material is provided to the contractor and a signed statement is completed by the contractor. Safety and occupational health questions should be directed to the department/project manager.

## **Responsibilities**

**Department or Project Managers:** The Department or Project Manager generally has the overall responsibility for construction and electrical contractors. It is the Department or Project Manager's responsibility to review the Safety Manual and obtain signed statements from the contractor representatives. If there is any joint work done between the contractor and our employees, it is the manager's responsibility to see that proper Energy Control Procedures are carried out. The Department or Project Manager is responsible for keeping a contractor's file and if the same contractors are used for an on-going period, the notification will be updated on an annual basis.

1. The contractor file should note the following:
  - a. Ensures that they receive our safety policies and any updates.
  - b. Specific safety questions are responded to.
  - c. Audits the Contractor Notification system.
  - d. Assists in ensuring that contractors follow our policies and do not endanger our employees.

The contractor notification process flow:

1. The Department or Project Manager is to determine the scope of contractor work and prepare an adequate contract or purchase order for the services.
2. Select the contractor and provide the scope of work and the applicable chapters of the Safety Manual.
3. The Department or Project Manager reviews the applicable chapters of the Safety Manual. This will ensure that the contractor and employees acknowledge the information and sign the acknowledgment letter.
4. A copy of the acknowledgment letter is provided to the contractor and a copy is retained in the contractor's file.

5. The Department or Project Manager is responsible for conducting periodic follow-up with the contractor representative to ensure the safety of our employees and that the contractor is operating in a safe manner

### **Specific Program Review**

Each applicable Oregon OSHA program must be reviewed by the contractor prior to performing work.

### **Informing Contractors of Hazard Communication Program**

When outside contractors perform work in our facilities, the Department or Project Manager will ensure that the contractors' management representative is informed of any hazardous chemicals and needed controls.

The following methods will be used to inform outside contractors of the potential chemical hazards in their work areas:

1. Hazardous chemicals to which they may be exposed while on the job site.
2. Precautions the employees may take to lessen the possibility of exposure.
3. Location of Safety Data Sheets (SDS) for chemicals to which they are potentially exposed.
4. Temporary Service employees will be trained in the same manner as permanent employees.
5. If additional information is needed, the Department or Project Manager should be contacted for assistance.
6. The contractor will be provided with the applicable chapters of the Safety Manual. The acknowledgment form is to be signed by the Contractor's representative. A copy of the signed checklist is to be kept by the Department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)
7. If the contractor is bringing in hazardous materials, then the Department or Project Manager will ensure that the contractor has all the pertinent SDS at the job site.

### **Asbestos Material Notification**

When outside contractors perform building renovations or remodeling where asbestos building materials may be present, the department or project manager will ensure that the contractors management representative is informed of the presence of asbestos building materials. This will include ensuring that an assessment is done to determine if an asbestos abatement project must be done first.

The following methods will be used to inform outside contractors of the presence of asbestos containing building materials:

1. The Department or Project Manager will ensure that the contract manager is informed of the planned work.
2. The Department or Project Manager will review the plans with the contractor to determine the scope of the work and assess the potential for contact with asbestos containing materials.
3. If asbestos materials are disturbed or need to be removed, the Department or Project Manager will arrange for a licensed asbestos abatement contractor to perform the work prior to the other contracting operation.
4. The Department or Project Manager will audit the asbestos abatement project work to ensure that the project is done safely and per Oregon OSHA rules.

5. The asbestos abatement contractor will also be provided with the applicable chapters of the Safety Manual and notification of pertinent hazard informational checklists which will be signed by the Contractor's representative. A copy of the signed checklist is to be kept by the Department or Project Manager as part of the contract file. (See Appendix 1, page 233)

### **Hazardous Waste Notification**

When outside contractors perform work involving the removal and disposal of hazardous waste, the Department or Project Manager is responsible for crew and process safety. The procedures used are to meet DEQ/EPA requirements.

The following methods will be used to inform outside contractors of the potential chemical hazards in their work areas:

1. The Department or Project Manager will only contract with licensed Hazardous Waste haulers and dispose of materials only in permitted methods.
2. The Department or Project Manager will ensure that the hazardous waste contractor's employees are trained in the required DEQ and Oregon OSHA programs and are informed as to the materials that are being collected, hauled and disposed of.
3. The Department or Project Manager will ensure that all the proper DEQ/EPA and DOT paperwork is prepared and available for all the parties involved as required.
4. The contractor will be provided with the applicable chapters of the Safety Manual and notification of pertinent hazard information checklists that need to be signed by the Contractor's representative. A copy of the signed checklist is to be kept by the Department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)

### **Informing Outside Contractors of the Hazardous Energy Control Program**

1. When outside contractors are hired to work on machines and equipment, their activities may require that hazardous energy be controlled. As a result, a copy of our procedures will be given to that contractor and a mutually agreed upon procedure established concerning the lockout/tagout devices that will be used to protect employees and the contractor's workers. This coordination will help to ensure that all our employees know what kind of work is to be performed, where and when it is to be performed, as well as how they are being protected.
2. The Department or Project Manager will identify the energy isolating devices for the contractor, as necessary. The contractor's employees will be responsible for locking out all devices capable of locking or placing an energy control tag on or as near the device as possible.
3. A copy of the contractor notification letter and hazard information will be provided to the contractor and a signed copy returned to our department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)

### **Informing Outside Contractors of the Confined Space Plan and Space Hazards**

If a contractor is hired to perform confined space entry work, the Department or Project Manager will see that the contractor's management representative is notified of our Confined

Space Policy and the known hazards associated with space. This notification is to ensure that the company complies with rule 1910.146 (c) (8) of the Confined Space regulations and OR-OSHA Confined Space regulations, OAR 437-002-0146. If we contract for confined space entry work as the host employer, the Department or Project Manager is responsible to:

1. Inform the contractor that a permit required space is involved in the work. This includes information about any chemicals in the space per Hazard Communication requirements.
2. Apprise the contractor of the hazards our organization has identified, and any experience employees have had with the space.
3. Apprise the contractor of any precautions our employees have taken for entry into or near spaces where the work will be performed.
4. Coordinate entry operations with the contractor if more than one contractor or if our employees will also be working in or near the same permit spaces.
5. Debrief the contractor to determine precautions and procedures that were followed and any hazards that were present or that developed during entry operations.
6. A copy of the contractor notification letter and hazard information will be provided to the contractor and a signed copy will be returned to our department or Project Manager and kept as part of the contract file. (See Appendix 1, page 233)

### **Hot Work: Welding Permission System**

When outside contractors are hired and their work involves welding, it is the Department or Project Manager's responsibility to see that the contractor uses a hot work permit process to ensure that all fire hazards are controlled. The hot work permit is required to be done by the contractor and made available to our department or Project Manager. The permit will not be required if the welding is done in a welding shop area.

The Department or Project Manager will provide the contractor with the basic form required by our organization. If the contractor has his/her own hot work permit system, it can be used if it is complete and available.

### **Safety For Contractors**

The following document is provided as a sample for outside contractors. Pertinent information is to be reviewed by the Department or Project Manager (or designer) and signed statement(s) from the contractor representative are to be obtained. Send or provide a copy of the signed statement to the Department or Project Manager and retain a copy in the contractor's file.

For contractors who are used regularly, an annual updated copy and review must be completed and documented.

### **Contractor Safety Notification: Safety Rules for Contractors Working**

All contractors and their employees are required to review the Safety Manual. The contractor representative is to sign the acknowledgment letter that he/she and their employees have reviewed the appropriate materials. The information that must be reviewed includes:



Basic Safety Rules	Yes	No
Hazardous Material Deliveries	Yes	No
Confined Space Entry	Yes	No
Tools & Personal Protection	Yes	No
Equipment Lockout (Control of Hazardous Energy)	Yes	No
Emergency Action & Fire Prevention	Yes	No
Chemical Hazard Communication	Yes	No
Asbestos Material Removal Program	Yes	No
Hazardous Waste Storage and Disposal Program	Yes	No

**Contractor Acknowledge Sign-off Letters:**

General Acknowledgment Letter	Yes	No
Confined Space Checklist	Yes	No
Equipment Lockout Checklist	Yes	No
Asbestos Removal Program Checklist	Yes	No
Hazardous Waste Program Checklist	Yes	No
Lead Materials Removal	Yes	No

*Note: This document does not list all potential or existing hazards or rule compliance issues, but is intended to provide overall safety control issues that contractors and their employees are required to follow. This guide does not anticipate all problems nor identify all possible solutions. Each contractor remains responsible for the safety and health of his/her employees and must be vigilant in identifying and correcting hazards and reporting any problems or accidents/near misses to the Department or Project Manager.*

**Contractor General Safety Notification Sign-Off**

It is our goal to provide a safe and healthy work environment for employees and ensure proper hazard notification to our contractors. As a result, each contractor has been provided with the applicable chapters of the Safety Manual. The general safety issues have been reviewed with you as the contractor’s representative by the Department or Project Manager. This includes a discussion of general safety rules,

a review of the emergency action plan and evacuation plan, lockout/tagout, hazard communication, presence of asbestos or lead containing materials, and confined space entry, as applicable to the project.

The Safety Manual materials must be read and understood by your employees before they begin work at our facility. Additional information will be provided by the Department or Project Managers as needed. Please have all your employees that will be working at our facility read the appropriate material.

Name of Contractor:		Date:
Signature of the Contractor's Representative:		
<b>Additional hazard notification issues are attached as appropriate for:</b>		
1	Emergency Action Plan	
2	Confined Space Information	
3	Specific Lockout/Tagout Procedures	
4	Hazardous Waste Information	
5	Presence of Asbestos Materials	
6	Presence of Lead Building Materials	
7	Presence of Hazardous Chemicals	

### **Contractor Notification Form**

The contractor notification will be done by the Project Manager or Department Manager. If we contract for confined space entry work as the host employer, we are responsible to:

1. Inform the contractor that a permit required space is involved in the work. This includes information about any chemicals in the space per Hazard Communication requirements.
2. Apprise the contractor of the hazards that have been identified and any experience our employees have had with space.
3. Apprise the contractor of any precautions our employees have taken for entry. The contractor must provide our supervisor with a copy of the contractor's confined space program.
4. Coordinate entry operations with the contractor if more than one contractor or if our employees will also be entering the space.
5. Debrief the contractor to determine if any problems were encountered requiring changes in procedures.

# Contractor Confined Space Notification Checklist

Project Manager:		Date:
Contractor Representative:		
Location of the Space:		
The following information outlines the basic features and safety control issues we are aware of. There may be other hazards or conditions created by the Contractor.		
<b>Checklist of Safeguards · Hazards and Recommended Safeguards</b>		
<b>Isolation:</b>		
1. Electrical		
2. Mechanical		
3. Other		
<b>Hazardous Work:</b>		
1. Welding/Burning/Open Flame		
2. Electrical Work		
3. Chemicals		
<b>Special Requirements</b>		
1. <u>Lock-outs</u>		
2. Lines Disconnected		
3. Vessel/Tank Purge: Flush & Vent		
4. Ventilation		
5. Secure Area		
6. Lighting		
7. Communication		
8. Fire Extinguishers		
9. Emergency Egress Procedures		
10. Other		
<b>Personal Protective Equipment Needed</b>		
1. Harness & <u>Life Line</u>		
2. Respirator		
3. Eye Protection		
4. Hearing Protection		
5. Protective Clothing		
<b>Atmosphere Tests:</b>		
List type of air testing that would be necessary:		
Copy of the contractor's Energy Control Plan Reviewed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Copy of the contractor's Confined Space Entry Policy Reviewed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

## Contractor's Emergency Response Information Needed:

Phone Number of Nearest Telephone:	Location of Nearest Telephone:
Name of First Aid Person	Location of Nearest First Aid Kit:
Emergency Rescue Plan:	
Post Entry Debriefing Notes:	

## Contractor Energy Control Notification Checklist

Department or Project Manager:	Date:
Contractor Representative:	Date:
Scope of work requiring energy control:	
Copy of the contractor's energy control plan reviewed? <input type="checkbox"/> Yes <input type="checkbox"/> No	





**Hazardous Materials: Solid Waste Storage and Disposal Contractor Notification Checklist**

The locations and types of hazardous materials that will be collected, transported and disposed of have been reviewed. All appropriate generator documents have been provided and hazardous waste determinations have been done. All Oregon OSHA, DEQ/EPA and DOT applicable rules will be followed by the contractor and employees. The Department or Project Manager may audit the contractor’s procedures and can require changes if the contractor is not complying with appropriate hazardous materials-waste regulations.

Please provide a list of contractor names that will be on the job and their DEQ, OR-OSHA and DOT Hazardous Materials Training Level.

Name of Contractor	Date	DEQ/OSHA/DOT Hazardous Materials Training Level





# **FORKLIFT SAFETY**

[OAR 437, Division 2, Subdivision N \(1910.178 & 437-002-0227\)](#)

This Forklift/Industrial Vehicle Safety Policy is designed to help ensure that our employees are protected from unsafe conditions and operations that potentially can occur in the use of industrial vehicles. In addition, this program is to ensure compliance with Oregon OSHA regulations dealing with the use of industrial vehicles.

Only trained and authorized employees are permitted to drive or operate industrial vehicles. Operators are required to follow procedures in this chapter and manufacturer recommendations on vehicle usage and safety. All vehicles are to be maintained in safe operating conditions.

## **General Responsibilities**

**Management:** Managers and supervisors are responsible for ensuring that only trained employees are authorized to operate industrial vehicles. Management is required to see that adequate maintenance services are provided and used to ensure safe vehicle operating conditions.

**Supervisor:** The supervisor is responsible for maintaining training records and/or copies of licenses or certifications which demonstrate employee training. Supervisors will provide employee training and audit operations for compliance with this chapter and Oregon OSHA regulations.

**Authorized Operators:** Employees who are authorized to operate industrial vehicles must follow all safety procedures as outlined in this chapter, by Oregon OSHA rules and manufacturer's recommendations. Employees are required to complete daily operating safety checks and ensure all unsafe equipment is taken out of service and repaired prior to use. All vehicle operators will immediately report any accidents to their supervisor.

## **Safety Procedures**

### **Authorized Operators**

Authorized Operators will be trained and approved by their supervisor to operate various types of industrial vehicles. The training will consist of:

1. Instruction in proper inspection and safe operating procedures as outlined in this program.
2. A hands-on demonstration by an authorized driver, supervisor or competent outside trainer.
3. A written examination on the inspection and safe operating procedures.
4. This training will occur upon initial assignment, annually, or whenever the supervisor sees a need for reorientation.
5. Only authorized personnel will operate forklift trucks.

## **Inspections and Fueling**

1. Before the start of each shift, at least daily, a visual inspection must be made to assess the forklift's working condition to ensure safe operations. Inspections should occur after each shift if forklifts are used around-the-clock. Inspection items include:

- a. Condition of the tires
  - b. If pneumatic tires, check inflation pressure
  - c. Warning and safety devices
  - d. Lights
  - e. Battery
  - f. Controls
  - g. Lift and tilt systems
  - h. Load-engaging means
  - i. Chains and cables
  - j. Limit switches
  - k. Brakes
  - l. Steering mechanism
  - m. Fuel system(s)
  - n. Additional items, attachments, or special equipment as specified by the user and/or manufacturer
2. If at any time the forklift is found to need repair, defective, or in any way unsafe, it will be taken out of service until it has been restored to safe operating condition. Immediately report any defects to your supervisor and/or maintenance for correction. The vehicle will be out of service until proper repairs can be made.
  3. The operator will not operate an unsafe forklift or other industrial vehicles at any time.
  4. Operators will not make any repairs or adjustments on any vehicle unless they are trained and authorized personnel.
  5. For electric powered vehicles, battery charging will be done only in a well-ventilated area. No smoking or open flame are permitted in battery charging areas.
  6. Only authorized personnel will do fueling. Fuel tanks will not be filled when the engine is running. It is important to avoid spillage of fuel. If spillage occurs, ensure fuel is carefully washed away or is evaporated and fuel cap tank replaced before restarting engine.
  7. Do not operate the truck if there is a leak in the fuel system until the leak has been fixed.

### **Determining Load Capacity**

1. Operators will not exceed the safe load capacity of a vehicle at any time. Double-tiered loads will not be handled unless the vehicle is designed to accommodate the load.
2. The load capacity is shown on the "Forklift Nameplate".
3. Only stable or safely arranged loads will be handled. Caution will be exercised when handling off-center loads which cannot be centered.
4. The load center is determined by the center of gravity and is defined as the horizontal distance from the load's edge (or the forks or other attachment's vertical face) to the line of action through the load's center of gravity. The line of action is an imaginary vertical line through an object's center of gravity.
5. The center of gravity is the point on an object at which all the object's weight is concentrated. For symmetrical loads, the center of gravity is the middle of the load. A lift truck's center of gravity moves because it has moving parts. The center of gravity moves forward and back as the upright is tilted forward and back. The center of gravity moves up and down as the upright moves up and down. Factors in determining the center of gravity include:
  - a. Size of the load
  - b. Weight of the load
  - c. Shape of the load

- d. Position of the load
  - e. Lift height
  - f. Amount of tilt
  - g. Tire pressure
  - h. Dynamic forces created when the truck is moving (acceleration, braking, turning, and operating on uneven surfaces or incline)
6. Operators will not counterweight a forklift to increase lifting capacity. Instead, the load will be broken down or a forklift with a higher rating will be used.

## **General Operating Safety Rules**

1. The operator must always be in control of the forklift steering.
2. No person will ride as a passenger on a forklift or forks or on the load being carried.
3. A forklift will not be used to elevate a platform or pallet with people on it, except work platforms specifically designed for this purpose. Work platforms must have standard guardrails and must be securely fastened to the forks. In addition:
  - a. The hydraulic system will be so designed that the lift mechanism will not drop faster than 135 feet per minute in the event of a failure in any part of the system.
  - b. An operator will stay in attendance at the forklift while workers are on the platform.
  - c. The operator will be in the normal operating position while raising or lowering the platform.
  - d. The vehicle will not travel from point to point with the work platform elevated at a height greater than 4 feet while workers are on the platform. When necessary, at heights greater than 4 feet, inching may be permitted provided it is done at a very slow speed.
  - e. The area between workers on the platform and the mast will be guarded to prevent contact with chains or other shear points.
4. Operators will not put their fingers, arms, or legs between the uprights of the mast, or beyond the contour of the forklift.
5. Operators will look in the direction of travel.
6. Operators must avoid making jerky starts, quick turns, or sudden stops. Travel slowly when turning. Lift trucks can tip over even at very slow speeds. The combination of speed and sharpness of a turn can cause a tip over.
7. A lift truck is less stable when the forks are elevated, with or without a load. In fact, the lift truck will tip over more easily when empty than when loaded with the load lowered.
8. If the lift truck tips over:
  - a. Do not jump off!
  - b. Hold firmly to the steering wheel; brace your feet and lean forward and away from the point of impact.
  - c. The operator will not use reverse as a brake.

## **Traveling**

1. Forklifts will be driven on the right side of the aisle way/roadway.
2. Operators will cross railroad tracks diagonally whenever possible. Parking closer than 8 feet from the center of rail-road tracks is prohibited.
3. All vehicles will be operated at a safe speed with due regard for traffic and conditions.
 

Maximum allowed speeds:

  - a. Inside buildings: 5 mph
  - b. Outside buildings and not in work areas: 7 mph

- c. On roads outside: 10 mph
- 4. Operators will slow down on wet and slippery surfaces.
- 5. Operators will slow down at crosswalks and locations where vision is obstructed.
- 6. Operators entering a building or nearing a blind corner will make their approach at a reduced speed, sound horn, and proceed carefully. (Exception: blind corners equipped with mirrors providing a full view in all directions.)
- 7. Operators will give pedestrians the right-of-way always. The right of way will be yielded to ambulances, fire trucks, or other vehicles in emergency situations.
- 8. Operators will not drive toward any person who is in front of a fixed object or wall.
- 9. Operators will not overtake and pass another forklift traveling in the same direction at intersections, blind spots, or hazardous locations.
- 10. No person will stand or walk under elevated forks or any load.
- 11. Grades will be ascended or descended slowly.
  - a. When ascending or descending grades are more than 10 percent, loaded trucks will be driven with the load upgrade.
  - b. On all grades, the load and load engaging means will be tilted back if applicable and raised only as far as necessary to clear the road surface.
- 12. When a forklift is not carrying a load, the operator will travel with the forks low.
- 13. The load will be carried as low as possible (consistent with safe operations, 2 to 6 inches above the surface).
- 14. Forks will be placed under the load as far as possible.
- 15. Generally, do not lift a load with one fork.
- 16. No load will be moved unless it is safe and secure. To maintain balance, the load should be centered, and the forks properly spaced near the outside edges. Before traveling, the load will be tilted back until it rests securely. A load backrest will be used to prevent spilling of the load.
- 17. The position for each fork is the same distance from the center of the carriage. Set forks as far apart as possible for maximum support of the load. Center the weight of the load between the forks. Otherwise, the load may fall off the forks when you turn a corner or hit a bump.
- 18. The operator's view should not be obstructed by the load. In the event of a high and/or wide load, the forklift will be driven backward in low gear.
- 19. Operators need to watch overhead clearance. All vehicles operated in areas where overhead hazards exist will be equipped with an approved overhead guard.
- 20. Bridge plates will be properly in place and secured. Wheels of trucks and railroad cars will be blocked to prevent movement during loading.
- 21. Forklift drivers will come to a complete stop before reversing the direction of travel.
- 22. Unstable loads will be restacked or banded. Use extra care when handling long lengths of pipe, or other materials.
- 23. Avoid sharp or fast end-swing. Lift trucks are designed to work in relatively small space. Because of this, they can turn sharper than some other vehicles. When the truck is steered by the rear wheels, the rear of the truck moves to the side during a turn. This movement is called "tail swing". An operator must be aware of the tail swing and always check to make sure the tail swing area is clear before turning. Failure to observe the tail swing area when making a turn can cause injury or kill someone.
- 24. Hazardous materials will not be moved unless they are in approved containers.
- 25. Compressed gas cylinders will be moved only in special pallets designed for this purpose.
- 26. When unloading trucks or trailers, the brakes on the vehicle will be set (locked) and the wheels chocked.

27. The flooring of trucks, trailers, and railroad cars will be checked for breaks and weakness. Powered industrial trucks will not be driven onto flooring that is found to be of inadequate strength.
28. Operators will never attempt to turn sideways on an incline. Do not run on an incline to reduce the possibility of a tip over; a lift truck must not be driven across an incline.
29. All vehicles will be equipped with audible warning signals, and where practical, will have spark arrestors.
30. All vehicles operated at night in dark buildings or in poorly lit areas will be equipped with head and taillights.
31. Vehicle flywheels, gears, sprockets, chains, shear points and other exposed parts constituting a hazard to the operator, or other employees will be guarded.
32. Vehicles powered by internal combustion engines will not operate in buildings unless the buildings are adequately ventilated.
33. Vehicles must be safely parked when not in use. The controls will be neutralized, power shut off, brakes set, and the forks left in a down position flat on the surface not obstructing walkways or aisles. These procedures must be used whenever the operator leaves the forklift unattended (i.e. when the driver is 25 feet or more away or the vehicle is out of the operator's view).
34. A forklift will not be left on an incline unless it is safely parked, and the wheels chocked or blocked.
35. Forklifts will not be parked or left unattended in aisles, by exits or doors.
36. Stunt driving and horseplay will not be permitted.
37. Elevators will be approached slowly and then entered squarely after the elevator car is properly leveled. Once on the elevator, the controls will be neutralized, power shut off, and the brakes set.
38. Running over loose objects on the roadway surface will be avoided.
39. While negotiating turns, speed will be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel will be turned at a moderate, even rate.

### **LPG Tank Filling Procedure**

1. Industrial trucks (including lift trucks) equipped with permanently mounted fuel containers will be charged outdoors.
2. The dispensing of LP gas into the fuel container of a vehicle will be performed by a competent attendant who will remain at the LP gas dispenser during the entire transfer operation.
3. Engines on vehicles will be turned off while fueling if the fueling operation involves venting to the atmosphere.
4. There will be no smoking on the driveway of the (fueling area), in the dispensing areas or transport truck unloading areas.
5. Signs prohibiting smoking will be posted within sight of the person refueling. Letters on such signs will be not less than 4 inches high. The motors of all vehicles being fueled will be shut off during the fueling operations.

## **Basic rules for Industrial Truck Use of Liquefied**

### **Petroleum Gas (LPG)**

1. When filling forklift tanks, the employee must wear eye,
2. face and hand protection.
3. No more than two LPG containers will be used on an industrial truck for motor fuel purposes.
4. Industrial trucks will not be parked and left unattended in areas of possible excessive heat or sources of ignition.
5. All sources of ignition should be eliminated to the extent possible. Conspicuous signs must be posted in the storage area forbidding smoking.
6. Filling of fuel containers for industrial trucks or motor vehicles from industrial bulk storage containers will be performed not less than 10 feet from the nearest important masonry-walled building or not less than 25 feet from the nearest important building or other construction and, in any event, not less than 25 feet from any building opening.

### **Container valves and container accessories**

1. Valves, fittings, and accessories connected directly to the container (including primary shutoff valves), will have rated working pressure of at least 250 p.s.i.g. and will be of material and design suitable for LP Gas service. Cast iron will not be used.
2. Shutoff valves will be located as close to the container as practicable.

### **Changing Vehicle Tire Procedures**

1. All vehicle tire changes must meet the Federal OSHA standard 29 CFR 1910.177 "Servicing Multi-piece and Single Piece Rim Wheels".
2. Additional tire changing procedures apply to all heavy equipment which include:
  - a. The tire will be deflated to 7 pounds pressure or less (both tires, if they are dual wheels) before any other procedure is started to remove the tire and wheel from a piece of heavy equipment.
  - b. An air hose extension will be provided so that this hose can be attached to the valve to inflate the tire and extend out from the tire so the person inflating a tire can be off to one side of the tire and not directly over or in front of the tire and wheel as it is inflated.

### **Inspection Forms and Training Records**

(Located on the following pages.)

## Forklift Training Checklist Record

Assigned Employee:	
Type of Vehicle	
Supervisor/Instructor	Date:
<b>Part 1: Forklift Safety Policy</b>	
	The "Basic Forklift Safety Policy was reviewed with the employee and the written forklift test part 1 and 2 was given and reviewed.
<b>Part 2: Machine Operator Pre-Shift Checklist</b>	
	The pre-shift vehicle checklist was <u>reviewed</u> and the employee was shown and demonstrated the visual inspection procedures per form (see attached).
<b>Part 3: Driver Skill Demonstration</b>	
The vehicle operation and controls were demonstrated. The employee was observed during operation of the vehicle which included the following driving skill test:	
	Handling of the vehicle <u>including:</u> forward, backwards driving while unloaded.
	Handling the vehicle with a banded or bundled load and rearranging a stack of boxes or other materials on <u>pallet...</u>
	Hauling unbanded material
	Demonstrates the ability to keep the load under control and follows vehicle driving procedures as outlined in the Oregon OSHA rules and basic safety procedures.
	Demonstrates proper method for parking the vehicle.
<b>Observation of Driving Ability:</b>	

## Lift Truck Operator Inspection Checklist

### Inspection before Operations: Checks with the Engine Stopped

Vehicle Element	Initial if OK, note any concerns
1. Fuel level	
2. Oil level in the engine and hydraulic tank	
3. Coolant levels and condition of the drive belts	
4. Condition of the radiator	
5. Condition of the forks, carriage, chains, upright & overhead guard	
6. Leads from the engine, transmission, hydraulic system & fuel system	
7. Condition of wheels, tires, and air pressure of pneumatic tires	
8. Seat belt latches properly	
9. Seat is secure & latched to the hood	
10. Hood is securely latched.	

### Check with the Engine Running

*(Note: make sure that the area around the lift truck is clear before starting the engine or making any operational checks).*

Vehicle Element	Check if OK, note any problems
1. Check the operation of the horn, gauges and indicator lights	
2. Check the oil level in the powershift transmission or oil clutch system when the engine is running at idle.	
3. Operate the LIFT, TILT, and auxiliary functions to check for correct operations.	
4. Check the operation of manual transmission and clutch.	
5. Check the operation of the powershift transmission, MONOTROL pedal or the direction control lever and accelerator pedal.	
6. Check the operation of the service brakes and parking brakes	
7. Check the operation of the steering system. Driving and direction Changes.	



**Forklift & Vehicle Operator Test**  
**Circle The Correct Answer**

**Part 1: Inspection, Maintenance & Vehicle Care**

**1. The operator will make an operational test or check of all parts which are vital to safeoperation:**

- a. Annually
- b. Monthly
- c. At the start of each shift or prior to use for the day
- d. When the maintenance staff has time

**2. Any necessary repairs or adjustments must be made:**

- a. Before the vehicle is put into operation
- b. At the end of the shift
- c. Whenever the vehicle is scheduled for routine maintenance
- d. By maintenance staff when it seems serious

**3. If during operation the driver notices a problem with the vehicle, they should:**

- a. Attempt to make repairs themselves
- b. Take the vehicle out of service immediately and notify his/her supervisor of the malfunction or unsafe condition
- c. Use the vehicle to complete the job and then report it at the end of shift
- d. Not worry about it

**4. The operator's cab area must be kept clear of tools and other materials.**

- a. True
- b. False

**5. When vehicles are being fueled, the motor must be turned off and no smoking allowed in the vicinity.**

- a. True
- b. False

**6. Hands, soles of shoes, steering wheels and control pedals must be kept free of slippery substances such as oil and grease.**

- a. True
- b. False

**7. Which of the following defects discovered by the operator during a routine check would qualify the vehicle to be "taken out of service":**

- a. Missing guard on the mast
- b. Oil leak
- c. Deformed overhead protection
- d. Exposed exhaust pipe
- e. All the above

## Part 2: Safe Operation of The Forklift

**8. Passenger may be allowed on a forklift if:**

- a. He or she is the manager
- b. He or she only wants to ride a short way
- c. Never

**9. Forklifts are steered by the:**

- a. Front wheels
- b. Back wheels

**10. To keep loads from sliding off the forks, always place the forks under the load as far as possible, at the center of its weight and lift with the mast vertical or slightly tilted back.**

- a. True
- b. False

**11. Forklifts are so stable that bumps, holes and slick spots cannot upset them or cause loads to spill.**

- a. True
- b. False

**12. Forklifts are open to allow the driver easy access; therefore, it is permissible to have arms, legs or head outside of the canopy when traveling or operating the vehicle.**

- a. True
- b. False

**13. A forklift is considered unattended when:**

- a. The driver is 25 feet or more away
- b. The vehicle is out of view of the operator
- c. The supervisors said it is OK
- d. Both a & b

**14. Whenever the vehicle is unattended, the engine must be shut off, the controls neutralized, the parking brake set, and the forks fully lowered.**

- a. True
- b. False

**15. Many forklift accidents have occurred due to:**

- a. Masts colliding with overhead beams or pipes
- b. The operator not watching the direction of travel
- c. Traveling with forks in the raised position
- d. All the above

**16. When going down inclines, drive in reverse. Drive forward when climbing inclines.**

- a. True
- b. False

**17. Forklifts may be used as heavy-duty jacks.**

- a. True
- b. False

**18. When traveling with a load, it doesn't matter what level the forks are as long as the operator can see:**

- a. True
- b. False

**19. Loads may be lifted while traveling.**

- a. True
- b. False

## Forklift Instructions Answer Sheet

Question	Answer	Explanation
<b>Part I.</b>		
1	c.	Each operator must visually inspect the vehicle for leaks or deformities, missing guards or parts as well as doing an operational check on controls, brakes, horns and other warning devices.
2	a.	No vehicle may be operated until all defects are repaired.
3	b.	Until repaired, any defective vehicle must be removed from service and only authorized personnel allowed to work on forklifts.
4	a. True	Loose articles may interfere with safe operations of the vehicle or may strike the operator or pedestrians should the vehicle stop suddenly or make a sharp turn.
5	a. True	This should be standard operating procedure for all fuels to prevent fire and explosion.
6	a. True	Oily hands and feet may cause the operator to lose control of the vehicle.
7	e.	Chains/sprockets which can be contacted by the operator must be guarded; all leaks must be repaired; canopies must maintain strength integrity to protect the operator from falling objects, hot surfaces which can be contact-ed by the operator must be insulated or guarded.
<b>PART II.</b>		
8	c.	Riders are never permitted on forklifts unless proper seats are provided within the canopy.
9	b.	Because they are <u>steer</u> with the rear wheels, the rear end swings can injure workers on the floor. The operator must always be aware of the rear swing hazard.
10	a. True	The load should be tilted only enough so the load rests against the heel of the forks or the backload rest.
11	b. False	Any of these conditions can cause the vehicle <u>to</u> upset. Surfaces should be <u>leveled</u> and holes filled in. All slick spots should be cleaned up or neutralized.
12	b. False	No part of the body is allowed outside of the canopy when traveling or operating the vehicle.
13	d.	An unattended vehicle occurs when the operator is 25 feet or more away, even if the vehicle is still in sight OR whenever the operator cannot see the vehicle no matter what the distance.
14	a. True	In both instances cited in 6 above, the vehicle must be rendered harmless when "unattended".
15	d.	It is essential that the operator be aware of overhead clearance restrictions, that the direction of travel be watched and that the forks be <u>kept as low as possible at all times</u> when traveling.
16	a. True	<u>In order to</u> keep the load against the heel of the forks, drive in reverse when going down inclines, forward when climbing inclines.
17	b. False	Forklifts, as well as all other equipment, must be used for the purpose they were designed for. Using the vehicle as a heavy-duty jack can easily exceed its capacity.
18	b. False	Loads should be carried close to the ground. <u>Usually</u> 6 inches or just high enough to clear rises and bumps on the driving surface. When they are carried too high, the stability of the truck is affected. There is also the possibility that the load or a part of it can fall on someone. If visibility is the problem, turn around, travel in reverse and face the direction of travel.
19	b. False	Lifting the load while traveling may seem the natural thing to do, but the stability of the truck is affected by this practice. Do not lift the load while traveling.

## Forklift Training Certification

The forklift training regulations require that employees be trained and certified with a valid license before they are allowed to drive.

This is to certify that \_\_\_\_\_ has satisfactorily completed a basic lift truck operator training program, which included the following material:

1. Safety Equipment
2. Visual Checks
3. Load Handling Equipment
4. Hydraulic System
5. Fluid Leaks
6. Operational Checks
7. Safe Refueling Procedures
8. Knowing the Truck
9. Handling Loads
10. Safe Driving
11. Parking Your Forklift
12. Staying Alert
13. What to Do in an Emergency
14. Safety Rules

*I have had my responsibilities related to the handling, care and safe operation of basic lift truck operation explained to me. I understand that I can be held accountable for any deliberate act or negligence that pertains to my duties in operating a lift truck.*

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*The above employee has passed/not passed the written test. (circle appropriate response)*

Instructor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*The above employee has passed/not passed the driving portion of the forklift testing.*

Instructor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# **EXCAVATION SAFETY**

[OAR 437, Division 3, Subdivision P](#)

## **Definitions**

1. An **excavation** is any human-made cut, cavity, trench or depression in an earth surface, formed by earth removal. All excavations five feet or more in depth are required to have a protective system in place to protect employees from injury unless:
  - a. The excavation is made entirely in stable rock; or
  - b. The excavation is less than five feet in depth and a competent person has examined the ground and determined there is no indication of a potential cave-in.
2. Acceptable protective systems are based on factors such as soil type, water content, excavation depth and width, the nature of the work and nearby activities. These systems include:
  - a. *Sloping (Sloping System)*: a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
  - b. *Benching (Benching System)*: a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels. *Shoring (Shoring System)*: a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.
  - c. *Shielding (Shielding System)*: a structure that is designed to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with §1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
3. A **competent person** can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them. This person must have specific training in, and be knowledgeable about, soils analysis, the use of protective systems and the requirements of the occupational safety and health rules
  - a. At every excavation where employee exposure can be reasonably anticipated, Oregon OSHA requires that we (or our contractor) assign a competent person to conduct a daily inspection of the excavation.
  - b. That inspection should include the adjacent areas and protective systems utilized (i.e., shoring, shielding, benching or sloping) for evidence of situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions.
  - c. An inspection must be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections must also be made after every rainstorm or other hazard-increasing occurrence.

## Minimum Requirements for Excavations

1. The estimated location of underground utility installations must be completed before *any* digging or excavation is started.
2. Excavations deeper than 5 feet require cave in protection (shielding, benching or shoring).
3. A Competent Person is required at all excavations.
  - a. The competent person is *trained, authorized and responsible* to ensure that the excavation or trench remains stable, the personnel working in the excavation can quickly exit, that the atmosphere is safe, that spoils are placed so they can't shift, that personnel work safely near heavy equipment, and that the work area remains safe until the excavation is backfilled.
  - b. Conduct frequent and regular inspections of the job- site, materials and equipment for unsafe or unhealthy conditions or practices.
4. Sloping and benching techniques must be evaluated by the competent person.
5. Trenches or pits 4 feet deep or greater must be tested for atmospheric hazards *before entering to see* if there is potential for these hazards to be present and continuously monitored if there is a chance they could develop. *enter* if there is potential for these hazards to be present and continuously monitored if there is a chance they could develop. *enter* if there is potential for these hazards to be present and continuously monitored if there is a chance they could develop.
6. Any excavation deeper than 20 feet must have cave-in protection designed by a qualified engineer.
7. A safe means of egress will be in trench excavations that are 4 feet or more in depth.

## Safety Rules for Excavation Operations

1. Hi-visibility outerwear is required when working around heavy equipment.
2. Means of egress (ladders) must be available to every worker in the space within 25 feet of their work locations. (Place ladders every 25 feet along the length of the excavation).
3. Ladders must be secured and extend 3 feet above the top of the trench.
4. Spoils piles must be set back at least 3 feet from the edge of the trench or excavation. Optimal distance for heavy spoils or equipment is as far back from the edge as the trench is deep.
5. Workers should be aware of these hazards and alert the Competent Person if changes develop; exiting the space until hazards can be properly controlled.
6. The Competent Person is responsible for atmospheric testing. See Confined Space Atmospheric Testing Procedure.
7. No work is permitted in a trench or excavation with accumulated or flowing water.
8. Workers must stay back at least 3 feet from the swing zone of heavy equipment.
9. Working below a suspended load is prohibited.
10. Hard hats are required when working near heavy equipment.
11. Using an excavator bucket to lift or lower personnel is prohibited.
12. Be aware of vehicle and equipment exhaust accumulating in trenches and confined spaces. Use continuous monitoring as necessary.
13. When working in or near an excavation, keep alert to changes in conditions including shifting soils, changes in soil appearance or odor, water flowing in, vehicle exhaust, vibration and other conditions that could cause cave-in, atmospheric hazards or other problems to develop.  
**Exit** immediately and reassess if conditions change while working in an excavation.

14. The water is being removed and kept at a safe level; or a safety harness/lifeline is available and used.
15. Ensure control of loose rock or soil, one of the following methods have been implemented:
  - a. Scaling of the face of the excavation has been done to remove any hazardous loose material.
  - b. Protective barriers are installed to contain the loose material; or any other effective means is in place and there is no danger from loose materials.

### **Excavation Equipment**

Equipment operators must be specifically trained and authorized before operating excavation equipment. Operators must conduct pre-use and work site inspections. Operators are responsible for ensuring safety in the work area.

### **Hydro-Excavation (Vac) Trucks**

Vac Trucks have additional hazards of high-volume suction hoses, pressure wands, high-pressure air and water, tanks that are confined spaces, hydraulic tip-beds, hoppers and doors.

Operators must be trained and authorized on the equipment.

1. Any person working near or operating a Vac Truck must have additional training to recognize and control hazards.
2. Special blocking procedures must be followed when elevating beds, hoppers, tanks or doors to ensure that the equipment (bed or door) does not fall.
3. Tanks and Hoppers on Vac Truck are Confined Spaces. ***Do Not Enter.***
4. Stay clear of the vacuum end of the stinger. Tremendous suction power can cause serious injury.
5. Do not point the pressure nozzle towards any person.
6. Positively stop and lockout vacuum pressure, air and water pressure before servicing or un-jamming equipment.
7. Required PPE includes hardhat, eye protection, hearing protection, steel toe boots, gloves.

### **Speed Shore**

1. Speed Shore shielding must be installed and removed ***from the ground level*** only. See Speed Shore Manual for requirements on installation, inspection and removal.
2. Speed shore must be installed under the direction of a Competent Person and must be inspected daily and periodically throughout the work shift.
3. Always install shoring from the top down and remove from the bottom up.
4. Shielding must extend above the ground level and be within 24 inches of the bottom of the trench.
5. Trench protectors must extend 4 feet past side shielding.
6. Structures outside of the trench must be braced or protected from cave in (i.e. poles, buildings, sidewalks).

### **Water in Excavations**

Do not enter a trench or excavation that has accumulated or flowing water.

1. Identify source of water (surface runoff or line break).
2. Shut off source upstream (as close as possible to line break).
3. Pump water out of excavation without entering (Competent Person must monitor this).



4. Divert or capture pumped water and surface water.
5. Brace adjacent structures as needed based on conditions.
6. Inspect and protect the cave before entry.
7. Competent person ensures appropriate shielding or shoring before employees enter.

#### **Trench Emergencies and Rescue**

1. If an emergency occurs in an excavation, contact 9-1-1 immediately.
2. Trench rescue can be extremely hazardous because of conditions ranging from unsafe atmosphere to cave-in. Coworkers often become victims of secondary collapse during rescue attempts. Call
3. 9-1-1 right away for emergency help.
4. When calling 9-1-1, be *Specific* about the exact nature of the emergency to mobilize the correct technical rescue resources as quickly as possible.

# **FALL PROTECTION PROCEDURE**

## **1 Purpose**

This procedure establishes requirements for the use of Personal Protective Equipment (PPE) to protect City of Boardman Personnel from injuries from falls to a lower level.

### 1.1 Scope

1.1.1 This procedure applies to work from elevated areas, whenever there is a potential for workers to accidentally fall to a lower level, including ground levels, floors, ramps, platforms, runways, excavations, pits, tanks, stored material, water, dangerous equipment, and similar elevated surfaces designed or used primarily as a working or walking surface.

1.1.2 This procedure affects all persons on site who may be exposed to the hazards of falling to a lower level when performing their assigned job duties.

1.1.3 This procedure does not address installing guardrails and barricades.

### 1.2 Precautions

1.2.1 Lanyards shall be a minimum of two-inch nylon or equivalent, with a maximum length to provide for a fall of no greater than six feet unless otherwise rated. The lanyard shall have a nominal breaking strength of not less than 5,000 pounds.

1.2.2 The point of attachment for lifelines shall be capable of supporting a minimum dead weight of 5,000 pounds

1.2.3 When tied off while working on a suspended platform or scaffold, each worker must use a separate line which is not connected to the platform or scaffold.

1.2.4 Personal fall arrest systems shall be rigged so that a worker cannot free fall more than six feet unless using longer rated lanyards, in which case free fall no more than twelve feet or contact with any lower level.

1.2.5 Personal fall restraint systems shall be rigged so that a worker cannot free fall more than two feet.

1.2.6 The minimum strength requirement for fall protection attachment points is 5,000 pounds for each worker secured to that point. If multiple workers are tied off to a single lifeline, the strength requirement must be increased by the number of workers affected (e.g., two workers, one lifeline, minimum breaking strength be 10,000 pounds at the center of line, three workers, one lifeline, minimum breaking strength must be 15,000 pounds, and so forth).

1.2.7 Permanent lifelines must be capable of supporting 5,000 pounds per person at the center of the line.

1.2.8 Hardware for harnesses and lanyards must be drop-forged and corrosion resistant with smooth edges and have a minimum 5,000-pound breaking strength without cracks or breaks.

1.2.9 Knots shall not be used in components of a fall protection system since a knot will reduce the strength by at least 50 percent.

1.2.10 Lanyards shall be kept as short as possible and should not exceed 6 ft. to minimize the length of free fall.

- 1.2.11 Wire rope or rope-covered wire lanyards shall not be used unless designed and engineered to do so where impact loads are anticipated or where there is an electrical hazard.
- 1.2.12 Where there is exposure to abrasion, spun nylon rather than filament nylon shall be used.
- 1.2.13 Only safety harnesses with locking snaps or quick-connect buckles shall be used to prevent roll out or disengagement. All hardware shall be compatible with the locking snap or quick connect.
- 1.2.14 Tongue-type buckles or quick-connect buckles with a locking means shall be used in lieu of friction buckles since friction buckles may lose the ability to stop detachment if contaminated with grease or oil
- 1.2.15 Fall protection is required when working in a boom or bucket man lift. While in motion a maximum of two feet or retractable type lanyard shall be used.
- 1.2.16 Fall protection is required when working from a ladder for activities that may cause a side force or unbalanced condition, when reaching an extended distance is required.
- 1.2.17 Do not attach retracting line to shock-absorbing lanyards.
- 1.2.18 Body belts are not allowed.
- 1.2.19 All harnesses shall have trauma straps attached.
- 1.3 Limitations
  - 1.3.1 Fall Protection equipment shall meet ANSI/ASSP Z359 code for manufacturing.

## **2 Responsibilities**

- 2.1 Site Personnel
  - 2.1.1 Uses the proper personal fall arrest systems and personal fall restraint systems effectively when required.
  - 2.1.2 Inspects fall protection equipment before use.
  - 2.1.3 Removes defective fall protection equipment from service and reports it to supervisor.
- 2.2 Public Works Director
  - 2.2.1 Ensures the need for fall protection is identified and addressed prior to work.
  - 2.2.2 Ensures proper personal fall arrest systems and personal fall restraint systems are available when required.
  - 2.2.3 Ensures personnel are trained for assigned tasks.
  - 2.2.4 Ensures compliance with this procedure.
- 2.3 Document Owner
  - 2.3.1 Assigns resources to implement the procedure.
  - 2.3.2 Maintains the procedure and coordinates revisions with Management and Program Owner.
  - 2.3.3 Updates the procedure to reflect protocol changes.
  - 2.3.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
- 2.4 Program Owner
  - 2.4.1 Assigns resources to manage the program.
  - 2.4.2 Oversees and reviews program to ensure the program is compliant and effective.

### 3 Procedure

#### 3.1 Prerequisite Actions

3.1.1 Inspect the fall protection equipment for the following prior to each use:

- A. Lanyards and lifelines are free of knots.
- B. Lanyards no longer than 6 feet. Management/Competent person must approve use of longer lanyards.
- C. No apparent corrosion or cracks, breaks, or distortions in the hardware.
- D. No dark spots or discoloration on the belt indicating chemical contamination or UV damage
- E. No sharp edges on the hardware
- F. When bent in a "U", webbing does not show any cracks, frays, broken threads, or light or dark spots.
- G. No signs of abrasions or burns.
- H. Shock-absorbing lanyard/device shows no signs of elongation or deployment.
- I. Ensure the equipment's annual inspection is completed within last 12 months.

3.1.2 Any defective body belt/harnesses or lifelines shall be removed from service and discarded or repaired before use.

3.1.3 Any unit subjected to impact loading shall be immediately removed from service.

3.1.4 Falling Object Protection:

- A. When working from heights where individuals below are exposed to falling objects, in addition to head protection use one or more of the following:
  - a. Toe-boards, screens, or guardrail systems to prevent objects from falling to a lower level.
  - b. Canopy structures when possible
  - c. Keep potential falling objects far enough from an edge, hole or opening to prevent falling to a lower level.
  - d. Establish "Exclusion Zone" when necessary, that prohibits personnel from entering an area into which objects could fall.
- B. Use containers such as bags and buckets to transport tools and equipment to and from at-height work zones.
- C. Consider the use of tethering tools when other protections do not exist.

#### 3.2 Procedure

3.2.1 A competent person shall evaluate work at the site to identify potential fall protection exposure risks.

3.2.2 As feasible, Personnel and Management shall eliminate personnel exposure to falls to lower levels through work design and job planning.

3.2.3 A qualified person shall identify appropriate physical barriers (e.g., use of covers and guardrails) to install when exposures to falls at certain heights above 4 feet occur on a predictable and regular basis.

3.2.4 Management shall ensure appropriate physical barriers are installed when required.

- 3.2.5 When physical barriers are neither required nor feasible when working on unguarded surfaces more than 4 feet above a lower level or at any height above dangerous equipment, employees must use a personal fall protection system. (OR-OSHA Program Directive A-197)
  - A. Application of this requirement includes cases in which work is done while elevated on vehicles, mobile equipment (excluding personnel lifts), and stacked materials.
- 3.2.6 Use personal fall restraint systems to prevent falling whenever possible.
- 3.2.7 Only when a personal fall restraint system is not possible, will a personal fall arrest system be used.
  - A. Choose personal fall arrest systems based upon the following:
    - a. Distance of potential fall.
    - b. Fall arresting forces on the body.
- 3.2.8 Communicate information regarding the fall hazards and fall protection requirements during the job briefing.
- 3.2.9 Monitor the adequacy of fall protection during the work, adjust as necessary.
- 3.2.10 Unprotected Sides and Edges Four Feet Above a Lower Level
  - A. Guardrails, safety net or personal fall arrest/restraint or positioning systems shall be used.
  - B. When work on a low-slope roof is within six feet of the edge use of guardrails, safety net system, fall restraint or personal fall arrest system shall be used.
  - C. When work on a low-slope roof is at least 6 feet from the edge but less than fifteen feet, a guard rail, safety net, fall restraint or personal fall arrest system shall be used. If the work is temporary and infrequent then a designated area may be used.
  - D. When work on a low-slope roof is performed fifteen feet or more from the roof edge any of the above referenced methods may be used. If the work is temporary and infrequent, Management can implement and enforce a work rule prohibiting workers to go within fifteen feet of the edge without using fall protection.
  - E. Walk on the portion of the roof panels where they are attached to the support steel when walking or working on flat building roofs. These locations are identified by panel fasteners.  
NOTE: Workers should never walk on the panel seams as they could separate.
  - F. Provide a scaffold, man lift, or other means of safe access if sloping roofs or surfaces require access.
- 3.3 Acceptance Criteria
  - None
- 3.4 Post-Performance Activity
  - 3.4.1 A trained and competent person shall inspect all components of each fall protection device at least once every twelve months. The dates of annual inspections shall be recorded on a permanent tag attached to the devices.
  - 3.4.2 When necessary, fall protection equipment shall be returned to the manufacturer for recertification per manufacturer's recommendation.

- 3.4.3 Fall protection equipment subjected to impact loading shall be removed from service, inspected, and destroyed if found to be damaged, or returned to the manufacturer for recertification.
- 3.4.4 Ensure Fall Protection equipment cleaned if needed and properly stored.

## 4 References

- 4.1 Industry Standards or Codes
  - 4.1.1 American National Standards (ANSI)
    - A. ANSI/ASSE Z359-2012 Fall Protection Code (Z359.0 through Z359.15)
    - B. Fall Protection Systems for Construction and Demolition Operations (ANSI A10.32).
    - C. ANSI/ISEA 121-2018 Objects at Height Standard
  - 4.1.2 Oregon Administrative Rules (OAR)
    - A. Division 2, Subdivision D, Walking Working Surfaces.
    - B. Chapter 437, Division 3, Subdivision M, Fall Protection including:
      - a. 437-003-0502
      - b. 1926.500 through 437-003-0503
  - 4.1.3 Oregon Occupational Safety and Health Administration (OR-OSHA)
    - A. Publication OR-OSHA (10/17) FS-58, Fall Protection Trigger Heights for General Industry
    - B. Publication OR-OSHA (10/15) FS-64 Fall Protection Trigger Heights for the Construction Industry
    - C. Program Directive A-197, Revised March 21, 2016
- 4.2 City of Boardman
  - 4.2.1 Occupational Safety and Health Manual 2017 Revision
    - A. 23. Fall Protection Compliance Manual 23.1 - 23.13.

## 5 Definitions and Acronyms

- 5.1 Definitions
  - 5.1.1 Anchorage: A point of attachment for lifelines, lanyards, or deceleration devices that is secure and meets loadbearing requirements for personal fall arrests.
  - 5.1.2 Arresting Force: Force exerted on a worker when a fall protection system stops the fall. The amount usually expresses the peak force experienced during a fall in lbs.
  - 5.1.3 Body Harness: Straps that are secured about a worker in a manner that distributes the arresting forces over at least the thighs, shoulders, and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.
  - 5.1.4 Competent Person: One who is trained in this procedure and can identify existing and predictable hazards in any personal fall protection system or any component of it, as well as in their application and uses with related equipment, and who has the authority to take prompt corrective measures to eliminate such hazards.
  - 5.1.5 Dangerous Equipment: Equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, because of form or function, may be hazardous to workers who fall onto or into such equipment.

- 5.1.6 Designated Area: A distinct portion of a walking-working surface delineated by a warning line in which workers may perform work without additional fall protection.
- 5.1.7 Drop Line: A vertical line from a fixed anchorage, independent of the work surface, to which the lanyard is affixed.
- 5.1.8 Fixed Anchorage: A secure point of attachment, not part of the work surface, for drop lines, lifelines, or lanyards. The fixed anchorage must be capable of supporting a minimum deadweight of 5,000 pounds per person.
- 5.1.9 Hardware: Buckles, D-rings, snap hooks, and associated hardware used to attach the components of the system together.
- 5.1.10 Lanyard: A flexible line used to secure a body belt or body harness to a lifeline or directly to a point of anchorage.
- 5.1.11 Lifeline: A horizontal line between two fixed anchorages, independent of the work surface, to which the lanyard is secured either by tying off or by means of a suitable sliding connection. The lifeline must be capable of supporting a minimum deadweight of 5,000 pounds per person applied at the center of the lifeline.
- 5.1.12 Maximum Arresting Force: is the largest amount of force that the fall protection system and the person attached to the system will experience as generated by the deceleration device. OSHA limit is 1800lbs of force.
- 5.1.13 Personal Fall Arrest System: A system used to arrest a worker in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.
- 5.1.14 Personal Fall Restraint System: A system that is used to keep a wearer at the work level or limit any free fall to a maximum of two feet from the work level. This system consists of a chest or body harness, and anchor, as applicable.
- 5.1.15 Positioning Device System: A harness and lanyard system rigged to support workers on elevated vertical surfaces, such as a wall or windowsill, allowing them to work with both hands free.
- 5.1.16 Qualified Person: One who by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.
- 5.1.17 Quick-Release/Connect Buckle: A multiple component buckle that can be released with one positive action and whose releasing mechanism is positively locked in normal use.
- 5.1.18 Roll Out: Disengagement of a snap hook from an attachment point.
- 5.1.19 Rope Grab: A device that attaches to a lifeline as an anchoring point to provide a means for arresting a fall.
- 5.1.20 Self-Retracting Device: An automatic tensioning system that pays out and retracts line at a certain speed and locks or brakes when the speed is exceeded.
- 5.1.21 Snap Hook: A self-closing device with a keeper, latch, or other similar arrangement that will remain closed until manually opened.
- 5.1.22 Tie Off: When a user wearing personal fall protection equipment connects directly or indirectly to an anchorage. The term also means the condition of an employee being connected to an anchorage.

- 5.1.23 Total Fall Distance: The maximum vertical distance between a wearer's body harness attachment points before and after the fall is arrested, including lanyard extension and/or deceleration distance.
- 5.1.24 Trauma Straps: A device attached to the side of the harness typically near the hips of the harness user. It is used to alleviate pressure on the femoral artery and helps to prevent suspension trauma.

## 5.2 Acronyms

- 5.2.1 ANSI: American National Standards
- 5.2.2 HLL: Horizontal Lifeline
- 5.2.3 OAR: Oregon Administrative Rules
- 5.2.4 OR-OSHA: Oregon Occupational Safety and Health Administration
- 5.2.5 PFAS: Personal Fall Arrest System
- 5.2.6 PPE: Personal Protective Equipment
- 5.2.7 SRD: Self-Retracting Device
- 5.2.8 SRL: Self-Retracting Lanyard/Lifeline
- 5.2.9 VLL: Vertical Lifeline

## 6 Forms and Appendices

### 6.1 Forms

- 6.1.1 Fall Protection Plan. Fall Protection Compliance Manual 23.9
- 6.1.2 General Fall Protection Wk. Plan. Fall Protection Compliance Manual 23.10-11

### 6.2 Appendices

- 6.2.1 A01 & A02



## Fall Protection Plan

Job Number:	Job Description:	Crew Size:
Foreman:		Date:
1. Identify all fall hazards in the work area:		
2. Describe the methods of fall arrest or fall restraint to be provided:		
3. Describe the correct procedures for the assembly, maintenance, inspection and disassembly of the fall protection system to be used:		
4. Describe the correct procedure for handling, storing and securing tools and materials:		
5. Describe the method of providing overhead protection for workers who may be in or pass through the area below the work site:		
6. Describe the method for prompt, safe removal of injured workers:		
I (we) certify that I (we) have received proper explanation, instruction and information on the above material. I (we) have been trained in the proper use of all safety equipment being utilized on the referenced job:		
Printed Name:	Signature:	
Printed Name:	Signature:	
Printed Name:	Signature:	
Printed Name:	Signature:	
Printed Name:	Signature:	

## General Fall Protection Work Plan

Job Location:		Job Description:	
<b>Instructions:</b> <b>1. Inspect the site prior to the start of the job.</b> <b>2. Complete this form.</b> <b>3. Post at worksite where it can be plainly seen along with the summarized plan.</b>			
<b>Fall Hazards 6 Feet Or More</b>			
<input type="checkbox"/> Open Beam/Truss/Frame Work	<input type="checkbox"/> <u>Standard Scaffold/Staging</u>	<input type="checkbox"/> Equipment Frame	
<input type="checkbox"/> Beyond Guard Rails	<input type="checkbox"/> Roof Edge	<input type="checkbox"/> Floor Opening	
<input type="checkbox"/> Hanging Scaffolds/Staging	<input type="checkbox"/> Erection/Disassembly	<input type="checkbox"/> Ripe Rack System	
<input type="checkbox"/> Tank/Vessel/Equipment Tops			
<input type="checkbox"/> Other Describe: _____			
<b>Other Hazards</b>			
<input type="checkbox"/> Electrical	<input type="checkbox"/> Hot Surfaces	<input type="checkbox"/> Overhead	
<input type="checkbox"/> Water	<input type="checkbox"/> Foot Traffic	<input type="checkbox"/> Below	
<input type="checkbox"/> Chemical			
<input type="checkbox"/> Other Describe: _____			
<b>Methods Of Protection To Be Used</b>			
<input type="checkbox"/> Guardrail	<input type="checkbox"/> Harness	<input type="checkbox"/> Rope Protection	
<input type="checkbox"/> Parapet Wall	<input type="checkbox"/> <u>Safety Block</u>	<input type="checkbox"/> Sling/Runners	
<input type="checkbox"/> Barrier Structure	<input type="checkbox"/> <u>Rope Grab</u>	<input type="checkbox"/> RFP w/Boatswain	
<input type="checkbox"/> Fixed Lanyard	<input type="checkbox"/> <u>Life Line</u>	<input type="checkbox"/> Safety Net	
<input type="checkbox"/> Retractable Lanyard	<input type="checkbox"/> Warning Line (low pitched roofs/floors only)		
<input type="checkbox"/> Other Describe: _____			
<b>Methods Of Work Area Access</b>			
<input type="checkbox"/> Portable Ladder	<input type="checkbox"/> Roof	<input type="checkbox"/> Truss/Beam	
<input type="checkbox"/> Fixed Ladder	<input type="checkbox"/> Manlift	<input type="checkbox"/> Framework	
<input type="checkbox"/> Scaffolding	<input type="checkbox"/> Staging	<input type="checkbox"/> <u>Suspended Decent</u>	
<input type="checkbox"/> Other: _____			
<b>Methods Of Material/Tool Handling</b>			
<input type="checkbox"/> Line	<input type="checkbox"/> <u>Tool Belt</u>		
<input type="checkbox"/> Hoist	<input type="checkbox"/> <u>Tool Bucket</u>		
<input type="checkbox"/> Crane	<input type="checkbox"/> Designated Lifting Zone		
<input type="checkbox"/> Material stored at least 10 feet away from edge and no higher than barrier.			
<b>Methods Of Securing Lanyards/Lines (Minimum 5,000 Pounds Holding Force)</b>			
<input type="checkbox"/> Ladder Siderail (secured)	<input type="checkbox"/> Structural Workings		
<input type="checkbox"/> Eye Bolts	<input type="checkbox"/> Steel Pipe	<input type="checkbox"/> Other: _____	

Location Of Anchor Points (Describe)

**Other**

Fall protection equipment inspected prior to use?  Yes  No

Equipment inspected by: \_\_\_\_\_

Name of monitor assigned (leading edge work only): \_\_\_\_\_

Has the work plan been reviewed in detail with person assigned working below?  Yes  No

Barrier tape/tags set up for overhead hazards when people are working below?  Yes  No

Person Assigned:

Competent Person:

Date:

## **WELDING: FIRE & EXPOSURE CONTROL**

[OAR 437, Division 2, Subdivision Q \(Welding, Cutting, and Brazing\)](#)

[OAR 437, Division 2, Subdivision H \(Hazardous Materials\)](#) [OAR 437, Division 2, Subdivision Z \(Chromium\)](#)

This welding safety policy is designed to ensure that employees are aware of the hazards associated with welding and to ensure proper fire protection. Welding is a hazardous operation, which must be performed in accordance with safety standards and by qualified trained employees. This chapter is to ensure workplace safety and compliance with Oregon OSHA standards.

**Note:** *For employers that weld, cut, and grind on Stainless Steel structures for fabrication and/or repair a **hexavalent chromium exposure plan** may be needed. Initial employee exposure monitoring must be done and if levels exceed the Oregon OSHA standard, a written plan is required. Appendix 2, page 24.7 provides a model hexavalent chromium plan.*

This chapter reviews welding safety procedures. Specific information on the welding hazards is also found in *Chapter 10. Hazard Communication Program*.

### **Definitions**

**Approved** means listed or approved by a nationally recognized testing laboratory.

**Welding and welding operator** means any operator of electric or gas welding and cutting equipment.

**All other welding terms** used in the Oregon OSHA standard are in accordance with American Welding Society: Terms & Definitions A3-0.969.

The following precautions are required to be taken by our employees who perform maintenance welding operations.

Electric arc welders are also responsible to be trained in electrical hazards (See Chapter on Electrical Safety).

### **Responsibilities**

Department Director and supervisors are responsible for ensuring that only trained employees are authorized to weld. Fire watch personnel will be trained in their duties by the Maintenance Supervisors. Management is required to see that adequate maintenance services are provided and used to ensure safe operating conditions and that all Energy Control Procedures (see Chapter on Lockout/Tagout Safety) are followed as they relate to maintenance welding on equipment.

**Authorized Operators:** Employees who are authorized to perform welding must follow all safety procedures as outlined in this chapter, by Oregon OSHA rules and manufacturer's recommendations. Employees are required to inspect their equipment daily prior to operation to ensure that all safeguards are on the equipment. Any problems are to be reported immediately to the employee's supervisor.

All accidents will be reported immediately to the supervisor.

**Personnel Director:** Assist in providing employee training and auditing facilities for compliance with this chapter and Oregon OSHA regulations.

**Safety Committee:** The Safety Committee will include a review of welding safety in their quarterly inspection activities.

**Basic Hazard Awareness:** Safety in the many processes of welding and cutting requires certain precautions and standardized operating procedures. Welding is associated with five principal hazards. It is the responsibility of the employee supervisor and/or Safety Coordinator to ensure that all welders and fire watch personnel understand these hazards.

1. Electric shock and burns must be guarded against when using welding equipment. The degree of risk depends on the type of welding process. Welders are to be trained in Electrical Safety.
2. Fire Hazards:
  - a. Flying sparks are the source of many industrial fires.
  - b. In areas where flammable gases, vapors, and dust are present, only a tiny spark is needed to set off a fire or explosion. Flying pieces of molten metal can fall through cracks and openings as small as nail holes and ignite combustibles that are beyond the welder's visual range.
  - c. Hot metal that is being welded or cut can cause fires if allowed to contact flammable or combustible material such as drip pans, oily rags or combustible materials.
  - d. The torch flame used by the welder is another source of ignition and must be handled carefully. Compressed oxygen gas used in welding is a fire hazard because it supports and intensifies the rate of combustion of other materials
3. Radiant energy hazards in welding include ultraviolet light, infrared light and visible light.
  - a. Exposure to the welding arc (ultraviolet rays) may result in very painful irritation of the eyes and skin.
  - b. Infrared rays act upon the eyes simply as heat and can cause a burn or irritation of the tissue affected.
  - c. The glare of excessive visible radiation can cause headaches, eye fatigue and loss of visual efficiency.
  - d. Protective eye wear must be worn during welding to prevent harm to the eyes from light energy
  - e. Welding barriers will be used to protect employees working in the same area as welding operations.
4. Inhalation of Welding Fumes: Welding produces airborne exposures to a variety of potentially harmful gases and fumes. Fumes are generated from both the base metal and the wire or rod used in the process. The hazard level from metal fumes depends on the type of metal. In steel welding exposures include iron oxides, chromium, manganese, and nickel. The gases also vary with the type of shield gases used in arc welding, type of rods and fluxes used.
  - a. Welding must be performed in a well-ventilated area, either by working outside the building, near an open doorway or in a location with a fan ventilation system.

**Authorized Employees:** Welding will be performed by qualified welders only.

Welding operations need to be performed away from flammable materials.

1. If the object to be welded cannot be moved to a safe location, all movable hazardous materials should be moved to a safe location.

2. If this cannot be done, a **Hot Work Permit** will need to be issued by the Supervisor. The permit will describe the welding zone controls such as enclosing in fireproof blankets or other protective shields when materials in nearby areas can be affected by welding arcs, flames, sparks, spatter, slag or heat. (See Appendix 1: Hot Work Permit).
3. Fire protection equipment should be kept immediately at hand and ready for use. In critical areas, the fire protection equipment should be staffed while welding operations are being conducted.
4. Care must be taken against allowing mixtures of fuel gas and air to accumulate.
5. Flammable and other potentially hazardous materials should be cleaned from surfaces before welding is started.

*(Note: The very high temperature of the welding air or flame can cause ignition of materials such as grease, oil or surface coating. These materials will also break down under heat to hazardous gases or fumes).*

- a. No welding, cutting or similar work should be undertaken on tanks, barrels, drums or other containers which have been contaminated with flammables unless the contamination is first removed so that there is no possibility of fire, explosion, or emission of toxic vapors. (See Hot Work Permit).
- b. Adequate ventilation should be provided as protection against accumulations of toxic fumes and gases. If such precautions cannot be taken, the welder should wear appropriate respiratory protection (See *Personal Protective Equipment and Respiratory Protection*).
- c. If welding is to be done in enclosed or confined spaces, a specific "confined space" work permit will be required to be obtained from the management staff. The permit will detail the specific precautions that are required to

## **Personal Protective Equipment**

The face, body and hands should be covered to prevent burns from splatter, slag, sparks, or hot metal. Flame proof: heat-insulating gloves should be worn during welding operations. Wet or excessively worn gloves should not be used.

1. The eyes and skin should be protected against the glare and radiation from a welding arc or flame.
2. Helpers and attendants should also be provided with eye
3. protection.
4. Other personnel in the vicinity of welding operations should be protected from reflections by suitable shields and barriers.
5. Respiratory equipment may be necessary if ventilation is not sufficient. Specific operation requirements should be made by your supervisor.
6. Gas Cylinders  
Gas cylinders must be handled carefully (breaking the neck from a full cylinder can turn the bottle into a missile).
7. Cylinders must be secured to keep them from falling.
8. Acetylene cylinders must always be maintained in an
9. upright position.
10. Oxygen cylinders should be separated from fuel-gas cylinders or other combustible materials by at least 20 feet or by a fire-resistant barrier at least 5 feet high.
11. Oxygen from supply cylinders should be checked to make certain they are not leaking, especially in enclosed spaces, where it can cause ignition of materials that are not normally highly flammable.

12. Grease and oil should be kept away from and never used to lubricate oxygen cylinder valves or regulators.
13. Do not handle oxygen cylinders with oily hands or gloves.
14. Before connecting an oxygen bottle, first open the valve slightly for an instant, then close and attach an oxygen regulator to the valve. Always stand to one side when opening the valve.
15. Empty gas cylinders should be marked and have their valves closed tightly. Valve protection caps should always be in place on those cylinders designed for caps, except when the cylinder is in use or being connected/disconnected.  
Gas cylinders should be stored out of the direct rays of the sun and away from other sources of heat. Never strike an arc against a gas cylinder. Do not use a hammer or wrench to open cylinder valves. If valves will not open by hand, notify the supplier. Always open the cylinder valve slowly. Do not tamper with cylinder valves or try to repair them. Send the supplier a prompt report of the trouble, including the cylinder serial number, and follow the supplier's instructions. Back flow or flashback preventers will be installed on all oxygen/flammable gas welding and cutting units between the torch or blowpipe and the hoses. Gauges will be maintained in good condition. Cracked or missing glass will be replaced prior to use.

## Hot Work Permit Procedures and Instructions

### Instructions:

1. This cutting and welding permit may be issued only by a **supervisor** and must be used for all cutting and welding done outside of an approved shop.
2. Complete the checklist below before issuing the permit.
3. Display the permit in a highly visible location at the job site.
4. The permit is to be picked up by the supervisor who issued the permit 2 to 4 hours after the work is completed. In the event of a change of shifts, it is the responsibility of the supervisor who issued the permit to notify the supervisor **on the next shift** that a permit was issued and will need to be picked up.
5. If you issue a permit late in the work shift and the worksite is down the following shift, notify the next shift supervisor to pick up the permit.
6. If a permit is issued for an unstaffed area of the worksite, notify the next shift supervisor so that he/she can check there more often.
7. All permits are to be handed down in the Safety Office after the final checkup has been completed.

✓ Checklist of required precautions:	
Floor swept clean of combustibles.	
Floor wet down (protections from possible shock are put into place if operating arc welding or cutting equipment).	
Flammable liquids removed; other combustible, if not removed, wet down or protected with fire-resistant tarpaulins or metal shields.	
Explosive atmospheres in area are eliminated.	
All wall and floor openings covered or provide an additional fire watch at the lower level.	
Fire watch will be provided during and for <b>at least</b> 30 minutes after completion of welding or cutting operations to detect and extinguish possible smoldering fires and during any coffee or lunch breaks.	
Fire watch is supplied with a charged fire hose.	
Fire watch is trained in the use of this equipment.	
Job date:	Location:
Nature of job:	
Welder's name:	
Time started:	Time finished:
Fire watch name:	



## Hot Work Permit Procedures and Instructions, *page 2*

<b>Final checkup by maintenance:</b> work area and all adjacent areas to which <u>sparks</u> and heat might have spread (i.e., Floors above, below and opposite side of walls) were inspected after the work was completed and found to be fire safe.
Maintenance Person Signature:
<b>Final checkup by supervisor:</b> 2 to 4 hours after work completed
Date & time:
Signature of person responsible:

## Cutting: Welding Hot Work Permit

Date:	Location:
Work To Be Done:	
Maintenance:	
Instructions To Fire Watch:	
Fire Watch Names:	

## **HEXAVALENT CHROMIUM EXPOSURE PLAN**

This plan provides the required Oregon OSHA Exposure Assessment Plan OAR 437, Division2, Subdivision Z, Chromium (VI).

<http://osha.oregon.gov/OSHArules/div2/div2Z-1026-chromiumVI.pdf>

The exposure assessment process is designed to comply with the “performance-oriented option” which permits current sampling data, historical data, and objective data to determine the TWA 8-hour exposure for plants operations.

This plan is also the compliance plan for protection of employees’ whose exposure exceeds the action limit and permissible exposure limit.

### **Key Definitions**

**Action level** means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air ( $2.5 \mu\text{g}/\text{m}^3$ ) calculated as an 8-hour time-weighted average (TWA).

**Employee exposure** means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

**Permissible exposure limit (PEL).** The employer will ensure that no employee is exposed to an airborne concentration of chromium (VI) more than 5 micrograms per cubic meter of air ( $5 \mu\text{g}/\text{m}^3$ ), calculated as an 8-hour time-weighted average (TWA).

**Regulated area** means an area, demarcated by the employer, where an employee’s exposure to airborne concentrations of chromium (VI) exceeds, or can reasonably be expected to exceed, the PEL.

### **Responsibilities**

**Department Management** must ensure compliance with this program and supervisors are responsible for implementing the program with their employees.

**The Safety Manager** is responsible to ensure that adequate exposure monitoring is conducted, written program for **chromium (VI)** protection are developed and implemented by the affected departments and various records are appropriately maintained.

The following processes result in exposure to Cr (VI) during welding and grinding operations.

**Note:** *Each employer must arrange for baseline and periodic sampling of employees’ exposures during welding, cutting, grinding on stainless steel. The results of monitoring should be included in this plan.*

1. **Employee Job Classes with Cr (VI) Exposures: Fabrication Welders/Grinders.**  
These employees weld tanks and parts together and make structures for the tanks. The processes involve: gas metal shielded wire arc welding; plasma arc cutting, carbon scarfing, electrode arc welding, and grinding down welds.
2. Compliance Issues
  - a. Exposure Determination and On-going Monitoring:
    - i. Initial sampling done shows exposures level the standard.

- ii. The follow up sampling will be based on quarterly to semi-annual monitoring based on Oregon OSHA requirements if the action limit or permissible exposure limit is exceeded.
- 3. **Regulated Area:** If overexposure occurs to employees during welding and grinding operations, then the work area becomes a regulated area. Employees working in these areas will be trained and required to wear respiratory equipment when working with stainless steel. Warning signs are posted at the east personnel door entrance and other appropriate areas.
- 4. **Methods of Compliance:** Respiratory protection of either N100 or P100 filters are required for exposed personnel in the regulated area. Mechanical ventilation improvements are currently under engineering study. Long term goal is to reduce exposure by engineering methods to less than the action limit.
- 5. **Respiratory Protection:** For complete respirator program see *Chapter 14. Respiratory Protection Plan*.
- 6. **Emergencies:** No emergency release of Cr (VI) is possible based on the exposure processes.
- 7. **Protective work clothing and equipment:**
  - a. Welders and grinders are provided coveralls that are part of special laundering process.
  - b. Coveralls used in the regulated area are laundered by an outside company that has been informed of the potential Cr (VI) contamination.
  - c. No employee will remove contaminated protective clothing or equipment from the workplace except those who launder, repair, clean or replace these items.
  - d. Removal of chromium from protective clothing or equipment by blowing or shaking into the air or onto an employee's body is prohibited.
  - e. Employees have assigned change room lockers for storing clean street clothing and these facilities prevent cross-contamination from protective clothing and equipment
  - f. Welding leather coats and other styles of non-flammable clothing are stored in the regulated area welding supply lockers.
  - g. Leather gloves will also be stored with welding supplies and leather clothing in regulated area lockers.
- 8. **Hygiene areas and practices:**
  - a. The welders and grinders have wash facilities available at Public Works Shop and City Hall.
  - b. Prior to eating, the employees will change out of the work coveralls at either the entrance to regulated area or on dirty side of the locker room. Employees will wash their face and hands prior to entering the lunchroom.
- 9. **Eating and Drinking Areas:**
  - a. Employees are not permitted to eat or drink in the regulated area.
  - b. Welders and grinders will doff protective outer clothing prior to eating and wash face and hands.
- 10. **Housekeeping:**
  - a. All surfaces are maintained as free as practicable of accumulations of Cr (VI).
  - b. All spills and releases of Cr (VI) containing material are cleaned up promptly.
  - c. Cleaning methods including use of compressed air and dry sweeping of Cr (VI) contaminated dust to remove Cr (VI) from any surface is prohibited.

- d. Cleaning equipment is handled in a manner that minimizes the reentry of Cr (VI) into the workplace.
  - e. Disposal of waste, scrap, debris, and any other materials contaminated with Cr (VI) are collected and disposed of in sealed, impermeable bags or other closed, impermeable containers and these containers are clearly labeled.
11. **Medical Surveillance:** The welders and grinders are part of Cr (VI) medical surveillance program managed by Public Works Director.
- a. The employees are part of the respiratory protection clearance program.
12. **Training:** All welders, grinders and supervisors are part of the Cr (VI) training and information program. The employees will be informed of the quarterly exposure monitoring results and any changes in compliance plan
13. **Recordkeeping:** All exposure records, exposure assessment and related documents are maintained for a minimum of 30 years by the main office administration.

# **ELECTRICAL SAFETY**

This Electrical Safety Program was established to provide the maximum protection to our employees whenever they must work around any electrical hazards.

Employees involved in the maintenance, repair, and servicing of equipment that requires electrical energy or that works around overhead, or underground electrical lines must follow these guidelines.

**Note:** Please also refer to the lockout/tagout program when completing work on equipment and machinery.

## **General Responsibilities**

**Direct Supervisor:** The Direct Supervisor is responsible for overall policy implementation and working with the Safety Committee and employees. The Direct Supervisor is also responsible for overseeing the completion of periodic audits and an annual policy review. To protect employees from hazards when working with electrical equipment, tools and appliances the Direct Supervisor must:

1. Inspect all electrical equipment to make sure the equipment is safe.
2. Require that all electrical equipment is used for its approved or listed purpose.
3. Require that all electrical equipment used or located in wet or damp locations is designed for such use.
4. Identify disconnecting means (see also lockout/tagout program).
5. Maintain electrical fittings, boxes, cabinets and outlets in good condition.
6. Maintain all flexible cords and cables in good condition and use safely.
7. Guard electrical equipment to protect employees from electrical hazards.
8. Require that all electrical equipment be effectively grounded.
9. Require that all electrical equipment have overcurrent protection.

**Authorized Employees:** Only workers and supervisors who have received special training to recognize and understand the hazards involved with the tasks to be performed and the type/magnitude of electrical hazards are authorized to implement the procedure.

**Affected Employees:** An affected employee is one whose job requires him/her to perform maintenance on items powered by electrical energy, or that performs work around areas with overhead and/or underground electrical lines.

**Training:** A key component of this program is employee training. It is the supervisor's responsibility to see that all employees exposed to electrical hazards are trained to work in them. The authorized employees are to receive additional specialized training as outlined in this program. The training must be documented by the Direct Supervisor.

## **Inspection of Electrical Equipment**

All electrical equipment must be inspected to make sure there are no recognized hazards likely to cause your employees' death or serious physical harm. Determine the safety of the equipment by using the following list:

1. Approved or listed by a recognized testing laboratory, such as Underwriters Laboratories (UL) or other certification agency.
2. Approved, or listed as approved, for the purpose it is being used.

3. Includes strong and durable guards that provide adequate protection, including parts designed to enclose and protect other equipment.
4. Has electrical insulation.
5. Won't overheat under the conditions of use.
6. Won't produce arcs during normal use.








### Ensuring Electrical Equipment Used for Approved or Listed Purpose

#### Definitions:

**Electrical Outlets:** Places on an electric circuit where power is supplied to equipment through receptacles, sockets and outlets for attachment plugs.

**Receptacles:** Outlets that accept a plug to supply electric power to equipment through a cord or cable.

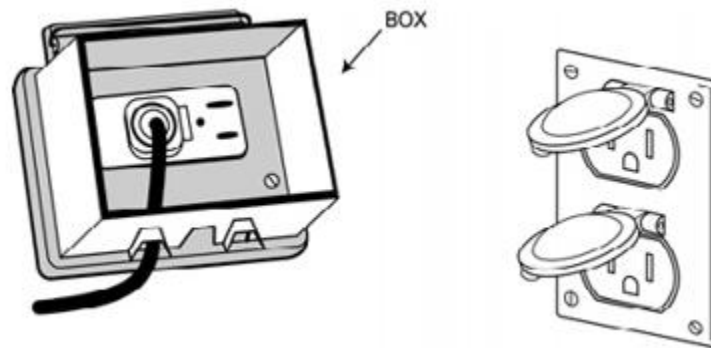
1. Electrical outlets should be rated equal or greater to the electrical load supplied.
2. The proper mating configuration should exist when connecting the attachment plug to the receptacle.
3. When electrical outlets, cord connectors, and receptacles are joined, they should accept the attachment plug with the same voltage or current rating (see common electrical outlet configurations below).

SOME COMMON ELECTRICAL OUTLET (RECEPTACLE) CONFIGURATIONS				
	15 Ampere	20 Ampere	30 Ampere	50 Ampere
Two Pole 3 - Wire Grounding 125 Volt				
Three Pole 3 - Wire 125/250 Volt				
<p><b>Note:</b> A 20-ampere "T-slot" outlet or cord connector may accept a 15-ampere attachment plug of the same voltage rating.</p>				

## Ensure Electrical Equipment Used or Located in Wet/Damp Locations Is Designed for Such Use

Fixtures and receptacles located in wet or damp locations must be approved for such use. They must be constructed or installed so that water cannot enter or accumulate in wire ways, lamp holders, or other electrical parts.

1. Cabinets, fittings, boxes, and other enclosures in wet or damp locations should be installed to prevent moisture or water from entering or accumulating inside.
  - a. In wet locations, these enclosures must be weatherproof.
  - b. Switches, circuit breakers, and switchboards located in wet locations must be in weatherproof enclosures.



## Electrical Equipment has Manufacturers Markings

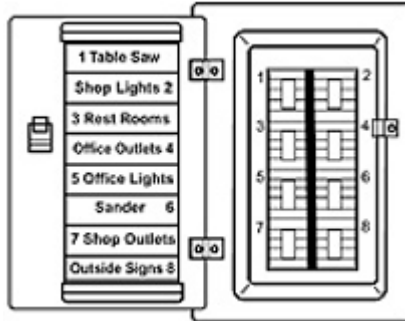
Markings on electrical equipment must be durable and appropriate for the environment. Appropriate markings include:

1. The manufacturer's name *or*
2. Trademark *or*
3. The organization responsible for the product *and*
4. Voltage, current, wattage or other ratings as necessary (see illustration below).



## Identify Means of Disconnecting

1. The disconnect means (such as on/off switches and circuit breakers) must be marked to show when it's open and closed, and what equipment it controls unless located and arranged so the purpose is obvious.
2. Each service, feeder and branch circuit should be marked at its disconnecting means or overcurrent device to show when the circuit is open/closed, and what circuit it controls (unless located and arranged so the purpose is obvious).
3. Markings on the disconnect should be durable and appropriate to the environment in which the disconnect is located.



## Maintain Electrical Fittings, Boxes, Cabinets and Outlets in Good Condition Openings and Covers

1. When conductors enter boxes, cabinets or fittings, the following must be in place:
  - a. The conductor must be protected (i.e. the wires must be protected from abrasions).
  - b. Openings where conductors enter should be effectively closed so that the internal wiring is not exposed.
  - c. Any unused openings should be covered with blanks to ensure that employees are not exposed to the internal wiring.
2. Provide pull boxes, junction boxes, and fittings with covers approved for the purpose.
3. Each outlet box must have a cover, faceplate, or fixture canopy in completed installations.
4. Covers for outlet boxes with openings for flexible cord pendants must have bushings to protect the cord or have a smooth and well-rounded surface where the cord touches the opening.
5. Metal covers must be grounded.

Areas in front of electrical panels, circuit breaker boxes, and similar equipment which operate at 600 volts or less:

1. Must have sufficient working area at least 30 inches wide for the operation and maintenance of the equipment.
2. Must be kept clear and free of stored materials so that employees can access this equipment for servicing, adjustments or maintenance.
3. Should have at least one access route that is free of obstructions.
4. Have at least 3 feet (36 inches) of working space in front from floor to ceiling (measured from the exposed live part or the enclosure front). Consider installing signage that states



this requirement to ensure that the 3 feet clearing is always maintained (or marking the area with yellow paint).

5. Should have adequate indoor lighting for clear viewing of the area.
6. Have at least 6 feet 3 inches of headroom.

The table below shows the area you must keep clear depending upon the layout of the electrical equipment:

Conditions*	0-150 Volts to Ground	151-600 To Ground
A	3 ft	3 ft
B	3 ft	3½ ft
C	3 ft	4 ft

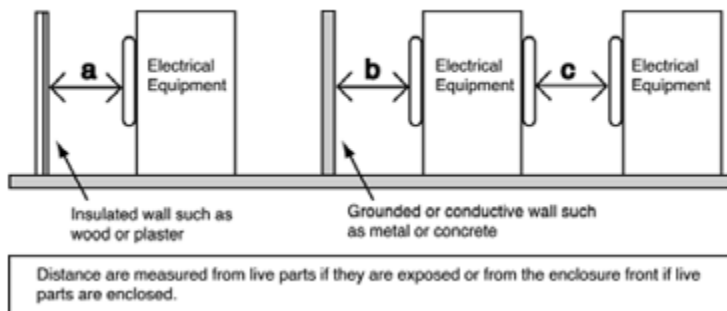
Minimum clear distances may be 0.7 m (2.5 ft) for installations built before April 16, 1981.

\*Conditions A, B, and C are as follows:

A = Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating material. Insulated wire or insulated bus bars operating at not over 300 volts aren't considered live parts.

B = Exposed live parts on one side and grounded parts on the other side.

C = Exposed live parts on both sides of the workspace (not guarded as provided in condition (a) with the operator between the panels).



## Maintain All Flexible Cords and Cables in Good Condition & Use Safely

**Exemption:** Rules do not apply to cords and cables that are an internal part of factory assembled appliances and equipment, like the windings on motors or wiring inside electrical panels.

1. You must perform a visual inspection of all flexible cords and cables on portable cord and plug connected equipment and extension cords before use on each work shift. It is not required that you visually inspect portable cord and plug connected equipment and extension cords that stay connected once in place and aren't exposed to damage until they are moved. Defects and damage to look for include:
  - a. Loose parts
  - b. Deformed or missing pins

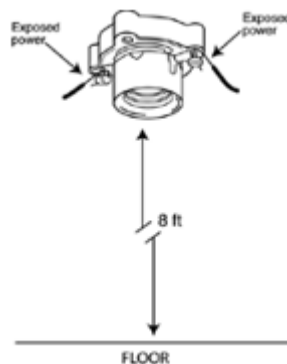
- c. External defects and damage
  - d. Damage to the outer covering or insulation
  - e. Pinched or crushed covering or insulation that might indicate internal damage
2. You must remove from service any defective or damaged cord until repaired and tested.
3. Make sure flexible cords and cables are used as described.
  - a. Use flexible cords only as follows:
    - Wiring of equipment and appliances
    - Data processing cables approved as a part of the data process system
    - Pendants
    - Wiring for fixtures
    - Connecting portable lamps or appliances to an approved outlet with an attached plug
    - Connecting stationary equipment that is frequently changed with an attachment plug energized from an approved outlet
    - Preventing noise or vibration transmission
    - Appliances that have been designed to permit removal for maintenance and repair if the appliance is equipped with an attachment plug energized from an approved outlet
    - Elevator cables
    - Wiring of cranes and hoists.
4. If additional power supplies are needed, utilize an approved surge protector with multiple outlets.
5. Extension cords cannot be plugged into or piggybacked onto other extension cords or surge protectors.
6. If the light on the surge protector is flickering or off, remove the surge protector from service. This flickering or absence of a light indicates that a power surge has gone through the surge protector, and it is no longer working appropriately.
7. Cheater boxes plugged into electrical receptacles are not allowed.
8. Flexible cords cannot be used in the following ways:
  - As a substitute for fixed wiring of a structure
  - To run through holes in walls, ceilings, or floors
  - To run through doorways, windows or similar openings
  - To attach to building surfaces
  - To conceal behind building walls, ceilings, or floors
  - To raise or lower equipment.
9. Flexible cords and cables will be approved for conditions of use and location.
10. Do not fasten or hang cords and equipment in any way that could cause damage to the outer jacket or insulation of the cord. Use tension relief devices
11. Insulation on flexible cords and cables must be intact.
12. Flexible cords and electrical cords must be:
  - a. Connected to devices and fittings so that any pulling force on the cord is prevented from being transmitted to joints or terminal screws on the plug.
  - b. Used only in continuous lengths without splice or tap.
13. Do not plug or unplug equipment or extension cords of equipment that is energized using wet hands.

### Temporary Use of Cords

1. Temporary electrical power (such as extension cords) and lighting installations that operate at 600 volts or less are used only:
  - a. During and for remodeling, maintenance, repair or demolition of buildings and similar activities.
  - b. For experimental or development work.
  - c. For a period not to exceed 90 days for:
    - i. Christmas decorative lighting
    - ii. Carnivals
    - iii. Other similar purposes.
2. Flexible cords and electrical cords used on a temporary basis must be protected from accidental damage by avoiding sharp corners and projections, especially when they pass through doorways and other pinch points.

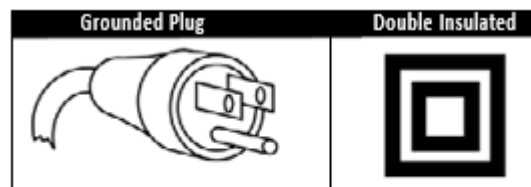
### Guard Electrical Equipment to Protect Employees from Electrical Hazards

1. Guard live parts of electrical equipment operating at 50 volts or more against accidental contact by any of the following means:
  - a. Approved cabinets or other forms of approved enclosures.
  - b. By location in a room, vault or similar enclosure that is accessible only to employees qualified to work on the equipment. Entrances to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons from entering.
  - c. By permanent, substantial partitions or screens so that only employees qualified to work on the equipment will have access within reach of the live parts. Any openings must prevent accidental contact with live parts by employees or objects carried by employees.
  - d. By location on a balcony, gallery, or platform that will exclude unqualified personnel.
  - e. By being located 8 feet or more above the floor or other working surface.
2. All electrical appliances, fixtures, lamps, rosettes, and receptacles should not have live parts normally exposed to employee contact.
  - a. Rosettes and cleat type lamp holders at least 8 feet above the ground may have exposed parts.
3. In locations where electric equipment would be exposed to physical damage, enclosures or guards must be so arranged and of such strength as to prevent such damage.



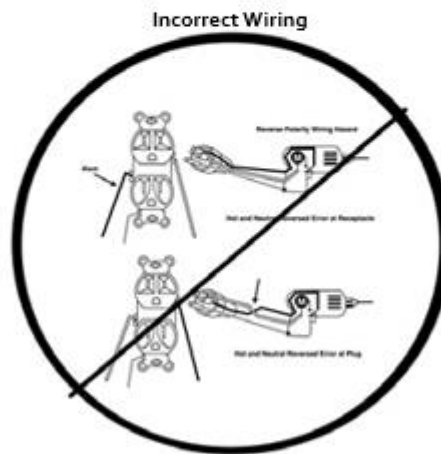
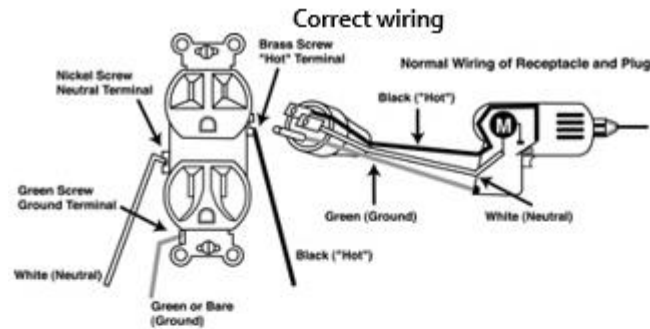
## Ensure Electrical Equipment Is Effectively Grounded

1. The path to the ground from circuits, equipment, and enclosures must be permanent and continuous.
2. Grounding prongs must not be removed from electrical cords and each electrical receptacle must provide a location for a ground prong. Cords without grounding prongs must not be used.
3. Equipment connected by cord and plug must be grounded under these conditions:
  - a. Equipment with exposed concurrent carrying metal parts
  - b. Cord and plug connected equipment which may become energized
  - c. Equipment that operates at over 150 volts to ground
  - d. Equipment in hazardous locations.
4. You must ground the following type of equipment:
  - a. Hand-held motor-operated tools
  - b. Refrigerators
  - c. Freezers
  - d. Air conditioners
  - e. Water fountains or water dispensing machines
  - f. Clothes washers and dryers
  - g. Electrical aquarium equipment
  - h. Hedge clippers
  - i. Electric lawn mowers
  - j. Electric snow blowers
  - k. Web scrubbers
  - l. Tools likely to be used in damp or wet locations (i.e. in water or wastewater facilities)
  - m. Appliances used by employees standing on the ground, on metal floors or working inside of metal tanks or boilers
  - n. Portable hand lamps.
5. Grounding can be achieved by using tools and appliances equipped with an equipment grounding conductor (3 prong plug and grounded electrical system).



Hand held tools and some types of equipment must use a 3-wire plug or the tool label must show the tool as insulated by words or symbol.

1. Exposed metal parts of fixed equipment that don't conduct electricity (but may become energized) must be grounded if the equipment is in a wet or damp location and isn't isolated.
2. Ground wires must be identified and look different than the other conductors (wires).
3. Ground conductors should not be attached to any terminal or lead to reverse polarity of the electrical outlet or receptacle (see illustrations showing examples of wiring).
4. Grounding terminals or grounding-type devices on receptacles, cords, connectors, or attachments plugs should not be used for purposes other than grounding.



*Reverse polarity wiring can cause a faulty tool to start as soon as it is plugged in or not stop when the switch is released. This could cause an injury. An extremely dangerous type of reverse polarity wiring switches the hot and ground wires. This causes the body of the tool or appliance to be "hot". Touching the tool and conductive surface can result in serious or even deadly shock.*

## **Electrical Equipment Has Overcurrent Protection**

1. All electrical circuits that are rated at 600 volts or less must have overcurrent protection.
2. Protect conductors and equipment according to their ability to safely conduct electrical equipment.
3. Overcurrent devices should not interrupt the continuity of grounded conductors unless all conductors are opened at the same time, except for motor running overload protection.
  - a. Protect employees from electrical arcing or suddenly moving electrical parts by locating fuses and circuit breakers in safe places. If this isn't possible, install shields on fuses and circuit breakers.
4. The following fuses and thermal cutouts should have disconnecting mechanisms:
  - a. All cartridge fuses accessible to nonqualified persons
  - b. All fuses on circuits over 150 volts to ground
  - c. All thermal cutouts on circuits over 150 volts to ground
  - d. The disconnecting mechanism must be installed so you can disconnect the fuses or thermal cutouts without disrupting service to equipment and circuits unrelated to those protected by the overcurrent device.
5. Provide easy access to overcurrent devices for each employee or authorized building management personnel.
6. Protect the overcurrent devices by locating them away from easily ignitable material.
  - a. They must be placed to avoid exposure to physical damage.
7. Circuit breakers:
  - a. Must clearly indicate when they are open (off) and closed (on).
  - b. That operate vertically must be installed so the handle is in the "up" position when the break is closed (on).
  - c. Used as switches in 120-volt, fluorescent lighting circuit must be approved for that purpose and marked "SWD".
  - d. That have arcing or suddenly moving parts should be shielded or located so employees won't get burned or injured by the operation of the circuit breaker.
8. Fuses that have arcing or suddenly moving parts must be shielded or located so employees won't get burned or injured by the operation of the fuses.

## **Ground-Fault Circuit Interrupters (GFCI)**

1. OAR 437-003-0404 requires ground-fault circuit interrupters (GFCIs) on all 125-volt, single-phase, 15-, 20-, and 30-ampere receptacles that are not part of the permanent wiring of a building or structure.
2. If a permanently wired receptacle (not equipped with GFCI protection) is used for temporary power in a construction project, GFCI protection must be provided at the user end.
3. Portable plug-in and cord-type GFCIs are probably the most practical devices for construction workers who use cord sets for temporary power when there is no protection at the source.
4. GFCIs sense imbalances or differences along the electrical circuit and shut it down when needed. For this reason, GFCI can be critical to workers in wet environments. The rule for GFCI does not exempt work with intrinsically safe or double insulated tools.
5. GFCIs must either be built into the overall circuit, as part of the outlet receptacle, or using protected cord sets or GFCI devices.
6. GFCI protection can be anywhere on the circuit if it works effectively to protect the worker. Protection can be for the entire circuit, the outlet receptacle, or the extension cord.

7. For receptacles with more than 125 volts, single-phase, or more than 30-amp capacity, use GFCI or have a program that ensures equipment is grounded: see OAR 437-003-0404(3).
8. There must be a written description of assured equipment: a grounding program at each job site that includes specific procedures.
9. One or more competent people should be designated to run the program. (A competent person can identify hazards and has authority to promptly correct them).
10. Each day, inspect all extension cords and equipment (plug connected) for external defects before using them.
11. Conduct periodic tests of all grounding conductors for continuity and test each receptacle or plug to ensure that the grounding conductor is connected to the right terminal.
12. Testing is required before the first use, before the first use after a repair, before use after any event that could cause damage, and at least every three months (six months for fixed cords sets and receptacles not exposed to damage).
13. Record all tests by identifying each cord, receptacle, or piece of equipment and its test date or test interval. Keep the test record until a new record replaces it using logs, color coding, or other means. These records must be available on the job site.
14. All electrical receptacles located within 6 feet of a water source (i.e. sink) must have a GFCI on the receptacle or the circuit that controls that receptacle.

### **Working Around Buried Electrical Lines**

1. Any time workers are required to start any in ground work like digging or driving objects, OR-OSHA standard OAR 437-003-1926.651(b)(1) requires locating utilities before digging. (for more information see: <http://osha.oregon.gov/OSHPubs/hazard/2993-05.pdf>)
2. The primary contractor or facilitator of the work must call the Oregon Utility Notification Center (OUNC) before starting work. In the Portland metro area, the number is (503) 246-6699. In all other areas of Oregon, call (800) 332-2344.
3. OUNC will then come out to locate and mark all utilities in the area where the work will be performed.
4. The contractor or facilitator of the work must ensure that power to any electrical lines in work must be deenergized to ensure employee safety.
5. If a worker contacts an underground line or pipe, the contact could be fatal.
6. In addition, the contractor or person responsible for the work is responsible for all repair costs if they did not contact OUNC before starting work.

### **Working Around Overhead Electrical Lines**

1. To protect those working near overhead power lines from accidental contact, the Oregon Legislature passed into law the *High Voltage Overhead Line Safety Act*. See ORS 757.800 and 757.805.
2. The law provides that no work activities take place within 10 feet of a high voltage overhead power lines until the following two requirements are met:
  - a. The responsible party must notify the utility operating the line of the intended work activity.
  - b. The responsible party and the utility must complete mutually satisfactory precautions for the activity.

3. As soon as you inform your local utility of your intended work activity, the following can occur:
  - a. Coordination of work schedules.
  - b. Identification of temporary mechanical barriers to prevent contact with the lines.
  - c. Temporary de-energizing and grounding of the lines
  - d. Temporary raising or moving of the lines.

### **Personal Protective Equipment**

1. Employees must wear appropriate Personal Protective Equipment (PPE) when working around electrical sources. (see PPE standard at General Industry Div. 2 Subdivision I: 1910.137 Electrical Protective Equipment). Electrical protective equipment is subject to regular electrical tests to ensure they are still providing protection to the employee.
2. Electrical protective equipment will be maintained in a safe, reliable condition.
3. Insulating equipment will be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves will be given an air test, along with the inspection.
4. Insulating equipment will be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions.
5. Insulating equipment with any of the following defects may not be used:
  - a. A hole, tear, puncture, or cut
  - b. Ozone cutting or ozone checking (the cutting action produced by ozone on rubber under mechanical stress into a series of interlacing cracks)
  - c. An embedded foreign object
  - d. Any of the following texture changes: swelling, softening, hardening, or becoming sticky or inelastic
  - e. Any other defect that damages the insulating properties.



# **LADDER SAFETY**

## [OAR 437, Division 2, Subdivision D](#)

We take portable ladders for granted because they're so easy to use. Yet more workers are injured in falls from ladders than from any other elevated surface, roofs, scaffolds, balconies, even stairs. Why do workers fall from ladders? Most falls happen because workers select the wrong type of ladder for the job, the ladder is set up improperly, or the ladder shifts or slips unexpectedly. Workers also fall when their foot slips, they lose their balance, they overreach, or something knocks the ladder over.

### **How To Select Your Ladder**

Which ladder is the right one for your job? You'll save time, energy and reduce your risk of injury if you select the correct one. Key factors are type and style, length, duty rating, and the material from which the ladder is made. Most portable ladders are either non-self-supporting, such as an extension ladder, or self-supporting, such as a standard stepladder. But there are also combination ladders that convert quickly from a stepladder to an extension ladder. You're likely to find the right size, shape, and type of ladder to accomplish your task within one of these categories.

### **Extension Ladders (Non-Self-Supporting)**

Extension ladders offer the greatest length in a general-purpose ladder. The ladder consists of two or more sections that travel in guides or brackets, allowing adjustable lengths. The sections must be assembled so that the sliding upper section is on top of the lower section. Each section must overlap its adjacent section minimum distance, based on the ladder's overall lengths of the individual sections, measured along the side rails. The table below shows the minimum overlap for two-section ladders up to 60 feet long.

<b>Ladder length</b>	<b>Overlap</b>
Up to 36 feet	3 feet
36 to 48 feet	4 feet
48 to 60 feet	5 feet

Most extension ladders are made of wood, aluminum, or reinforced fiberglass. Wood ladders can't have more than two sections and must not exceed 60 feet. Aluminum and fiberglass ladders can have as many as three sections; however, the overall length must not exceed 72 feet. Individual sections of any extension ladder must not be longer than 30 feet. Extension ladders can be used only by one person at a time.

### **Is It Necessary To "Tie Off" An Extension Ladder To Prevent It from Slipping?**

You don't have to tie off the ladder, but you do have to ensure that the ladder cannot be accidentally moved or displaced. Tying off the top or bottom of a ladder is one way to ensure that it cannot be accidentally moved or displaced.

## Standard Stepladders (Self-Supporting)

The standard stepladder has flat steps and a hinged back. It is self-supporting and nonadjustable. Standard stepladders should be used only on surfaces that have a firm, level footing such as floors, platforms, and slabs. They're available in aluminum, wood, or reinforced fiberglass and are intended to support only one worker at a time. Remember not to stand on the top step. Stepladders must have metal spreaders or locking arms and can't be longer than 20 feet, measured along the front edge of the side rails.

1. **Can I use a standard stepladder like a straight ladder?** Using a standard stepladder in a closed position is not a safe practice because it's more likely to slip on surfaces such as concrete and wood than a straight ladder. Standard stepladders are designed to be used only when the spreader arms are open and locked. If a standard stepladder doesn't meet your needs, choose an appropriate straight ladder or a combination ladder.

## Other Types of Stepladders Include:

1. **Two-way stepladder:** The two-way stepladder is similar to the standard stepladder; however, each side of this ladder has a set of steps. One person can work from either side, or two people can work from the ladder at the same time—one on each side.
2. **Platform ladder:** The platform ladder is a special-purpose ladder that has a large, stable work platform. The ladder's length is determined by the length of the front edge of the side rail from the bottom of the ladder to the base of the platform; it can't exceed 20 feet.
3. **Orchard ladder:** The orchard ladder is a special-purpose ladder for pruning and harvest work. It has a flared base and a single back leg that offers support on soft, uneven ground. Orchard ladders are intended for use by only one person at a time and can't be longer than 16 feet. Wood, aluminum, and reinforced fiberglass versions are available. A more rigid orchard ladder, the so-called double base version, incorporates a triangular box brace with stub rails attached to the bottom step. The ladder is available in wood or with a combination of wood fiberglass rail and metal step. The maximum length is 16 feet, and it is intended for use by one person. Do not stand on the top step of an orchard ladder.
  - a. **Can orchard ladders be used on construction sites?** Yes. In fact, orchard ladders are often safer on uneven or sloped ground than conventional stepladders. An orchard ladder is designed to be used on soil or turf so that each leg slightly penetrates the ground. Orchard ladders should never be used on concrete or hard surfaces. Tripod ladders that have spread braces, also called electrician's ladders, are common on construction sites, too.
4. **Trestle ladder:** A trestle ladder is a self-supporting portable ladder that has two sections hinged at the top, forming equal angles with the base. A variation of the trestle ladder, the extension trestle ladder includes a vertically adjustable single ladder that can be locked in place. (The single extension section must lap at least 3 feet into the base section.) Trestle ladders are used in pairs to support planks or staging. The rungs are not intended to be used as steps. The angle of spread between open front and back legs must be 5½ inches per foot of length. The length can't be more than 20 feet, measured along the front edge of the side rails. Rails must be beveled at the top and have metal hinges to prevent spreading. Metal spreaders or locking devices are required to keep the rails in place.
5. **Combination ladders and multipurpose ladders:** These ladders share many of the features of stepladders and extension ladders. Most quickly convert from standard

stepladders to extension ladders, and many can be used in three or more variations- such as a stairway ladder, two-way stepladder, or a self-supporting scaffold base.

### Determine The Proper Length

1. **Standard stepladders:** You should be able to reach about 4 feet above the top of the ladder when you're standing two steps down from the top. For example, you should be able to reach an 8-foot ceiling on a 4-foot ladder. Never use the top of a stepladder as a step.
2. **Extension ladders:** The total length of an extension ladder should be 7-10 feet longer than the vertical distance to the upper contact point on the structure—a wall or roofline, for example. Never stand on the ladder rungs that extend above a roofline.

### Determine The Duty Rating

Manufacturers give ladders duty ratings, based on the maximum weight they can safely support. The worker's weight plus the weight of any tools and materials that are carried onto the ladder must be less than the duty rating. Before you purchase a ladder consider the maximum weight it will support. Don't subject it to a load greater than its duty rating. Duty ratings for portable ladders:

1. Special duty (IAA) 375 pounds
2. Extra heavy duty (I-A) 300 pounds
3. Heavy duty (I) 250 pounds
4. Medium duty (II) 225 pounds
5. Light duty (III) 200 pounds

### Determine The Right Material

1. **Wood.** Wood provides a natural feel and good insulation against heat and cold. However, untreated wood ages quickly; wood ladders need a protective coat of clear varnish to keep the wood from drying and splitting. Also, wood ladders are heavy, particularly longer ones.
2. **Aluminum.** Aluminum ladders are lightweight and corrosion resistant. Aluminum will not crack or chip with rough handling; however, aluminum doesn't insulate well against heat and conducts electricity. Never use aluminum ladders for work near energized electrical lines.
3. **Fiberglass.** Fiberglass is durable, weather resistant, and nonconductive when clean and dry. Unlike wood, fiberglass won't dry out or split and provides better insulation against heat than aluminum. However, fiberglass ladders are heavier than comparable aluminum or wood ladders and can chip or crack with improper handling. Fiberglass ladders must also be handled and maintained with more care than wood ladders. After a few years, the reinforcing fibers in fiberglass rails may become exposed, resulting in a condition known as "fiber bloom." High humidity and exposure to strong sunlight can accelerate the condition. Fiber bloom doesn't affect a ladder's strength, but it will affect the appearance and may cause users mild discomfort if exposed fibers penetrate their skin. Regular washing and waxing with a commercial non-slip paste wax will protect the ladder and reduce the potential for fiber bloom. Periodically coating the ladder with acrylic lacquer or polyurethane also will protect it.

## **How To Set Up Your Ladder**

### **Setting Up the Ladder**

1. Move the ladder near your work. Get help if the ladder is too heavy to handle alone.
2. Lock the spreaders on a stepladder. Secure the lock assembly on extension ladders.
3. Make sure there are no electrical wires overhead.
4. Use traffic cones or other barriers to protect the base of the ladder if vehicles or pedestrians could strike it.
5. Make sure that a non-self-supporting ladder extends at least 3 feet above the top support point for access to a roof or other work level. Do not step on rungs above the upper support.
6. Angle non-self-supporting ladders properly. The length of the side rails from the ladder's base to the top support points (the working length) should be four times the distance from ladder's base to the structure (the set-back distance). Done correctly, this results in a 4:1 set-up angle.

### **Achieving A 4:1 Set-Up Angle**

1. A non-self-supporting ladder should have a set-up angle of about 75 degrees, or a 4:1 ratio of the ladder's working length to set-back distance.
2. Here's how to achieve it: stand at the base of the ladder with your toes touching the rails. Extend your arms straight out in front of you. If the tips of your fingers just touch the rung nearest your shoulder level, the angle of your ladder has a 4:1 ratio.

### **Five Steps for Setting Up an Extension Ladder**

1. The ladder should be closed. Position the ladder with the base section on top of the fly section. Block the bottom of the ladder against the base of the structure.
2. Make sure there is clearance, and no electrical lines are overhead. Carefully "walk" the ladder up until it is vertical. Keep your knees bent slightly and your back straight.
3. Firmly grip the ladder, keep it vertical, and carefully move back from the structure about one quarter of the distance of the ladder's working length. This allows you to place it at the correct angle against the structure.
4. Raise the fly section. After the bottom rung of the fly section clears the bottom rung of the base section, place one foot on the base rung for secure footing.
5. Lean the ladder against the structure. The distance from the base of the ladder to the structure should be one quarter the distance of the ladder's working length. Make sure the ladder extends 3 feet above the top support points for access to a roof or other work level. Both rails should rest firmly and securely against the structure.

### **How To Work Safely on Your Ladder**

1. Wear shoes that have non-slip soles; make sure they are free of mud, oil, or anything else slippery.
2. Climb facing the ladder. Center your body between the rails and keep your hips square to the rungs. Hold the side rails with both hands; you have a better chance of avoiding a fall if a rung or step fails.
3. Hold the ladder with one hand and work with the other hand whenever possible.
4. Attach light, compact tools or materials to the ladder or to yourself.
5. Raise and lower heavy, awkward loads with a hand line or a hoist.
6. Use extreme caution when you're pushing or pulling materials.

### **How To Inspect Your Ladder**

Neglected ladders quickly become unsafe ladders. Step bolts loosen, sockets and other joints work loose, and eventually the ladder becomes unstable. Periodic maintenance extends a ladder's life and saves replacement costs. Maintenance includes regular inspection, repairing damage, and tightening step bolts and other fastenings.

1. Inspect your ladder each time you use it. (A competent person must periodically inspect ladders for defects and after any occurrence that could make them unsafe.)
2. Replace lower steps on wooden ladders when one-fourth of the step surface is worn away. Typically, the center of a step receives the most wear. Mineral abrasive or other skid-resistant material reduces wear.
3. Don't paint wood ladders- paint conceals defects.
4. Clean and lightly lubricate moving parts such as spreader bars, hinges, locks, and pulleys.
5. Inspect and replace damaged or worn components and labels according to the manufacturer's instructions.
6. Inspect the rails of fiberglass ladders for weathering, fiber bloom, and cracks.
7. Keep the ladder away from heat sources and corrosive materials.

### **How To Store Your Ladder**

The best way to extend a ladder's life is proper storage, including the following steps:

1. Use a well-ventilated storage area.
2. Store wood and fiberglass away from excessive moisture, heat, and sunlight.
3. Keep them away from stoves, steam pipes, or radiators.
4. Store non-self-supporting ladders in flat racks or on wall brackets that will prevent them from sagging.
5. Secure them so that they won't tip over if they are struck.
6. Keep material off ladders while they are stored.

### **How To Transport Your Ladder**

1. When carrying a ladder, keep the front end elevated, especially around blind corners, in aisles, and through doorways. You'll reduce the chance of striking another person with the front of the ladder.
2. When transporting a ladder in a truck or a trailer, make sure that it is properly supported parallel to the bed. Pad the support points with soft, nonabrasive material such as rubber or carpeting and tie the ladder securely to eliminate chafing and road shock.

### **Safe Practices Checklist**

1. When portable ladders are used to access an upper landing, the side rails extend at least 3 feet above the upper landing. When this is not possible, the ladder is secured to a rigid support at its top and a grab rail is available to help employees get off the ladder.
2. Ladders are free of oil, grease, and other hazards that could cause slips.
3. Ladders are not loaded beyond the manufacturer's duty rating.
4. Ladders are used only for the purpose for which they were designed.
5. Extension ladders are placed so that the working length of the ladder is four times the horizontal distance from the ladder's base to the structure, or a 4:1 ratio.
6. Ladders are used on stable, level surfaces or they are secured so that they cannot be displaced.
7. Ladders are not used on slippery surfaces unless they are secured, or they have slip resistant feet.
8. All ladders, except stepladders, have non-slip safety feet.

9. Employees are prohibited from placing ladders on boxes, barrels, and other unstable objects.
10. Ladders used near passageways, doorways, or driveways are protected so that vehicles or pedestrians do not strike them.
11. The area around the top and bottom of a ladder is free from slipping and tripping hazards.
12. The top of a non-self-supporting ladder is placed so that both rails are supported equally.
13. Ladders are not moved, shifted, or extended when they are occupied.
14. Ladders that could contact exposed energized electrical equipment have non-conductive side rails.
15. Portable aluminum ladders have legible signs reading "CAUTION: Do not Use Around Electrical Equipment" or equivalent wording.
16. The top step of a stepladder is not used as a step.
17. Cross bracing on the rear section of a stepladder is not used for climbing unless the ladder is designed for that purpose.
18. Employees are prohibited from using ladders that are missing steps, rungs, cleats, or have broken side rails or other faulty parts.
19. A competent person inspects ladders periodically for defects and after any occurrence that could damage them.
20. Defective ladders are marked as defective or are tagged "Do Not Use" and removed from service until they are repaired.
21. Repaired ladders meet their original design criteria before they are returned to service.
22. Employees face ladders while climbing or descending.
23. Employees use at least one hand to grasp the ladder when they are climbing and descending.
24. Employees do not carry objects or loads that could cause them to lose their balance.
25. Employees who use ladders receive training from a competent person in proper use, placement, and handling.
26. Employees know the hazards associated with ladder use and follow procedures that minimize the hazards.
27. Retraining is provided periodically to ensure that employees maintain their knowledge of proper ladder use, placement, and handling.

## Definitions

- **Check:** A lengthwise separation of the wood that occurs across the rings of annual growth.
- **Cleat:** A rectangular ladder crosspiece placed on edge, upon which a person may step while ascending or descending.
- **Competent person:** One who can identify existing and predictable hazards where employees work and who can take prompt corrective measures to eliminate the hazards.
- **Decay:** Disintegration of wood substance due to action of wood-destroying fungi. Also known as rot and rot.
- **Extension ladder:** A non-self-supporting portable ladder that is adjustable in length. It consists of two or more sections in guides or brackets that permit length adjustment. Length is designated by the sum of the lengths of each section, measured along the side rails.
- **Extension trestle:** A self-supporting portable ladder that is adjustable in length, consisting of a trestle ladder base and a vertically adjustable single ladder with means for

locking the ladders together. Length is designated by the length of the trestle ladder base.

- **Fastening:** A device that attaches a ladder to a structure, building, or equipment.
- **Platform ladder:** A self-supporting ladder of fixed size with a platform at the working level.
- **Rungs:** Ladder crosspieces on which a person steps when ascending or descending.
- **Sectional ladder:** A non-self-supporting portable ladder, nonadjustable in length, consisting of two or more sections that function as a single ladder. Its length is designated by the overall length of the assembled sections.
- **Single (or straight):** A single section non-self-supporting portable ladder that is nonadjustable in length. Its length is measured along a side rail.
- **Special purpose:** A general-purpose portable ladder with modified features for specific uses.
- **Stepladder:** A self-supporting portable ladder, nonadjustable in length that has flat steps and a hinged back. Length is measured along the front edge of a side rail.
- **Steps:** The flat crosspieces of a ladder on which a person steps when ascending or descending.
- **Tread:** The horizontal member of a step.
- **Tread width:** The horizontal distance from front to back of the tread, including nosing.
- **Trestle ladder:** A self-supporting portable ladder, nonadjustable in length that consists of two sections hinged at the top to form equal angles with the base. Length is measured along the front edge of a side rail.

# **JOBS HAZARD ANALYSIS**

## **Job Hazard Analysis and Control**

The following basic principles are to be used during the review of employee job activities. The job hazard analysis is done to identify any hazards or risks that could cause injury or illness to employees.

Recommendations on how to eliminate or reduce the hazards are made based on the extent feasible and may involve an incremental abatement process.

## **Definitions**

**Job Hazard Analysis:** A tool or process to make a job safe before hazards become accidents. This is done through the identification of hazards associated with a specific job and planned actions to control or eliminate the hazards. It provides a formal systematic method, that when used consistently can provide the basic framework of a proactive safety program.

**Hazard:** A potential danger which can result in injury or illness.

The following procedure will be followed when performing a Job Hazard Analysis:

1. Employees will be interviewed about whether performing the job poses physical difficulties and if so, which physical work activities or conditions of the job they associate with the difficulties.
2. Employees will be observed performing the job to identify which physical work activities, workplace conditions and risks/hazards are present.
3. Evaluate the job's hazards and risk factors including duration, frequency and magnitude.
4. Identify, assess and implement feasible controls to eliminate or materially reduce job hazards. This includes prioritizing the control of hazards and includes consideration of appropriate controls including administrative, engineering, PPE and work practice controls.
5. Track progress of eliminating or materially reducing job hazards. This process includes consulting with employees about whether the implemented controls have eliminated or materially reduced the hazards.

## **Types of Controls**

1. Any combination of engineering, administrative and/or work practice controls can be used to eliminate or materially reduce hazards.
2. Personal protective equipment may be used to supplement engineering, work practice and administrative controls, but may only be used alone where other controls are not feasible.

## **Training**

1. Training will be provided to department heads/supervisors or responsible staff on how to properly conduct job hazard analysis.



## Sample Job Hazard Analysis Form

The Job Hazard Analysis (JHA) provides the basic assessment of safety and health needs for each employee. Information collected during a JHA can be used to develop possible solutions.

FACTORS	ISSUES	RESPONSE
JOB TASKS	Describe a typical day (shift) on your job.	
SAFETY HAZARDS	Hazards encountered?	
	Need for PPE?	
	Need for lifting aid/ergonomic devices?	
	If lifting or force exertion is required, how often?	
PERSONAL PROTECTIVE EQUIPMENT (PPE)	Types of PPE equipment and safety training provided.	
WORK CYCLE	How much time does it take to complete one inspection?	
	How much does that time vary per shift?	
	How long does it take to learn the job?	
	What tasks are the most difficult and why?	
JOB TASK/OPERATION	Description of job and the safety practices involved. Use both on-site audit information, interview information from focus group leaders (supervisors or managers), and any written job descriptions.	
HAZARDS	List the hazards associated with the job process.	
SAFETY PROCEDURES	List the PPE, ergonomic aids, other safety equipment needed.	
TRAINING REQUIREMENTS	List the type of training provided including training required by Oregon OSHA.	

# **MOBILE EQUIPMENT**

## **1 Purpose**

This procedure describes the minimum requirements for safe operation of mobile equipment at the City of Boardman

- 1.1 Scope
  - 1.1.1 The procedure applies to the use of all mobile equipment.
- 1.2 Precautions
  - 1.2.1 Only operate vehicles/equipment in good working conditions. Do not use vehicle/equipment with any safety defects.
  - 1.2.2 Verify a line of communication when working in remote locations. If unable to ensure communications, consider using a Signaler.
- 1.3 Limitations
  - 1.3.1 This procedure does not cover the use of mobile cranes or hoists.

## **2 Responsibilities**

- 2.1 Site Personnel
  - 2.1.1 Notifies Management of all mobile equipment risks, deficiencies, and corrective actions.
  - 2.1.2 Maintains an awareness of mobile equipment operations in work area and remains clear of mobile equipment blind spots and operating zones.
  - 2.1.3 Shares responsibility with mobile operators for establishing right-of-way in operating zone.
  - 2.1.4 Adheres to safety rules for mobile equipment posted on equipment labeling and safety rules communicated by the mobile equipment operator.
- 2.2 Mobile Equipment Operator
  - 2.2.1 Completes mobile equipment training for the mobile equipment being operated.
  - 2.2.2 Holds a valid Department of Transportation (DOT) license for equipment being used as applicable.
  - 2.2.3 Ensures mobile equipment is operated for a task in which it is intended.
  - 2.2.4 Conducts a pre-use inspection of mobile equipment prior to operating.
  - 2.2.5 Maintains awareness of mobile equipment instructions, warnings, precautions, rated-load capacity, and load suspension specifications.
  - 2.2.6 Follows speed limits, traffic signs, approach boundaries, procedures and permits.
  - 2.2.7 Uses, wears, and maintains Personal Protective Equipment (PPE) as required for equipment and conditions.
  - 2.2.8 Maintains awareness of Site Personnel working on the ground when operating vehicles/equipment.
  - 2.2.9 Shares responsibility with Site Personnel for establishing right-of-way in operating zone.
- 2.3 Signaler
  - 2.3.1 Maintains a clear view of the Mobile Equipment Operator, the equipment and load.
  - 2.3.2 Uses hand signal fundamentals to direct the Mobile Equipment Operator.
  - 2.3.3 Communicates hazards or potential hazards to personnel in the vicinity prior to performing hand signals.
  - 2.3.4 Prevents directing a load over workers.

- 2.4 Professional Engineer (PE)
  - 2.4.1 Certifies modifications to mobile equipment.
- 2.5 Public Works Director
  - 2.5.1 Ensures responsibilities are assigned to individuals or groups for completion
  - 2.5.2 Mitigates mobile equipment risks and ensure corrective actions are completed in a timely manner
  - 2.5.3 Ensures mobile equipment Preventative Maintenance (PM) is performed and documented, including inspections, servicing, and certifications in accordance with manufacturer’s specifications.
  - 2.5.4 Ensures Mobile Equipment Operators are trained, competent and authorized to operate mobile equipment.
  - 2.5.5 Ensures Site Personnel who directly supervise MEWP operators are properly trained
- 2.6 Document Owner
  - 2.6.1 Assigns resources to implement the procedure.
  - 2.6.2 Maintains the procedure and coordinates revisions with Management and Program Owner.
  - 2.6.3 Updates the procedure to reflect protocol changes.
  - 2.6.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
- 2.7 Program Owner
  - 2.7.1 Assigns resources to manage the program.
  - 2.7.2 Oversees and reviews program to ensure the program is compliant and effective.

### **3 Procedure**

- 3.1 Prerequisite Actions
  - 3.1.1 Mobile Equipment Operator must maintain a of identified requirements. valid DOT operator’s license when required.
  - 3.1.2 Mobile Equipment Operator must be trained and hold any certification required to use the specific mobile equipment. Examples: Forklift, Telehandler, MEWPs
  - 3.1.3 The manufacturer's operation and maintenance manual must be readily available. All safety rules, operating instructions, and maintenance procedures prescribed by the manufacturer must be followed.
  - 3.1.4 The critical safety components of mechanical elevating and rotating equipment must receive a thorough visual inspection and walk around before use on each shift by completing “Pre-Use” inspection logs.
  - 3.1.5 DOT required equipment logs must be kept up to date.
  - 3.1.6 Obtain Management authorization prior to operating mobile equipment.
  - 3.1.7 Train employees who work around mobile equipment on the shared right-of way responsibility between Mobile Equipment Operators and Site Person
  - 3.1.8 Forklift operator training must include shared right-of-way responsibility.
  - 3.1.9 Management must ensure that Personnel who directly supervise Mobile Elevating Work Platform (MEWP) operators are trained in the following (as defined in ANSI A92.24-2018):
    - A. Proper selection of the correct MEWP for the work to be performed.

- B. The rules, regulations and standards that apply to MEWP's, including the provisions for safe use as defined in ANSI A92.22, training and familiarization, and work being performed.
  - C. Potential hazards associated with use of aerial MEWP's and the means to protect against identified hazards.
  - D. Knowledge that the manufacturer's operation manuals are an integral part of the MEWP and need to be stored properly in the weather-resistant compartment on the MEWP.
- 3.1.10 Fire extinguishers are available, inspected, and in good working order.
- 3.1.11 The horn, indicators, flashing lights, etc., are in operating condition.
- 3.1.12 Use of cell phones while driving is prohibited
- 3.1.13 Always follow the three-point contact rule and face toward when climbing up, down, on, and off any piece of mobile equipment.
- 3.1.14 Adjust mirrors accordingly before operation begins.
- 3.2 Procedure
- 3.2.1 General Requirements
- A. Only use mobile equipment that is in good working order and is current on its Preventive Maintenance (PM) service. Additional maintenance may be required based on hours of operation or manufacturer recommendations.
  - B. Any modifications to mobile equipment must be approved and certified by the manufacturer or a Professional Engineer.
  - C. Mobile equipment with deficiencies or defects will be taken out of service and repaired prior to use.
  - D. The rated-load chart, operator's manual and attachment manual must be available within the mobile equipment.
  - E. Maintain loads carried by mobile equipment within the rated-load capacity specified by the manufacturer. Secure loads to prevent movement during transport.
  - F. Handle loads in a manner that prevents shock loading of mobile equipment.
  - G. Mobile equipment must be positioned, equipped, protected, and operated so no part comes closer to energized power lines than the minimum approach distance indicated in the following table based on OSHA 1910.269.
  - H. Control hazardous energy, especially stored energy, if you are working within the reach distance of the equipment.
  - I. Use seat belts and other installed safety devices during mobile equipment operation.
  - J. Use a Signaler when operating conditions restrict the Mobile Equipment Operator's visibility:
    - a. Maintain eye contact between the Mobile Equipment Operator and the Signaler when mobile equipment is operating.
    - b. Only the Signaler may provide hand signals to the Mobile Equipment Operator.
  - K. Set outriggers on pads or a surface capable of withstanding their weight.
  - L. Maintain unattended mobile equipment in a safe non-operating condition, i.e., parked on level ground, controls set to neutral,

- power turned off, with the parking gear and emergency brake fully engaged while not in use.
- M. Conduct refueling or charging batteries only when:
    - a. The motor is turned off.
    - b. The hand brake is engaged.
    - c. In an open, well-ventilated area.
    - d. In an area with a minimum of 25 ft. away from an ignition source.
  - N. Place the mobile equipment propane tank valves in the closed position when the mobile equipment is not in use.
  - O. No personnel will be permitted to stand or pass under an elevated portion of mobile equipment.
  - P. Stand clear while stabilizers are being raised or lowered and while the boom is in operation.
  - Q. Mobile Equipment Operators must slow down and sound the horn, when equipped, at corners and locations where vision is restricted or obstructed.
  - R. Site Personnel must always keep at least six feet away from forklifts unless the operator has parked the forklift.
  - S. Use a load backrest extension, when forklifts or telehandlers are equipped, to minimize the possibility of the load or part of it falling rearward.
  - T. Do not operate MEWPs in windy conditions beyond manufacturer's recommendations.
  - U. Obstructed rear view: Never operate mobile equipment if your rear view is obstructed and you could endanger Site Personnel, unless the vehicle:
    - a. Has a reverse signal alarm audible above the surrounding noise.
    - b. Is backed up only when a designated employee signals it is safe.
  - V. Capacity
    - a. The rated-load capacity must be conspicuously posted on the equipment and must be kept in a legible condition.
    - b. Loads must not exceed the manufacturer's rated capacity.
  - W. While traveling on public roads, a vehicle must trail behind the equipment with a sign warning of slow-moving, heavy equipment that is dangerous to pass.
  - X. All loads should be adequately secured during transport.
  - Y. The hook of a winch truck must be secured (i.e., tied down and not allowed to dangle freely) when traveling.
  - Z. An employee with a flag must stop all traffic before mobile/heavy equipment travels onto public roads.
  - AA. Ensure a route survey has been performed before moving the equipment to identify potential hazards (e.g., construction, excavation, waterlogged area, poor ground conditions, overhead power lines, etc.).

### 3.2.2 Right-of-Way

- A. Mobile Equipment Operators and Site Personnel share responsibility for establishing right-of-way
- B. Mobile Equipment Operators must establish eye contact with Site Personnel, and Site Personnel must establish eye contact with either the Mobile Equipment Operator or the Signaler.
- C. After eye contact has been established, the use of hand signals by everyone will indicate who is being granted right-of-way.

### 3.2.3 Telehandlers and Forklifts

- A. Keep forks in lower position while traveling, whether loaded or unloaded.
- B. When ascending or descending grades greater than ten percent (10%), drive the load of telehandlers and forklifts tilted to cancel the grade to prevent load shifting.
- C. When telehandlers or forklift is left unattended:
  - a. Secure the telehandlers or forklift against unintentional movement by ensuring the mast and forks are fully lowered.
  - b. Place the controls in neutral, power is shut off, and brakes are set.
  - c. Secure the telehandler or forklift in a safe position.
  - d. The wheels must be shocked if the telehandlers or forklift is parked on an incline.
  - e. Equipment is considered unattended when the operator is 25 feet or more away from the vehicle or the truck is not in view.
  - f. When the operator is dismounted and within 25 feet of the truck still in view, the load engaging means must be fully lowered, transmission in neutral, and the brakes set to prevent movement.
- D. When lifting loads ensure the following:
  - a. Move forklift squarely into position in front of the load.
  - b. Position the forks wide enough apart to maintain load balance.
  - c. Position the forks entirely under the load.
  - d. Tilt the mast backward slightly to stabilize the load then lift.
- E. When lowering loads ensure the following:
  - a. Sufficient load-bearing capacity on the rack or storage location.
  - b. Move squarely into position in front of the rack or stack where the load is placed.
  - c. When ready to place the load, tilt the mast to level, only tilt forward when the load is over the spot where it will be placed.
  - d. Lower the forks and back away.
  - e. Visually verify that the load is stable.
- F. Suspended loads must not be attached by chains or slings over the forks.

### 3.2.4 Mobile Elevating Work Platforms

- A. Inspect the important safety components of mechanical elevating and rotating equipment before each shift.
- B. Never leave loads suspended. Stay at the controls while a load is suspended.
- C. Erect barrier tape or other warnings to prevent personnel from entering the work area where a MEWP is stationed and operated.
- D. When operating a MEWP, occupants must use a harness equipped with a lanyard fastened to the anchor point provided and must be Fall protection user qualified.
- E. Close MEWP gates and secure prior to operating.
- F. Engage the safety bar when inspecting or performing maintenance on the scissor assembly or boom while MEWP is in an elevated position. Workers must not reach through the scissor or boom assembly without the safety bar being securely positioned.
- G. Railings, ladders, scaffolds, or other elevating devices are prohibited on MEWPs.
- H. External attachments or overhanging loads are not permitted while operating an aerial or scissor lift.
- I. Do not operate a MEWP on surfaces that may affect its stability.
- J. MEWPs must not ascend or descend on grades steeper than 20%.
- K. Maximum weight carried on a MEWP must not exceed manufacturers' rating.
- L. Outriggers, if equipped with equipment, must be firmly set to ensure stability of the unit.
- M. Avoid direct contact between the basket and/or supporting boom on MEWP with any energized high-voltage conductors or equipment. Minimum approach distances must be maintained.
- N. Personnel must not sit or climb on the edge of the basket or use planks, ladders, or other devices to gain a position, but must stand firmly on the floor of the basket.
- O. Clearly visible flashing warning lights must be used to warn the public when operating a MEWP near traffic.
- P. Moving a MEWP with the cage or platform partially or fully raised and/or with workers in the cage or platform, must be minimal and limited to the immediate adjacent work area unless the vehicle is specifically designed for such movement.
- Q. Operation of MEWP
  - a. MEWPs must go through an operating test before use.
  - b. The manufacturer's operation and maintenance manual must be readily available. All operating instructions, sequences and maintenance procedures prescribed by the manufacturer must be followed.
  - c. When outriggers are used, they must be positioned on pads or another solid surface. Provided wheel chocks can be safely installed, they must be installed before using a MEWP on an incline. If provided, brakes must be set.

### 3.2.5 Tractor

- A. The Powered Take-Off (PTO) switch must be in the "off" position prior to starting the engine.

- B. When parking or leaving the tractor unattended, the following safety precautions must be adhered to:
  - a. Park the tractor on firm level ground.
  - b. Place the transmission in neutral and set the parking brake.
  - c. Disengage the PTO and lower any attachment to the ground.
  - d. Place all levers, including the auxiliary control levers in neutral.
  - e. Shut off engine, remove the ignition key, and secure equipment to prevent unauthorized use.
- C. Keep hands, arms, and feet clear of all rotating parts of the tractor attachments while the engine is running.
- D. No passengers will be permitted on the tractor.
- E. Do not operate on steep slopes. Keep movement on slopes slow and gradual. Watch for uneven terrain.

### 3.2.6 Attachments

- A. Prior to equipping mobile equipment with an attachment, refer to the operator's manual for capacity, range limits and hitch options. Attachments must be designed for and compatible with the specific mobile equipment.
- B. Mobile Equipment Operators must inspect quick hitches to ensure they are locked prior to starting work.

### 3.2.7 Vehicle-Mounted Elevating and Rotating Aerial Devices

- A. All operators must receive general training, which includes classroom information about safety topics and hazards related to operating aerial devices. General training also requires an operator to demonstrate hands-on proficiency in actual operation under the direction of a qualified person. General training should be refreshed at 3-year cycles which is consistent with other industry certifications.
- B. Familiarization is the second training category. Operators must be familiarized with any unfamiliar units before operating them. A manufacturer's in-service demonstration is not operator training. A typical in-service does not satisfy familiarization requirements and certainly does not fulfill the wider general training requirements.
- C. General training is an "every operator, every three years" requirement and familiarization is an "every operator, specific units" requirement. OSHA expects to see documentation that both types of training occurred, and they will certainly expect the training program to meet the ANSI standard.

### 3.2.8 Schwarze A7000 Street Sweeper

- A. Safety Guidelines:
  - a. Do not operate the sweeping unit without an exhaust hose in place.
  - b. Beware of 'pinch point' when lowering the hopper
  - c. Dump hopper on level ground only, truck in neutral, emergency brake applied.
  - d. Use safety stops at dump cylinders whenever working under raised hopper.



- e. Do not remove guards and no loose clothing or jewelry.
  - f. Drain water system in freezing conditions
  - B. Complete pre-use inspection on truck and sweeper equipment.
  - C. After pre use inspection test operation of sweeping head & gutter brooms
  - D. Use right side steering when sweeping and never exceed 15mph speed
  - E. Never travel with hopper in raised position.
- 3.2.9 John Deere 310G Backhoe
- A. Safety Guidelines:
    - a. To avoid rollovers:
      - I. Be careful operating on a slope
      - ii. Avoid sharp turns
      - iii. Balance loads for even distribution and stability
      - iv. Carry load close to ground to aid visibility and lower center of gravity.
      - v. Reduce speed prior to turning or swinging load
      - vi. Never exceed load capacity
    - b. To avoid back-over accidents:
      - I. Look before backing
      - ii. Keep bystanders clear of machine operating area.
      - iii. Keep back up alarm in working condition
      - iv. Use spotter when view is obstructed
    - c. To avoid rollaway:
      - I. Park on level ground
      - ii. Lower all equipment to ground
      - iii. Engage parking brake
      - iv. Chock wheels when parked on slope
    - d. Utilize proper PPE for work performed
  - B. Complete pre use inspection
  - C. Check underground utilities prior to digging
  - D. Watch overhead hazards; electrical & physical
  - E. No riders
- 3.2.10 John Deere Z900 Z Trak Mower
- A. Safety Guidelines:
    - a. All drives in neutral and parking brake applied prior to starting.
    - b. Use caution and slower speeds on hills and slopes.
    - c. Never operate with discharge deflector raised.
    - d. Be aware of mower discharge direction
    - e. Be aware of rocks and debris that can be discharged
    - f. Keep clear of cutting units and
    - g. Use caution when refueling
    - h. Watch for low hanging branches and/or objects.
    - i. Use extreme caution when children are nearby.
    - j. Use proper PPE including Eye and Hearing Protection

- k. Lower folding ROPS temporarily when necessary and don't use seat belt while folded down.
  - B. Complete a pre use inspection
  - C. Check area to be mowed for foreign objects and ground stability.
- 3.2.11 VAC-CON V350LHA/850 Vactor Truck
  - A. Safety Guidelines:
    - a. Use proper PPE for tasks performed.
    - b. Park vehicle near work area and set parking brake.
    - c. Keep bystanders away from the work area.
    - d. Do not use the boom to lift anything other than manhole covers, vacuum hose and pipe.
    - e. Lift manholes cover only high enough to remove it and never suspend it over personnel or leave it suspended.
    - f. Protect open manhole to prevent falls.
    - g. Follow flagging requirements when operated on or near public roadways.
  - B. Water System Safety
    - a. Do not place any body part in front of handgun, sewer cleaning nozzle or open sewer cleaning hose.
    - b. Do not direct the water stream towards anyone.
    - c. Do not pull sewer cleaning hose with truck, only use hydraulic hose reel.
    - d. Do not increase engine speed above idle to provide 800psi max pressure.
    - e. Use caution working around open manhole to reduce risk of:
      - I. Water spray containing various biological contaminants.
        - ii. small rocks or debris being propelled out of manhole.
        - iii. Being struck by nozzle that has reversed out of the hole.
        - iv. Falling into open manhole
    - f. Do not override the hose reel IN-OUT control valve
    - g. In the event of an injury involving a high-pressure water stream the following statement should be provided to the attending physician:
      - i. "This person has been involved with high pressure waterjets...please take this into account when making your diagnosis. Unusual infections have been reported with microaerophilic organisms that tolerate low temperatures. The organism may be gram negative pathogens such as are found in sewage. Bacterial swabs and blood cultures may therefore be helpful"
    - h. Do not operate sewer cleaning hose or handgun when hose is frozen.

- C. Boom and Vacuum Safety
    - a. Identify material to be vacuumed to determine if grounding cable is required.
    - b. Do not use metal nozzle to excavate, use rubber cuff to prevent static spark
    - c. Watch overhead hazards when operating the boom
    - d. Do not move the truck unless boom in transport position and secured.
    - e. Do not vacuum flammable or explosive materials
    - f. Do not attach pipes with vacuum system operating.
  - D. Debris Tank Safety
    - a. Watch for overhead hazards before raising debris tank
    - b. Do not work under debris tank without safety props installed.
    - c. Only raise debris tank on level ground
    - d. Check area prior to dumping debris tank
    - e. Do not travel with debris tank raised.
    - f. Do not stand between open debris tank door and tank without the door prop installed.
  - E. Complete pre use inspection on vehicle and vacuum system
- 3.3 Acceptance Criteria
- 3.3.1 Completed "Pre-Use" checklists of mobile equipment must be retained for a minimum of one year.
  - 3.3.2 Equipment logs that are maintained per DOT regulation must be retained for a minimum of three years.
  - 3.3.3 Maintenance logs for mobile equipment must be maintained for the life of the equipment.
- 3.4 Post-Performance Activity
- 3.4.1 Complete any DOT mandated logs:
  - 3.4.2 Complete any City of Boardman mandated logs.
  - 3.4.3 Return vehicle to designated location.
  - 3.4.4 Clean vehicle.

## 4 References

- 4.1 Industry Standards or Codes
  - 4.1.1 ANSI/SAIA A92.24-2018
  - 4.1.2 Oregon Occupational Safety and Health Administration (OR-OSHA), Administrative Rules (OAR)
    - A. Chapter 437, Division 2:
      - a. Subdivision F, Powered Platforms
      - b. Subdivision N, Material Handling & Storage (includes Commercial & Industrial Trucks)
      - c. 0223, Oregon Rules for Commercial and Industrial Vehicles
    - B. Division 3, Construction:
      - a. Subdivision N: Helicopters, Hoists, Elevators and Conveyors
      - b. Subdivision O: Motor Vehicles, Mechanized Equipment, and Marine Operations.

## 5 Definitions and Acronyms

### 5.1 Definitions

- 5.1.1 Mobile Elevating Work Platform (MEWP): Mobile equipment where a boom is operated from a small tractor like base which moves workers on a platform or bucket above the ground. Also known as a boom lift or man lift.
- 5.1.2 Attachment: Devices used for specific tasks which are attached to mobile equipment, either directly or via a quick hitch.
- 5.1.3 Competent Worker: A person adequately qualified, suitably trained and with enough experience to safely perform work without supervision or with a minimal degree of supervision.
- 5.1.4 Forklift: (aka Powered Industrial Truck) A wheeled mobile vehicle with a lifting mechanism consisting of a mechanical elevating device and normally equipped with a fork carrier.
- 5.1.5 Grade: The slope or incline of the surface where the mobile equipment is intended to be operated on.
- 5.1.6 Load-Bearing Capacity: The maximum weight in kilograms or pounds that a structure is rated to hold or contain.
- 5.1.7 Mast: Vertical supporting structure for the forks on a forklift or telehandler.
- 5.1.8 Mobile Equipment: A self-propelled machine or combination of machines, including a prime mover or a motor vehicle, designed to manipulate or move material or to provide an aerial device for workers excluding cranes and hoists.
- 5.1.9 Outrigger: Device used as a supporting structure to provide stability to mobile equipment
- 5.1.10 Powered Take-Off (PTO): A driveshaft used to provide power to an equipment attachment.
- 5.1.11 Pre-Use Inspection: Inspection of operating components conducted by the Mobile Equipment Operator to ensure mobile equipment is functioning adequately and is ready for use.
- 5.1.12 Professional Engineer (PE): An engineer holding a Professional Engineer (PE) license
- 5.1.13 Quick Hitch: Device to facilitate the efficient attachment and removal of attachments to mobile equipment.
- 5.1.14 Rated-Load Capacity: The maximum load in kilograms or pounds that the mobile equipment is rated to hold, lift, or support.
- 5.1.15 Rated-Load Chart: Information permanently affixed to mobile equipment specifying manufacturer specifications for load capacity and safe operating capacities.
- 5.1.16 Right-of-Way: Mobile Equipment Operators, (e.g., forklifts, back hoes and the like) and Site Personnel (pedestrians) have a shared responsibility for establishing right-of-way in work areas.
- 5.1.17 Shock Loading: Sudden stops or starts performed on mobile equipment.
- 5.1.18 Signaler: A person designated to give hand signals to direct a Mobile Equipment Operator.
- 5.1.19 Stabilizer: A set of hydraulic support arms that rest on the ground that are extended to provide additional stability when lifting.

5.1.20 Telehandler: (aka Powered Industrial Truck) A wheeled, counter-balanced, truck which includes a variable reach lifting mechanism consisting of a telescopic elevating boom and normally equipped with a fork carrier.

5.2 Acronyms

5.2.1 DOT: Department of Transportation

5.2.2 MEWP: Mobile Elevating Work Platform

5.2.3 PM: Preventive Maintenance

5.2.4 PPE: Personal Protective Equipment

5.2.5 PTO: Powered Take-Off

**6 Forms and Appendices**

6.1 Forms

None

6.2 Appendices

None

# **TOOLS & EQUIPMENT**

## **1 Purpose**

This procedure provides key safety requirements for selected tools and equipment for City of Boardman

- 1.1 Scope
  - 1.1.1 This procedure includes inspection information and usage guides for the majority of the tools and equipment used by employees to ensure a high degree of protection against incidents
  - 1.1.2 It does not include a discussion of abrasive wheels, pneumatic tools, or powder actuated tools.

## **2 Responsibilities**

- 2.1 Site Personnel
  - 2.1.1 Ensures proper storage of tools and equipment.
  - 2.1.2 Completes required equipment training and certifications, as applicable, for the equipment being operated.
  - 2.1.3 Conducts personal inspections of tools and equipment for correct parameters.
  - 2.1.4 Inspects tools before use. Takes defective tools out of service and tags them with "Do not use-Defective" or similar marking.
  - 2.1.5 Cleans, inspects, and stores tools and equipment following each use.
  - 2.1.6 Removes guards or methods of guarding only for the purpose of adjustment, oiling, repair, or setting up a new job.
  - 2.1.7 Operates machine with a guard or method of guarding that is in good condition, in working order, in place and operable.
  - 2.1.8 Operates equipment for the task for which it is intended.
  - 2.1.9 Refrains from operating equipment when physically or otherwise unfit.
  - 2.1.10 Maintains operating and equipment logs and status logbooks as appropriate.
- 2.2 Management/Public Works Director
  - 2.2.1 Provides or coordinates training to employees on tools and equipment used.
  - 2.2.2 Mitigates equipment risks and ensures corrective actions are completed in a timely manner.
  - 2.2.3 Ensures testing is performed on tools and equipment when required.
- 2.3 Document Owner
  - 2.3.1 Assigns resources to implement the procedure.
  - 2.3.2 Maintains the procedure and coordinates revisions with Management and Program Owner.
  - 2.3.3 Updates the procedure to reflect protocol changes.
  - 2.3.4 Provides updates to the procedure to be consistent and compliant with regulatory requirements, and available tools and technology.
- 2.4 Program Owner
  - 2.4.1 Assigns resources to manage the program.
  - 2.4.2 Oversees and reviews program to ensure the program is compliant and effective.

### **3 Definitions and Acronyms**

- 3.1 Definitions
  - None
- 3.2 Acronyms
  - 3.2.1 GFCI: Ground-Fault Circuit Interrupter
  - 3.2.2 PPE: Personal Protective Equipment

### **4 Precautions and Limitations**

- 4.1 Precautions
  - 4.1.1 Do not use wrenches when jaws are sprung to the point that slippage occurs.
  - 4.1.2 Never hold work in your hand when using power tools. Loose work should be clamped to a solid surface to prevent it from moving or being thrown.
  - 4.1.3 Do not use electrical tools without a grounding prong.
  - 4.1.4 Do not use electric cords or hoses for hoisting or lowering tools.
  - 4.1.5 Avoid using tools with mushroomed heads, dull edges, or points.
  - 4.1.6 Use respirators and other appropriate personal protective equipment when working in areas exposed to harmful dusts, fumes, mists, vapors, or gases.
  - 4.1.7 Use spark-resisting hand tools in explosive atmospheres.
  - 4.1.8 Specially fabricated tools or modifications to existing tools shall be designed and used in a manner that does not present additional hazards.
  - 4.1.9 Do not tape damaged tool handles.
  - 4.1.10 Do not use tools with cracked handles.
  - 4.1.11 Compressed air shall not be used for cleaning purposes except when reduced to less than 30 psi and then only with effective chip guarding and Personal Protective Equipment (PPE).
- 4.2 Limitations
  - 4.2.1 This procedure discusses many of the tools used by City of Boardman employees, but it is not a complete list.
  - 4.2.2 Operate all power tools only within their capability and in accordance with the manufacturer's instructions.

### **5 Procedure**

- 5.1 Prerequisite Actions
  - 5.1.1 Inspect hand and power tools before use.
  - 5.1.2 Select appropriate tool for the assigned task.
  - 5.1.3 Use appropriate PPE
    - 5.1.3.1 When using tools and equipment, don eye, face, foot, and body protection to control hazards such as falling, flying, abrasive or splashing objects.
    - 5.1.3.2 Use PPE to protect from exposure to impact, cutting and other tissue-damaging movement of equipment or material.
  - 5.1.4 Wooden handles of tools shall be of firm straight grained stock.
  - 5.1.5 Handles of all tools shall be smooth, without sharp edges or splinters, and firmly attached to the tool.
  - 5.1.6 Remove from service and tag any tools that are defective until they can be repaired or replaced.
  - 5.1.7 Place/store tools where they will not create a hazard when not in use.

- 5.2 Procedure
  - 5.2.1 Hand Tools
    - 5.2.1.1 Inspect hand and power tools daily before use.
    - 5.2.1.2 Use tools suited to the job.
    - 5.2.1.3 Remove defective or broken tools from service. Keep tagged until repaired or discarded.
    - 5.2.1.4 Dress or grind heads of shock tools (such as hammers, sledges, cold chisels, and similar types of tools) as they begin to mushroom or crack.
    - 5.2.1.5 Secure or place tools in a secure position to prevent falling when working at elevated locations.
    - 5.2.1.6 Use heavy leather holsters or equivalent protection for sharp-edged or sharp-pointed hand tools
    - 5.2.1.7 If using insulated hand tools to prevent electrical shock, use them in accordance with the Electrical Safety Procedures
  - 5.2.2 Measuring Tapes and Rulers
    - 5.2.2.1 Use non-metallic measuring tapes and rulers near energized equipment.
  - 5.2.3 Chisels and Bars
    - 5.2.3.1 Use a holding tool or other suitable holding device, when practical, if holding a chisel or bar while another employee strikes it with a hammer.
  - 5.2.4 Axes, Picks and Sledgehammers
    - 5.2.4.1 Carry an axe with head forward by holding the handle next to the axe head. Do not carry any axe or brush hook over your shoulder.
    - 5.2.4.2 On vehicles, store axes and picks with protective sheaths to avoid injuries.
    - 5.2.4.3 Ensure ample space is available to swing axes, picks, or sledgehammers.
  - 5.2.5 Electric Power-Operated Hand Tools
    - 5.2.5.1 Electric power tools shall meet at least one of the following requirements:
      - A. Be equipped with a three-wire cord, having a ground wire permanently connected to the tool frame, and be grounded at the plug.
      - B. Be of the double insulated type, having the tool housing separately insulated from the insulated electric component of the tool.
    - 5.2.5.2 Ensure grounding prong is in good shape.
    - 5.2.5.3 Unplug a tool before repairing or making adjustments.
    - 5.2.5.4 Cover or elevate cords passing through work areas or walkways to avoid a tripping hazard.
    - 5.2.5.5 Turn off power and remove tool from service if excessive sparking or smoking in electric motors or other electric equipment is observed
    - 5.2.5.6 Use only approved explosion-proof electrical equipment for hazardous locations where flammable or explosive atmospheres (gases, vapors, and dusts) may exist.



- 5.2.5.7 Only operate portable electric lighting and tools in damp or wet locations if protected by a ground-fault circuit interrupter (GFCI).
- 5.2.5.8 Attach a safety line to electric tools with magnetic bases to prevent falling due to a power interruption or other failure of the magnetic base.
- 5.2.6 Extension Cords
  - 5.2.6.1 Examine frequently for worn insulation, exposed strands of wire, or broken plugs before use.
  - 5.2.6.2 Ensure that the grounding prong is in good shape; and do not use an extension cord without a grounding prong.
  - 5.2.6.3 Remove any damaged extension cords from service and repair or replace as necessary.
  - 5.2.6.4 Only use extension cords that are designed for hard or extra hard usage that have the S, ST or SO designation printed on the cord.
  - 5.2.6.5 Only qualified personnel may repair extension cords.
  - 5.2.6.6 Do not use as a substitute for permanent wiring.
  - 5.2.6.7 Do not hang extension cords across sharp objects.
  - 5.2.6.8 Do not run across aisles where they can be damaged or cause someone to trip unless appropriate precautions are taken.
- 5.2.7 Portable Fuel-powered Tools
  - 5.2.7.1 Inspect equipment before use and do not use equipment showing evidence of gasoline leaks.
  - 5.2.7.2 Proper PPE shall be worn when using equipment.
  - 5.2.7.3 Stop all fuel powered tools while being refueled or serviced.
    - A. Let the engine cool before filling the tank.
    - B. Follow no smoking protocols while the tank is being filled.
  - 5.2.7.4 Handle and store fuel using approved protocols
    - A. Fuel shall be handled, transported, and stored only in approved containers or locations.
    - B. Maintain metal-to-metal contact while pouring gasoline from one container to another. (avoid static discharge)
  - 5.2.7.5 Only trained, authorized employees shall repair gasoline-powered equipment.
  - 5.2.7.6 Ensure there is adequate ventilation when using fuel-powered tools in enclosed or confined spaces.
- 5.2.8 Power Lawn Mowers, Power Trimmers, and Chainsaws
  - 5.2.8.1 Read and follow all safety instructions in the equipment's owner's manual.
  - 5.2.8.2 All power equipment must be equipped with adequate guards; check that all applicable guards are in place and do not use the equipment if missing.
  - 5.2.8.3 Wear appropriate PPE at all times, such as a hard hat, safety glasses with side shields, hearing protection, and proper safety work boots or shoes.
  - 5.2.8.4 Be aware that you could be exposed to poisonous plants (e.g., poison oak) and insects, reptiles or other animals that could cause injury.
  - 5.2.8.5 Prior to adjustments, inspections, or repairs, turn off the mower and allow it to come to a complete stop.

- A. When working under a mower deck, disconnect the spark plug wire and remove the ignition key, if so equipped.
- 5.2.8.6 Operating Power Mowers
- A. Inspect the area and remove any foreign objects that may be struck by the mower.
  - B. Avoid placing your body in front of the discharge opening and do not allow the mower to discharge in a direction hazardous to others.
  - C. Keep your hands and feet clear of the blade. Never reach under the deck of an operating mower to clear or remove debris. First shut down the equipment and turn off the engine.
  - D. Mow horizontally across the face of a slope when using a push mower. Mow up and down (vertically) the face of a slope when mowing a slope with a riding mower/tractor. Always follow manufacturer's guidelines while mowing slopes.
  - E. Do not leave running mowers unattended.
- 5.2.8.7 Operating Power Trimmers
- A. Wear appropriate PPE, including hard hat, safety glasses with side shields, face shield, hearing protection, and appropriate foot protection.
  - B. When working on electric-powered mowers, trimmers, etc., unplug the power cord first.
  - C. Remove battery prior to servicing battery powered equipment
- 5.2.8.8 Operating Gas-powered Chainsaws
- A. Only trained operators shall operate chainsaws.
  - B. Wear protective chaps or other protection sewn/fastened to trousers, protecting legs from the thigh to below the knee. Exception: Chaps do not need to be worn when saw is to be operated outside of a bucket on aerial man-lift equipment.
  - C. Start and test-operate the power saw engine on the ground.
    - a. When starting a saw, be sure your footing is secure.
    - b. Start the saw at least 10 feet away from fuel sources, flames, sparks, or ignition sources.
  - D. Keep both hands firmly on the saw when in use, one on the handlebar, the other on the pistol grip.
  - E. Avoid using a chainsaw above shoulder level. Never cut directly overhead.
  - F. Do not remove or disable chainsaw kickback devices.
  - G. Each power saw must return to idle automatically and the clutch must not engage the chain at idle. If the saw is malfunctioning, stop at once.
  - H. Always approach a chainsaw operator from the front.
  - I. When working aloft or in trees:

- a. Never raise or lower a chainsaw from/to the ground with the engine running.
- b. Use a separate line to support power saws weighing more than 15 pounds except when no supporting limb is available, such as during topping or removal operations.
- c. Maintain proper clearances from energized lines at all times.
- J. Do not leave idling saws unattended. When carrying a saw beyond a few steps, turn the engine off and carry it with the blade to the rear.
- K. Make sure the chain guard is attached when the saw is not in use.
- L. Turn off power and allow cooling before cleaning, refueling, adjusting, or repairing a saw or motor, unless manufacturer's procedures require otherwise. (Some minor adjustments can only be made when the engine is running.)
- M. Chainsaws shall be regularly inspected to ensure they are clean, sharp, and properly tensioned.
- N. Use an approved safety container with flame arrestor to store fuel for chainsaws.
- O. After refueling, wipe down the saw before starting, and make sure the cap is in good repair and properly replaced.

#### 5.2.9 Hydraulic-power Tools

5.2.9.1 The fluid used in hydraulic-powered tools shall be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.

#### 5.2.10 Jacking Devices or Support Stands

5.2.10.1 The manufacturer's rated capacity shall be legibly marked on all jacks."

5.2.10.2 Ensure the manufacturer's rated capacity is not exceeded.

5.2.10.3 All hydraulic jacks shall have a positive stop to prevent over-travel.

5.2.10.4 After the load has been raised, it shall be cribbed, blocked, or otherwise secured.

5.2.10.5 Block the base of the jack in the absence of a firm foundation. Place the block between the cap and the load if there is a possibility of slippage of the cap.

5.2.10.6 If provided, use a stop indicator to determine the limit of travel. The indicated limit shall not be exceeded.

5.2.10.7 Inspect jacks prior to use and while in use.

5.2.10.8 Inspect immediately any jack subjected to an abnormal load or shock.

#### 5.2.11 Portable Heating Equipment (Kerosene, Propane, Electric)

5.2.11.1 Use any fossil fuel-burning portable heating equipment in a well-ventilated area

5.2.11.2 Kerosene: When filling the fuel tanks of kerosene equipment, ensure the flame is completely extinguished and ensure the fuel being added is kerosene.

5.2.11.3 Propane: Make sure all fittings are tight and do not leak before lighting the equipment.

5.2.11.4 Electric: Check electrical cords for wear to ensure they are in safe condition. Ensure you are plugging equipment into the proper voltage source.

#### 5.2.12 Portable and Vehicle-mounted Generators

5.2.12.1 Portable and vehicle-mounted generators used to supply cord- and plug equipment shall meet the following requirements:

- A. The supply must be through receptacles mounted on the generator or welder.
- B. The non-current-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles shall be bonded to the equipment frame.
- C. Vehicle-mounted generators and welders shall be bonded to the vehicle frame.
- D. Any neutral conductor shall be bonded to the equipment frame.
- E. Do not operate a portable generator near a building's air intake vent.

#### 5.2.13 Guarding of Tools

##### 5.2.13.1 Portable circular saws

- A. Saws having a blade diameter greater than 2 inches shall be equipped with guards above and below the base plate or shoe.
- B. Saws without properly operating guards shall be removed from service.
- C. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to a covering position.

##### 5.2.13.2 Portable Belt Sanding Machines

- A. Belt sanding machines shall be provided with guards at each end over the nip point.
- B. The unused run of the sanding belt shall be guarded against accidental contact.
- C. The guards shall effectively prevent the hands or fingers of the operator from coming in contact with the nip points.

##### 5.2.13.3 Switches and Controls

- A. All handheld saws shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. Do not use hand-held saws or other hand-held powered equipment with a locking switch.

#### 5.3 Acceptance Criteria

5.3.1 Tools are inspected and free of defects before use.

5.3.2 Any tool that requires documentation of an inspection before use will have the records completed as required.

#### 5.4 Post-Performance Activity

None

## **6 References**

### **6.1 References**

- 6.1.1 Oregon OSHA Division 1, 437-001-0760
- 6.1.2 Oregon OSHA Division 2, Subdivision I, 1926.302 Power Operated Hand Tools
- 6.1.3 Oregon OSHA Division 2, Subdivision O, 1910.215 Abrasive Wheel Machinery
- 6.1.4 Oregon OSHA Division 2, Subdivision P, 1910.241-.244, Hand and Portable Powered Tools and Other Hand-Held Equipment (includes: portable tools, explosive-actuated fastening tools, power lawn mowers, jacks).
- 6.1.5 Oregon OSHA Division 2, Subdivision R, 1910.269(i), Hand and Portable Power Tools (cord-and-plug connected equipment, portable and vehicle-mounted generators, hydraulic and pneumatic tools).
- 6.1.6 Oregon OSHA Division 2, Subdivision S, 1910.304(f)(5)(v) Grounding of Equipment Connected by Cord and Plug.

## **7 Forms and Records**

- 7.1 Forms  
None
- 7.2 Appendices  
None

# **HEAT ILLNESS TRAINING**

Summers are getting hotter and longer. For people working in hot environments, the risks of heat illness are on the rise. These talking points provide a quick overview of what you need to know to protect yourself and others from heat illnesses.

## **Types of heat-related illness**

Heat illnesses are a serious issue for many workplaces and it's important to recognize symptoms early. Here are the four most common types of heat illnesses.

Heat cramps – These happen when workers are sweating a great deal while doing physical tasks. The cramps come from losing salt through sweating, which causes muscle pain. What to look for:

- Muscle cramps or pain
- Spasms in the abdomen, arms, or legs

Heat exhaustion – This comes from the body's response to losing water and salt, usually through sweating. What to look for:

- Headache
- Nausea
- Dizziness
- Weakness
- Irritability
- Thirst
- Heavy sweating
- Elevated body temperature
- Decreased urine output

Heat syncope – Fainting or dizziness spells caused by dehydration or not being used to working in the heat. What to look for:

- Fainting
- Dizziness
- Light-headedness after standing for long periods or after quickly rising from a sitting or lying position

Heat stroke – The most serious heat-related illness, heat stroke can cause death or permanent disability if not treated immediately. The body is unable to control its temperature or cool itself down. What to look for:

- Confusion, altered mental status, slurred speech
- Loss of consciousness
- Hot, dry skin or profuse sweating
- Seizures
- Very high body temperature

Resources: NIOSH heat stress- heat-related illness

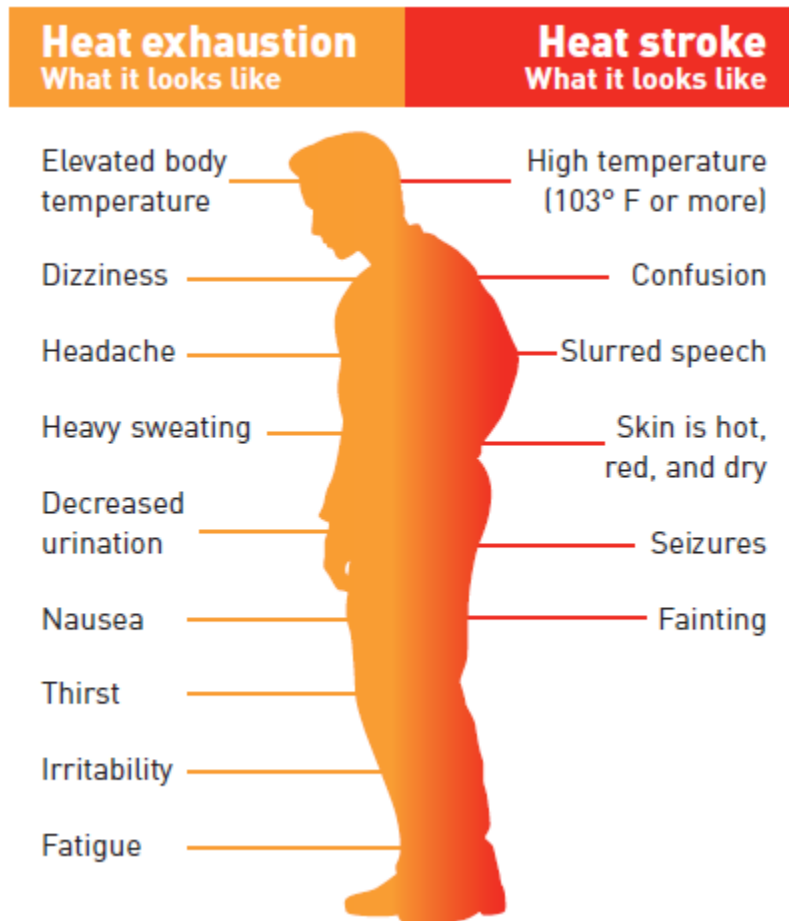
<https://www.cdc.gov/niosh/topics/heatstress/heatrelillness.html>

Heat exhaustion vs. heat stroke:

Learn the symptoms:

[https://www.saif.com/Documents/SafetyandHealth/Wellness/S1106\\_Handout\\_HeatStress.pdf](https://www.saif.com/Documents/SafetyandHealth/Wellness/S1106_Handout_HeatStress.pdf)

Poster: [https://www.saif.com/Documents/SafetyandHealth/Wellness/S1106\\_POSTER\\_HeatStress.pdf](https://www.saif.com/Documents/SafetyandHealth/Wellness/S1106_POSTER_HeatStress.pdf)



### Risk factors

The risk of heat-related illness increases when heat is paired with:

- Strenuous activity
- Wearing heavy or dark clothing
- Wearing personal protective equipment (PPE)
- Age, particularly 40 years or older
- Medical or chronic health conditions — obesity, high blood pressure, diabetes, or pregnancy
- Medication — antihistamines, beta blockers, diuretics, or calcium channel blockers
- Alcohol, which can cause dehydration
- History of heatstroke — if a worker has had a heatstroke in the past, they are more likely to have another one

### Adapting to a hot work environment

Workers are less likely to experience heat illness if they gradually adapt to working in hot environments.

The National Institute for Occupational Safety and Health (NIOSH) has a schedule that can be used to help workers. <https://www.cdc.gov/niosh/topics/heatstress/acclima.html>

### **What can employers do?**

Oregon OSHA passed a temporary rule for excessive heat in July 2021, and have set requirements based on the heat index, not just temperature:

- **What's the heat index?** The heat index is a measure that combines humidity and air temperature. These are two apps that can help you calculate the heat index:
- **Outdoor workplaces:** Use the OSHA-NIOSH Heat Safety Tool <https://www.cdc.gov/niosh/topics/heatstress/heatapp.html> for real-time heat index information and hourly forecasts by location.
- **Indoor workplaces:** Use the NOAA Heat Index Calculator. <https://www.wpc.ncep.noaa.gov/html/heatindex.shtml> Resource: Oregon OSHA tutorial on using the OSHANIOSH Heat Safety Tool <https://www.youtube.com/watch?v=VQg-cGDLnDQ>
- **80 degrees Fahrenheit**  
Employers are required to provide access to shade and drinking water when the heat index reaches 80 degrees Fahrenheit.

**Water** must be provided by the employer free of cost and easily accessible. Enough water must be available for each worker to have 32 ounces per hour, and employers must provide ample opportunity to drink water. The water must be under 77 degrees.

**Shade** must be provided as close as practical to working areas and either be open to the air or provide mechanical cooling. The shaded area needs to be large enough to accommodate all workers during their breaks.

- **90 degrees Fahrenheit**  
In addition to the measures required at 80 degrees, employers must provide a shaded 10-minute rest period for every two hours of work when the heat index reaches 90 degrees Fahrenheit. Employers must ensure workers can effectively report concerns and must monitor all workers for signs and symptoms of heat illness. Finally, the employer must create both a plan to allow workers to gradually adapt to working in the heat, and a plan to deal with heat-related medical emergencies.

Resource: Oregon OSHA video on heat illness <https://www.youtube.com/watch?v=ISCC3etyMi4>

### **What can workers do?**

The most important thing workers can do is look out for one another. Heat illnesses can come on very quickly, and workers often don't realize what's happening until it's too late.

Learning the signs and symptoms, scheduling frequent breaks, and being aware of the risk factors that can contribute to heat illnesses can help keep workers safe.

### **Other things to remember:**

- Sip water instead of drinking quickly
- Avoid caffeine when working in heat
- Wear sunscreen and hats when working outside
- Do outdoor work in the morning or in late evening, if possible



Find out more SAIF's page on heat stress

<https://www.saif.com/safety-and-health/topics/preventinjuries/heat/cold-stress.html>

Oregon OSHA's temporary rule on heat illness prevention

<https://osha.oregon.gov/OSHARules/adopted/2021/ao6-2021-letter-heatillnessprevention.pdf>

# **SILICA EXPOSURE CONTROL PROGRAM**

## **Introduction**

Exposure to hazardous levels of respirable crystalline silica can result in a variety of health effects including cancer, silicosis, tuberculosis (TB), bronchitis, obstructive pulmonary disease, kidney disease and others.

Any work involving grinding, drilling, cutting, chipping, or similar activities on silica-containing materials containing crystalline silica can lead to exposure. Silica-containing materials include sand, stone, brick, mortar, concrete, cement, asphalt, and others.

To control this hazard, employers need to assess work activities that may result in exposure and determine if these activities result in silica exposure above the action level. Silica hazards are controlled with elimination and substitution, engineering controls, administrative controls, and personal protective equipment.

If all work activities, tools, and controls conform to the requirements specified in Table 1 of the Oregon OSHA regulation OAR 437-002-1057 (see Appendix), workplace air monitoring or collection of objective data showing actual levels of silica in the air is not required.

## **Purpose**

In support of our efforts to protect worker health and safety, this plan is designed to prevent health effects from exposure to respirable crystalline silica that can occur during work activities. The plan reflects the requirements stated in Oregon Administrative Rules Division 2/Z – Silica (437-002-1053 through 1065) which covers both general industry and construction.

## **Scope**

This plan covers all employees whose work activities may result in exposure to respirable crystalline silica at levels that are regulated by Oregon OSHA standards. Employees whose exposure to crystalline silica will always remain below 25 micrograms per cubic meter of air (25 ug/m<sup>3</sup>) as an 8-hour time-weighted average (TWA) under any foreseeable conditions are exempt from these requirements.

Work activities that may expose employees to levels of respirable crystalline silica above the action level will be covered by this plan.

## **Definitions**

**Action level** means a concentration of airborne respirable crystalline silica of 25 µg/m<sup>3</sup>, calculated as an 8-hour TWA.

**Affected employee** means anyone whose work activities may expose them to respirable silica at or above the action level.

**Competent person** means an individual who can identify existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in this program.

**Employee exposure** means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

**High-efficiency particulate air [HEPA] filter** means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.

**Objective data** means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

**Permissible exposure limit (PEL)** means a concentration of airborne respirable crystalline silica of 50 µg/m<sup>3</sup>, calculated as an 8-hour TWA.

**Physician or other licensed health care professional [PLHCP]** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by 437-002-1062.

**Regulated area** means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL.

**Respirable crystalline silica** means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size-selective samplers specified in the *International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling*.

**Specialist** means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

## **Responsibilities**

The Public Works Director is responsible for the implementation of this program and will serve as the competent person for silica exposure.

The **competent person** is responsible for:

- Conducting a work activities assessment (see next section) to identify all activities that may generate silica dust and the approximate amount of time employees spend doing these
- activities.
- Identifying materials and products to determine whether you have the type of regulated (crystalline) silica at your facility or worksite.
- Identifying the work practices, respiratory protection, and housekeeping measures to be used for each task and maintaining this information (see Work Activities and Controls in Appendix).

- Identifying work areas where employee access might need to be regulated to avoid exposure to silica.
- Ensuring that these regulated areas are signed as appropriate.
- Identifying work activities that require an exposure assessment and ensuring this assessment is conducted.
- Developing exposure control plans for specific work tasks when indicated.
- Maintaining records.
- Providing training and oversight to affected employees.
- Reviewing this plan on an annual basis and updating it as needed.

**Affected employees** are responsible for:

- Observing the procedures and requirements outlined in this plan.
- Knowing the hazards of silica dust exposure.
- Reporting immediately to their supervisor any hazards (i.e., unsafe conditions, unsafe acts, improperly operating equipment, PPE issues/needs, etc.).
- Attending training sessions.
- Complying with medical surveillance requirements.
- Wearing respiratory protection and other PPE, as required.
- Notifying supervisors of changes in the workplace that could cause an increase in exposures to respirable crystalline silica.

All employees are required to comply with restrictions to prevent access to areas that may expose them to airborne silica dust.

### **Work Activities Assessment**

The competent person shall assess the workplace to identify all tasks that may generate silica dust and the approximate amount of time workers may be exposed. In addition to the work activities, the competent person will identify dust controls currently in use.

This information is to be recorded on the Work Activities Assessment Form (see Appendix).

- Information on this form will be compared to the work tasks and dust control measures listed on Table 1 (see Appendix).
- If the work activities performed at our facilities reflect the tools and dust controls listed in Table 1, no monitoring will be needed.

If the work activities do not reflect the information on Table 1, the competent person will change the work operation, tools, and/or controls to reflect Table 1.

If it is infeasible to use the controls specified in Table 1 or if work activities and/or equipment fall outside the scope of Table 1, the competent person will institute a workplace monitoring program to accurately determine the levels of silica exposure.

The *Work Activities Assessment Form* will be updated as needed and used in worker training.

### **Workplace Monitoring**

If monitoring is required, the workplace monitoring program will be conducted by a technically qualified professional and reflect the requirements specified in OAR 437-002-1056 Exposure Assessment.

Results of the program will be documented and shared with the affected employees.

Based on the results of this monitoring, the competent person will identify controls that will be used to ensure worker health. The selection of controls will reflect the hierarchy of controls as follows (list is in order of preference):

1. **Elimination and Substitution:** If possible, products with lower levels of silica will be sourced and used. A tool or task can be substituted to lower worker exposure below the PEL.
2. **Engineering:** These controls minimize the amount of dust released. Examples include Local Exhaust Ventilation and Wet Dust Suppression Systems.
3. **Administrative:** Work schedules and/or locations can be adjusted so workers are not in areas where dust poses a hazard. Housekeeping procedures can be altered to avoid dispersing dust.
4. **Personal Protection Equipment (PPE):** When engineering and administrative controls are not effective in reducing exposures below the PEL, use of respiratory protective equipment will be required.

Based on this assessment and identification of controls, the Work Activities Assessment Form (see Appendix) will be updated as needed and used in worker training.

### **Regulated Areas**

Employee access to the areas listed in the Regulated Areas List (see Appendix) will be restricted when exposure to silica dust is anticipated.

Employees will be informed of the hazard by posting signs with the following information:

DANGER  
RESPIRABLE CRYSTALLINE SILICA  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
WEAR RESPIRATORY PROTECTION IN THIS AREA  
AUTHORIZED PERSONNEL ONLY

**Respiratory protection must be required for and provided to every authorized person entering a regulated area.**

### **Housekeeping**

Work practices must prevent silica-containing dust from becoming dispersed in the air to the extent possible. All workers must adhere to the following rules:

- Do not dry sweep or brush silica-containing dust.
- Do not blow off dust from clothing or surfaces with compressed air unless used with a ventilation system that controls the dust.
- Cleaning must be done by wet sweeping or using a HEPA equipped vacuum system.

If it is infeasible to follow these requirements, the competent person must identify alternate methods to ensure the dust does not create a hazard. This must be documented.

### **Medical Surveillance**

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to Respirable Crystalline Silica exposure. It will also

be available to employees who are exposed to silica at or above the action level for 30 or more days per year.

Medical surveillance (i.e., medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

These exams will include chest X-rays and lung function tests as indicated. A qualified NIOSH B-Reader must interpret all chest X-rays.

Medical surveillance procedures and processes will meet the requirements outlined in OAR 437-002-1062 Medical Surveillance.

### **Recordkeeping**

Records to be maintained to comply with this plan, according to OAR 437-002-360 include:

- Medical exam results of employees who are under medical surveillance for the duration of employment plus 30 years.
- Exposure records (including objective data records) must be retained for 30 years.
- Training records of affected employees.
- Current Work Activities Assessment Form.
- Current Regulated Areas List, if used.

#### *Air Monitoring Records*

If performed, air monitoring records and other data that show potential exposure to silica. Data to be recorded includes:

- The date of measurement for each sample taken
- The task monitored
- Sampling and analytical methods used
- Number, duration, and results of samples taken
- Identity of the laboratory that performed the analysis
- Type of personal protective equipment, such as respirators, worn by the employees monitored; and
- Name and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

#### *Objective Data Records*

If performed, the results of objective data will be collected to assess employee exposure. Data to be recorded includes:

- The crystalline silica-containing material in question
- The source of the objective data
- The testing protocol and results of testing
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

All data and monitoring results are to be maintained and made available in accordance with 1910.1020 Access to Employee Exposure and Medical Records.

## **Training**

Affected employees will receive initial training that covers the following topics:

- The effects of silica dust on the human body.
- General requirements of the silica standard.
- Work activities that may expose them to silica.
- Controls, work practices, and PPE required for each work activity. (See Work Activities Assessment Form in the Appendix).
- The role of the competent person.
- Proper use and care of required personal protective equipment.
- Housekeeping procedures to control silica dust.
- Availability of the medical surveillance program as applicable.

Retraining will be performed when:

- There is a change in work activities or dust controls.
- There are observed deficiencies in the worker's understanding of the requirements of this program.

This training will be documented.

The education and training will be delivered to employees in a variety of ways, including:

- New employee orientations.
- Formal classroom training.
- Equipment/task-specific training.
- Pre-job briefings.
- Signs, notifications, and bulletins.

## **Appendix**

This appendix contains the following forms and resources:

### *Work Activities Assessment Form*

Page 312

Use this form to document all work activities that may result in exposure to silica dust. Update this form as needed whenever additional work activities are identified or additional controls are implemented. The current version of this form should be made available to workers and used in training as appropriate.

### *Regulated Areas List*

Page 313

If other employees may be exposed to airborne dust, access to these areas needs to be regulated. This form can be used to identify those areas and times when access is to be controlled.

### *Table 1*

Page 314

This table is reprinted from the OSHA regulations and can be used to assess whether silica dust exposure exceeds the Permissible Exposure Limit (PEL).

### *Work Activities Assessment Form*

<b>Work Task/Tool</b>	<b>Frequency</b>		<b>Dust Control Methods</b>	<b>Respirator?</b>
	Hours/Day	Days/Mo.		



*Regulated Areas List*

<b>Work Task</b>	<b>Description of Restricted Area</b>	<b>Times When Access is Limited</b>

*Table 1*

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
<b>1</b>	Stationary masonry saws	<ul style="list-style-type: none"> <li>Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
<b>2a</b>	Handheld power saws (any blade diameter) when used outdoors	<ul style="list-style-type: none"> <li>Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>2b</b>	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>3</b>	Handheld power saws for cutting fiber-cement board (with a blade diameter of eight inches or less) for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use saw equipped with commercially available dust collection system.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.</li> </ul>	None	None
<b>4a</b>	Walk-behind saws when used outdoors	<ul style="list-style-type: none"> <li>Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
<b>4b</b>	Walk-behind saws when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>5</b>	Drivable saws for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use a saw equipped with an integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
6	Rig-mounted core saws or drills	<ul style="list-style-type: none"> <li>Use tools equipped with integrated water delivery system that supplies water to cutting surface.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	<ul style="list-style-type: none"> <li>Use drill equipped with commercially available shroud or cowl with dust collection system.</li> <li>Operate and maintain the tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> <li>Use a HEPA-filtered vacuum when cleaning holes.</li> </ul>	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use shroud around drill bit with a dust collection system.</li> <li>Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism.</li> <li>Use a HEPA-filtered vacuum when cleaning holes.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> <li>Use a dust collection system with a close capture hood or shroud around the drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.</li> </ul>	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> <li>Operate from within an enclosed cab and use water for dust suppression on the drill bit.</li> </ul>	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> <li>Use a tool with a water delivery system that supplies a continuous stream or spray of water at the point of impact.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use a tool with a water delivery system that supplies a continuous stream or spray of water at the point of impact.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
<b>10c</b>	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> <li>Use tools equipped with a commercially available shroud and dust collection system.</li> <li>Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>10d</b>	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use tools equipped with a commercially available shroud and dust collection system.</li> <li>Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>11</b>	Handheld grinders for mortar removal (i.e., tuckpointing)	<ul style="list-style-type: none"> <li>Use a grinder equipped with a commercially available shroud and dust collection system.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide twenty-five cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
<b>12a</b>	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use a grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.</li> <li>Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
<b>12b</b>	Handheld grinders for uses other than mortar removal when used outdoors	<ul style="list-style-type: none"> <li>Use grinder equipped with a commercially available shroud and dust collection system.</li> <li>Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide twenty-five cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</li> </ul>	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
<b>12c</b>	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use grinder equipped with a commercially available shroud and dust collection system.</li> <li>Operate and maintain tools in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide twenty-five cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>13a</b>	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> <li>Use a machine equipped with an integrated water delivery system that continuously feeds water to the cutting surface.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
<b>13b</b>	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> <li>Use a machine equipped with a dust collection system recommended by the manufacturer.</li> <li>Operate and maintain tools in accordance with the manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> <li>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</li> </ul>	None	None
<b>14</b>	Small drivable milling machines (less than half-lane)	<ul style="list-style-type: none"> <li>Use a machine equipped with supplemental water sprays designed to suppress dust.</li> <li>Water must be combined with a surfactant.</li> <li>Operate and maintain machines to minimize dust emissions.</li> </ul>	None	None
<b>15a</b>	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	<ul style="list-style-type: none"> <li>Use machines equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</li> <li>Operate and maintain machines to minimize dust emissions.</li> </ul>	None	None
<b>15b</b>	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> <li>Use machines equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</li> <li>Operate and maintain machines to minimize dust emissions.</li> </ul>	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> <li>Use a machine equipped with supplemental water spray designed to suppress dust.</li> <li>Water must be combined with a surfactant.</li> <li>Operate and maintain machines to minimize dust emissions.</li> </ul>	None	None
16	Crushing machines	<ul style="list-style-type: none"> <li>Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/sizing or vibrating components, and discharge points).</li> <li>Operate and maintain the machine in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.</li> </ul>	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> <li>Operate equipment from within an enclosed cab.</li> </ul>	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> <li>When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.</li> </ul>	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
<b>18a</b>	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> <li>Apply water and/or dust suppressants as necessary to minimize dust emissions.</li> </ul>	None	None
<b>18b</b>	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> <li>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</li> </ul>	None	None

# **WILDFIRE SMOKE EXPOSURE PROGRAM**

## **Introduction**

Large scale wildfire events are increasing in frequency and can potentially devastate the air quality across wide regions. These events can last for weeks, and exposure to excessive levels of wildfire smoke can pose serious health risks to a worker's eyes (e.g., burning, redness, tearing), respiratory system (e.g., sore throat, coughing, difficulty breathing, irritation, shortness of breath), and general health (e.g., fatigue, headache, irregular heartbeat, chest pain).

Wildfire smoke contains harmful chemicals along with tiny smoke particles. The particles of most concern are particulate matter with a diameter of 2.5 micrometers or less, referred to as PM2.5. These tiny particles are not filtered out by the nose and collect in the tiny passages deep in the lungs.

To protect our workers, we will monitor the region's air quality and enact protective measures when workers are exposed to wildfire smoke above the action level (air quality index of 101 or greater).

## **Purpose**

This program's purpose is to protect our employees from the hazards of wildfire smoke, and to comply with Oregon OSHA's Protection from Wildfire Smoke rules (OAR 437-002-1081).

## **Scope**

This program covers anyone whose job activities require them to work outdoors or in structures that lack a mechanical ventilation system when the air quality index is 101 or more.

This program does not cover:

- Workers in an air-conditioned vehicle with a cabin air filter system and closed windows and doors. This exemption does not include vehicles used for public transit.
- Employees working at home.
- Emergency response operations and emergency responders.

## **Definitions**

**Air Quality Index (AQI):** The Air Quality Index indicates the overall air quality and is based on measurements of ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide.

**DEQ:** Department of Environmental Quality

**Filtering facepiece respirator:** A disposable, negative-pressure, air purifying respirator where an integral part of the facepiece or the entire facepiece is made of air contaminant filtering material. Acceptable ratings include: N95, P95, R95, N99, P99, N100 and P100.

**NIOSH:** The National Institute for Occupational Safety and Health of the United States Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.



**PM2.5:** Solid particles and liquid droplets suspended in air, known as fine particulate matter, with a diameter of 2.5 micrometers or smaller and measured in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

**Sensitive groups:** Individuals with pre-existing health conditions and those who are sensitive to air pollution. Examples of sensitive groups include people with lung or heart disease or asthma, smokers, anyone suffering from a cold or flu, workers under 18 years old or over 65, pregnant women, people with diabetes, and people suffering from other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician or other licensed healthcare provider.

**Wildfire smoke:** Emissions from unplanned fires in wildlands, which may include adjacent developed and cultivated areas to which the fire spreads or from where it originates.

**Wildlands:** Uncultivated and sparsely populated geographical areas covered primarily by grass, brush, trees, slash, or a combination thereof.

## **Responsibilities**

### *Management*

It is the responsibility of management to protect employees from wildfire smoke by ensuring the requirements of this program are implemented. This includes providing workers with the training and resources needed to control smoke exposure.

### *Program Manager*

This program will be managed by City Manager and Human Resources. It is the responsibility of the Program Manager to:

- Maintain this written program and update it as needed.
- Ensuring that our Emergency Medical Plan addresses wildfire smoke exposure.
- Respond to the employees' concerns regarding the effectiveness of this program.
- Enforce the elements of this program.
- Maintain training records.

### *Supervisors*

Supervisors are responsible for:

- Assessing the current and predicted AQI when wildfire smoke is visibly present.
- Applying engineering and administrative controls when feasible.
- Applying additional protective measures when engineering and administrative controls are infeasible.
- Training exposed workers to fulfill their responsibilities under this program.
- Ensuring an adequate supply of personal protective equipment.
- Providing oversight to exposed workers.

### *Exposed Workers*

Exposed workers are responsible for:

- Reporting any change in the AQI in their area that may require a change in protective measures.
- Reporting any health conditions that might be worsened by smoke or the use of a respirator to a medical provider (through the medical evaluation process which is part of the respiratory

- protection program).
- Reporting any adverse health effects from smoke exposure.
- Following all the procedures that are used to control smoke exposure.
- Using all personal protective equipment in the manner specified by the manufacturer.
- Employees should stop working and report any adverse health effects to their supervisor.

## **Training**

All employees who have responsibilities under this program will be trained to fulfill those responsibilities. Employees shall receive training before exposure to an AQI greater than 100. This training may consist of formal classroom instruction, on-the-job orientation, or a combination of both.

A record of employees who have received training and training dates shall be maintained by the Program Manager. Training will be conducted by a supervisor or otherwise qualified trainer.

### *Exposed Workers*

Training shall include:

- Symptoms of wildfire smoke exposure.
- The potential health effects from wildfire smoke exposure, including the risks to those in sensitive groups (see Definitions).
- How to report health issues related to wildfire smoke exposure and obtain medical treatment.
- How workers can obtain the current average and forecasted AQI value for their work location.
- Our methods for protecting workers from wildfire smoke are based on the current and predicted AQI.
- The proper fitting and use of a filtering facepiece respirator when used on a voluntary basis (AQI 101-250).
- Reviewing any job tasks in which the use of a filtering facepiece respirator would expose the wearer to illness or injury more severe than that posed by wildfire smoke.
- Requirements specified in the Wildfire Smoke Prevention Respiratory Program when the AQI is between 251 and 500.
- Requirements specified in our Respiratory Protection Program when the AQI is greater than 500.

### *Supervisors*

In addition to all the training specified for exposed workers, supervisor training will include:

- How to apply engineering and administrative controls when feasible.
- Use of the 5-3-1 Visibility Index (see Appendix) when current AQI levels can't be determined.
- The use of air monitoring equipment to determine the level of PM2.5, if used.
- Proper selection of respirators and how to ensure an adequate supply.
- Ensuring that there is a means of two-way communication with workers when they are exposed above the action level.
- Requirements and exemptions listed in OAR 437-002-1081 Protection from Wildfire Smoke.
- Requirements of the Wildfire Smoke Protection Respiratory Program.
- How to deliver required training to exposed workers including recordkeeping requirements.

- Procedures to follow when a worker reports symptoms of wildfire smoke exposure.

#### *Program Manager*

In addition to all the training specified for supervisors, the program manager training will include:

- Maintaining training documentation.
- Maintaining this written program.

#### *Refresher Training*

Refresher training will be provided annually or when:

- There are changes to this plan which affect the responsibilities of the affected employees.
- There are changes to the equipment or procedures used to control wildfire smoke exposure.
- There are observed deficiencies in the employees' fulfillment of their responsibilities under this program.

### **Protecting Workers from Wildfire Smoke**

Whenever wildfire smoke is visibly present, supervisors will determine the current and predicted AQI for workers who may be exposed. AQI information is available on the DEQ website at: <https://oraqi.deq.state.or.us/home/map> or regional air pollution authority websites.

If the AQI area cannot be determined from public sources, supervisors will assess the visibility to estimate the concentration of smoke. (See Appendix: 5-3-1 Visibility Index).

Air monitoring equipment can also be used to determine the level of PM<sub>2.5</sub>.

If the AQI is deemed to be above 101, supervisors will implement the controls listed below.

#### *Engineering Controls*

Depending on the job activity and location, outdoor workers might be temporarily relocated to available indoor areas where the air is adequately filtered. Portable air purifiers equipped with HEPA or similar high-efficiency filters can also be deployed in enclosed areas. These must be sufficient in number and capacity for the size of the enclosed area.

#### *Administrative Controls*

Possible administrative controls may include temporarily relocating outdoor work operations to another area with better air quality. Employee work schedules can also be adjusted to times when better air quality is forecasted.

Although they are the preferred method of controlling smoke exposure, engineering and administrative controls may not be feasible given the variety of work activities and locations.

#### *Protective Measures*

When engineering and administrative controls are not adequate, the following protective measures will be used.

Air Quality Index	Risk Level	Protective Measures
101-250	Lower (caution)	<ul style="list-style-type: none"> <li>• Assess and monitor air quality at each work location where employees are exposed.</li> <li>• Provide and document employee training.</li> <li>• Implement two-way communication system.</li> <li>• Implement engineering and administrative controls.</li> <li>• Provide NIOSH-approved filtering facepiece respirators<sup>1</sup> for voluntary use.</li> </ul>
251-500	Moderate	<i>All measures listed above plus:</i> <ul style="list-style-type: none"> <li>• Provide NIOSH-approved filtering facepiece respirators for <i>mandatory</i> use.</li> <li>• Implement the <i>Wildfire Smoke Respiratory Protection Program</i>.</li> </ul>
501 and above	High	<i>All measures listed above plus:</i> <ul style="list-style-type: none"> <li>• Provide NIOSH-approved respirators for mandatory use.</li> <li>• Use will comply with our <i>Respiratory Protection Program</i> in accordance with OAR 437-004-1041.</li> </ul>

1. See definition. Ensure adequate supply and a variety of sizes.

### **Wildfire Smoke Protection Respiratory Program**

This program will be implemented when employees are exposed to an AQI of 251 to 500.

Workers will be required to wear a filtering facepiece respirator unless the use of this respirator creates a substantially greater hazard to the employee during the work activity than that posed by wildfire smoke.

If employees are exposed to an AQI of above 501, or if they are using a respirator that is not a filtering facepiece model, the requirements of our Respiratory Protection Program will be met.

### **Employee Training**

Any employee that is required to use a filtering facepiece respirator will be trained on the following topics:

- Proper selection and use of respirators, including donning and doffing
- Limitations on their use
- How to fit the respirator and check the fit using a positive and negative pressure seal check

## Seal Check

Each employee who uses a filtering facepiece respirator must perform a user seal check to ensure a sufficient fit. Employees should use the positive or negative pressure check as described below or the procedure recommended by the manufacturer.

### *Positive Pressure Seal Check*

1. Don the respirator and place your hands over the facepiece. Try to cover as much surface area as possible. Exhale gently into the facepiece.
2. The fit is sufficient if a slight positive pressure builds up inside the facepiece without air passing between your face and the facepiece.
3. If the respirator has an exhalation valve, a positive pressure check may not be possible. Instead, perform a negative pressure check.

### *Negative Pressure Seal Check*

1. Don the respirator and cover as much of the filter surface as possible with your hands. Inhale gently.
2. The facepiece should collapse slightly without air passing between your face and the facepiece.

### *Correcting problems*

If air leaks around the nose, mold the nose area to the shape of your nose. Readjust the straps along the sides of your head until a proper seal is achieved.

## Appendix

### *5-3-1 Visibility Index*

This procedure is only to be used when AQI measurements are not available from public sources and there are no other means of assessing the air quality.

Note that this method is less reliable under high humidity conditions.

Determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances (miles). The visual range is that point at which these targets are no longer visible. In general, if you can clearly see the outlines of individual trees on the horizon it is generally less than five miles away.

The viewing of any distance targets should be done with the sun behind you, if possible.

Once distance has been determined:

- If visibility is well over five miles, the air quality is generally good.
- If visibility is five miles but hazy, air quality is moderate and beginning to deteriorate.
- If visibility is under five miles, the air quality is unhealthy for sensitive groups.
- If under three miles, the air quality is unhealthy for everyone.

<b>AQI Index</b>	<b>PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>	<b>Visibility</b>
0 – 50	0.0 – 12.0	More than 15 miles
51 – 100	12.1 – 35.4	5 – 15 miles
101 – 150	35.5 – 55.4	3-5 miles
151 – 200	55.5 – 150.4	1-3 miles
201 – 300	150.5 – 250.4	1 mile
301 and higher	250.5 and higher	Less than 1 mile