Health & Safety Manual

Adopted by the City Council

Resolution No. 1976, March 15, 2023

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.

Table of Contents

PART 1: CHAPTER 1
SAFETY RESPONSIBILITIES

A. SCOPE

Most city and county employees are covered under Oregon OSHA Division 2, the General Industry Standard. This health and safety manual complies with the requirements of the Oregon OSHA Division 2 standard.

There may be some employees who perform job tasks that are covered by additional safety and health requirements. For those employees, we will refer to the applicable regulations and comply with the additional code requirements in our health and safety program. These employees may include:

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 Oregon OSHA Division 3, Construction (1926) Standard.
2. City employees who conduct ocean and navigable waterway rescues need to comply with the OSHA Division 5, Maritime Activities Standard (29 CFR 1915, 1917, and 1918) and applicable Coast Guard regulations.
3. Employees who are responsible for operation and maintenance of electric power generation, control, transformation, transmission, and distribution lines and equipment are required to comply with the Oregon OSHA 1910.269 Electric Power Generation, Transmission and Distribution standard, Division 2 Subpart R. This includes those employees who conduct line-clearance tree-trimming operations.
4. Employees who perform electrical installations and utilization equipment installed or used within or on buildings, structures and other premises are required to comply with the Oregon OSHA 1910.302 Electric Utilization Systems standard, Division 2 Subpart S.

B. APPLICABLE LEGAL STANDARDS

1. Federal: 29 CFR 1910.269
2. Federal: 29 CFR 1910.302
3. State: OR-OSHA Division 2, General Industry Standard
4. State: OR-OSHA Division 3, Construction (1926)

C. MANAGEMENT COMMITMENT

Just as we each have responsibilities for our various job duties, we also are responsible for workplace safety and must be accountable for meeting these responsibilities.

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's entire safety program.

The Management staff responsibilities include:

1. Ensuring that safety and health regulations are observed.
2. Developing and implementing the safety program.
3. Assisting in preparation & revision of safety policies & 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 as 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. Maintains the OR-OSHA injury and illness logs and complies 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.
16. Administering all other insurance including property, liability, workers' compensation, and employee health insurance.
17. Any supervisors or persons in charge of work are the agents of the employer in the discharge of their authorized duties, and are responsible for:
    a. The safe performance of the work under their supervision.
    b. The safe conduct of the crew under their supervision.
    c. The safety of all workers under their supervision.
    d. Accident/Incident Reporting

D. EMPLOYEES' RESPONSIBILITIES

Employees' role in safety is critical. Employees are responsible to follow proper safety and health practices. It is important that everyone report 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.

E. SAFETY COMMITTEE RESPONSIBILITIES

The Safety Committee's responsibility is to advise management on safety related issues in the work place and to provide leadership in protecting the safety and health of all our 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 back 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.
7. Providing a means for employees to work together on identifying hazards and developing acceptable solutions to safety problems.

The Safety Committee meets monthly and will provide reports to the management team. Though the Safety Committee's role is advisory, all reasonable means will be taken by management to address the concerns of the Committee. The Safety Committee Charter is defined in detail in Part 2, Chapter 7.

F. SAFETY COMMITTEE CHAIR RESPONSIBILITIES

1. Presenting to the management team 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.

G. 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 or the entity's intranet), to be available to the employees in each department, regarding major and/or complex issues.

2. Safety Committee meetings will be held monthly. These meetings will have a standard agenda that shall be revised as appropriate and participants will report on various safety/health related issues. The agendas for Safety Committee meetings should include (but are not limited to):

   a. Review of applicable regulatory issues.
   b. Status of current safety issues.
   c. Review of accidents that have occurred and corrective actions taken. This includes a discussion of any trends or near-miss reports.
   d. Discussion of any major process and operational changes that may affect safety or environmental programs or result in additional planning.
   e. Each department representative or the supervisor will report on the status of on-going safety training and any assistance needed.

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.

H. DISCIPLINARY ACTIONS FOR UNSAFE PRACTICES

All employees are to follow the City of St. Helens basic safety rules. If employees knowingly violate the safety procedures and rules, which includes behaviors that jeopardize their own and others' safety, disciplinary action will be taken. The supervisor is responsible to take disciplinary action up to but not limited to: (FOR **NON-BARGAINING EMPLOYEES**)

1. **First Offense**: Verbal warning from your supervisor and notation in your personnel file.
2. **Second Offense:** Written warning from your supervisor with a copy retained in your personnel file.
3. **Third Offense:** Suspension for a variable period, or termination of employment, if circumstances warrant.

FOR **BARGAINING EMPLOYEES**, THE RESPECTIVE COLLECTIVE BARGAINING AGREEMENT MUST BE FOLLOWED REGARDING DISCIPLINE.

NOTE: Always get Human Resources and legal advice before taking disciplinary action.

The supervisor will issue disciplinary action. Verbal warning may be given as a first notice. All other warnings must be in writing, one copy to the employee, one copy to management, and one copy to the personnel file.

Serious infractions of the City's safety rules include, but are not limited to, the following:

1. Horseplay or violation of safety practices.
2. Being under the influence of alcohol, illegal substances, and bringing in and/or consuming alcohol on the premises or not reporting the use of prescription drugs that may impact performance.
3. Irresponsible or uncontrolled behavior that endangers or causes others to be concerned for their safety.

Any questions should be directed to your Department Head, the City Administrator, or the Safety Coordinator.

SAFETY RULE/PROCEDURE VIOLATION
DISCIPLINARY ACTION

Employee Name _____ Date of Infraction _____

Supervisor: Describe the observed rule or procedure violation.

_____

_____

Witnesses: _____

_____

Describe disciplinary action: _____

Describe corrective action: _____

Supervisor's Signature _____ Date _____

Employee's Signature _____ Date _____

Any infraction will receive the following disciplinary action: (Checkmark which offense this is)

___**First Offense**: Verbal warning from your supervisor and notation in your personnel file.

___**Second Offense:** Written warning from your supervisor with a copy retained in your personnel file.

___**Third Offense:** Suspension for a variable period, or termination of employment, if circumstances warrant.

The supervisor will issue disciplinary action. Warnings must be in writing, one copy to the employee, one copy to management, and one copy to the personnel file for non-bargaining unit employees.

THIS PAGE INTENTIONALLY LEFT BLANK

PART 1: CHAPTER 2
LOSS PREVENTION PROGRAM

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

The City of St. Helens will establish 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 help 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, the City pledges to do the following:

1. Recognize that management and employees share responsibility for a safe and healthful workplace.
    a. This is documented in our personnel policies and procedures and in our Health and Safety Manual.
2. We support the City's Safety Committee by encouraging employee participation; consider all employee suggestions for achieving a safer, healthier workplace; and regularly reviewing the City's health and safety program.
    a. This is documented in our Health and Safety Manual.
3. Supervisors are responsible for training workers in safe work practices at hire and as policies, processes or equipment changes.
    a. Supervisors are held accountable by their department head. This is documented in performance evaluations.
4. Supervisors will enforce entity safety rules and ensure that employees follow safe practices. If work rules or practices are not adhered to, the supervisor will follow the employee handbook/collective bargaining agreement when taking any corrective measures.
    a. 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.
    a. Documentation of necessary personal protective equipment (PPE Evaluation) is located in the (employee or department safety file, PPE assessment file…)
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.
    a. The Safety Committee will conduct quarterly worksite inspections. Employees can also make suggestions to their supervisor or Safety Committee. This is documented in our Safety Committee minutes and the safety suggestion file.

7. Investigate accidents to determine the cause and to prevent similar accidents from occurring in the future.
    a. Accident investigations are conducted by the immediate supervisor and reviewed by the Safety Committee. Any suggestions that are made are documented in the Safety Committee minutes.
8. Evaluate workplace design, layout and operations utilizing an ergonomic approach.
    a. Basic ergonomic inspections are done by the Safety Committee. More technical assistance is provided by SAIF loss control staff, Oregon OSHA consultants or private consultants. The primary records of any ergonomic survey and findings will be maintained by the supervisor or manager of the group or department receiving the evaluation.
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.
    a. The primary records of employee involvement are found in the supervisor's safety inspection records, minutes of staff meetings or in Safety Committee minutes.
10. Conduct an annual evaluation of the City's loss prevention goals and activities based on City or department specific concerns and current entity needs.
    a. The report is prepared by the management staff with assistance from the Safety Committee, department managers and supervisors. The annual reports will be maintained by the City Administrator and available to the Safety Committee and Oregon OSHA upon request.

SAIF provides our Workers' Compensation Insurance. They have loss control and industrial hygiene services available to the City.

The City of St. Helens' designated Safety Coordinator can be contacted at the Public Works Department 503-397-3532 or City Hall at 503-397-6272.

PART 1: CHAPTER 3
RECORDKEEPING

A. PURPOSE

The OR-OSHA Safety Program requires that many different types of records be retained. This Healthy and Safety Manual has been written so that the City and/or department or group initiating the records are required to keep a copy and forward the master to the City Recorder as the primary "keeper of records".

All work-related fatalities, injuries and illnesses will be immediately recorded and reported. Form 801 is required and must be completed within five calendar days of the time the fatality, injury, or illness occurred. The supporting information shall be documented on these forms:

1. Incident/Accident Report (for all incidents, injuries, and illnesses)
2. OSHA 300 Log (summary of work-related injury/illness)

B. APPLICABLE LEGAL STANDARDS

Applicable Legal Standards for recordkeeping are explained in detail below.

C. RECORDING WORK-RELATED INJURIES AND ILLNESSES

Injuries and 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

Note: 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.

Note: Needlestick and sharps injuries that are diagnosed later as an infectious bloodborne disease, must be updated on the 300 Log to reflect the new status or classification.

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

D. TABLE OF RECORDKEEPING REQUIREMENTS

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

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)	 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
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. SDS or list c. Employee Training	 x	 x	 x	 Need current 30 yrs + emp not specified
11. Lockout/Tagout a. Written Procedures b. Periodic Audit c. Employee Training 1910.147(c)(4)		 x	 x (annually)	 Not specified Not specified Not specified
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

Record/Plan	Overall Plan	Written Type of Record		Retention Time
		Training	Inspection	
14. Noise & Hearing Cons. a. Employee Exposure b. Audiogram c. Calibration Data 1910.95(c)			 x x x	 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 Maint. 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
18. Crane Inspections a. Daily b. Monthly c. Annually 1910.179 -.182			 ** x x	 Not specified Not specified
19. Fire Protection a. Fire Extinguishers b. Standpipe & Hose c. Fire Detection 1910.157(e), 1910.158(e) 1910.159(c), 1910.164(c)			 x (annual) x (annual) x (periodic)	 1 yr or replaced by a new record Not specified Not specified
20. Mechanical Power Press 1910.217(h)(10) and (11)			x	Not specified
21. Safety Inspections/Audits 437-001-0760			x (quarterly by Safety Committee)	3 yrs
22. Confined Space Entry 1910.146(d) & (e)	x	x	x entry permit	1 yr - permit
23. Process Safety 1910.119	x (5 yr. updates)	x	x audits, incident records	Varies (see rules)
24. Welding 1910.252(xiii) & (xiv)			x (periodic)	Not specified
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

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

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

PART 1: CHAPTER 4
SAFETY AND HEALTH TRAINING PROGRAM

A. SCOPE

The major component to the safety program is employee training. Training efforts will be directed at developing each employee's knowledge, skills, and understanding that they need to allow them to work safely. Training will be provided through various means, however, the primary instruction will be given by the department head, supervisor or their designee.

B. APPLICABLE LEGAL STANDARDS

Applicable Legal Standards for OR-OSHA training are explained in detail below.

C. 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 City culture, policies, and benefits by the Human Resources 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. 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.

D. TRAINING REQUIREMENT MATRIX

The Health and 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 Response Plans (Part 2: Chapter 2)
    b. Fire Extinguishers (Part 2: Chapter 2, Section H)
    c. Hazard Communication (Part 2: Chapter 25)
    d. Hazardous Energy Control – Lockout/Tagout (Part 2: Chapter 6)
    e. Hearing Conservation – Effects of Noise Exposure (Part 2: Chapter 7)
    f. Personal Protective Equipment and Respiratory Protection (Part 2: Chapter 8-9)
    g. Asbestos Awareness (Part 2: Chapter 11)

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/Tagout
    c. Bloodborne Pathogen Training
    d. Hazardous Materials – Waste Handling
    e. Welding Safety
    f. Safety Committee Training
    g. Forklift Operations
    h. Fall Protection

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

OREGON OSHA BASIC GENERAL INDUSTRY TRAINING REQUIREMENTS

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 generally, unless changes or problems	Yes
Electrical	x		If 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
Occupational Health				
Access to Exposure & Medical Records	x	x		No
Asbestos (awareness) Note: Extensive training for actual abatement or renovation)	x	x		Yes plan & notification
Bloodborne 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
Haz. Mat'ls 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

Program	Training Frequency			Written Program
	Initial	Annual	Retraining Required	
Lead (awareness) (note: extensive training for actual abatement and renovation)	x	x	Posting	Yes
Noise	x	x		No
Personal Protective Equipment (PPE)	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

* 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.

NEW EMPLOYEE ORIENTATION CHECKLIST

ADMINISTRATIVE STAFF

Employee Name	**Date**
Supervisor Name	**Department**

Date Covered

1. PERSONNEL ISSUES & BENEFITS

a. Reporting to Work Policy _____
b. Salary/Performance Evaluation _____
c. Reporting of Work Related Injuries _____
d. Vacation/Leave Policy _____
e. Insurance/Retirement Benefits _____
f. Severe Weather _____
g. Driving for Work _____
h. Other:_____ _____

2. GENERAL SAFETY & HEALTH ORIENTATION

a. Overview of General Safety Policy _____
b. Access to Medical & Exposure Records _____
c. Accident Reporting and Investigation _____
d. Role of the Safety Committee _____
e. Emergency Response & Medical Plans _____
f. Fire Extinguisher Training _____
g. Use of Personal Protective Equipment _____
h. General Safety Hazards Related to Tools Machines, Electrical, etc. _____
i. Hazardous Materials (if necessary) _____

3. FIRST AID/CPR _____

Will employee be an emergency responder? Yes_____ No_____

If yes, Bloodborne Pathogens _____

NEW EMPLOYEE ORIENTATION CHECKLIST

POLICE OFFICERS

Employee Name _____ **Date** _____

Supervisor Name _____ **Department** _____

Date Covered

1. PERSONNEL ISSUES & BENEFITS

a. Reporting to Work Policy _____
b. Salary/Performance Evaluation _____
c. Reporting of Work Related Injuries _____
d. Vacation/Leave Policy _____
e. Insurance/Retirement Benefits _____
f. Severe Weather _____
g. Other:_____ _____

2. GENERAL SAFETY & HEALTH ORIENTATION

a. Overview of General Safety Policy _____
b. Access to Medical & Exposure Records _____
c. Accident Reporting and Investigation _____
d. Role of the Safety Committee _____
e. Emergency Response & Medical Plans _____
f. Fire Extinguisher Training _____
g. Use of Personal Protective Equipment _____
h. General Safety Hazards Related to Tools Machines, Electrical, etc. _____

3. GENERAL HEALTH HAZARD TRAINING

a. Hazard Communication _____
b. Noise Exposure _____
c. Bloodborne Pathogen _____

4. POLICE ACADEMY TRAINED _____

5. FIRST AID/CPR _____

6. DEFENSIVE DRIVING (as needed) _____

NEW EMPLOYEE ORIENTATION CHECKLIST

PUBLIC WORKS STAFF

Employee Name _____ **Date** _____

Supervisor Name _____ **Department** _____

1. PERSONNEL ISSUES & BENEFITS **Date Covered**

a. Reporting to Work Policy _____
b. Salary/Performance Evaluation _____
c. Reporting of Work Related Injuries _____
d. Vacation/Leave Policy _____
e. Insurance/Retirement Benefits _____
f. Severe Weather _____
g. Other:_____ _____

2. GENERAL SAFETY & HEALTH ORIENTATION

a. Overview of General Safety Policy _____
b. Access to Medical & Exposure Records _____
c. Accident Reporting and Investigation _____
d. Role of the Safety Committee _____
e. Emergency Response & Medical Plans _____
f. Fire Extinguisher Training _____
g. Use of Personal Protective Equipment _____
h. General Safety Hazards Related to Tools Machines, Electrical, etc. _____
i. Plant Operation and Process Hazard _____

3. LOCKOUT/TAGOUT TRAINING _____

Will employee be authorized? Yes_____ No_____

If yes, training and assignment of locks required. _____

4. GENERAL HEALTH HAZARD TRAINING

a. Hazard Communication _____
b. Noise Exposure _____
c. Bloodborne Pathogen _____

5. CRANE & FORKLIFT TRAINING _____

Will employee be authorized? Yes_____ No_____

Additional training and demonstration of skillls on equipment required. _____

NEW EMPLOYEE ORIENTATION CHECKLIST

PUBLIC WORKS STAFF
(continued)

Date Covered

6. CONFINED SPACE ENTRY _____

Will employee be authorized? Yes_____ No_____

Additional training for specific entry role(s) required. _____

7. RESPIRATORS & PROTECTIVE CLOTHING _____

Will employee be assigned respirator? Yes_____ No_____

Medical clearance, training and fit test will be required. If respirator use is voluntary, provide information in 1910.134 Appendix D. _____

8. FIRST AID/CPR TRAINING FOR SELECTED STAFF _____

Will employee be a first aid responder? Yes_____ No_____

If yes, provide first aid and Bloodborne Pathogens training. _____

9. DEFENSIVE DRIVING FOR SELECTED STAFF _____

Will this employee be driving as part of their essential functions? Yes_____ No_____

10. HAZMAT TRAINING FOR SELECTED STAFF _____

Will employee be a hazmat team member? Yes_____ No_____

PART 1: CHAPTER 5
ACCIDENT INVESTIGATION PROCEDURES

A. PURPOSE

It remains the City's goal to eliminate work place accidents/illnesses. However, should they occur, management will thoroughly investigate them to determine the cause(s) and appropriate corrective action to be taken to prevent recurrence. Our focus is not simply on unsafe acts or conditions which 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.

B. APPLICABLE LEGAL STANDARDS

1. OAR 437-001-0760 Investigation of Injuries:
   "Each employer shall investigate or cause to be investigated every lost time injury that workers suffer in connection with their employment, to determine the means that should be taken to prevent recurrence. The employer shall promptly install any safeguard or take any corrective measure indicated or found advisable."

2. OAR 437-001-0765(6)(g) Safety Committee/Accident Investigation:
   "The Safety Committee shall establish procedures for investigating all safety-related incidents including injury, illness, and deaths. This rule shall not be construed to require the Committee to conduct the investigations."

3. OAR 437-001-0052 Reporting an Occupational Fatality, Catastrophe, or Accident:
   We are responsible to notify Oregon OSHA within eight hours of a workplace fatality or catastrophe, and within 24 hours of an injury resulting in overnight or longer hospital admission.

C. 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 that involves days away from work or days of restricted work activity or both.

Medical Treatment - 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 and 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.

D. RESPONSIBILITY

1. **Department Head** - It is the direct responsibility of this person 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 so as to reduce the likelihood of recurrence.
2. **Immediate Supervisor** - It is the responsibility of the supervisor or work area 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.
3. **Management Team** - Shall be involved in the investigation of all seriously disabling claims, fatalities and catastrophes.
4. **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.
5. **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.

E. ACCIDENT INVESTIGATION PROCEDURE

1. **Reporting Personal Injury** - If an employee is injured, suffers an occupational illness or near-miss the following reporting procedures shall be carried out:
   a. The incident and/or condition will be immediately reported to the employee's supervisor and the employer will complete the Accident/Injury Report, regardless of the severity of the injury. The report is to be submitted to the employee's supervisor.
   b. All injuries, regardless of how insignificant they initially may appear, must be immediately reported to the supervisor. An Accident/Injury Report must be completed by the end of the shift.
      i. The supervisor must review the Accident/Injury Report Form submitted by the employee and sign where indicated. The supervisor must assure immediate transmittal of the report to the City Administrator and the Safety Committee.
      ii. The supervisor and employee must complete the Accident/Injury Report together. If the injury is of a minor nature and only needs a brief doctor's office visit, PRIOR to obtaining medical attention, the report must be on file in the City Administrator's or designee's office and the employee is to notify the doctor's office that our organization should be billed for the office visit.
2. Any time that the work-related condition should necessitate the services of a medical provider (more than one brief doctor's office visit), the employee is further required to complete a Workers' Compensation Claim Form 801. The 801 must be filed with the Finance Director's office within five days of the accident.
   a. The Administrator or designee is required to report all work place fatalities and catastrophes to OR-OSHA within eight hours of knowledge at OR-OSHA's central office (503-378-3272).
      i. 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.

ii. Further, all employee injuries resulting in admission to a hospital also require notice to OR-OSHA within 24 hours of knowledge. Such notice will again be accomplished by the City Administrator's, or designee's office.
Note: The purpose of such reporting is to provide OR-OSHA 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.

3. **Reporting Vehicular Accidents** - In the event that one of the City's vehicles is involved in a traffic accident, the driver shall immediately call 9-1-1 and notify their supervisor. No vehicle shall be moved from the scene until the police arrive 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:
   a. All drivers should notify the Police Department of any of the following accidents:
      i. Collision with any object or person involving City owned or leased vehicles, or other vehicles being used on official business.
      ii. Any event where damage results to a vehicle being operated by an employee while on business, whether being driven or parked.
      iii. Any involvement in an accident where damage claims may be made against the City, even though your vehicle had no contact with other objects or vehicles.
      iv. Damage or loss to a City owned or leased vehicle, or its contents, due to a fire or theft.

   b. In all incidents or observances, when the damage is determined to be in excess of $1,000, or there is an injury accident, the driver shall complete a "State of Oregon Vehicle Accident Report".

4. **Investigation**
   a. Upon notice of an accident, injury, illness, near-miss, or non-work related physical complaint, the supervisor will ensure that the accident investigation procedure is implemented in a timely fashion. (Use the **ACCIDENT / INJURY REPORT FORM.**)
   b. The supervisor shall first establish the nature of the employee's report since any corresponding investigation will in part be controlled by such determination. The nature of the problem being reported could include:
      i. In those instances in which the worker presents complaints of either non-work related, or of unknown origin, the supervisor will complete those appropriate portions of the investigation report form.
      ii. The supervisor will accurately record the employee's explanation as to any off-the-job exposure or event which may have contributed to the problem.
         (A) This report form will be completed prior to conclusion of the work day and provided to the City Administrator or designee for review and processing.

   c. In those instances in which the employee is alleging a work related accident, injury, illness, or near-miss, the supervisor will complete and submit the entire investigation form, in conjunction with their recommendations, to the Safety Committee.
      i. In those instances in which the reported incident results in either first aid, or medical only treatment, the Department Head will ascertain if there is sufficient information present in the supervisor's report to determine the source of the problem. If appropriate, recommendations for any necessary corrective action will be identified and reported back to the supervisor.

(A) After the report is adequately completed, the supervisor's report will be attached to the **ACCIDENT/ INJURY REPORT FORM** and submitted to the Safety Committee.
(B) A copy of the investigation form will be maintained in the supervisor's investigation file.

ii. The supervisor will further ensure that the necessary corrective action is taken through the completion of a work order, purchase order, etc., where appropriate.
iii. 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.
iv. 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.

d. 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 government agency involvement, the supervisor will provide timely notice to the Safety Committee who will become involved in the investigation process.
e. In any instance the supervisor deems appropriate, they will encourage the involvement by the department representative of the Safety Committee in the accident investigation process.

F. ACCIDENT INVESTIGATION REPORTING FORM

The following process will be followed when reporting injury accidents and occupational diseases.

1. The supervisor of the injured employee will fill out the Accident/Injury Report Form and the Accident Investigation Form on the back. **Please report all occupational accidents, illnesses and near misses. (ADMINISTRATION MUST BE NOTIFIED IMMEDIATELY IF THE INJURY/ILLNESS IS SERIOUS OR A DEATH OCCURS.)**
2. After signing the form to verify its completion, the supervisor will send the form to Administration.
3. The supervisor must submit in the completed Accident/Injury Report Form to Administration and Safety Coordinator. The supervisor will check to make sure all forms are complete and do further investigation if needed.

(If a SERIOUS INJURY, ILLNESS OR FATALITY occurs, the Department Head must do a complete investigation and, if possible, be accompanied by a member of the Safety Committee or Management Investigation Team. The Department manager should attach a "Scene Diagram Sheet", photographs, investigation report, and witness statements to the Accident/Injury Report Form.) Notify OSHA within 24 hours of knowledge of a catastrophic or fatal accident.

G. POSTING REQUIREMENTS

All required postings will be on the employee bulletin boards at each of the Department offices.

1. Injury and Illness Summary Report on the OSHA 300A are posted from February 1 to April 30.
2. Any citation or variance will be posted for at least 60 days or until they become a final order or are corrected.
3. The Oregon Safe Employment Poster shall be continuously posted.

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.

ACCIDENT / INJURY REPORT FORM

Page 1 of 2

Injured/Ill Person:_____ Job Title:_____
Home Address:_____ Home Phone:_____
_____

Length of Employment:_____ Date in Department:_____
Birthdate:_____

Date of Injury:_____ Time of Injury:_____:_____ am or pm (circle)

When was supervisor first notified of injury: Date:_____ Time:_____:_____ am or pm

Witness: Name:_____ Phone:_____
Witness: Name:_____ Phone:_____
Witness: Name:_____ Phone:_____

Did employee visit a physician? Yes_____ No_____
If yes, when? Date:_____ Time:_____:_____ am or pm
Name/Address of Physician:_____
Phone:_____
Treatment received:_____
_____

Did employee lose time from work? Yes_____ No_____
If yes, date and time left work:_____
Date and time employee returned to work:_____

Body part injured:_____ Right side?_____Left side?_____

Type of Injury:_____
_____

Has this body part been injured before? Yes_____ No_____
If yes, explain:_____
_____
_____

Nature of injury (strain, cut, bruise, etc.):_____

Was First Aid treatment given? Yes_____ No_____
If yes, was employee transported to emergency room for further treatment?
Yes_____ No_____

ACCIDENT / INJURY REPORT FORM

Page 2 of 2

Physical Location where accident happened:_____

Accident
If this resulted in a hospital visit, time away from work, or SERIOUS injury to life or limb, fill out and attach **Investigation** sheets to the Accident/Injury Form:

___ 1. A separate sheet describing the accident.

___ 2. A separate sheet showing a scene diagram of the accident.

___ 3. Photographs.

___ 4. Eyewitness statements (taken separately in a one-on-one basis).

WHAT happened? (Describe. Attach separate page if necessary)

_____
_____
_____
_____

WHAT were direct and root causes?

Direct cause:_____
_____

Root cause:_____
_____

HOW can a similar accident/incident be prevented?_____
_____
_____

Corrective Actions done/or to be done: (How will processes that led to accident/illness change? Who will be taking the corrective action? How will manager of department follow up on this new process?)___

_____
_____
_____

Prepared by:_____ Date:_____
Reviewed by:_____ Date:_____
Department:_____

Employee Signature:_____ Date:_____
City Administrator:_____ Date:_____

ACCIDENT INVESTIGATION CHECKLIST
Page 1

Please use this list as a way to verify that you have completed all parts of the Accident/Injury Report Form that pertain to this incident.

MINOR INJURY INVESTIGATION

DOCUMENTATION:
___ Time and date of injury
___ Date notified supervisor
___ Time and date left work
___ Time lost from work

EMPLOYEE:
___ Name
___ Home address and phone number
___ Job Title
___ Length of Employment
___ Department
___ Job Description

SERIOUS INJURY INVESTIGATION

SCENE:
___ Diagram
___ Photos
___ Measurements
___ Time Lost from Work
___ Time and date returned to work

EQUIPMENT and SITE:
___ Layout of operation
___ General condition
___ Make, serial and model numbers
___ Manufacturer's information
___ Maintenance information and records
___ Suitability and adequacy of equipment

INFORMATION FROM WITNESSES:
___ How supervised
___ Personal protective equipment
___ Body part injured
___ Previous injury to this part of body
___ Nature of injury (strain, cut, bruise, etc.)
___ Department where injury occurred
___ Witness name
___ Witness residence address & phone
___ Recollection of accident (done at scene)
___ One-on-one interview with witness

EMPLOYER
___ Location where employee records are kept
___ Safety training relating to equipment involved in the accident

SUPERVISOR'S REPORT OF INCIDENT/ACCIDENT
Page 1 of 2

- *Immediate supervisor should complete this form promptly with employee input.*
- *Please print clearly.*
- *Additional comments, photos, maps, etc. may be attached.*
- *Send a copy to Human Resources, Safety Coordinator and personnel file.*

Type of Accident: _____ Near-miss _____ Non-injury _____ Property damage
_____ Incident/Event _____ Unsafe condition

Part 1. Employee Section.

Date of report:_____

Department:_____ Immediate supervisor:_____

Employee name:_____ Birthdate:_____ Sex:_____

Address:_____ City:_____ St:____ Zip:_____

Home phone:_____ Cell phone:_____

Date and time of incident/accident/illness:_____

Location of occurrence (draw a sketch of the area on a separate sheet of paper):_____

_____

Body part affected and which side:_____ Right? Left?_____

Nature and extent of the injury:_____

_____

Was First Aid administered? Yes_____ No_____

If yes, by whom:_____

Has body part been injured before? Yes_____ No_____

If yes, explain:_____

Describe the accident fully: What was employee doing when injured? If employee fell, did it occur indoors or outdoors? If employee was struck, what struck him/her? If machinery was involved, name the machinery and describe its function. If a chemical was involved, name the chemical.

_____

_____

Name and address of health insurance provider:_____

Name and location of hospital:_____

Name of attending physician:_____

SUPERVISOR'S REPORT OF INCIDENT/ACCIDENT
Page 2 of 2

Part 2. Employer Section.

When was accident reported?_____ To whom?_____

If not reported or not immediately reported, why?_____

_____

Witnesses: Name_____ Phone_____

Name_____ Phone_____

Name_____ Phone_____

Attach written statements of witnesses to this report.

Was employee sent to the doctor? Yes_____ No_____

Did employee leave work? Yes_____ No_____

If yes, date and time employee left work:_____

Date and time employee returned to work:_____

What is employee's working shift:_____

Number of days worked per week:_____

Was accident caused by faulty equipment? Yes_____ No_____

If yes, explain:_____

_____

Was the accident caused by a person not employed by the City? Yes_____ No_____

If yes, Name:_____ Phone:_____

Were other workers injured in the accident? Yes_____ No_____

If yes, whom?_____

Was a previous injury or condition of the employee a contributing factor? Yes_____ No_____

If yes, explain:_____

If there reason to question whether this is a job related injury? Yes_____ No_____

If yes, explain:_____

Status of employee (attach a copy of the doctor's order if available):_____

_____

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

_____

Supervisor Signature:_____ Title:_____ Date:_____

Employee Signature:_____ Title:_____ Date:_____

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 1
SAFETY COMMITTEE CHARTER

A. PURPOSE

The foundation for the implementation of this Safety Committee program is well stated in OAR 437-001-0765; "The purpose of safety committees 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 improvement to your safety and health program."

It is our policy for the Safety Committee and Safety Meetings to communicate and evaluate safety and health issues to assist with protecting 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.

B. APPLICABLE LEGAL STANDARD

1. **Oregon OSHA OAR 437-001-0765 Safety Committees and Safety Meetings.**

C. DEFINITIONS

Management - City Administrator, Department Head, Supervisor.
Employee Representative - An individual selected by and from employees, who serves as a spokesperson.
Safety Committee - Consists of management and staff representatives that have an interest in the general promotion of safety and health.
Safety Meetings – Include all available employees, include at least one employer representative authorized to ensure correction of safety and health issues, and are held on company time and attendees are paid at their regular rate of pay.

D. GENERAL RESPONSIBILITIES

1. **Overall Management** – The overall management is responsible to prevent accidents and injuries. Management provides direction and full support of all safety procedures, job training and hazard elimination practices.
2. **Supervisors** – Supervisors are responsible for job training of their workers. Job training will include proper procedures, work practices and safe methods to carry out jobs. Supervisors must enforce 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. 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.

E. THE SAFETY COMMITTEE'S GOALS AND DUTIES

The following obligations have been assigned to 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. Have a system that allows employees an opportunity to report hazards and safety and health related suggestions.
3. Establish procedures for reviewing inspection reports and for making recommendations to management.
4. Evaluate all accident and incident investigations and make recommendations for ways to prevent similar events from occurring.
5. Make Safety Committee meeting minutes available for all employees to review.
6. 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.

F. SAFETY COMMITTEE RESPONSIBILITY & AUTHORITY

1. The Safety Committee does not make policy, but it is responsible for recommendations to Management on employee safety and health issues. The City Administrator will consider each recommendation and notify the Safety Committee of what action will be taken, why, and when, by the next scheduled Safety Committee meeting. (See form #1)
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.

G. COMMITTEE MEMBERSHIP

1. The Committee shall be composed of at least one member of Management and employee representatives, however, if more employee representatives wish to be on the Committee, this is acceptable.
2. Safety Committee members shall be volunteers, or be elected by their peers, and represent the various departments in our organization. Employee members shall be selected from all departments.
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.

H. SAFETY COMMITTEE ORGANIZATION AND OPERATIONAL PROCEDURES

1. Basic Organization
   a) A centralized Safety Committee must make certain that the Committee membership represents the safety and health concerns of all locations.

2. Basic Operations
   a. The Safety Committee will meet monthly at a consistent location.
   b. The Committee will have a chairperson elected by the Committee members and this person will serve as the chairperson for one (1) year.
   c. 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 hourly rate of pay.
   d. Employee representatives will serve a continuous term of at least one (1) year with the length of terms staggered so that at least one experienced member is always serving on the Committee. Representatives will also serve one (1) year as an alternate.
   e. 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.
   f. Safety Committee member duties:
      i. Be active in completing assignments given by the chairperson, as well as acting as an area representative in matters pertaining to health and safety.
      ii. Observe how the safety and health policies are enforced in the work environment.
      iii. Advise supervisors about situations which could lead to incidents with resultant loss through injury or illness.
      iv. Think of employee safety and health, recommend safeguards, and warn of potential hazards.
      v. Be open to education and training.
      vi. Conduct quarterly workplace inspections.

3. Meeting Conduct:
   a. The meeting shall be conducted following a prescribed format:
      i. The Committee shall develop a written agenda for conducting its meetings.
      ii. While the Committee members will assist in identifying issues to be included in the agenda, the Committee chairperson is responsible for its composition and distribution in advance of the scheduled meeting.
      iii. The agenda shall include the following elements, as appropriate, for each particular meeting:
         (A) A listing of members to be present.
         (B) Approval of the previous meeting's minutes.
         (C) Consideration of unfinished business.
         (D) Review of recent accidents and recommendations.
         (E) Reports by members and sub-committees on investigations or other special projects.
         (F) Reports on safety inspections and recommendations.
         (G) Discussion of new business.
         (H) Action item responsibilities.
         (I) Adjournment and setting of the next meeting agenda.

iv. 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.

v. Committee Written Records:
(A) Minutes shall be made of each meeting which the City Administrator shall maintain for a period of three years for inspection by OR-OSHA. The records will be kept in the Administration files. The minutes for each meeting should include the following:
(1) A record of who attended the meeting.
(2) A brief discussion of the items discussed and the decisions made.
(3) Activity assignments and deadlines should be noted.
(4) An indication that the minutes from the prior meeting had been reviewed and approved.
(5) All reports, evaluations, and recommendations of the Safety Committee shall be incorporated into the corresponding meeting minutes.
(6) The City Administrator and Managers will respond in writing to all Safety Committee recommendations within a reasonable time limit set by the Safety Committee.

b. Copies of the meeting minutes shall be given to all Committee members, the City Administrator, and additionally made available to all employees through posting on the appropriate bulletin boards.

4. Conducting Inspections:

a. The Committee will have established procedures for workplace inspections by a Safety Committee team to assist in locating and identifying safety and health hazards.
b. The inspection team shall include two (2) Committee member representatives.
c. Any safety deficiencies identified will be made known to the supervisor so that corrective action may be expedited.
d. Workplace inspections will be completed on an quarterly basis.
e. The Committee will additionally implement procedures for the review of all safety inspections and means of making appropriate recommendations to the Administrator or Managers as to how to eliminate hazards and unsafe work practices in the work place.
f. A written record of all such inspections, related recommendations and the Management's response, shall be maintained by the Committee as a part of its normal recording procedures.

5. Accident Investigations:
a. The Safety Committee shall work with management to establish procedures for investigation and review of all safety-related incidents including injury, illness and deaths. (See Chapter 2 of the Safety Manual)
b. 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 Administrator and/or Committee and any related investigations completed.
c. If upon review, the Committee feels additional information is required, they may send representatives to the accident site to ensure that the actual cause of the event has been identified.

d. The Committee upon such review will make recommendations to Management and the Safety Coordinator as appropriate for the purpose of preventing recurrence of such events.
e. At least annually, the Committee will review and provide comment as it relates to:
    i. The injury and illness statistical analysis.
    ii. The overall safety program.
    iii. Management's accountability system for safety and health.

6. Safety Committee Training:
    a. Members of the Safety Committee shall receive required periodic training as relates to the following areas:
        i. The function and duties of the Safety Committee.
        ii. Hazard identification in the work place.
        iii. The principles regarding effective accident investigation.
    b. A written record of the training needs to be maintained.
    c. The Administrator or Department Heads will ensure that the training is provided.

7. Effective Committee Operation:
    a. 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 shall be a constructive entity, providing guidance and leadership in matters pertaining to the overall health and safety of our organization.

SAFETY COMMITTEE FORMS

- **Form #1** - Safety Committee Standard Minutes Format
- **Form #2** - Hazard Report Form
- **Form #3** - Safety Committee Inspection Hazard Report Form

Safety Committee Minutes

Meeting was opened by _____, Chairperson, on _____ with the following members present:

Name	Work Title	Committee Position
1.		
2.		
3.		
4.		
5.		
6.		

Minutes/Dates

Minutes were adopted as written or changed per the Safety Committee amendments.

BUSINESS ITEMS ACTION COMPLETED

Old Business

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

➢ NOTE: FOR ADDITIONAL NEW ITEMS USE BACK OF THE PAGE

New Business

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

➢ NOTE: FOR ADDITIONAL NEW ITEMS USE BACK OF THE PAGE

Accident Reports:

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 _____

SAFETY HAZARD - RULE COMPLIANCE ITEMS

Safety Committee Audit:
Report Submitted:
Findings By: Safety Committee

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

1. **Hazard /Rule Issue:**

   COMMITTEE RECOMMENDATION:

   MANAGEMENT RESPONSE - PLANNED ACTION:

   COMPLETION DATE:

2. **Hazard /Rule Issue:**

   COMMITTEE RECOMMENDATION:

   MANAGEMENT RESPONSE - PLANNED ACTION

   COMPLETION DATE:

3. **Hazard /Rule Issue:**

   COMMITTEE RECOMMENDATION:

   MANAGEMENT RESPONSE - PLANNED ACTION

   COMPLETION DATE:

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 2
EMERGENCY ACTION, FIRE PREVENTION PLAN, AND FIRST AID

A. Policy

We have adopted this Emergency Action and Fire Prevention Plan to assist in preventing emergencies from occurring and if they do occur, to minimize the impact on our staff 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 Responders (i.e. Coast Guard).

B. Applicable Legal Standards

The following Oregon OSHA standards apply to emergency and fire prevention plans and actions:

- OAR 437-02-1910.38 Emergency Action & Fire Prevention Plans
- OAR 437-02-1910.35-.37 Means of Egress - Exiting
- OAR 437-02-1910.0157 Fire Protection
- OAR 437-02-1910.0120 Hazardous Materials Emergency Response
- OAR 437-02-0161 First Aid & Emergency Medical Response

C. Definitions

The following are Oregon 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**: That portion of means of egress which is separated from all other spaces of the building or structure by construction or equipment as required in the rules to provide a protected way of travel to the exit.
- **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:** 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.

D. Responsibilities (See Appendix A Listing Emergency Response Personnel)

1. **Management:** Management is responsible to ensure 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 Response Coordinator:** This employee is appointed by the Safety Officer. The Emergency Response 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: Coordinators are not to enter a situation with uncontrolled emergency. These employees will be trained as to the limitation of their role.

4. **Fire Protection System Maintenance - Safety Officer**: 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. **Safety Officer**: This employee plays a critical role in ensuring that all appropriate outside responders are notified. The Safety Officer will implement the call outs for emergency notification and to outside responders if employees have not already made the 911 call.
6. **All Employees** are to follow this plan for preventing emergencies and conform with 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.

E. Potential Emergencies

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

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

F. 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 a loss sustained.
2. Selected employees shall receive fire extinguisher training and the training will be updated once a year. (SEE APPENDIX B - Employee Training Materials**)**

G. General Procedures - Fire and Other Significant Chemical Releases

1. Emergency escape procedures and emergency escape route assignments.
   a. The type of immediate actions are based on the nature of the emergency.
      i. For incipient fires immediately implement fire control action and clear all non-essential personnel and public from the area.
      ii. For chemical spills our responders will initiate a defensive action to contain the spill. Depending on the nature of the chemical and extent of the spill the employees may clean-up the spill or call the Fire Department.
      iii. No employee is to perform hazardous chemical clean-up duties that he/she is not trained in nor has the appropriate personal protective equipment.
      iv. Use the nearest exit which will take personnel away from the fire.

v. 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 each building evacuation map that is posted at the main exits on each floor of the buildings.
vi. For a NON-IMMEDIATE CONTROLLED EVACUATION, (e.g. advance notice of a flood condition) employees and public will be given instructions by the Safety Officer on how to proceed.
vii. For LOCALIZED EVACUATIONS (only one BUILDING) the notification message will be given and move into the pre-planned sites as described next.
viii. Report to the Emergency Response Coordinator and wait for further instructions during emergency evacuation.
ix. Maps outlining places of refuge will be posted in each building at the exit doors.

2. Procedures to be followed by employees who remain to perform critical operations before they evacuate.
   a. Supervisor and trained personnel are responsible to ensure that critical operations are shutdown 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).

3. Procedures to account for all employees after emergency evacuation.
   a. The Emergency Response 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 Response Coordinator 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 A FOR BASIC RESPONSE AND CALL LIST)

5. Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan:
   a. Administrator
   b. Supervisor
   c. Safety Officer
   d. Safety Committee Department Representative

H. Fire Protection Plan

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

The overall fire protection system is managed by the Safety Officer who hires a fire extinguisher contractor who performs the following activities:

1. Fire extinguishers are checked monthly and are tested based on the required frequency. Fire extinguishers are to be:
   a. Accessible, fully charged and in operable condition at all times.
   b. Visually inspected on a monthly basis to ensure they are fully charged and in their designated locations. The locations will be clearly marked.
   c. Full annual maintenance check on each extinguisher that includes:
      i. Inspecting and/or testing external and internal parts, checking the quantity and quality of the contents and assuring operational capability.
      ii. 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.
      iii. Keep a record of the maintenance check until a new check record replaces it. This record will be available to OR-OSHA on request.
      iv. 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.
      v. The inspection date and the initials of the person performing this inspection will be recorded on a tag attached to the extinguisher.
   d. Any extinguisher that is not fully operable will be removed and replaced.
   e. 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 Extinguishers or when the extinguisher shows corrosion or physical damage. Stored pressure dry chemical extinguishers require a 12-year hydrostatic test and subject to maintenance every 6 years. Most other types of extinguishers are hydrotested every 5 years.
   f. Nonrechargeable extinguishers are good for 12 years from the date of manufacture and then will be taken out of service.
   g. Proper maintenance of equipment and systems installed on heat-producing equipment to prevent accidental ignition of combustible materials in accordance with established procedures.
2. Selection of Portable Fire Extinguishers: Portable extinguishers have been selected on the basis of the classes of anticipated fires as follows:
   a. Class A Fire: Ordinary combustible materials (paper, wood, cloth, some rubber and plastics).
   b. Class B Fire: Flammable or combustible liquids and gases, greases and similar materials and some rubber and plastics.
   c. Class C Fire: Energized electrical equipment where 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.)
   d. Class D Fire: Combustible metals.
3. Distribution of Portable Fire Extinguishers: The proper distribution of portable fire extinguishers depends on three criteria:
   a. How far an employee must travel to the extinguisher
   b. How large an area is to be protected per extinguisher.

c. How the hazard has been classed (A, B, C or D).
d. Our policy on the distribution and sizes of portable fire extinguishers is:
   i. Fire extinguishers shall 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 generally not greater than 50 feet.
   ii. Distribution: extinguishers are located at all major door entrances and exits in each of our facilities.

SEE POSTED MAPS OUTLINING LOCATIONS

4. All **fire exits** will be visibly marked with signs and kept accessible at all times.
   a. All fire exits will be unlocked from the inside to allow for quick exiting.
   b. 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.
5. Welding Safety System:
   Maintenance personnel are responsible to conduct welding in a safe manner and insure that combustibles in the welding area are removed or protected. The staff is required to:
   a. A Fire Watch will be assigned for hazardous areas due to wood dust, combustible materials or debris.
   b. Wet area down prior to welding with hoses if the structure or area contains combustible materials.
   c. Fire hose or extinguisher is to be kept in the immediate area.

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

I. First Aid for Medical Emergencies

First-aid trained personnel are not required at every place of employment. The 2009 rules require an employer to ensure that emergency medical services are readily available for treatment of injured employees. 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 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 phone in each building. The names of first-aid/CPR trained personnel are to be posted on the lunch room bulletin boards or on the first-aid kits.
2. First-Aid Supplies
   First-aid supplies shall be in proximity to all employees. The supplies will be located in labeled safety supply/first-aid cabinets in our facilities and monitored by the department supervisors. The specific first-aid items that are required as a minimum to be available in each first-aid kit include:
   a. 8 gauze pads at least 3" x 3"
   b. 2 large gauze pads which can be folded to a size of 8" x 10"
   c. 1 box of adhesive bandages
   d. 2 triangular bandages
   e. 1 package roller bandage at least 2" wide

f. Wound cleaning agent
g. Scissors
h. 1 blanket or equivalent
i. Latex gloves and CPR face piece for infection control
j. Disinfectant hand cleaner
k. Disinfectant soap

3. General Equipment Available for Bloodborne Pathogens.
   The Safety Officer or supervisor will ensure that employees are provided appropriate personal protective equipment. This includes:
   a. Two pairs of disposable latex gloves
   b. Disposable safety goggles
   c. Disposable microshield with one-way valves for use in giving CPR
4. Sharps containers shall be located 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.

J. Basic Employee Emergency Action Response

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

1. During emergency evaluation employees will:
   a. Use the nearest exit which will take you away from the fire or a chemical leak or 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 Response Coordinator and wait for further instructions.
   e. No employee is to leave the grounds until cleared by the Emergency Response 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 Safety Officer. The procedure is:
   a. Use fire extinguisher and alert fellow employees.
   b. Immediately notify the Emergency Response Coordinator through the call list.
   c. Provide the following information:
      i. Location of emergency – specific as possible.
      ii. Type and severity of the fire, chemical release, medical emergency or other.
      iii. If electric equipment is threatened.
      iv. Actions currently being taken, if any.
4. Upon discovering a chemical spill:
   a. Immediately notify the Emergency Response Coordinator through the call list. If emergency, call 911 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.
   b. Call 911 emergency as needed for emergency medical treatment.

Emergency Response Coordinators are appointed by the Administrator or the Safety Officer. For further information or explanation of duties under the plan or for a copy of the plan, contact your supervisor.

Appendix A Listing Emergency Response Procedures and Personnel

FIRE & MEDICAL EMERGENCIES - 911

CHEMICAL SPILL OR CONFINED SPACE RESCUE – 911

Appendix B: Employee Training Materials

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

B. **Emergency Response Training Overview:**

1. The location and use of fire extinguishers. This includes the following information on types, stages of fires, and reactions to fires and emergencies:
   a. 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.
   b. Review the class of fire extinguishers and method of use.
   c. Discussion on the dangers of:
      i. Becoming disoriented in the panic of a fire.
      ii. The use of the fire hose as an escape aid.
      iii. Going onto a roof or into a basement to fight a fire.
      iv. Exploding chemical containers such as acetylene, oxygen, propane, barrels.
   d. Limit our staff firefighting to incipient fires. Employees will only be trained to use an extinguisher or in some cases the smaller fire hoses to put out an incipient fire. Employees are not trained in structural firefighting.
   e. Every training session will emphasize employee safety and prevention of emergencies and fires.
2. 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:
   a. Extinguishing agent training:
      i. Class A Fires
      ii. Class B Fires
      iii. Class C Fires
3. Employees with specific fire duty assignments will receive special training on their responsibilities.
4. The location of fire exits and emergency evacuation routes.
5. Rescue and medical duties.
6. Procedures to follow should a facility evacuation be needed including:
   a. Evacuation routes.
   b. Method for reporting to the Emergency Response Coordinator after an evacuation.
7. Means of reporting fires and other emergencies.

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

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 3
BLOODBORNE PATHOGEN EXPOSURE CONTROL PLAN

A. Purpose

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

The training required by the Bloodborne 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 Bloodborne Pathogen program describes the essential elements needed to protect City employees who might, in the expected course of carrying out their everyday staff responsibilities, come in contact with human blood or body fluids.

It is the City's policy that **all City employees will be trained in the City's Bloodborne 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

B. Exposure Determination

1. The OR-OSHA Bloodborne Pathogen standard applies to all employees whose routine job duties result in potential exposure to human blood or other potentially infectious body fluids (OPIMS). Oregon OSHA defines occupational exposure as meaning reasonably anticipated (reasonably expected) 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. These employees are Police and Public Works personnel. This decision is based on the exposure determination as to which employees may incur occupational exposure to blood or other potentially infectious material. This determination was made without regard to the use of personal protective equipment.
3. Employees who perform first aid as a "Good Samaritan Act" and not as an assigned responsibility will be provided training, and proper 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.
4. 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 providers. Those designated first aid providers will have specially assigned first aid kits, which include basic barrier protection.

C. Applicable Legal Standard

1. Federal: 29 CFR 1910.1030
2. State: OR-OSHA Bloodborne Pathogens Standard OAR 437 Division 2

D. Definitions

1. **Bloodborne Pathogens** are 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).
2. **Hepatitis B and C VIRUS (HBV and HCV)** is 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.)
3. **Human Immunodeficiency Virus (HIV)** is the virus that can cause Acquired Immune Deficiency Syndrome (AIDS) and is spread in the same manner as HBV or HCV.
4. **Exposure Incident** is 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.
5. **Engineering Controls** means 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 pathogens hazard from the workplace.
6. **Needleless systems** means a device that does not use needles for:
   a. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;
   b. The administration of medication or fluids; or
   c. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

E. Overall Responsibilities

1. 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 bloodborne pathogens.
2. A copy of this plan is in the Safety Manual and will be on file in the Safety Officer's office.
3. All new employees will read this plan at the time of their initial safety orientation and may have a copy if he/she wishes.
4. 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.
5. Safety Officer 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.
   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 sero-conversion. Confidential records will be maintained by the Human Resource Department as confidential.

e. The Safety Officer or 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.

F. Methods of Compliance

1. 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:

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

Universal Precautions specifically include:

a. Gloves must be worn when touching blood or body fluids or non-intact skin.
b. Gloves must also be worn when handling items or surfaces obviously soiled with blood or body fluids.
c. Bandage any cut, wound or break in the skin with watertight bandages to preclude contact with blood or body fluids.
d. 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.
e. Employees shall use a mouth guard (Microshield) when performing CPR.

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

a. Wash hands after removal of gloves or whenever you had contact with body fluids. If water is not immediately available then alcohol or antiseptic towelettes may be used.
b. Remove gloves after first washing with soap and water. Washing only helps reduce the risk of contact with blood/body fluids when removing the gloves. (Disposable gloves are not being washed for re-use.)
c. Pull glove from skin using 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.
d. Follow same procedures for <u>non-disposable</u> gloves but ensure thorough decontamination prior to removal. Allow the gloves to dry and store gloves so that they do not degrade or become contaminated.
e. Use soap and warm water, hot water removes oil from the skin. The hands and forearms should be washed.
f. Rub your hands vigorously - friction by rotary motion, and rinsing under running water aids in the mechanical removal of bacteria.

g. Wash all surfaces, including: back of hands, wrists, between fingers, under fingernails. Your hands should be washed well for 10 to 20 seconds.
h. Rinse well.
i. Dry hands with paper towel.
j. Turn off the water using a paper towel instead of bare hands.
k. 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.

l. If you have open cuts or wounds, you should be wearing waterproof bandages.

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

a. The safety officer 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.
b. After a device is evaluated and selected, management will make a decision on implementing that device.
c. If a device is not purchased because of employee or employer concerns, those concerns will be documented by the Safety Officer. 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.
d. 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.
e. All documentation required will be kept as part of this written Exposure Control Plan.

G. Personal Protective Equipment

General Equipment Available:

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

1. **FIRST AID KITS** designated for authorized first aid providers shall include at least:
   a. Two pairs of disposable latex gloves
   b. Disposable safety goggles
   c. Disposable microshield with one-way valves for use in giving CPR
2. Sharps containers shall be located 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. Sharps containers are to be maintained in upright position, closeable, puncture resistant, leakproof on 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 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 designated areas for each department. Your supervisor will review PPE locations with staff. PPE needs to be maintained, cleaned and kept in sanitary condition.

H. Housekeeping Requirements

1. 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 shall be done as soon as possible. Basic cleaning products used by City staff that are effective environmental disinfectants. The chemical product's use instructions need to be followed for proper dilution and application methods. If the commercial disinfectants are not used, fresh bleach solution can be made and is effective. 500 ppm (parts per million) free available chlorine (a 1:100 dilution of common household bleach - approximately 1/4 cup bleach per gallon of tap water) is effective. The bleach solution must be made fresh each day.
3. Cleaning and Disposing of PPE:
    a. Disposable latex or vinyl gloves or clothes should be disposed of in the regular trash after use unless soaked with blood or OPIM.
    b. Goggles (that are not disposable) should be cleaned with soap and water and then wiped down with alcohol or other germicides if contaminated with blood or OPIM.
    c. 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 a washable leather.
    d. Employee will ensure that all garments penetrated by blood or body fluids are removed immediately or as soon as possible.
    e. Contaminated laundry shall be placed and transported in bags that are labeled or color-coded. Whenever the laundry is wet and may soak through or leak from the container, it shall be placed and transported in leakproof red labeled bags.
    f. Costs for laundering and cleaning of employee clothing or uniforms contaminated in the course of work performance will be borne by our organization.

I. 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; shall 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.
4. 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 bottles that are found shall be disposed of in a closeable, puncture resistant, disposable container that is labeled and color-coded red. Procedures for picking-up sharps:
   a. Have sharps container ready.
   b. Use latex gloves or vinyl gloves.
   c. Use mechanical equipment (pliers, shovels, or dustpans) to pick up contaminated utility knives or scissors.
   d. Dispose of needle in sharps container.
5. When transporting containers of contaminated sharps and other regulated wastes from the use area, the containers shall be closed to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
6. 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 handler company.
   d. The containers will be handled separately from routine waste disposal system.

J. 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, <u>are not required</u> to be provided HBV pre vaccinations, based on current OSHA rule interpretation. 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 contraindicated 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 be conducted under the supervision of a licensed physician.
5. Employees who decline the Hepatitis B vaccination offered them shall sign the OR-OSHA required waiver indicating their refusal. At any time the employee may change his/her mind and the vaccination series will be offered. (SEE APPENDIX 3)
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.

K. Exposure Incident Evaluation & Follow Up

1. Any employee who has an exposure incident (they are exposed to blood or body fluids) shall immediately notify their supervisor and/or Safety Officer who will refer the employee to their private physician or to a local health care facility for a complete medical evaluation and follow up. (SEE APPENDIX 1)
2. The Safety Officer will provide the treating physician or healthcare facility with:
   a. A copy of the Bloodborne Pathogens rule, 1910.1030.
   b. A copy of the Bloodborne Pathogen Exposure Incident/Accident Report.
   c. Any medical records on the exposed employee regarding HBV vaccine status.
3. The health care provider will provide the employee with a written opinion of the evaluation. (SEE APPENDIX 2)

L. Post Exposure Investigation

As part of the follow-up on an "exposure incident" the Safety Committee will conduct an investigation. It is critical to remember what an exposure incident is:

> "unprotected exposure to blood or other body fluids including a skin exposure involving contact with blood, especially when the exposed skin is chapped, abraded, or afflicted with dermatitis, or a needle/sharp exposure to blood or body fluids during the course of their work."

(Small splashes of blood on intact skin is 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 contact the Safety Committee to begin the process of investigating the incident and scheduling a confidential medical evaluation and follow-up activities for the employee.
2. The Safety Officer 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 shall 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 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.)
   c. Results of the source individual's testing shall be made available to the exposed employee, and the employee shall 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.
   d. An exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained. If baseline blood is drawn, but the employee does not consent for HIV serologic testing, the sample shall 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 shall be offered based on USPHS recommended schedule. Currently that includes a 6 week, 12 week and 6 month HIV test.

M. Recordkeeping

1. Medical Records shall be established and maintained for each employee with occupational exposure. Human Resources will maintain the CURRENT employee medical records during length of employment. Records will be kept after the employment for a minimum of 30 years. The record will be confidential and will contain the following information as required by the OR-OSHA standard:
   a. Name and social security number
   b. Copy of employee's vaccination status and any medical records that are relative to employee's ability to receive the vaccination.
   c. Copy of the results of examinations, medical testing, and follow up procedures as the result of a post-exposure incident medical treatment.
   d. Copy of medical professional's written opinion.
   e. A copy of the information provided to the medical professional.
2. Sharps Injury Log:
   The employer shall establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee. The sharps injury log shall contain, at a minimum:
   a. The type and brand of device involved in the incident.
   b. The department or work area where the exposure incident occurred.
   c. An explanation of how the incident occurred.
3. Training Records: The Human Resource Department and Safety Officer will maintain the training records for minimum of 3 years. This includes:
   a. Dates of the training sessions.
   b. Contents or summary of the training.
   c. Names and qualifications of the persons conducting the training.
   d. The names and job titles of all persons attending training sessions.

N. 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 the means by which 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 persons 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 that is required to provide for the firefighter following an exposure incident
13. An explanation of the signs and labels and /or color coding
14. An opportunity for interactive questions and answers with the training instructor.

The training program will be given <u>initially AND annually</u> for 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 program and instructor's background information.

APPENDIX 1
BLOODBORNE PATHOGEN EXPOSURE INCIDENT/ACCIDENT REPORT

• Immediate supervisor should complete this form promptly with employee input.
• Please print clearly and forward to the Safety Officer

1._____2._____
Employee Supervisor

3._____4._____
Date of Incident/Accident Time

5._____
Incident/Accident Location and case number (if applicable)

6. 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).
_____

7. Describe employee's injury (part of the body/type of injury):
_____

8. Describe first aid/medical treatment (when and by whom):
_____

9. When was the accident reported (date/time):_____ Reported to Whom?_____
If not immediately reported, WHY? _____

10. List Names of Witnesses _____

11. Is the source individual known? Yes____No____ If yes, please provide name/address so that a consent for blood testing can be obtained.
Name:_____Address_____

12. What corrective action was taken or is planned, to prevent similar accidents from occurring in the future? _____

13. Referral to medical evaluator has been done? Yes _____ No _____ Date: _____
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 OROSHA RULES. ALL MEDICAL DATA IS CONFIDENTIAL.

NAME OF INVESTIGATOR:_____
TITLE:_____DATE:_____
For additional comments, please use additional paper.

APPENDIX 2
HEALTHCARE PROFESSIONAL'S 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.

(Y/N) The employee has been informed of the results of the evaluation.

(Y/N) 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.

HEALTHCARE PROVIDER'S SIGNATURE **DATE**

The blood or body-fluid source individual shall 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: (Y/N)_____
DATE TAKEN:_____

WRITTEN/ORAL CONSENT GIVEN FOR: (Y/N)_____ HBV TESTING

WRITTEN/ORAL CONSENT GIVEN FOR: (Y/N) _____ HIV TESTING

RESULTS MADE AVAILABLE TO THE EMPLOYEE: (Y/N)_____

DATE MADE AVAILABLE:_____

NAME OF MEDICAL CENTER

NAME OF TREATING PHYSICIAN

APPENDIX 3
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 the Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

EMPLOYEE SIGNATURE:_____ **DATE:**_____

SAFETY OFFICER:_____

DEPARTMENT HEAD:_____

PART 2: CHAPTER 4
CONFINED SPACE ENTRY PLAN

A. Purpose

The following program defines the procedures for confined space entry under Federal OSHA "Permit Required Confined Spaces" 29 CFR 1910.146.

Only authorized employees shall enter a confined space. The Safety Officer is responsible to see that the proper preparation entry protocols are completed prior to entry and maintained during entry. A designated employee (entry supervisor) may be assigned the responsibility for overseeing that confined space entries are made in compliance with our procedures.
Remember if you have questions about any space please consult with the Safety Officer or the entry supervisor prior to entering a confined space.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.146 "Permit Required Confined Spaces"

C. Procedures

This written program lists the procedures that must be followed to implement the Confined Space Entry Program. The procedures include:

1. Employee training
2. Atmosphere Testing
3. Identification of Confined Spaces
4. Marking of Confined Spaces
5. Entry Procedures
6. Entry Permits

Our facilities have been surveyed to identify all confined spaces and all permit required confined spaces. It is the responsibility of the Safety Officer to ensure that the survey is updated on all permit required confined spaces.

Examples of Confined Spaces that require permits include but are not limited to:

1. Holding Tanks
2. All Manholes, Sewer and Storm Lines
3. Tanks at Wastewater and Water Treatment Plants
4. All Pump Station Wet Wells
5. Sewage Pump Station #1
6. Sewage Pump Station #4
7. Comminutor (grinder) Channel
8. Effluent Building (outfall) Basement
9. Grit Channel
10. Water Meter Vaults
11. Valve Pits
12. Backflow Device Vaults
13. Ranney Caissons 1, 2 & 3 "Wet Wells"
14. Water Reservoirs
15. Pump House – Ranney #1
16. Underground Vaults
17. Crawl Spaces

D. Definitions

The following definitions are for terms used throughout this document and are based on the federal OSHA 29 CFR 1910.146 Permit Required Confined Space regulation definitions.

NOTE: THESE ARE KEY DEFINITIONS.

Confined Space means a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
3. Is not designed for continuous employee occupancy.

Permit-Required Space means a confined space that has one or more of the following characteristics:

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

Vent and Test Certificate Space or Permit-required Space means a confined space that can be treated with alternative procedures:

1. If "Alternative Procedures" can safely be used, Oregon OSHA does not require a full permit, standby attendant, or emergency rescue procedures to be implemented.
2. The space must be maintained in safe condition. I
3. If test data shows a change that could be hazardous then the employee must immediately leave the space.
4. The following conditions must be met for a permit space to be classified as vent and test permit space:
    a. The only hazard posed by the permit space is a potential or actual hazardous atmosphere and that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry. This also assumes that all physical hazards, such as mechanical equipment, can be safely locked-out from outside the space prior to entry.
    b. The entry supervisor has air monitoring data to show that the air quality is safe and is maintained during the work in the space. A written record of the testing is maintained.
    c. Since a standby person is not required, any entrance covers, manhole covers or pit/sump lids that are removed, shall promptly have the opening guarded by a railing, temporary cover, or other temporary barrier. This barrier or warning device will prevent an accidental fall into the opening and also protect each employee working in the space from foreign objects falling in the space.
    d. Before an employee enters the space, the internal atmosphere shall be tested for potential hazards. The entry supervisor will determine the type of direct reading testing but at a minimum it shall including oxygen deficiency and carbon monoxide monitor. Testing shall be done periodically while the employee(s) is/are in the space.
    e. Continuous forced air ventilation shall be used. The air must be from a clean source.
    f. If a hazardous atmosphere is detected then the entrant will immediately leave the space and entry would only be made with an entry permit, if changes in the space cannot render it fully safe, this will continue on a permit-required space.

Reclassification Certificate mean a confined spaces where all serious hazards can be eliminated prior to entry can be reclassified to a Non-Permit Space. The certificate shall document the steps taken to temporarily reclassify the space as a Non-Permit Required Confined Space.

Non-Permit Space means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. Examples include: vented vaults, motor control cabinets, crawl spaces, and dropped ceilings. Although they are "confined spaces", these spaces have either natural or permanent mechanical ventilation to prevent the accumulation of a hazardous atmosphere, and they do not present engulfment or other serious hazards.

Entry means entry into a confined space occurs as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry Permit means a written permit which defines the conditions under which the space may be entered.

Permit Authorizing Personnel means the person who is trained and authorized to be responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry, overseeing entry operations, and for terminating entry as required by this program.

NOTE: A permit authorizing person also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this safety program for each role he or she fills. Also, the duties of an entry supervisor may be passed from one individual to another during the course of an entry operation. Each department has designated various employees to be permit authorizing personnel.

Hazardous atmosphere means an atmosphere which exposes employees to a risk of death, incapacitation, injury, or acute illness from one or more of the following causes:

1. A flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL).
2. An atmospheric oxygen concentration below 19.5% or above 23.5%.
3. A combustible dust environment.
4. An atmospheric concentration of any substance for which an employee exposure would exceed the permissible exposure limit (PEL).
5. Any atmospheric condition recognized as immediately dangerous to life or health.

Immediately dangerous to life or health (IDLH) means any condition which poses an immediate threat of loss of life; or may result in irreversible or immediate-severe health effects or other conditions which could impair escape from the permit space.

Permissible Exposure Limits (PEL) means an airborne chemical exposure limit established by Oregon OSHA which cannot be exceeded without proper respiratory protection and the implementation of feasible engineering controls.

Enclosed Space means a space that has a limited means of entry or egress, that is designed for periodic entry by employees under normal operating conditions, and that is not expected to contain a hazardous atmosphere but may contain one or more unusual conditions. Enclosed spaces include manholes and vaults that provide employees access to electrical generation, transmission, and distribution equipment.

E. General Responsibilities

1. Supervisors: The supervisors are responsible for ensuring that the proper safety equipment is available and used for the safety of the employees during confined space entry. A designated employee may be assigned the responsibility for directing the permit confined space entry. The supervisors are responsible for maintaining copies of all permits issued for one year. The permits will be reviewed during the annual program evaluation. The Safety Officer will do the annual evaluation.
2. Entry Supervisors: OSHA uses the term *entry supervisors* as a designation that someone must be in charge of the planned permit entry. The person does not have to be a management staff person but an employee who has received additional training and has the authority to authorize employee to enter into confined spaces. The entry supervisor's duties include:
   a. Evaluation of all confined spaces including those that are non-permit to ensure that all hazards can be or are controlled.
   b. Completion of the work permit indicating the safety equipment required.
   c. Determining special precautions to be observed.
   d. Determining the number of employees permitted to enter.
   e. The duration of the permit.
   f. Cancellation of the permit.
3. All Employees: All employees are required to follow the appropriate confined space entry procedures and ensure that the equipment in use is performing properly. Employees authorized to make confined entries are trained in the confined space program and entry procedures.

F. Confined Space Classifications and Safety Procedures

PERMIT ENTRY - SAFETY PROCEDURES

ENTRY INTO CONFINED SPACES WILL OCCUR ONLY AFTER THE FOLLOWING RULES ARE MET:

Training

1. Only staff that has been trained in the City's entry policies and procedures will perform work in a confined space. Supervisors shall ensure that only authorized employees who have received training in the hazards of confined space entry and proper procedures are permitted to enter confined spaces.
2. A list shall be maintained by the Safety Officer of all employees trained and certified to participate in the Confined Space Entry Program at each of the following levels:
   a. **Level 1** Authorized Entrants
   b. **Level 2** Entry Supervisor and Authorized Attendants
   c. **Level 3** Permit Preparer

Inspection

1. The safety equipment to be used in a confined space must be inspected on a routine basis by a designated employee. The employee will inspect and/or test the equipment to ensure that it is in working condition as outlined by the OR-OSHA rules or by the manufacturer's specifications. The inspection frequency varies depending on specific rule requirement(s) and by the manufacturer's specifications. Equipment not functioning will be repaired by authorized manufacturer's representations.

   The equipment includes, but is not limited to:

   ii. Ladders
   iii. Man-hoists

iv. Safety harness and life lines
v. SCBA
vi. Gas monitors including oxygen monitors
vii. Power ventilators
viii. Communication systems (voice or radio)

Entry

1. All Confined Space entries will be performed following the City's procedures, which are outlined in detail in APPENDIX 1.
2. In order to determine if a permit is required, use the "Confined Space Assessment Worksheet" in Appendix 1.
3. A Confined Space Permit or an Alternative Entry/Vent and Test Permit must be issued for confined space entry. The permit will be properly filled out and followed. Specific Permit instructions are given in APPENDIX 1.
4. The permit is required to be kept for one year. The Safety Officer will maintain copies of the permits to provide information on annual review of this policy.
5. Permits may be granted for the duration of the project requiring confined space entry. The permit is only valid as long as the physical conditions set out in the permit are met.
6. The permits are to be posted at the worksite.

Atmosphere Testing

1. Testing of the air within confined spaces shall be performed prior to entry to determine oxygen content, toxic gas potential and flammable or explosive atmospheres. The initial test will be taken in the space to be entered prior to entry.
2. Entry into a confined space is prohibited until initial testing of the atmosphere has been done from outside the space. Entry, without respiratory equipment will only be made after the appropriate tests show that the atmosphere is safe.
3. The tests performed shall include those for oxygen content, flammable gases, and carbon monoxide monitoring channel. The Entry Supervisor depending on the circumstances may require additional tests.

Acceptable Atmosphere Without Air-Supplied Respirator

1. If the space meets the following air quality standards then entry may be done without a SCBA or continuous airline with escape bottle:
   a. Oxygen level between 19.5% - 23.5%.
   b. Flammable vapors below 10% LEL (note: many flammable gases are toxic at very low percentages in air thus 10% of the LEL may be a toxic exposure). The person authorizing entry should carefully judge all readings on the combustible gas sensor.
   c. Hydrogen sulfide below the PEL of 10 ppm
   d. Carbon monoxide below the PEL of 35 ppm

   ***NOTE**: If unusual odors are present, entry shall be terminated immediately. The presence of odors is not always related to the degree of hazard just as the lack of odor does not mean that it is safe; however, odors could be the result of an accidental spill that could affect your health and safety. The Safety Officer needs to be notified to ensure the reason for the unusual conditions aren't due to an accidental chemical spill, release or process.*

Ventilation

1. Ventilation of confined spaces shall be used to provide adequate levels of oxygen, to dilute toxic and flammable gases and to improve general air quality. The ventilation equipment shall be explosion proof if it is placed inside the confined space.

Other Chemicals

1. The Safety Data Sheets (SDS) of all products and cleaning materials used in the confined space must be reviewed before entry unless the products have already been covered with the employees in the routine hazard communication training.

Electrical

1. Only double insulated electric tools or tools on a ground fault circuit interrupter system are used in confined spaces. All portable lights and tools shall be explosion proof when working a confined space where there is a potential flammable or explosive atmosphere.

Lockout

1. Mechanical, pneumatic, hydraulic and electrical equipment installed in the confined space must be disconnected from its power source and locked out. The City's lock-out program must be followed (See Energy Control Plan - Lock-out Policy for further details).

Emergency

1. The Entry Supervisor (Permit Authorizing Personnel) will ensure that the proper rescue procedures and equipment necessary to rescue an entrant from a permit space are implemented and provided. This includes:
   a. Safety harness, life line and tripod hoist or other type of rescue devices as needed for the permit space being entered which are a vertical entrance of more than 5 feet.
   b. Communication with other entry team members by Mobile Radio, Telephone or other effective means is provided.
   c. First aid and emergency response by notification of the first aid/CPR trained member and 911 rescue assistance.

Traffic Hazards

1. Employees working in roadways/walkways need to ensure their safety and that of their coworkers by proper control of traffic hazards and access to open manholes. All necessary barriers and traffic control devices shall be used.

Entrance Covers

1. When entrance covers are removed, the opening shall be promptly guarded by the outside attendant or, in case where the outside attendant is not in the immediate area or alternative procedures are in use and only one employee is present, then guarding will be done with the use of:
   a. portable railings
   b. temporary cover
   c. other temporary barrier

   The barriers will protect the opening to prevent other employees from accidentally falling into the opening and will prevent foreign objects from entering the space.

Ladders

1. A ladder, if used for an entry into vessel, must remain at the site throughout the work period. See Part 2: Chapter 21 for ladder safety.

Retrieval System

1. A retrieval system shall be used for each full permit entry unless the retrieval system would increase the overall risk of the entry or would not contribute to the rescue of the entrant. For entries using the retrieval system, each entrant to a Permit Required Confined Space shall wear a chest or full body harness with a retrieval line. Wristlets may be substituted if the chest of full body harness is not feasible or creates a greater hazard.
2. The other end of the retrieval line shall be attached to a mechanical lifting device or a fixed point outside of the confined space. A mechanical lifting device shall be used to retrieve personnel from vertical type confined spaces that are more than 5 feet deep. A retrieval system is not usually considered for use during entries conducted using Vent & Test, Alternative Procedure, or Reclassification Certificates.
3. Inspection of retrieval equipment (including the inspection tag) shall be performed by a competent and trained person.

Hot Work

1. When any hot work involving sources of ignition including welding and burning is done in a confined space, all fire hazards and flammable atmospheres must be controlled. All combustible material shall be protected. Hot work permit and instructions are found in Appendix #3. These procedures are in addition to the general Hazardous Atmosphere Permit Entry requirements.

Contractors

1. When we hire an outside contractor to conduct confined space work the Project Manager must ensure that the contractor is provided with information about the hazards associated with the confined spaces involved in the contract. See Appendix #2.

APPENDIX 1:

BASIC ENTRY PROCEDURES ARE PROVIDED AT END OF THIS DOCUMENT. THE PERMIT AUTHORIZING PERSONNEL MUST ENSURE THAT ALL HAZARDS ARE IDENTIFIED AND PROPER CONTROLS ARE IN PLACE PRIOR TO PERMITTING ENTRY.

APPENDIX 2
FORMS & EXPLANATIONS

CONFINED SPACE ASSESSMENT WORKSHEET:
The City's trained entry supervisors or Safety Officer will complete the confined space assessment worksheet. Space characteristics and controls may change, as a result a space may be initially documented as a permit space and then need to be reclassified. Safety Officer must keep documentation of the space change on the assessment form.

The following information must be gathered and recorded. The evaluator must sign the assessment sheet and make sure this is available to employees entering the space.

The initial step in assessing a space is to determine if the space is a "confined space" then to assess the space as to whether it is permit-required or non-permit. It is critical that the assessor uses federal OSHA's definition for each of these types of spaces in making the determination:

Step 1: Confined Space Determination

1. Space is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Space has limited or restricted means for entry or exit (for example: tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
3. Space is not designed for continuous employee occupancy.

Step 2: Non-permit Space

1. Space has an extremely low likelihood that an IDLH (immediately dangerous to life and health) or engulfment hazard could be present, and where all other serious hazards have been controlled. The federal OSHA standard defines a non-permit space as:
   "a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm."
2. Examples of non-permit confined spaces includes: vented vaults, motor control cabinets, and dropped ceilings. Although they are "confined space", these spaces have either natural or permanent mechanical ventilation to prevent the accumulation of a hazardous atmosphere, and they do not present engulfment or other serious hazards.

Step 3: Permit Required Space

1. An atmosphere which exposes employees to a risk of death, incapacitation, injury or acute illness from one or more of the following causes: flammable or combustible gases, oxygen deficient or enriched atmospheres, toxic atmospheres, engulfment, and other serious physical hazards.
2. These types of spaces will have limited or restricted means for entry or exit. Examples given in the regulations include tanks, vessels, silos, storage bins, hoppers, vaults, pits and diked areas. These spaces are not designed for continuous employee occupancy.

Step 4: Determining Need for Hot Work Permit

1. **Hot Work Permit**: Any welding or hot work being done in a confined space requires both a Confined Space Permit and Hot Work Permit even if the confined space is originally defined as Non-permit.

Step 5: Reclassification of Permit Space or a Vent and Test Alternative Space to a Non-Permit Space

A space can be reclassified as non-permit space under the following conditions:

1. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, then the permit space may be reclassified as a non-permit space.
2. If testing and inspection during a permit entry demonstrates that the hazards within the permit space have been eliminated, the permit space may be reclassified.
3. The Safety Officer must document this determination.
4. If hazards arise within a declassified space then the employees shall exit and a permit will be required with appropriate safeguards.

CONFINED SPACE ASSESSMENT WORKSHEET QUESTIONNAIRE

1. Where is the Potential Confined Space & Specific Location:_____
   a. Attach a photograph or drawing of the space.
2. Reasons for Entry:_____
3. How frequently is this space entered:_____
4. Who last entered and why? Any comments on possible problems during entries:_____
5. What are the specific conditions of the space?
   a. Bottom entrance:_____
   b. Side entrance:_____
   c. Top entrance:_____
   d. Doors, hatches or manhole covers:_____
6. Do contractors enter space? Yes_____ No_____

CHECKLIST OF SAFEGUARDS

CONFINED SPACE:	***HAZARD***	***SAFEGUARD***
ISOLATION METHODS		
1. Electrical		
2. Mechanical		
3. Other		
HAZARDOUS WORK		
1. Welding/Burning		
2. Open Flame		
3. Electrical Work		
4. Other		
SPECIAL REQUIREMENTS		
1. Lock-outs		
2. Line 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		
PERSONAL PROTECTIVE EQUIPMENT		
1. Harness & Life Line		
2. Respirator		
3. Eye Protection		
4. Hearing Protection		
5. Protective Clothing		
6. Gloves		
7. Boots		
8. Hard Hat		

ATMOSPHERE TESTS	**RECORD LEVELS**
1. Oxygen – more than 19.5% less than 23.5%	
2. Flammable Vapors – below 10% LEL	
3. Combustible Dusts – below the PELs	
4. Temperature	
5. Chemical Level	
6. Other	

APPENDIX 2

Confined Space Entry Permit Forms

A written permit is necessary because of the special precautions that must be taken to ensure that the confined space work is performed safely. The permit functions as a checklist to ensure proper work preparation and atmospheric testing. The permit establishes expiration time and date which prevents the entry permit from being used for unauthorized entries. The permit also requires the signature of the responsible person in charge and employees who will perform the work.

There are three (3) permit forms:

- **Confined Space Entry Permit -** The permit requires that the entry be evaluated for safety and health hazards and necessary controls.
- **Hot Work Permit -** To be used with the Confined Space Entry Permit which addresses the additional hazards from welding and other hot work.
- **Alternative** - **Vent and Testing Form** - This form is to be used to document confined space conditions that meet the alternative procedures.

Confined Space Permit Entry Instructions - The Permit form includes the following information:

1. The identity of the permit space or location of work.
2. The purpose of entry (nature of job being done).
3. The individual authorizing the entry shall sign the permit before the entry begins. Entry is not permitted until all actions and conditions necessary for safe entry have been performed.
4. Special instructions prior or during entry.
5. Space classification. Note if the space is determined not to be a confined space then a record should be made and noted on the form.
6. A list of the measures for isolation of hazardous energy sources in the permit space which includes lock-out procedures to be performed.
7. Type of hazardous work being performed which takes additional precautions including: painting, sand blasting, electrical work, welding, etc. If hot work is required then the Hot Work Permit will also be required.
8. Special precautions that will be needed including procedures for purging, inserting, ventilating and flushing the space to remove or control the potential hazards.
9. The communication procedures and equipment used by authorized workers and attendants to maintain contact.
10. Rescue procedures, equipment, and other services which would be summoned in case of emergency and means of communication with those services.
11. The personal protective equipment, such as: hard hats, gloves, coveralls, respirators, safety harness, and retrieval lines, provided in order to ensure employee safety.
12. Acceptable environmental conditions with regards to the hazards identified in the permit space by monitoring the air quality.
13. The date of entry and authorized duration.
14. The authorized confined space workers' signatures.
15. Upon completion of the entry covered by the permit, and after all workers have exited the permit space, the individual authorizing the entry shall cancel the permit.

NOTICE: In the event that toxic/flammable gases in a confined space cannot be reduced below acceptable levels as posted on the procedures, no one shall enter except when using proper equipment including SCBA unit or air-supplied respirator.

City of St. Helens

CONFINED SPACE ENTRY PERMIT

Permit Number / Date

_____

ALL COPIES OF THIS CONFINED SPACE ENTRY PERMIT MUST REMAIN AT THE ASSIGNED WORK SITE UNTIL THE JOB IS COMPLETED.

This permit is to be completed by the person authorizing the permit.

NAME:_____

DATE:_____

TIME:_____

LOCATION AND DESCRIPTION OF PERMIT SPACE

_____

_____

PURPOSE OF ENTRY_____

_____

ATTENDANT_____

ENTRANT(S)_____

_____

STAND BY PERSON (if the job requires this position)_____

Bump Test MUST be done each day before use on the MSA ALTAIR 4X Gas Detector!

Read and follow instructions for BUMP TESTING and CLEARING PEAKS located inside the gas detector carrying case.

Sign that Bump Test was confirmed:_____

Rev. 3/29/2017

UPON SURVEY OF THE PERMIT REQUIRED CONFINED SPACE TO BE ENTERED, THE FOLLOWING HAZARDS HAVE BEEN IDENTIFIED AND PRECAUTIONARY MEASURES TAKEN FOR THE ABOVE NAMED PERMIT SPACE

CHECKLIST IF ACTION REQUIRED

ISOLATION: LOCKOUTS

1. Electrical ( )
2. Mechanical ( )
3. Other ( )

HAZARDOUS WORK

1. Welding/ Burning ( )
2. Electrical Work ( )
3. Chemical (MSDS) ( )

SPECIAL REQUIREMENTS

1. Lines Disconnected ( )
2. Vessel/Tank Purge & vent ( )
3. Ventilation ( )
4. Communication ( )
5. Emergency Rescue Procedures ( )
6. Fire Extinguisher ( )
7. Secure area/ Traffic control ( )
8. Lighting ( )
9. Other _____( )

PERSONAL PROTECTIVE EQUIPMENT

1. Harness and Life Line ( )
2. Respirator ( )
3. Protective Clothing ( )
4. Hearing Protection ( )
5. Other _____( )

L. EMERGENCY RESPONSE INFORMATION NEEDED

Phone # of Rescue Help 911 or if using a cell phone, call 503-397-1521.

1. Location of nearest phone_____
2. Location of First Aid Kit_____

This permit shall be held by the attendant who shall remain at the permitted space entrance during the entire permitted space work time and shall not leave for any reason during the permitted space work.

The permit is to be revoked immediately if atmospheric conditions change to unacceptable level or if any other problems arise which were not anticipated that could endanger the safety of the permitted space entrant.

REMARKS:

_____

Rev. 3/29/2017

ATMOSPHERE TESTS -

Gas Detection Meter last calibration date _____

OXYGEN READING: Less than 19.5% or greater than 22% **DO NOT ENTER**

LEL READING: Reading is 10% or greater of LEL **DO NOT ENTER**

TOXICITY: H_2S is more than 10 ppm or CO is more than 35 ppm **DO NOT ENTER**

INITIAL ATMOSPHERE TEST RESULTS FOR UPPER & LOWER LEVEL OF CONFINED SPACE AREA

	LEL Upper Level	LEL Lower Level	Oxygen Upper Level	Oxygen lower Level	H_2S Upper Level	H_2S Lower Level	CO Upper Level	CO Lower Level
AT ENTRY								

THE PERSON AUTHORIZING THE ENTRY OR THE ATTENDANT AND THE ENTRANT MUST SIGN OFF THAT ALL OF THE SAFETY PRECAUTIONS HAVE BEEN TAKEN AND THE INITIAL ATMOSPHERE CHECKS HAVE BEEN MADE AND ARE SATISFACTORY.

SIGNATURE:_____

SIGNATURE:_____

ATMOSPHERE TEST RESULTS DURING WORK IN THE CONFINED SPACE TO BE TAKEN AND RECORDED BY THE ATTENDANT.

RECORD READING EVERY 30 MINUTES AFTER THE 90 MINUTE READING, UNTIL WORK HAS BEEN COMPLETED.

		LEL		Oxygen		H_2S		CO
15 MINS								
30 MINS								
60 MINS								
90 MINS								

JOB COMPLETED, ENTRY PERMIT CANCELLED: TIME: _____ DATE: _____

SIGNATURE:_____

Rev. 3/29/2017

Department Issuing the Permit | **Location of Work**

Nature of the Job Being Done | **PERSON In Charge of Work (Permit Authorization)**

Special Instructions_____

CHECKLIST

Atmosphere Tests (Record Results in Completed Column)

1. Oxygen - 19.5% - 23.5%	_____	_____
2. Flammable Vapors - below 10% LFL (Fire/Explosion)	_____	_____
3. Hydrogen sulfide - below PEL 10 ppm	_____	_____
4. Carbon Monoxide - below PEL 35 ppm	_____	_____
5. GAS TEST Equipment Calibration Date _____	_____	_____
6. Other Chemicals: _____	_____	_____

	Check if Required	**Check When Completed**
Isolation: Lockout/Tagout Procedures Required		
1. Electrical	_____	_____
2. Mechanical	_____	_____
3. Other _____	_____	_____
Hazardous Work:		
1. Welding/Burning (NOTE: Complete a Hot Work Permit)	_____	_____
2. Electrical Work _____	_____	
3. Painting	_____	_____
4. Sand Blasting	_____	_____
5. Other _____	_____	_____
Special Requirements		
1. Lines Disconnected _____	_____	
2. Vessel/Tank Purge - Flush	_____	_____
3. Ventilation _____	_____	
4. Communication	_____	_____
5. Emergency Rescue Procedures	_____	_____
6. Other _____	_____	_____
Personal Protective Equipment Needed		
1. Harness & Life Line & Tripod	_____	_____
2. Respirator _____	_____	
3. Protective Clothing _____	_____	
4. Other _____		

Date & Time Issued:_____ **Date & Time Expired or Cancelled:**_____

Employee (Entrant) | **Employee (Attendant)**

Employee (Entrant) | **Permit Authorizing Personnel**

CALL BASE STATION ON MOBILE RADIOS FOR COMMUNICATION WITH 911 CENTER FOR EMERGENCY ASSISTANCE USE BACK SIDE TO PROVIDE FURTHER INSTRUCTIONS.

CONFINED SPACE ENTRY
ALTERNATIVE PROCEDURES

LOCATION:

Date/Time Permit Issued:_____ Date/Time Permit Expires:_____
Permit Prepared by:_____ Permit Use Authorized by:_____

Permit Posted:_____ Location of Space:_____

Entry Person:_____

Attendant:_____

Purpose of Entry:_____

Conditions to be Met Before Entry	**Initial to verify**
Workers are trained	
Atmosphere testing	
Wear radio for communication or continuous visual observation	
Use oxygen sensor	
Stand by person available before entering pit	

ATMOSPHERE TESTS	**RECORD LEVELS**
1. Oxygen – more than 19.5% less than 23.5%	
2. Flammable Vapors – below 10% LEL	
3. Combustible Dusts – below the PELs	
4. Temperature	
5. Chemical Level	
6. Other	

Verification:

Space Safe for Entry? Yes_____ No_____

Signature Confirming All Conditions Met and Understood:_____

IN CASE OF EMERGENCY, DIAL 911

Return Completed Permit to Safety Officer

APPENDIX 3
HOT WORK PERMIT PROCEDURES AND INSTRUCTIONS

REQUIREMENTS

An additional **Hazardous Work Permit** is required when employees are welding or using some type of an open flame/hot work in a confined space. The permit is to ensure that the proper planning and precaution are taken because hot work in a confined space is inherently dangerous.

The permit system requires the entry supervisor to complete the **Confined Space Entry Permit** and the **Hot Work Permit**, which contains:

1. The identity of the permit space or location of work.

2. The purpose of entry.

3. Identifying the special fire hazards so that proper precautions can be implemented to control the conditions.

4. The special measures taken to ensure that the tank or pit has been properly purged by specifying the methods for flushing and ventilating the confined space.

5. The measures for isolation of other hazards that may be effected by hot work including: electrical lock-out, and gas or hazardous chemical line blanking. Compressed gas cylinders shall not be allowed in the confined space.

6. Air monitoring to verify that acceptable environmental conditions are being maintained during hot work.

7. Additional personal protective equipment, such as respirators, clothing, special eye protection and welding helmets, provided in order to ensure employee safety.

8. The date of entry and authorized duration.

9. The authorized employees' and permit authorizing personnel signatures.

CONFINED SPACE ENTRY
HOT WORK PERMIT

NOTE: THIS PERMIT IS TO BE USED WITH THE HAZARDOUS WORK PERMIT WHEN ANY HOT WORK IS PLANNED TO BE DONE IN A CONFINED SPACE.

Department Issuing the Permit:_____ **Location of Work:**_____

Nature of the Job Being Done:_____

PERSON In Charge of Work (Entry Supervisor):_____

Special Fire Hazards:_____
_____

Hazardous Work to be performed (Welding/Burning/Open Flame):_____

CHECKLIST

Special Requirements

1. Tank or Pit - Flush & Ventilate: Yes____ No____
   - Type of Deposit or material in tank _____
   - Method of Cleaning_____
2. Fire Prevention Precautions _____
3. Ventilation for Welding Fumes: Yes____ No____ Types:_____
4. Isolation: Lock-out
   - Electrical: Yes____ No____
   - Mechanical: Yes____ No____
   - Gas Lines: Yes____ No____
   - Other: Yes____ No____ Types:_____
5. Additional Personal Protective Equipment Needed
   - Respirator: Yes____ No____ Type:_____
   - Welding Helmet: Yes____ No____
   - Hearing Protection: Yes____ No____
   - Protective Clothing: Yes____ No____

Date & Time Issued:_____ Date & Time Expired or Cancelled:_____

_____ _____
Employee (Entrant) Employee (Entrant)

_____ _____
Employee (Attendant) Entry Supervisor

APPENDIX 4
CONTRACTOR NOTIFICATION FORM

The contractor notification will be done by the Project Manager or Department Head. This notification is to ensure that the company complies with rule 29 CFR 1910.146(c)(8) of the Confined Space regulations. 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 the space.

3. Apprise the contractor of any precautions our employees have taken for entry. The contractor must provide our Safety Officer 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 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. It is imperative that the contractor follow the OSHA Permit Required Space rules 29 CFR 1910.146.

CHECKLIST OF SAFEGUARDS

HAZARDS & RECOMMENDED SAFEGUARDS

Isolation:
1. **Electrical** _____
2. **Mechanical** _____
3. **Other** _____

Hazardous Work:
1. **Welding/Burning/Open Flame** _____
2. **Electrical Work** _____
3. **CHEMICALS** _____

Special Requirements
1. **Lock-outs** _____
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** _____

Personal Protective Equipment Needed
1. **Harness & Life Line** _____
2. **Respirator** _____
3. **Eye Protection** _____
4. **Hearing Protection** _____
5. **Protective Clothing** _____

Atmosphere Tests - List type of air testing that would be necessary _____

Contractor's Emergency Response Information Needed:
1. **Phone Number and Location of Nearest Telephone**_____
2. **Name of First Aid Person & Location of Nearest First Aid Kit** _____
3. **Emergency Rescue Plan** _____

POST ENTRY DEBRIEFING NOTES:_____
_____

CONTRACTOR ENERGY CONTROL NOTIFICATION CHECKLIST

*PROJECT MANAGER:*_____ *DATE:* _____
CONTRACTOR REPRESENTATIVE: _____*DATE:*_____

SCOPE OF WORK REQUIRING ENERGY CONTROL:_____
COPY OF THE CONTRACTOR'S ENERGY CONTROL PLAN:
REVIEWED: _____ YES _____ NO

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 5
HAZARD COMMUNICATION PROGRAM

A. Purpose

1. **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;
   a. our compliance with various different hazardous material regulations; and
   b. the safety of our employees.
2. 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.
3. This **written program will be available at :**
   - Wastewater Treatment Plant
   - Water Treatment Plant
   - Public Works Shop
4. The program is available for review by any employee, outside contractors, or the Oregon OSHA compliance staff during an inspection.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.1200 “Hazardous Communications”
2. State: OAR 437 - Division 2 “Hazard Communications”
3. State: OAR 437 – Division 2 “Pipe Labeling”

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 1,500 pounds or more of chlorine.

C. Key Definitions

1. **Hazardous Chemical:** Any chemical which is a physical hazard or a health hazard (potential injury or disease agent).
2. **Hazard warning (label):** Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning to convey the hazards of the chemical in the container.
3. **Safety Data Sheet (SDS):** Written or printed material concerning a hazardous chemical which is prepared in accordance with OAR 437 Division 2 and 29 CFR 1910.1200.

D. General Responsibilities

1. **Management** has 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.
2. **The Safety Officer 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 Safety Officer will see that the initial Hazard Communication orientation for all new employees and temporary service employees is given.

3. 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 to see that secondary containers are labeled.
4. **Staff who order chemical products** are to ensure that original containers have legible labels and SDS have been received so that the product can be delivered.
5. **All Employees** are responsible to read the labels and SDS for products they use, attend the hazard communication training and properly handle chemicals per the labels, SDS and training. Employees generating secondary containers are responsible to label the containers or see that they are using properly labeled containers.

E. Procedures

1. Container Labeling:

a. PRIMARY CONTAINER LABELING: Container as received.

i. Oregon and federal OSHA requires that all chemical manufacturers, importers, and distributors properly label all shipments of hazardous chemicals with:
   (A) the identity of the chemical;
   (B) hazard warnings; and
   (C) the name and address of the manufacturer.

ii. No container of hazardous chemicals will be released for use until the label information is verified by department staff who ordered the product**.**

iii. All employees are to be aware that the label must be maintained on the chemical container and will notify their supervisor or environmental services representatives if any unlabeled container(s) are discovered in their work area.

b. **SECONDARY CONTAINER LABELING:** Containers that hold transferred hazardous materials from the original to a secondary use container are required to be labeled.

i. The employee in charge of the transfer must ensure that a hazard warning label is placed on the container. Portable containers which only one employee uses and is transferring chemical 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.

ii. 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.

iii. We will use permanent marking pens to label the secondary containers.

2. Department of Transportation Placards

a. Vehicles that are transporting hazardous materials may be required to have Department of Transportation placards.

b. There are, however, exceptions for public sector entities. The persons responsible for determining whether or not placarding is required on a vehicle should have a good understanding of the Department of Transportation placarding regulations.

3. Safety Data Sheet (SDS)

a. 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 we 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:

i. "Safety Data Sheets will be sent to the Safety Officer for each new chemical product purchased and an updated SDS will be sent when the manufacturers or importer changes the SDS."

b. 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.

c. When SDSs are received by the various departments they are to be forwarded to the Safety Officer for copying, distribution and inclusion in the SDS binders and on the inventory list.

d. SDS are available to all City 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.

e. A list of Hazardous Chemicals will be kept as part of the SDS index - table of contents. The lists will be updated as new chemicals are purchased. The Safety Officer is responsible to maintain the current inventory list of chemicals.

4. Employee Training and Information

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

i. The initial orientation is done by the Safety Officer and/or Department supervisor. The elements of training covered in the initial orientation includes:

(A) An overview of the requirements contained in the Hazard Communication Rules, OAR 437 Division 2 and 29 CFR 1910.1200.

(B) Location and availability of our written hazard communication program.

(C) How to read labels and review an SDS to obtain appropriate hazard information.

ii. 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:

(A) Review of the chemicals present in their workplace.

(B) Physical and health effects of the hazardous chemicals.

(C) Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area.

(D) How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment.

(E) Steps we have taken to lessen or prevent exposure to these chemicals.

(F) Emergency procedures to follow if our employees are exposed to these hazardous chemicals.

b. It is critically important that all of our 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.

c. When new chemicals are introduced, your supervisor will review the above items as they are related to the employees work areas.

d. Some employees may 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. 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.

F. Hazardous Non-Routine Tasks

1. Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each affected employee shall review information about hazards to which they may be exposed during such an activity. This shall be the responsibility of each Supervisor.
2. The training information will include but not be limited to:
   a. Specific chemical hazards.
   b. Protective equipment and safety measures which must be utilized.
   c. Measures that have been taken to lessen the hazards including ventilation, respirators, presence of another employees and emergency procedures.
   d. The SDS for employees to review.

G. Hazards of Chemicals in Piping Systems

1. All hazardous materials carried in piping systems are required to be labeled under OAR 437-002- 0378 "Pipe Labeling".

"Pipes and piping systems which contain hazardous substances (any health or physical hazardous agent) or transport substances in hazardous state shall be labeled…"

2. The pipes must be colored coded or have lettered labels. The label shall 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 shall be applied, at a minimum, at the beginning and end of continuous pipe runs. A complete hazard label is not required on pipes.

H. 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:

1. To ensure that outside contractors work safely in our plant, it is the responsibility of the Safety Officer to ensure that we provide the required chemical information:
   a. Hazardous chemicals to which they may be exposed while on the job site.
   b. Precautions the employees may take to lessen the possibility of exposure.
   c. Location of SDS for chemicals they are potentially exposed to.
2. If additional information is needed the safety manager should be contacted for assistance.

I. Chemical Hazards Requiring Additional Compliance Issues

1. 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:
   a. Exposure monitoring that is representative of employee exposures.
   b. Recordkeeping: Maintain all exposure monitoring records.
2. 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

PART 2: CHAPTER 6
CONTROL OF HAZARDOUS ENERGY – LOCKOUT/TAGOUT

A. Purpose

1. This Lockout/Tagout Program was established to provide the maximum protection to our employees whenever they must isolate machines or equipment from energy sources and to prevent unexpected energization, start-up or release of stored energy that could cause them injury.
2. The primary method of hazardous energy control will be accomplished by utilization of this lockout/tagout program.
3. Employees involved in the maintenance, repair, and servicing of equipment that requires the by-passing of guards are required to follow this policy. Those involved will be instructed in the safety significance of the lockout procedures to follow:
   a. Each operator and maintenance person will know all the energy sources within equipment, machinery or process. All sources of energy are covered under the procedures of this program, including electrical, mechanical, hydraulic, pneumatic, chemical and thermal energy.
   b. Repair and service on cord and plug electrical equipment are required to have the electric cord pulled from the energy source prior to repair. If the plug remains under the exclusive control of the employee performing the servicing and there are no other sources of energy (mechanical, pneumatic, hydraulic, or stored energy), no additional lockout/tagout procedures are required.

NOTE: The key definitions used in this program and in the regulations are found in Appendix A.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.147
2. State: OAR 437 Division 2

C. General Responsibilities

1. The **Safety Officer** is responsible to see that the overall policy is developed and works with the Safety Committee and employees to ensure implementation. The Safety Officer is also responsible to see that periodic audits and review of the policy are done annually.

2. Authorized Employees: Only workers and supervisors who have received special training to recognize and understand the particular hazards involved with the tasks to be performed and the type and magnitude of energy to be controlled are authorized to implement the LOCKOUT/TAGOUT procedure.

It is the trained authorized employee's responsibility to follow this program. Employees are to use their own lock and key (or individual lock at the lockout center). No other person shall be allowed access to your key or your lock. No one is allowed to remove your lock except the authorized person applying the lockout/tagout.

3. Affected Employees

a. An affected employee is one whose job requires him/her to operate or use equipment on which servicing and maintenance is being performed under lockout/tagout, or whose job requires him/her to work in the immediate area in which such servicing and maintenance is being performed.

b. An affected employee's responsibility is to ensure that they do not attempt to operate any equipment being locked-out/tagged-out and follow all safety procedures in shut down and restarting equipment.

4. **All Other Employees** who may see lockout or tagout on equipment are to honor the locks and tags and make no attempt to start or remove the devices.
5. **Training:** A key component of this program is employee training. It is the supervisor's responsibility to see that all employees involved in this program are trained. The authorized employees are to receive additional specialized training as outlined in this program. The training must be documented by the Supervisor and/or the Safety Officer.

D. Equipment Identification

Each piece of equipment or type of equipment with more than one source of energy has been identified along with the lockout issues. The equipment included in this program are located in various City facilities.

See **Appendix B** for listing of machinery and equipment. The Lockout procedures section of this program outlines the procedures by "like" pieces of equipment. The electrical disconnects are labeled and are all in near vicinity of the machinery.

E. Basic Lockout/Tagout Procedures

1. All equipment energy sources capable of being locked out during servicing, repair, or maintenance will be locked-out to prevent accidental or inadvertent operations which could cause injury.
   Energy sources can include: electrical, pneumatic, hydraulic, stored energy: gravity, springs; thermal; fluid flow - pressure, all geothermal piping, and gasoline/diesel driven machines.
2. Equipment energy sources not capable of being locked out will be isolated and then tagged-out to inform all others of the safety procedure in use and warning that no operation of the equipment is permitted.
   a. Example of some equipment not capable of being locked out includes: 110 circuit breakers, and older power panel installations.
   b. Tags will be used at these energy isolating devices. We will design systems capable of being locked-out if major replacement, repair, renovation or modifications are made on the electrical systems or equipment.
3. Typical conditions requiring lockout or tagout devices at our facilities include:
   a. Anytime repairs, servicing and/or changes are being done on machines or equipment and the safeguards are by-passed, or work on electrical circuits in which the employee could come into contact with hazardous energy occurs (mechanical, pneumatic, hydraulic, or stored energy).
   b. Whenever moving parts of machinery or equipment are being cleaned or oiled and accidental contact with movable parts is possible.
   c. When it becomes necessary to remove a plug or to clear a blockage.
   d. Mechanisms or pumps which exposes the employee to potential release of hazardous energy.
   e. When working on lines which contain hazardous substances, or high-pressure lines. Such systems should be clearly marked. Valves in the system should be capable of being locked out. In the case of high-pressure lines, there should be a means of safely relieving pressure in blocked sections.

f. To lockout power to equipment to prevent use by unauthorized persons and/or to prevent use in off hours.

4. No employee shall attempt to operate any switch, valve, or other energy isolating device bearing a lockout or tagout device.
5. Lock securing switch levers to prevent activation of electrical circuits or equipment on which work is being done. If it is not capable of being locked apply a tagout which is securely fastened to the disconnect lever or at the immediate area to warn of the on-going procedure.
6. Other basic controls that may be needed due to the type of energy present include:
   a. **Hydraulic Energy:** Close valve and bleed off line or block the device.
   b. **Air Pressure:** Close valve and bleed off pressure from line prior to working on the device.

      Note: Some valves open when they lose pressure, which can cause hydraulic or other liquid flows which could be hazardous to employees. These valves must be isolated and controlled.
   c. **Springs:** Attach a hold down device or leave in open position where no stored energy is present.
   d. **Fluid Flow - Water Pressure**: Insure proper gate devices are used that hold the back pressure, or drain lines so no fluid pressures are present.
7. **Additional Shutdown and Lockout Procedures** are needed for specialized equipment and vehicles during maintenance. The procedures are also outlined in Appendix A.
   a. Heavy Equipment and Vehicles during servicing - the mechanic will follow a normal shut down of the equipment. The equipment is all gasoline or diesel engine powered.
   b. The heavy equipment will have a tagout placed on the steering wheel which indicates that the mechanic could be injured if the equipment was started.
   c. Depending on the type of work being performed there may be various other sources of energy such as hydraulic and gravity that could dissipate during servicing. Additional control needs would include but not be limited to:
      i. Dump Trucks or any type of hopper or hood that could fall: The dump bed or device will have safety bars in place prior to any work around or under a lifted bed for support against gravitational pull due to potential loss of hydraulic pressure.
      ii. Backhoes or other hydraulic operated boom devices: If the shovel or boom is raised then the safety bar or blocking devices will be in place if the employee is working under the device. If the shovel or boom devices are on the ground in an energy neutral position additional controls would not be necessary.
      iii. Mowers: The mower arm which is hydraulically controlled needs to be set on the ground prior to any work or use safety bars or other secure blocking devices if the head is worked on in an up position.

F. Lockout/Tagout Hardware (Equipment)

1. Locks, tags and hasps will be used as energy isolating devices. Valves with handle and lock attachment hole will be locked out. If the locks become damaged in any way immediately seek a replacement lock.
2. Valves not capable of being locked-out will have tags placed on them with a slip lock plastic attachment device capable of withstanding 50 pounds of pressure.
3. The hardware is required to meet the following criteria:
   a. Durable to withstand weather and all types of exposures.
   b. Standardized by color, or shape, or size, or format.
   c. Locks substantial so they cannot be removed without excessive force.

d. Singularly identifiable.
e. Only device used for controlling energy and not used for other purposes.
f. Tags substantial to prevent inadvertent or accidental removal.
g. Tag attachment devices need to be non-reusable, attached by hand, self-locking, minimum unlocking strength of no less than 50 pounds.
h. Lockout/tagout devices - shall indicate identity of employee applying device.
i. Tag must have a written warning on it, i.e., **Do Not Start.**

4. Locks, tags, hasps, chains, and other restraining devices will be kept by each authorized employee. Extra locks and equipment will be kept at the supervisor's office. The Safety Officer will review the location of the lockout equipment and how to obtain additional lockout equipment as necessary.
5. Out of Service Tag: Employees may need to use an out of service tag when a piece of equipment is not functioning properly and it needs to be removed from service for the protection of the equipment.
   The OUT-OF-SERVICE TAG IS NOT TO BE USED FOR LOCKOUT/TAGOUT HAZARDOUS ENERGY CONTROL.
   REMEMBER once work begins on the equipment that places the employee in danger of hazardous energy release the authorized employee(s) must place their personal lock and tag on the energy isolating device.
6. The list of equipment, location, and lock out procedures are located in Appendix B.

G. Sequence for a Lockout or Tagout Procedure

The lockout/tagout procedure must be conducted in the following manner. No deviations will be tolerated.

1. The **authorized** employee shall notify the affected employees that the lockout/tagout system is going to be utilized. In many cases no one's safety will be affected by our maintenance and repair activities, thus there will not be any affected employees.
2. If a particular piece of equipment is operating, it must be shut down by the normal stopping procedure such as depressing the stop button or opening the switch. Some equipment will have detailed procedures that need to be followed by trained employees.
3. The authorized person shall lockout and tagout the energy isolating device of the equipment or machines with their individual assigned lock or by using individually keyed locks. These devices are assigned to each maintenance employee as part of his/her tools. The locks in the lockout center are individually keyed and can be used by other authorized employees or for additional hardware if multiple disconnects must be locked out during maintenance.
4. The authorized employee must operate the switch, valve or other energy isolating device to make sure the equipment is isolated from its energy source. Stored energy, such as the energy found in springs, rotating fly wheels, hydraulic system or compressed air or gas lines must be dissipated or restrained by either repositioning, blocking or bleeding down.
5. After ensuring that no personnel are exposed, the authorized person shall complete another check to make sure that all of the energy sources have been disconnected. The type of verification testing will depend on the type of equipment or electrical installation. Equipment may be tested by trying to operate it by turning on the controls. *CAUTION: Return operating controls to neutral or off position after test.*
6. Most of the electrical disconnects operating various pieces of equipment can be locked out; however, if other equipment energy requiring control cannot be locked out then a tagout device will be used. The tagout device must be attached on or as close as possible to the energy

isolating device. The tag must clearly indicate that the operation or start-up of the energy isolating device from the safe or off position is prohibited.

H. Equipment Testing Under Lockout/Tagout

At times, some of our equipment must be tested or positioned while doing maintenance or repair. The following procedure must be followed under those conditions:

1. Clear the machine or equipment of all tools and materials that are non-essential items.
2. Make sure that all of the employees are clear of the machine or equipment and notify them that the machine will be energized.
3. The authorized employee shall remove the lock.
4. Energize and proceed with the testing or positioning.
5. De-energize all systems and complete the shutdown procedures before continuing any maintenance or service.

I. Operational Status

When the authorized employee has completed their work, then the lockout device and tag can be removed. The following procedure will be followed during that process:

1. The authorized person shall inspect the work area to make sure that all of their tools have been removed from the machine and ensure that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all employees have been safely positioned or removed.
3. Notify all of the affected employees that the equipment is to be restarted.
4. Remove Lockout and Tagout device.
   Note: The authorized employee is the only person who shall remove the lockout or tagout device. The only exception to this is under the following conditions.

J. Removal by Someone Other than the Person that Applied the Lock

Removal of a safety lockout or tagout device by any other person than the authorized employee who applied it, may only be done under the direction of the Safety Officer or in his/her absence by the employees' supervisor, under the following procedure:

1. The supervisor will verify that the authorized employee who applied the device is not at the facility by checking with the immediate supervisor and co-workers.
2. The supervisor will call the authorized employee at home if possible to inform him that his lockout and/or tagout device needs to be removed. If the employee cannot return to remove the lock then the supervisor will inform the person that the lock is being moved. The supervisor or lead person may then use a master key or second key that is kept in a locked, inaccessible location known only to the supervisor or lead person and remove the lockout device.
3. The supervisor must follow all the correct protocols for removal of a lockout or tagout as outlined above and safely place the equipment back in service and then notify affected employees.
4. If all reasonable efforts have been made to contact the authorized employee, but the person was not reachable, the supervisor will ensure that the authorized employee upon return to work will know that his/her lock was removed and that routine operation of the equipment is now occurring.

K. Procedure Involving More than One Person

If more than one employee is required to lockout or tagout equipment, each shall place his/her own personal lockout device or tagout device on the energy isolating device(s). When an energy

isolation device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) is to be used.

L. Shift or Personnel Changes

During shift or personnel changes the hazardous energy control responsibility will be transferred in a manner that maintains uninterrupted protection for the employees involved.

1. All employees in the immediate affected work area shall be informed of the transfer of lockout/tagout devices between the off-going and on-coming employees.
2. On-coming shift employees must verify the equipment has been de-energized and proper procedures have been followed.
3. The on-coming authorized employee shall apply his/her own lockout/tagout device to the energy control source prior to the removal of the lockout/tagout device by the off-going employee.
4. The on-coming authorized employee shall ensure that no personnel are exposed, and as a check that all energy sources are disconnected, operate the push button or other normal operating controls to make certain the equipment will not operate. Return operating control(s) to the **"off"** position after the test.

M. Contractors

1. When we hire outside contractors to come into our facility to work on our machines and equipment, their activities may create hazards which normally are not present to our regular employees.
2. 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 our employees and the contractor's workers. This coordination will help to ensure that all of our employees know what kind of work is to be performed, where and when it is to be performed, and how they are being protected.
3. The Contract project manager will identify the energy isolating devices for the contractor. The contractor's employees will be responsible to lockout all devices capable of locking or place an energy control tag on or as near the device as possible.

N. Periodic Inspection

Periodic inspections are intended to assure that the energy control procedures continue to be implemented properly, and that the employees involved are familiar with their responsibilities. OR-OSHA requires that an inspection type audit of lockout procedure must be done AT LEAST ANNUALLY.

1. The Safety Officer or someone they assign will conduct periodic inspections of the Lockout/Tagout Program procedures at least annually to ensure that this procedure and the requirements of Oregon OSHA rules are being followed.
2. The periodic inspection will be performed by an authorized employee not involved in the energy control procedure being inspected. The inspector must determine three issues:
   a. Whether the steps in the energy control procedure are being followed,
   b. Whether the employees involved know their responsibilities under the procedure, and
   c. Whether the procedure is adequate to provide necessary protection and what changes, if any, are needed.
3. The inspector will observe and talk with the employees in order to make these determinations. These inspections are intended to provide immediate feedback and action to correct any inadequacies observed.

4. Written records shall be made of these inspections and the findings of these inspections will be kept by the Safety Officer. See **Appendix C for the Audit Inspection Form**.

O. Employee Training

1. Retraining will be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures. The retraining will re-establish employee proficiency and introduce new or revised control methods and procedures as necessary.
2. Annual training review of this program by all affected and authorized employees is recommended.

P. Documentation of Training

1. The Safety Officer will document that employee training has been accomplished and is being kept up-to-date. The certification shall be an individual certificate of training for each employee receiving the training.
2. The certificate includes each employee's name, job title, signature line for the employee and training date, signature line for the supervisor or qualified person conducting the training, their job position and date.
3. This documentation shall be filed in the employee's training file.

APPENDIX A
LOCKOUT/TAGOUT DEFINITIONS

Affected employee: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. The **affected employee's safety may be effected by the de-energization of the equipment.** An example is in a maintenance shop when the air compressor is shut down for maintenance and repair and the garage repair personnel have a vehicle on the hydraulic hoist. The lack of air pressure could cause the hoist to lower without notice. In this case, the garage staff would be affected employees.

Authorized employee: A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance or service on a machine or equipment which must be locked or a tagout system implemented.

"Capable of being locked out": An energy isolating device will be considered to be capable of being locked out either if it is designed with a hasp or other attachment or integral part to which, or through which, a lock can be affixed, or if it has a locking mechanism built into it. Other energy isolating devices will also be considered to be capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energy isolating device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to: manually operated electrical circuit breaker; disconnect switch; manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; slide gate; a slip blind; a line valve; a block; any similar device used to block or isolate energy. The term does not include a push button, selector switch, other control circuit type devices.

Energy source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Lockout device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

Out-of-service device: This is a tag placed on equipment controls or at the main disconnect to notify other personnel that the equipment or process is taken out of service because it is not functioning properly or equipment damage may occur or personnel does not want the equipment on-line for process reasons. It is never to be used as an energy control tagout. The tag states:

CAUTION
(Explanation)
Signed by:
Date:

Tagout device: A warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. THIS TAG STATES:

DANGER
DO NOT
OPERATE
SIGNED _____ DATE_____
BACKSIDE OF THE TAG STATES:
"DO NOT REMOVE THIS TAG"

APPENDIX B: TYPE OF EQUIPMENT REQUIRING LOCKOUT/TAGOUT FOR CONTROL OF HAZARDOUS ENERGY

The following is an inventory of the equipment included in this lockout program with the specific lockout procedures.

EQUIPMENT / CONTROLS **BASIC HAZARD**

1. **All Electrical Equipment which is hard wired with an electrical disconnect (and disconnect is labeled)**
   a. **Name and location of equipment**
   b. Shut down procedures
      1.
      2.
   c. Start up procedures
      1.
      2.
2. **All Hydraulic Equipment**
   a. **Name and location of equipment**
   b. Shut down procedures
      1.
      2.
   c. Start up procedures
      1.
      2.
3. **All Pneumatic Equipment**
   a. **Name and location of equipment**
   b. Shut down procedures
      1.
      2.
   c. Start up procedures
      1.
      2.
4. **All Chemical Lines**
   a. **Name and location of equipment**
   b. Shut down procedures
      1.
      2.
   c. Start up procedures
      1.
      2.
5. **Heat Producing Equipment**
   a. **Name and location of equipment**
   b. Shut down procedures
      1.
      2.
   c. Start up procedures
      1.
      2.

APPENDIX C
LOCKOUT/TAGOUT PERIODIC AUDIT FORM

This form is to be completed by the Safety Officer or Safety Committee at least annually

PERIODIC LOCK-OUT INSPECTION

Inspector:_____
Date of Inspection:_____

Inspection Location – Machine or Equipment:_____

Authorized employee (name):_____

Adequate Notification given: Yes_____ **No**_____

Locks/Tags: Describe the type used and adequacy:_____

Isolation of Hazardous Energy Sources:_____

Testing of Equipment after lockout:_____

Locks Removed: Yes_____ **No**_____

Re-start Notification: Yes_____ **No**_____

Comments:_____

PART 2: CHAPTER 7
NOISE EXPOSURE AND HEARING CONSERVATION

A. Purpose

1. We have adopted this Noise and Hearing Conservation Policy and Procedures to protect our employees from hearing loss and ensure compliance with the OR-OSHA Noise regulations. The regulations require that each employer implement a hearing conservation program if employee's noise exposure levels exceed 85 decibels for an average of 8 hours.
2. The primary affected employees are any City employees who occasionally work with loud equipment or in areas of possible high noise.
3. Current noise 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.

B. Applicable Legal Standard

1. Federal: 29 CFR 1910.95
2. State: OAR 437 Division 2

C. Definitions

1. **Permissible Noise Exposure:** There are two exposure levels that if exceeded require specific compliance activities.
   a. **Permissible Noise Exposure**: eight hour time-weighted average level of 90 decibels on the A scale or a dose of 100%.
   b. **Action Level** is an eight hour time-weighted average of 85 decibels on the A scale or a dose of 50%.
2. **Representative Noise Exposure**: Measurements of an employee's noise dose or 8 hour time-weighted average sound level that the employer deems to be representative of the exposures of other employees in the workplace.
   a. **Sound measurements** as taken by: _____
      (Name of person conducting the survey, date of survey, type of instrument.)
      i. Noise dosimeter: An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
      ii. Sound level meter: An instrument for the measurement of sound level.
3. **Time-weighted average sound level**: That sound level, which if constant over an 8 hour exposure, would result in the same noise dose as is measured.

D. General Responsibilities

1. **Management** is responsible 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.
2. **The Safety Officer** is responsible to:
   a. Assure that representative noise surveys are conducted, maintenance of records, employee training, and auditing the overall program.
   b. Oversee the program and ensure that employees are following the OR-OSHA standards and that employees' hearing is being protected.
   c. Responsible to assure that employee medical records and all past employee records per the OR-OSHA standard are maintained by the Human Resources Department.

3. **Supervisor** is responsible to see that their employees wear hearing protection, have annual hearing tests and are part of the annual noise training.
4. **All Noise Exposed Employees** are responsible to wear appropriate hearing protection, take an active part in the annual training and should take annual hearing tests.

E. Procedures

Noise Surveys

1. Noise surveys are required to be done on work operations that have potentially high noise levels (85 dBA and above).
2. The noise measurements will be included in the Safety Manual.
3. Additional noise surveys are required to be taken: when additional equipment or processes which could result in higher noise levels, and periodically to re-verify the test results.
4. Assistance with noise monitoring can be obtained from our insurance carrier, Oregon OSHA Consultants, or through outside consultants.
5. The noise survey measurements are recorded on the employees hearing test records.
6. Each employee exposed to noise at or above the 85 dBA average is to be informed of the results. This will be done by posting the data and including the information at the employee initial and annual employee noise training classes.

F. Hearing Protection

1. 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.
   a. The hearing protection (ear barrier plugs, muffs, and foam plugs) are available in the employee work areas. The use and availability of the hearing protection will be pointed out to each new employee during their initial safety orientation.
   b. EMPLOYEES REQUIRED TO WEAR HEARING PROTECTION WILL BE INFORMED BY THEIR SUPERVISOR.
2. 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.
3. Employees will be provided with at least two styles of protection plugs or muffs to try on determining which device would be best for them. All the devices provided will be evaluated to provide adequate noise attenuation for the noise exposure levels.
   a. Each employee will be responsible for the maintenance of his/her assigned hearing protective devices.
   b. Disposable plugs will be discarded at end of shift or when they become excessively soiled.
   c. 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.
   d. Follow manufacturer's recommendations on maintenance.

G. Audiometric (Hearing) Testing

1. 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 hearing test will be given by contract certified audiometric technicians. Hearing tests showing a significant hearing loss are forwarded to the contract professional reviewer.
   Baseline or initial tests may be given to new employees at the time of hire if they are not working in a noise area. The baseline tests require that the employee not be in an occupational

noise area for 14 hours prior to the test. This test will be the reference for further tests to determine if hearing levels change.

2. Annual hearing test can be taken any time during a work shift. These results will be compared with the baseline tests.
3. Significant threshold shift (STS) criterion: The hearing loss criterion is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 hertz (Hz) in either ear.
   a. The employee may be re-tested within 30 days and consider the results of the re-test to determine if a permanent shift has occurred.
   b. 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.
   c. In all cases of hearing loss, the employee will be re-instructed on how to properly wear hearing protection. The supervisor and/or Safety Officer will follow-up on all hearing tests that show a reduction in the employee's hearing from the baseline. **(SEE APPENDIX A)**
4. Our contractor audiologist will determine if additional tests are needed and the status of the employee's hearing.

H. Employee Training

1. New employees will receive Hearing Conservation Training at initial assignment to a noise area. The training will be repeated annually for all noise exposed employees. The specific training materials are provided in this manual and are to be a guideline for our supervisors and/or Safety Committee representatives to use.
2. A copy of the training materials will be available to our employees by contacting his/her supervisor or Safety Committee member.
3. A copy of the Oregon OSHA Noise & Hearing Conservation Rules are posted on the safety bulletin at each of our locations where employees are potentially exposed to hazardous noise levels.

I. Noise Engineering Controls

1. The Safety Officer 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.
2. **Engineering Control Feasibility Studies**: In some cases there may be records of noise control studies done on pieces of equipment or processes. These records should be kept to show compliance with Oregon OSHA noise engineering control standard. The records should be maintained for the duration the equipment or process is in use.

J. Recordkeeping

Records must be maintained for the various elements of the program. This includes the following requirements:

1. **Noise Exposure Measurement:**
   Time Frame: Current plus 2 years of results. (Note: The current record may represent measurements taken longer than 2 years ago. This is permitted as long as the readings are reflective of noise exposure levels)
2. **Audiogram records:**
   Time Frame: Duration of employment plus 5 years.
3. **Training Records**

Time Frame: There is no time frame given in the rules but it is the policy to keep the training records for each employee for the duration of employment and then forward all records to Human Resources.

4. **OSHA 300 Log Record**
   a. 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.
   b. Employee must be informed in writing within 21 days of the determination of permanent hearing shift.
   c. Record Keeper: The Finance Department is assigned responsibility for OSHA 300 Injury and Illness Log.

K. 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 Measurement Were Taken

APPENDIX A
EMPLOYEE HEARING TEST NOTIFICATION FORM

EMPLOYEE NAME:_____

DATE OF HEARING TEST NOTIFICATION:_____

Your last (date: _____) annual audiogram shows a hearing level change greater than OR-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 Safety Officer.

Because of the change in hearing, we need to ensure that you are wearing proper hearing protection, that you are trained on how to fit the protection, and that you understand the potential effects of noise on your hearing.

REFITTING OF HEARING PROTECTION:

- Type of Hearing Protector:_____
- Trained on how to Insert following the Manufacturer's Recommended Procedures:
  Yes _____ No _____

BASIC NOISE TRAINING REVIEW:

The following issues were reviewed with the employee regarding noise exposure in their work area.

_____ Overexposure to noise can cause noise-induced hearing loss which can be permanent.
_____ Noise damage is to the inner ear nerve cells.
_____ Hearing protection is required to protect your hearing.
_____ Loss due to noise is cumulative including on and off the job exposure
_____ Loss is not evident to you during the early stages of hearing damage
_____ A person generally hears better in a noisy environment with hearing protection
_____ Noise exposure increases general fatigue and in some cases blood pressure during the noise exposure.

_____ _____
SUPERVISOR WHO REVIEWED THIS MATERIAL **DATE**

_____ _____
EMPLOYEE SIGNATURE **DATE**

APPENDIX A
EMPLOYEE NOTIFICATION LETTER REGARDING SIGNIFICANT THRESHOLD CHANGE IN HEARING

The following letter will be sent to employees who the contract audiologist has determined have 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.

This letter will be signed by the Safety Officer and follow-up notification will be done by the employee's supervisor or the safety representative. The employee's supervisor will be notified of the change by the Safety Officer so the employee's supervisor can ensure proper follow-up training.

There are two formats for the notification letter.

1. One 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 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 and your hearing test reviewed as standard procedure by _____, Audiologist. _____ has notified the City 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 or safety representative. A different type of protection with greater protection may also be needed. This is a policy of our organization and required by OR-OSHA Regulators.

FORMAT 2 - SIGNIFICANT THRESHOLD SHIFT AND ADDITIONAL MEDICAL TESTING RECOMMENDED.

During the month of _____ your hearing was tested by a certified audiometric technician and your hearing test reviewed as standard procedure by _____, Audiologist. The 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 otolaryngologist for follow-up based on the audiologist's referral. Personnel can assist you with making an appointment with _____. Please contact Human Resources for assistance.

You will also be refitted and retrained in how to wear hearing protection by your supervisor or safety representative. A different type of protection with greater protection may also be needed.

APPENDIX B
NOISE COMPLIANCE CHECKLIST

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

Any areas not in compliance should be explained on the back of the checklist. Recommendations for corrections should also be made.

ISSUE	COMPLIANCE (Y - N)
A. Noise Exposure Monitoring	
1. Current noise exposure levels are available for all work positions that may be over 85 dBA as an 8 hour time-weighted average.	_____
2. The noise readings were done with a calibrated instrument	_____
3. Noise measurements are retained and will be available to employees and OR-OSHA inspectors.	_____
4. The noise readings are noted on employee audiogram record.	_____
5. Employees are notified of the noise exposure level results	_____
6. Employee representatives were allowed to observe noise exposure monitoring procedures.	_____
B. Noise Control Measures & Hearing Protection	
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 would be available for an OR-OSHA inspector.	_____
3. All employees whose noise exposure exceeds 90 dBA or 85 dBA 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 employee's noise exposure (at least to less than 85 dBA TWA).	_____
7. Employees are wearing protection per manufacturer's requirements.	_____
C. Hearing Conservation Program	
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 _____

D. Employee Training Program

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 protectors use, maintenance, advantages/disadvantages _____
   - Purpose of hearing testing _____

E. Access to Information

1. The noise standard is posted and copies are available to employees or their representatives. _____
2. Training and educational materials are available to an OR-OSHA inspector _____

F. Recordkeeping

1. Noise exposure monitoring records are maintained and available. _____
2. Audiometric test records 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 _____

APPENDIX C
EMPLOYEE HEARING CONSERVATION & NOISE TEST

Employee Name	Date
Initial Training Date	Annual Refresher Date

True or False Questions

_____ 1. Hearing protection is only required at the shop.
_____ 2. OR-OSHA requires that hearing protection be worn when employees' noise exposure exceeds 85 dBA for an eight hour 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 hear when 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 ware of a hearing loss the amount of loss may be significant.
_____ 9. Muffs provide the highest level of protection 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 good seal.
_____ 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 as long as they are clean.
_____ 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.

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 8
PERSONAL PROTECTIVE EQUIPMENT

A. Purpose

1. 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 OR-OSHA standards.
2. Our policy includes appropriate training on the use and maintenance of PPE provided by or arranged for by the Safety Officer. Employees are required to wear proper personal protective equipment.
    a. The PPE provided shall be used as outlined by specific job procedures and maintained in a sanitary and reliable condition.
    b. If employees provide their own protective equipment it is still the City's responsibility to assure its adequacy, including proper maintenance and sanitation of the equipment.
    c. The selection of PPE shall be made by our management staff and it shall be designed to match the hazard and allow for employees to safely conduct their job tasks.
3. 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.

B. Applicable Regulations

1. State: OAR 437 Division 2 "Personal Protective Equipment".

C. Definitions

1. **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.
2. **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 contaminates.
3. **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.

D. Chapter Format

This chapter reviews basic requirements for personal protective equipment including:

1. Head protection
2. Hearing - ear protection
3. Eye and Face protection
4. Hand protection
5. Foot protection
6. Fall Protection

Written certificates outlining work operations/jobs that require specific PPE are provided in Appendix A 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 in Chapter 9.

E. General Responsibilities

1. **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 assure that proper PPE is made available in types and sizes as to fit employees.
2. **Safety Officer**: The Safety Officer is responsible to see that employees are trained in the use of personal protective equipment and are instructed on what is required for their work duties. Safety Officers are responsible to complete and/or update the PPE written certificates in Appendix C.
3. **All Employees:** Employees must follow all safety procedures as outlined in this chapter by OSHA rules and manufacturer's recommendations in regards 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 needs to be reported to the supervisor.
4. **Safety Committee:** The Safety Committee will include review of personal protective equipment in their quarterly inspection activities.

F. Procedures

1. **Head Protection:**
   a. Hard hats are to be used to protect the head from flying objects, impact, and electrical shock. Hard hats used at City work operations will meet ANSI standards for the job task.
   b. Hard hats shall be used in the following jobs:
      1. By all employees when overhead hazards are present. This includes when working under floor openings or walkways. Working in areas with low ceilings or protruding objects.
      2. Working around construction or maintenance field projects or equipment.
      3. Working outside and around heavy equipment.
      4. Working inside a confined space below ground level.

2. **Hearing Protection: (See Chapter 7 for overall instruction about hearing conservation and protection)**
   a. Earmuffs and earplugs are used to protect against hazardous noise levels when noise exposure levels cannot be adequately controlled by various engineering controls.
   b. Hearing protective devices are supplied at work areas as required:
   c. If earmuffs are worn, temple bars of glasses will interfere with the seal of the ear piece. As a result, ear plugs should be worn by those required to wear safety glasses or glasses with corrective lenses.

3. **Eye & Face Protection:**
   a. 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.
   b. Eye protection needs to meet the following criteria based on Safety Regulations:
      i. Provide adequate protection against the particular hazards for which they are designed.
      ii. Provide reasonable comfort and shall not unduly interfere with the movements of the wearer.
      iii. Be durable.

iv. Be capable of being cleaned easily.
v. Be kept in clean containers or packaging and kept in good repair.

c. The specific type of eye and face protection needed depends on the type of hazard.
   i. Particle hazards from grinding/chipping require safety glasses with side shields.
   ii. Liquid splash hazards require chemical splash goggles or safety glasses with a face shield.
   iii. Gas welding requires welding goggles.
   iv. Face protection is worn when liquid splashes or significant particle matter could impact the face and cause injury.
d. Safety Glasses must be worn when an eye hazard exists.

4. Hand Protection:

a. Hand protection is worn to protect hands from sharp wood/thorns, poison oak, and mechanical injury due to friction, heat, shearing/cutting actions and protection against chemicals.
b. Chemical protective gloves are selected based on the type of rubber/plastic material which affords proper protection against specific chemical used. The selection will be made by the supervisor and/or Safety Officer.
c. Chemical protective gloves will be worn when there is skin contact with the following chemicals:
   i. Solvents contact
   ii. Skin contact with any corrosives
   iii. Chemical spill clean-up
d. Mechanical protective gloves will be worn when employees are exposed to wood slivers, friction, sharp metal edges, hot or cold materials, and moving heavy objects. Gloves will be available in the use areas.

5. Foot Protection:

a. Special foot protection is necessary when there is a potential for foot injury, or slipping, or when the feet may become wet due to the work environment. Your supervisor will work with employees who may have job assignments regarding special footwear.
b. The following footwear is expected to be worn:
   i. Leather work boot when working on or around equipment. Safety steel toes when there is a hazard from dropping heavy objects.
   ii. Rubber boots when exposed to wet conditions
c. The shoe policy will be periodically reviewed by the Safety Committee to ensure that appropriate footwear is used preventing foot injuries.

6. Fall Protection - PERSONAL PROTECTIVE EQUIPMENT

a. When it is not feasible to use physical barriers to protect employees from falls, personal protective equipment (PPE) shall be used.
b. PPE shall be chosen based on the following:
   i. Distance of potential fall.
   ii. Impact on the body from the PPE during a sudden stop.
   iii. Intended use of PPE (stopping fall as opposed to retrieval from a confined space (see Chapter 5 Confined Spaces)).
   iv. Fall arresting forces on the body.

c. Type II chest harnesses shall be worn for rescue purposes only and in no case are used to stop a vertical fall.
d. When a worker(s) enters a confined space, a helper wearing the same PPE shall be stationed at the entrance to the confined space and shall monitor those inside for the duration of the project (see Chapter 4).
   i. Personal retrieval systems for rescue from below-ground level tanks or confined spaces**.**
   ii. Authorized personnel shall ensure the use of a lifeline attached to a manual or power operated winch with 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 is commenced.
   iii. Full body harnesses, yokes and wristlets shall be used when retrieval is through narrow openings.
e. Strength Requirements:
   i. All components of the fall protection shall 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).
   ii. When tied off while working on suspended scaffolding, each worker must use a separate line which is not connected to the scaffold.
   iii. Permanent lifelines must be a minimum one-half inch steel cable capable of supporting 5,400 pounds/ person at the center of the line.
   iv. Hardware for body belts/harnesses and lanyards must be drop-forged, corrosion resistant with smooth edges, a minimum of 5,000 pound breaking strength without cracks or breaks.
   v. Knots shall not be used in components of a fall protection system since a knot will reduce the strength by at least 50%.
   vi. Lanyards shall be kept as short as possible and in no case shall they exceed six feet to minimize the possibility and length of a free fall.
   vii. Wire rope or rope-covered wire lanyards shall not be used where impact loads are anticipated or where there is an electrical hazard.
   viii. Belts and lanyards that have been subjected to impact loading shall be removed from service and destroyed or returned to the manufacturer for recertification.
   ix. Rope lanyards shall not be stored in work pouches where they may be subject to deterioration.
   x. Where there is exposure to abrasion, spun nylon rather than filament nylon shall be used.
   xi. Only safety belts/harnesses with locking snaps shall be used to prevent “rollout” or disengagement. All hardware shall be compatible with the locking snap.
   xii. Only shock-absorbing lanyards shall be used to reduce the fall arresting impact on the wearer.
   xiii. 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.
f. Inspection and recordkeeping:

i. The user shall inspect the fall protection prior to each use.
ii. A trained and competent person shall inspect all components of protection device at least once each six month. The dates of this biannual inspection shall be recorded on a permanent tag attached to the harness.
iii. Every five years, the fall protection system shall be returned to the manufacturer for recertification.
iv. Any defective body belt/harness or lifeline shall be destroyed or returned to the manufacturer before use.
v. Any unit subjected to impact loading shall be immediately removed from service and destroyed or sent to the manufacturer for recertification.

7. Road Worksite Protection:

a. Traffic Coning - Flagging must meet the Safety Officer‘s specifications. Maintaining a safe work area in street operations requires attention to coning and flagging. There are three parts to this operation that must be considered:
   i. Low-level warning (red head cones).
   ii. High-level warning when needed for heavy traffic flow (mast barriers).
   iii. "Feather off" the traffic flow around work projects.

   Coning operation must be adjusted to fit each varied condition faced to take full advantage of traffic conditions and terrain but the following minimum guide is recommended:
   i. In a 20 MPH area - Red Head Cone 40 feet
   ii. In a 30 MPH area - Red Head Cone 80 feet
   iii. In a 40 MPH area - Red Head Cone 140 feet.

   A sign of a professional worker is properly protected work area.

   NOTE: The above schedule is the absolute minimum standard for safety and should be extended wherever conditions permit. Slow or stopped equipment in traffic lanes must be flagged.

b. Flagging (or Paddle): For the Flagger: Effective flagging is a critical part of any construction job that involves vehicular traffic. A good flagger uses assertive motions to control traffic. Supervisors and lead persons shall assure that all members of construction crews are well versed in appropriate flagging techniques. All staff will have attended flagging school prior to the assignment.

APPENDIX A
PERSONAL PROTECTIVE EQUIPMENT WRITTEN ASSESSMENT FORM

The following form was developed to ensure compliance with the Oregon OSHA personal protective equipment hazard assessment and selection.

The rules require that each employer assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment. If such hazards are present, or likely to be present, we are responsible for:

a. Selecting, and having each affected employee use, the types of PPE that will protect the employee from the hazards identified in the hazard assessment.
b. Communicating the selection to each affected employee.
c. Ensuring that the selected PPE fits properly.

This assessment must be in writing and signed by the person conducting the assessment.

The following form will be used for this assessment which shall be kept on record by each affected department.

PERSONAL PROTECTIVE EQUIPMENT HAZARD ASSESSMENT

Work Operation/Job Classification: _____

PPE Selection	Type of Hazard	
	Physical	Chemical
Eye/Face **PPE Selected**		
Head **PPE Selected**		
Respiratory **PPE Selected**		
Hand & Arm **PPE Selected**		
Foot **PPE Selected**		
Body & Leg **PPE Selected**		

Additional Comments: _____

This certifies that a hazard assessment identifying the PPE needs for the listed job position was completed. Any questions about the assessment should be directed to the Safety Officer.

_____ _____

HAZARD ASSESSMENT PERFORMED BY (Name/Title) **DATE**

APPENDIX B
PPE ASSESSMENT CRITERIA

Eye & Face Protection 29 CFR 1910.133

- ☐ **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 protection, goggles, face shields. For severe exposure, add the use of faceshield.
- ☐ **Heat:** hot sparks, splash from molten material, high temperature exposure (i.e. furnace operations, pouring, casting, hot dipping, and welding.)
  TYPE OF PROTECTION: Faceshields, goggles, or safety glasses with side protection. For severe exposure add the use of faceshield.
- ☐ **Chemicals**: Splash or irritating mists (i.e. acid and chemical handling - transferring, degreasing).
  TYPE OF PROTECTION: Chemical splash goggles, eyecup and cover types. For severe exposure, add the use of faceshield.
- ☐ **Dust**: Nuisance dust - irritation of the eyes (i.e. woodworking, buffing, general dusty conditions that can cause eye irritation.)
  TYPE OF PROTECTION: Goggles, eyecup and cover types.
- ☐ **Light and/or Radiation** (optical damage).
  - **Welding - Electric Arc**
    TYPE OF PROTECTION: Welding helmets or welding shields - typical shades 10-14 -see ANSI standard chart in PPE Safety Manual.
  - **Welding - Gas**
    TYPE OF PROTECTION: Welding goggles or welding shields - typical shades gas: 4-8; cutting: 3-6; brazing 3-4.
  - **Cutting, torch brazing, torch soldering**
    TYPE OF PROTECTION: Welding glasses or welding shields typical shades 1.5 to 3.
  - **Glare**
    TYPE OF PROTECTION: Glasses with shaded or special-purpose lenses.

Head Protection 29 CFR 1910.135

- ☐ **Impact and penetration hazards caused by falling objects**
- ☐ **Electrical shock and burn hazard**

  TYPE OF PROTECTION:
  - Class A helmets: impact & penetration resistance & electrical to 2,200 volts.
  - Class B helmets: impact & penetration resistance & electrical to 20,000 volts.
  - Class C helmets - impact & penetration resistance & NO electrical protection.

Foot Protection 29 CFR 1910.136 (ANSI Z41-1991)

- ☐ **Impact and Compression:** Safety shoes or boots with impact protection are required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet.
- ☐ **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.
- ☐ **Electrical:** If there are electrical hazards from live work then boots rated for protection against electrical hazards are needed.

Electrical Protection 29 CFR 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: 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 29 CFR 1910.138

Gloves may be needed for the prevention of cuts, abrasions, burns, and skin contact with chemicals that are capable of causing 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 Safety Officer has additional technical information available for the selection of gloves (see Chemical Protective Clothing Selection Handbook)

Note: Respiratory Protection is found in Chapter 9.

APPENDIX C
PERSONAL PROTECTIVE EQUIPMENT
HAZARD ASSESSMENT WORKSHEET
(29 CFR 1910.132)

DEPARTMENT: _____
LOCATION: _____
JOB TASK: _____
EVALUATOR: _____
ENGINEERING CONTROLS: _____
DATE: _____

Risk Level
☐ Probable
☐ Possible
☐ Unlikely

BODY PART	EXPOSURE	PPE RECOMMENDED
☐ EYES ☐ FACE ☐ EARS/HEARING ☐ HEAD ☐ FOOT ☐ HANDS ☐ BODY ☐ BACK ☐ EXTREMITIES ☐ INTERNAL	☐ Equipment in Motion ☐ Impact with Stationary Object ☐ Temperature Extremes ☐ Chemical ☐ Splash/Mist/Spray ☐ Vapors/Dusts ☐ Radiation Type: _____ ☐ Falling Objects ☐ Sharp Objects ☐ Pinch Points ☐ Repetitive Motion ☐ Ergonomic ☐ Electrical ☐ Biological ☐ Falls/Level ☐ Noise/Sound ☐ Vibration	☐ Safety Glasses ☐ Goggles ☐ Face Shield ☐ Plugs/Muffs ☐ Hard Hat ☐ Steel Toed Shoes/Boots ☐ Gloves Type:_____ ☐ Coveralls ☐ Chemical Suit ☐ Back Brace ☐ Respirator (neg. or pos.) ☐ Other:

(See Ledger on following page)

Supervisor:_____ Date Completed:_____

Employee:_____ Date Completed:_____

LEDGER

BODY PART: Check the part of the body that has the potential of becoming injured. If there is a multiple exposure, check each body part affected.

EXPOSURE: Check each potential exposure. If there is multiple exposures, check each exposure.

PPE: Check each box for the necessary personal protection required.

ENGINEERING CONTROLS: Complete/List engineering controls being used for each job task. Controls include: barriers, guards, containment, ventilation, etc. If there are no controls being used, then write none.

PART 2: Chapter 9
RESPIRATORY PROTECTION PROGRAM

A. Purpose

This written program establishes policies and procedures for the effective use of respirators to protect our employees from airborne contaminate exposures. These procedures are mandatory.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.134 "Personal Protective Equipment & Respiratory Protection"

C. Definitions

1. **Air purifying**: Air purifying respirators use chemical or mechanical filter cartridges to clean the contaminated air before it is breathed in by the wearer.
2. **Air supplying**: Air supplying respirators provide the wearer with uncontaminated breathing air, by use of an air compressor, tank, or cylinder.
3. **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 as specified by this section.
4. **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.
5. **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.
6. **High efficiency particulate air filter (HEPA)**: This is a type of filter that removes from the breathing air, 99.97% or more particles 0.3 μ in size or larger.
7. **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 on the basis of relevant available information and informed professional judgment.
8. **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.

D. General Responsibilities

1. **Safety Officer** is responsible for the following:
   - i. ensure the respiratory protection program is implemented
   - ii. ensure employees are trained on the use of respiratory protection
   - iii. conduct or see that a qualified outside consultant provide employee training and respirator fit testing
   - iv. serves as the Program Administrator
   - v. maintains written records on the emergency use respirator monthly inspections
   - vi. maintains the respirator protection written program
   - vii. performs evaluations of the program.

2. **Employees:** Employees must follow all safety procedures as outlined in this program, OR-OSHA rules, and manufacturer's recommendations in regards to 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 needs to be reported to your supervisor.

E. Selection of Respirators:

1. **Types of respirators: The following table outlines the respirator selection.**

Work Condition	Assigned Employees	Contaminant	Type of Respirator
Non-Mandatory Respirator Selection			

*Particle filters will meet N,R,P95%, 99%, or 99.7% for dust only. If oil mists are present such as saw lubricants, cutting fluids or glycerin-based liquids then only R or P filters may be used.

*HEPA is a high efficient particle air filter (99.97%).

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 and needed level of protection and maximum use concentrations. Different sizes and styles of respirators are available. 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.

2. **Protection Factors**

We will use the assigned protection factors listed in Table 1 of the federal OSHA Respiratory Protection Standard 29 CFR 1910.134 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.

i. Dust masks are considered to be filtering face pieces and are the same as a half-face piece respirator which are approved for 10 times the limits.
ii. The use life of each respirator or cartridges 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 (disposal dust mask, half of full face piece cartridge respirators) cannot be used in confined spaces where the environment may have less than 19.5% oxygen.

F. Lifespan of a Respirator

The use life of each respirator or cartridges 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-facepiece

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.

1. Self-Contained Breathing Apparatus (SCBAs):
   Respirators are for use during an immediately dangerous situation to life and health (IDLH).

   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.

   i. Chemical Canister/Cartridge Respirators:
   These respirators are vapor and gas-removing, using a cartridge attached to the facepiece containing chemicals to trap or react with specific vapors or gases, and remove them from the air breathed.

   Since there is no easy method to determine service-life the best policy is to replace the respirator or cartridge when:

   a. Concentration mathematical model provides recommended end of service time.
   b. An odor or taste is detected.
   c. It becomes hard to breathe through.
   d. The cartridge or respirator is damaged**.**

   ii. The specific use time will be provided to each chemical cartridge user based on calculation 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:

   a. **Chemical Canister:** The canister should be changed at least every six months or sooner if break through or use indicator shows the filtering capacity is used up.
   b. **SCBA:** These should be changed just prior to the maximum time use as specified on the tank.
   c. **HEPA Cartridge:** The HEPA cartridges should be changed whenever the operator notes any additional breathing resistance.
   d. **Non-mandatory Dust Mask:** Dust masks should be changed whenever the operator notes any additional breathing resistance.

   iii. There are a **number of limitations** in the use of chemical cartridge respirators, which are important to understand. These include:
   a. They do not supply oxygen and thus cannot be worn in oxygen-deficient atmospheres.
   b. These respirators are designed for protection against specific gases or vapors. Thus users must take care that the proper cartridge is selected.
   c. These cartridges can only be used for protection against contaminants with good warning properties (smell, taste, and irritation).
   d. The cartridges are not approved for high concentrations of the contaminant.

e. The respirator must be protected from the atmosphere while in storage because they tend to pick up water vapor from the air and reduces the service life.

2. Respirators for Particulate Exposures

i. 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 considerations of 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 **R**esistant to oil) and P (for oil **P**roof) series filters can be used for protection against oil or non-oil aerosols. N (for **N**ot resistant to oil) series filter should be used only for non-oil aerosols.

ii. 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 with chemical cartridge are effective. For highly toxic dusts such as asbestos, lead, and silica, the 99.97% (HEPA) filters are to be used.

Dust masks also are available in each of these filter types and efficiencies.

iii. APPROVAL NOTATION

Each respirator container for particle exposure protection now has a new TC (testing & certification) number. The label will readTC-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.

iv. FITLER 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 the hygiene, damage, and breathing resistance if the exposures are not high.

v. SUMMARYOF MAJOR LIMITATIONS

a. Mechanical filters do not provided oxygen, so they must not be used in oxygen-deficient atmosphere.
b. They provide no protection against gases or vapors
c. There is a pressure drop through the filter medium; therefore, there is some breathing resistance.

G. Use and Availability of Respirators

1. Each employee that is required to wear a respirator shall wear an approved respirator selected for the work task exposure hazard. The respirator needs to be properly fitted at all times while in use.
2. Each employee required to wear a respirator shall be provided a respirator issued by the Safety Officer with proper replacement parts, cartridges and filters, and cleaning materials as appropriate. The Safety Officer is responsible to see that employees are provided respirators that are required by this policy.
3. The disposable respirators (dust masks) are available from the Safety Officer. These are to be used for low level dust exposures and are non-mandatory (voluntary) functions. 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.

H. Medical Surveillance for Respirator Assignment

1. Purpose of Medical Evaluations

a. Using a respirator may place 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 fit tested or use it on the job.

b. OSHA applies this standard if the air contaminate 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 medical evaluation, but does require basic information about the respirator to be provided. See Appendix for the Voluntary User Information.

c. A follow-up medical examination must be provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix B in the OSHA standard or whose initial medical examination demonstrates the need for a follow-up medical examination.

d. The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the physician deems necessary to make a final determination.

2. Medical Certification

Medical certification of an employee is required for respirator use by federal OSHA 29 CFR 1910.134. 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 capacity evaluations need to be available to the physician or licensed healthcare professional (LHCP) doing the evaluation.

3. 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.

4. Additional Medical Evaluations

Additional medical evaluations will be provided under the following conditions:

a. An employee reports medical signs or symptoms that are related to their ability to use a respirator;
b. A physician, Manager, or the Safety Officer informs the employer that an employee needs to be re-evaluated;
c. Information from the respiratory protection program, including observations made during fit testing and program evaluation, that indicates a need for employee re-evaluation; or
d. A change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed on an employee.

5. Retention of Medical Records

a) Preservation of medical records is required to be followed per federal OSHA 29 CFR 1910.20(d) Access to Employee Exposure and Medical Records. This requires that the records be retained for 30 years plus employment duration. The medical records are kept by the evaluating physician and the medical clearance form is kept in a confidential personnel file, if the employee signs the medical release form.
b) 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.

I. Training of Employees

Each mandatory respirator wearer will receive initial and annual training. Each non-mandatory respirator wearer will receive information about the respirator in terms of protection limits, how to wear 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 federal OSHA Code 29 CFR 1910.134.

The mandatory wear training includes the following training topics:

1. Contents of the written program and where it is located.
2. Respiratory hazards to which they 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 don and doff 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 Safety Officer 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 Safety Officer, Safety Committee or in the Safety Manual.

J. Fitting of Respirators

Respirator fit is extremely important. Respirator fit testing is used to test how well the tight fitting respirator face piece 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:

- ✓ You wear glasses that break the skin to mask seal (inserts are available).
- ✓ You have facial hair passing between the sealing surface of the respirator and the face.
- ✓ You are unable to get an adequate fit on a respirator.
- ✓ Your physician finds you unfit medically to wear the respirator.

Respirator fit testing may be done using two basic methods: qualitative or quantitative fit testing. Most employers use qualitative methods since quantitative procedures may be expensive and require complicated equipment. Currently only certain rules required quantitative fit test which include lead and asbestos regulations once exposure levels reach a certain exposure level.

1. **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.

2. **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 face pieces used for fit testing will have cartridge sampling adapters so the facepiece can be worn and tested in the negative pressure mode.

3. **Qualitative Fit Testing**: Done with test agents. This test protocol will be used for all types of respirators.
   a. *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 or not 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 an odor fatigue and upon immediate retesting, may not be able to detect the material.

b. *Irritant Smoke Test*:
Smoke tubes (stannic oxichloride 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 has to 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 the airborne contaminate hazards. Air, which passes around the facepiece of the respirator, rather than through it, is not being filtered. In order to ensure that a good face seal can be achieved, the respirator needs to be carefully fitted.

c. The following protocol will be followed to fit the initial wearer and then to be used each time the respirator is used:
   i. The respirator straps must be worn in the correct place. Adjust the headbands until they are tight yet comfortable.
   ii. 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.
   iii. A positive and negative pressure test needs to be performed every time a respirator is worn.
      (A) The *negative pressure test* is performed on a half or full-face piece 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.
      (B) 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.

K. 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 through 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 facepiece 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 and 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 shall be reported to your supervisor who can 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 shall be responsible to maintain the equipment and routinely inspect the respirator before and after use for worn or dirty parts. WORN PARTS WILL BE REPLACED IMMEDIATELY.

Each person assigned to use a respirator shall maintain and routinely inspect it before and after each use. The inspection shall include:

1. **Air-purifying Respirators:**
   a. Check facepiece for:
      - dirt,
      - cracks,
      - tears,
      - holes,
      - distortion

   b. Check head straps for:
      - breaks
      - tears,
      - loss of elasticity,
      - broken buckles or attachments.

2. **SCBAs and Airline Systems:**
   SCBAs and airline systems used routinely are to be checked after each use. Those used for emergency 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 shall include an evaluation of:
   a. Tightness of the connections.
   b. Condition of the facepiece.
   c. Condition of the headbands.
   d. Condition of the cartridges or tank pressure.
   e. Condition of the valves.

f. Pliability and cleanliness of the facepiece material.

L. Respirator Program Evaluation

It is important that both the respirator wearer and our supervisors 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:

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 Safety Officer. 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 required to use respirators to assess the employees' views on program effectiveness and to identify any problems.
3. Factors to be assessed include, but are not limited to:
   - Respirator fit.
   - Appropriate respirator selection for the hazards.
   - Proper respirator use.
   - Proper respirator maintenance and inspections.

The Safety Officer 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 E. A program evaluation form is found in Appendix B.

M. 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.

RESPIRATORY PROTECTION ACTION CHART

Action	Responsibility	Form
Employee is assigned mandatory respirator use job functions and wears full or ½ facepiece respirator.	Supervisor	Completed OSHA medical questionnaire for medical evaluation.
The questionnaire is forwarded to the contract medical evaluator.	Safety Officer 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)
Medical evaluation and medical clearance	Safety Officer receives medical clearance and schedules fitting and fit testing with employee.	Completes Fit-Test Record (may be done by supplier or outside consultant)
Employee completes Respirator Training	Supervisor provides or schedules training.	Complete Respirator Training Record
Respirator program evaluation	Safety Officer periodically evaluates respirator conditions, use, and employee's understanding of program.	Complete respirator program periodic checklist
Tracking employee for annual retraining and fit testing. Follows up on medical evaluation retest requirements per LHCP	Supervisor	Maintains a data log to ensure that employees are re-fit and trained annually. Proper follow-up on medical evaluations.

APPENDIX A

EMERGENCY USE MONTHLY INSPECTION RECORD

Type of Emergency_____ Location_____

Employees Involved_____ Duration_____

Date of Inspection_____ Inspector_____

Type of Respirator Worn_____

CLEANLINESS OF THE EQUIPMENT_____

CONDITION OF THE EQUIPMENT

A. Facepiece_____
B. Inhalation valve_____
C. Exhalation valve_____
D. Headbands_____
E. Cartridge holder or Tank Pressure_____
F. Harness assembly_____
G. Hose assembly_____
H. Gaskets_____
I. Connections_____
J. Regulator Condition_____
K. Other defects_____

APPENDIX B

RESPIRATORY PROTECTION PROGRAM EVALUATION FORM

A. PROGRAM ADMINISTRATION

_____1. Is there a written policy which assigns program responsibility, accountability, and authority?

_____2. Is overall program responsibility given to one person who is knowledgeable and can coordinate all aspects of the program?

_____3. Can feasible engineering controls or work practices eliminate the need for respirators?

_____4. Are there written procedures/statements covering the various aspects of the respirator program, including:

- _____ designation of authority and responsibility;
- _____ respirator selection;
- _____ purchase of approved equipment;
- _____ medical aspects of respirator usage;
- _____ issuance of equipment;
- _____ fitting;
- _____ training;
- _____ maintenance, storage, and repair;
- _____ inspection;
- _____ use under special conditions;
- _____ when and where respirators are required?

B. PROGRAM OPERATION

1. Respiratory protective equipment selection:

- _____ Have work area conditions and worker exposures been properly evaluated?
- _____ Are respirators selected on the basis of hazards to which the workers are exposed?
- _____ Are selections made by persons knowledgeable of proper selection procedures?
- _____ Are only NIOSH approved respirators purchased and used?
- _____ Do the respirators provide adequate protection for the specific hazard in the concentration found?
- _____ Has a medical evaluation of the prospective user been made to determine physical and psychological fitness to wear the selected respirator?
- _____ Where practical, have respirators been issued to single users?

2. Respiratory protective equipment fitting:

- _____ Are the users given the opportunity to try on several respirators to determine the one with the best fit?
- _____ Is the fit test done before the wearer begins using the respirator in the work area, both on initial assignment, and on a daily basis (positive and negative pressure tests)?
- _____ Are users who wear glassed properly fitted?
- _____ Is the facepiece-to-face seal tested using one of the methods described earlier?
- _____ Are workers prohibited from entering contaminated work areas when they have facial hair or other characteristics which prohibit the use of tight-fitting facepieces?

3. Respirator use in the work area:

_____ Are respirators being worn correctly?

_____ Are workers keeping respirators on all the time while in the work area?

4. Maintenance of respiratory protective equipment:

_____ 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)?

_____ Are respirators stored so as to protect them from dust, sunlight, heat, and chemicals?

_____ Is storage in lockers, tool boxes, or work areas permitted only if the respirator is in a carton, carrying case, or closed container?

_____ Are respirators inspected before and after each use, and after cleanup?

_____ Are individuals instructed in inspection methods?

_____ Are cartridges and filters changed on a regular basis?

_____ Are respirators designated as "Emergency Use" inspected at least monthly (in addition to after each use), and is a record kept of such inspections?

_____ Are replacement parts of the same brand as the respirator?

_____ Are repairs made by manufacturers or manufacturer-trained persons?

5. Special use conditions (if applicable):

_____ Is there a procedure for respirator use in atmospheres immediately dangerous to life and health?

_____ Is there a procedure for confined space entry?

6. Training:

_____ Are users trained in proper respirator use, cleaning, and inspection?

_____ Are employees trained in the health effects of the respiratory hazard present in their work environments?

_____ Are users evaluated, using competency-based evaluation, before and after training?

OVERALL COMMENTS_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX C

FEDERAL 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: Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____
2. Your name: _____
3. Your age (to nearest year): _____
4. Sex (circle one): Male/Female
5. Your height: _____ ft. _____in.
6. Your weight: _____ lbs.
7. Your job title:_____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the area code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No
11. Check the type of respirator you will use (you can check more than one category):
    a. ___ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
    b. ___ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (circle one): Yes/No
    If "yes," what type(s)_____

Part A. Section 2. (Mandatory) Questions 1- 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: Yes/No
2. Have you ever had any of the following conditions?
    a. Seizures (fits): Yes/No
    b. Diabetes (sugar disease): Yes/No
    c. Allergic reactions that interfere with your breathing: Yes/No
    d. Claustrophobia (fear of closed-in places): Yes/No
    e. Trouble smelling odors: Yes/No
3. Have you ever had any of the following pulmonary or lung problems?
    a. Asbestosis: Yes/No
    b. Asthma: Yes/No

c. Chronic bronchitis: Yes/No
d. Emphysema: Yes/No
e. Pneumonia: Yes/No
f. Tuberculosis: Yes/No
g. Silicosis: Yes/No
h. Pneumothorax (collapsed lung):Yes/No
i. Lung cancer: Yes/No
j. Broken ribs: Yes/No
k. Any chest injuries or surgeries: Yes/No
l. Any other lung problem that you've been told about: Yes/No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?
   a. Shortness of breath: Yes/No
   b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
   c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
   d. Have to stop for breath when walking at your own pace on level ground: Yes/No
   e. Shortness of breath when washing or dressing yourself: Yes/No
   f. Shortness of breath that interferes with your job: Yes/No
   g. Coughing that produces phlegm (thick sputum): Yes/No
   h. Coughing that wakes you early in the morning: Yes/No
   i. Coughing that occurs mostly when you are lying down: Yes/No
   j. Coughing up blood in the last month: Yes/No
   k. Wheezing: Yes/No
   l. Wheezing that interferes with your job: Yes/No
   m. Chest pain when you breathe deeply: Yes/No
   n. Any other symptoms that you think may be related to lung problems: Yes/No
5. Have you ever had any of the following cardiovascular or heart problems?
   a. Heart attack: Yes/No
   b. Stroke: Yes/No
   c. Angina: Yes/No
   d. Heart failure: Yes/No
   e. Swelling in your legs or feet (not caused by walking): Yes/No
   f. Heart arrhythmia (heart beating irregularly): Yes/No
   g. High blood pressure: Yes/No
   h. Any other heart problem that you've been told about: Yes/No
6. Have you ever had any of the following cardiovascular or heart symptoms?
   a. Frequent pain or tightness in your chest: Yes/No
   b. Pain or tightness in your chest during physical activity: Yes/No
   c. Pain or tightness in your chest that interferes with your job: Yes/No
   d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
   e. Heartburn or indigestion that is not related to eating: Yes/No
   f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No
7. Do you currently take medication for any of the following problems?
   a. Breathing or lung problems: Yes/No
   b. Heart trouble: Yes/No
   c. Blood pressure: Yes/No
   d. Seizures (fits): Yes/No

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space ____ and go to question 9)
    a. Eye irritation: Yes/No
    b. Skin allergies or rashes: Yes/No
    c. Anxiety: Yes/No
    d. General weakness or fatigue: Yes/No
    e. Any other problem that interferes with your use of a respirator: Yes/No
9. Would you like to talk to the healthcare professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No
11. Do you currently have any of the following vision problems?
    a. Wear contact lenses: Yes/No
    b. Wear glasses: Yes/No
    c. Color blind: Yes/No
    d. Any other eye or vision problem: Yes/No
12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No
13. Do you currently have any of the following hearing problems?
    a. Difficulty hearing: Yes/No
    b. Wear a hearing aid: Yes/No
    c. Any other hearing or ear no/No
14. Have you ever had a back injury: Yes/No
15. Do you currently have any of the following musculoskeletal problems?
    a. Weakness in any of your arms, hands, legs, or feet: Yes/No
    b. Back pain: Yes/No
    c. Difficulty fully moving your arms and legs: Yes/No
    d. Pain or stiffness when you lean forward or backward at the waist: Yes/No
    e. Difficulty fully moving your head up or down: Yes/No
    f. Difficulty fully moving your head side to side: Yes/No
    g. Difficulty bending at your knees: Yes/No
    h. Difficulty squatting to the ground: Yes/No
    i. Climbing a flight of stairs or a ladder carrying more than 25 lbs.: Yes/No
    j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the healthcare 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 conditions listed below:
   a. Asbestos: Yes/No
   b. Silica (e.g., in sandblasting): Yes/No
   c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
   d. Beryllium: Yes/No
   e. Aluminum: Yes/No
   f. Coal (for example, mining): Yes/No
   g. Iron: Yes/No
   h. Tin: Yes/No
   i. Dusty environments: Yes/No
   j. Any other hazardous exposures: Yes/No
   If "yes," describe these exposures: _____
4. List any second jobs or side businesses you have: _____
5. List your previous occupations:_____
6. List your current and previous hobbies: _____
7. Have you been in the military services? Yes/No
   If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No
8. Have you ever worked on a HAZMAT team? Yes/No
9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No
   If "yes," name the medications if you know them: _____
10. Will you be using any of the following items with your respirator(s)?
    a. HEPA Filters: Yes/No
    b. Canisters (for example, gas masks): Yes/No
    c. Cartridges: Yes/No
11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:
    a. Escape only (no rescue): Yes/No
    b. Emergency rescue only: Yes/No
    c. Less than 5 hours per week: Yes/No
    d. Less than 2 hours per day: Yes/No
    e. 2 to 4 hours per day: Yes/No
    f. Over 4 hours per day: Yes/No
12. During the period you are using the respirator(s), is your work effort:
    a. Light (less than 200 kcal per hour): Yes/No
       If "yes," how long does this period last during the average shift:____ hrs. ____mins.
       Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.
    b. Moderate (200 to 350 kcal per hour): Yes/No
       If "yes," how long does this period last during the average shift:____ hrs. ____ mins.
       Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring moderate load (about 35 lbs.) at trunk level; walking on a level surface about2 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.
    c. Heavy (above 350 kcal per hour): Yes/No

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
16. Describe the work you'll be doing while you're using your respirator(s):_____
    _____
17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases): _____
    _____
    _____
18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):
    Name of the first toxic substance:_____
    Estimated maximum exposure level per shift:_____
    Duration of exposure per shift:_____
    Name of the second toxic substance:_____
    Estimated maximum exposure level per shift:_____
    Duration of exposure per shift:_____
    Name of the third toxic substance:_____
    Estimated maximum exposure level per shift:_____
    Duration of exposure per shift:_____
    The name of any other toxic substances that you'll be exposed to while using your respirator:
19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

APPENDIX C.1

MEDICAL CLEARANCE REQUEST FOR RESPIRATOR USER

EMPLOYEE (Print)	LAST 4 OF SSN	DATE OF BIRTH
FACILITY/DEPT	MANAGER	PHONE

A. **Check Respirator(s) to be used:**
Disposable Face Mask _____
Air-Purifying Half Face _____
Air-Purifying Full Face _____
Atmosphere Supply Respirator _____
Self-Contained Breathing Apparatus _____

B. **Nature of Air Contaminant**_____

C. **Level of Work Effort Associated with Respirator Usage**
Light _____
Moderate _____
Heavy _____

D. **Length of Time of Anticipated Effort in Hours:** _____

E. **Special Work Considerations (i.e. high places, temperature, hazardous material, hazardous process, protective clothing, etc.)**_____
_____
_____
_____

Agency Representative_____

PHYSICIAN'S EVALUATION
____1. No restrictions on respirator use.
____2. Some specific use restrictions.
____3. No respirator use permitted.

Explanation:_____
_____
_____
_____

_____ _____
Signature of Examining Physician Date Signed

APPENDIX D

RESPIRATOR ASSIGNMENT & FIT RECORD

Program Administrator completes the following information
Employee Name_____
Department in which respirator is used_____
Operation for which respirator is used_____
ChemicalExposure_____
How often and what duration of time is respirator use needed?_____

Date respirator issued:_____
Type & size of respirator issued:_____
Respirator cartridges supplied:_____

FIT TESTING

Date_____
Positive/Negative Fit Test_____
Qualitative Fit Test_____

EMPLOYEE HAS BEEN INSTRUCTED ON THE FOLLOWING:

Donning and Doffing Methods _____
Cleaning _____
Maintenance _____

1. I understand that for any problems with the respirator, which require immediate exit from the area and replacement of the respirator, I will seek assistance from my supervisor:
   Breathing becomes difficult _____
   Dizziness or other distress _____
   Sense irritation, smell or taste contaminants _____
   Respirator becomes damaged _____

2. I understand that a respirator must fit properly in order to be effective. I have had my respirator tested for face-to-face seal. I have worn a respirator informal air to familiarize myself with it, and have then worn it in a testing atmosphere.

3. 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 codes if I wear the respirator with a beard, sideburns, or skullcap. I also understand that proper seal cannot be made over the temples of eyeglasses.

4. I understand that I am responsible for the daily maintenance and proper storage of the respirator supplied to me.

_____ _____
Employee Signature Date

_____ _____
Program Administrator's Signature Date

APPENDIX E

RESPIRATOR PROGRAM PERIODIC CHECKLIST

The following checklist is to aid the Program Administrator in conducting periodic evaluations of the respiratory protection program effectiveness.

Auditor:_____ Date: _____

A. PROGRAM ADMINISTRATION

_____1. Are the written policy current and outline program responsibility, accountability, and authority?
_____2. Is overall program responsibility given to one person who is knowledgeable and can coordinate all aspects of the program? If yes, who:_____
_____3. Can feasible engineering controls or work practices eliminate the need for respirators?
_____4. Are there written procedures/statements covering the various aspects of the respirator program, including:
- _____ designation of authority and responsibility;
- _____ respirator selection;
- _____ purchase of approved equipment;
- _____ medical aspects of respirator usage;
- _____ issuance of equipment;
- _____ fitting;
- _____ training;
- _____ maintenance, storage, and repair;
- _____ inspection;
- _____ use under special conditions;
- _____ when and where respirators are required?

B. PROGRAM OPERATION

1. Respiratory protective equipment selection:

_____ Have work area conditions and worker exposures been properly evaluated?
_____ Are respirators selected on the basis of hazards to which the workers are exposed?
_____ Are selections made by persons knowledgeable of proper selection procedures?
_____ Are only NIOSH approved respirators purchased and used?
_____ Do the respirators provide adequate protection for the specific hazard in the concentration found?
_____ Has a medical evaluation of the prospective user been made to determine physical and psychological fitness to wear the selected respirator?
_____ Where practical, have respirators been issued to single users?

2. Respiratory protective equipment fitting:

_____ Are the users given the opportunity to try on several respirators to determine the one with the best fit?
_____ Is the fit tested before the wearer begins using the respirator in the work area, both on initial assignment, and on a daily basis (positive and negative pressure tests)?
_____ Are users who wear glassed properly fitted?
_____ Is the facepiece-to-face seal tested using one of the methods described earlier?
_____ Are workers prohibited from entering contaminated work areas when they have facial hair or other characteristics which prohibit the use of tight-fitting facepieces?

3. Respirator use in the work area:

_____ Are respirators being worn correctly?
_____ Are workers keeping respirators on all the time while in the work area?

4. Maintenance of respiratory protective equipment:

_____ 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)?
_____ Are respirators stored so as to protect them from dust, sunlight, heat, and chemicals?
_____ Is storage in lockers, tool boxes, or work areas permitted only if the respirator is in a carton, carrying case, or closed container?
_____ Are respirators inspected before and after each use, and after cleanup?
_____ Are individuals instructed in inspection methods?
_____ Are cartridges and filters changed on a regular basis?
_____ Are respirators designated as "Emergency Use" inspected at least monthly (in addition to after each use), and is a record kept of such inspections?
_____ Are replacement parts of the same brand as the respirator?
_____ Are repairs made by manufacturers or manufacturer-trained persons?

5. Special use conditions (if applicable):

_____ Is there a procedure for respirator use in atmospheres immediately dangerous to life and health?
_____ Is there a procedure for confined space entry?

6. Training:

_____ Are users trained in proper respirator use, cleaning, and inspection?
_____ Are employees trained in the health effects of the respiratory hazard present?
_____ Are users evaluated, using competency-based evaluation, before and after training?

OVERALL COMMENTS AND ACTION ITEMS FOR PROGRAM IMPROVEMENT:_____

RESPIRATORY FIT TESTING

Employee Name: _____ Date: _____

Job Location & Title: _____

Respiratory Protection Need:_____

Type of Respirator/Brand/Size: _____

Passed Negative /Positive Pressure Fit: _____

Qualitative Test Method:_____

Test Procedure:

1. Normal Breathing: 1 minute no talking
2. Deep Breathing: 1 minute breathe slowly & deeply
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.
4. Moving Head Up & Down: Slowly turns head up & down for 1 minute while inhaling in the up position.
5. Talking: Talk slowly and loud enough for tester to hear. Read text or count to 100.
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.
7. Normal Breathing: 1 minute to finish test.

Employee Passes Test: _____

Additional Comments:_____
_____
_____
_____
_____

Name of Tester: _____

_____ _____
Signature of Program Administrator Date signed

APPENDIX F

VOLUNTARY RESPIRATORY USER INFORMATION

This information is from the OSHA standard Appendix D that is to be provided either orally or in writing to employees who request and are permitted the use of voluntary use of a dust mask. If an employee's exposure has not been evaluated, the supervisor shall arrange for evaluation of the exposure to ensure that the respirator use is voluntary. If the exposures exceed the exposure limits then the employee must be part of the full respiratory protection program.

INFORMATION FOR EMPLOYEES USING RESPIRATORS WHEN NOTREQUIRED UNDER THE STANDARD

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 exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards.

To ensure that you understand the basic use of a respirator, 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 respirators 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 into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. Dust masks are disposable and should be proper disposed of after a day's use.

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 10
LABORATORY SAFETY AND CHEMICAL HYGIENE POLICY AND PROCEDURES

A. Purpose

The purpose of the laboratory safety and chemical hygiene policy and procedures is to prevent injury to laboratory workers who use chemicals and to protect others who may be exposed to hazards from the laboratory and the environment. Also, to comply with OR-OSHA Regulations, "Occupational Exposures to Hazardous Chemicals in Laboratories."

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.1450 and 106, NFPA #30-40
2. State: OAR 437, Division 2 Subdivision Z, "Toxic and Hazardous Substances"

C. Scope

The standard applies to all laboratories that use hazardous chemicals in accordance with the definitions provided in 29 CFR 1910.1450. In general, the standard requires the formulation and implementation of a Chemical Hygiene Plan (CHP), which should include the necessary work practices, procedures, and policies to ensure that employees are protected from all potentially hazardous chemicals.

D. Procedure

General Supervisory Practices: The Chemical Hygiene Officer (CHO) has overall safety responsibility for maintaining a safe laboratory working environment. The laboratory supervisor has been designated as the CHO, and shall 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 use of emergency equipment and safety procedures has been provided;
5. Information on special or unusual hazards in non-routine work has been distributed to the laboratory workers;
6. Routine safety inspections are conducted;
7. An appropriate safety orientation has been given to individuals when they are first assigned to the laboratory.
8. A copy of this plan has been made available to all lab employees;
9. Prior approval of the Laboratory CHO shall be obtained before working with any new chemicals in new procedures. Planning for work with such materials will provide for disposal, spill prevention, and control.
10. An annual review and update of the CHP is required.

E. Laboratory Personnel General Safety Rules

1. Know the safety rules and procedures that apply to the work being done, and which are contained in this document. Determine the potential hazards (i.e., physical, chemical, biological) and appropriate precautions before beginning any new operation (see MSDS).
2. Know the location of and how to use the emergency equipment in your area, as well as how to obtain additional help in an emergency, and be familiar with emergency procedures.
3. Know the types of protective equipment available and use the proper type for each job.

4. 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 be as dangerous to you as any you might have.
5. Avoid consuming food or beverages or smoking in areas where chemicals are stored.
6. 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.
7. Be certain all chemicals are correctly and clearly labeled. Post warning signs when unusual hazards, such as radiation, laser operations, flammable materials, biological hazards, or other special problems exist.
8. 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.
9. Avoid distracting or startling any other worker. Practical jokes or horseplay cannot be tolerated at any time.
10. Use equipment only for its designated purposes.
11. Position and clamp reaction apparatus thoughtfully in order to permit manipulation without the need to move the apparatus until the entire reaction is completed. Combine reagents in appropriate order, and avoid adding solids to hot liquids.
12. Think, act, and encourage safety until it becomes a habit!

F. Laboratory Health and Hygiene

1. Wear appropriate eye and face protection at all times.
2. Use protective apparel, including face shields, gloves and other special clothing or footwear as needed.
3. Confine long hair and loose clothing when in the laboratory.
4. 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.
5. 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.
6. Wash well before leaving laboratory area. However, 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.

G. Laboratory Housekeeping

1. Work areas shall 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. Floors should be cleaned regularly; accumulated dust, chromatography absorbents, and other assorted chemicals pose respiratory hazards.
6. Access to exits, emergency equipment, controls, and such should never be blocked.
7. Equipment and chemicals should be stored properly; clutter should be minimized.

H. Shielding for Safety shall be Used

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.*

I. Proper Handling of Glassware

1. Careful handling and storage procedures should be used to avoid damaging glassware. Mandatory disposal and replacement of cracked/chipped/damaged glassware.
2. 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.
   NOTE: *If possible, use plastic or metal connectors.*
3. 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.
4. Hand protection SHALL be worn at all times when picking up broken glass.

J. 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 form 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.

K. 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 nor 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 head into dry ice chest; carbon dioxide is heavier than air, and suffocation can result.

L. 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 C.
4. Leave lights on and plan a periodic inspection of the operation with plant personnel.
   NOTE: *CHO has the responsibility to determine whether the work requires special safety precautions.*

M. General Ventilation

1. All hazardous/toxic chemicals identified by OR-OSHA, Subpart Z., shall 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 Subpart Z. chemicals. The established PEL (Permissible Exposure Limit) shall not be exceeded.
2. Operations such as running reactions, heating or evaporating solvent, and transfer of chemicals form one container to another should be performed in the safest manner possible.

N. Chemical Procurement, Distribution, and Storage

1. Before any new chemical/substance is ordered, the requestor shall review 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 MSDS. The MSDS should be reviewed prior to ordering any chemical or substance.*
2. When turning a requisition into the CHO, the requestor shall inform the CHO of any hazards associated with the chemical or substance (i.e., attach MSDS to requisition).
3. All chemical/substances shall 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 Subpart Z shall be inventoried and quantities (gal., lbs., etc.) of chemical/substance recorded.
4. No container of a chemical or substance shall be accepted unless the following information accompanies the received order:
   a. Material Safety Data Sheet (MSDS) or satisfactory container label written in English with the following:
      i. Chemical Identity
      ii. Manufacturer's Information
      iii. Hazardous Ingredients/Identity Information
      iv. Physical/Chemical Characteristics
      v. Fire and Explosion Hazard Data
      vi. Reactivity Data
      vii. Health and Hazard Data
      viii. Precautions of Safe Handling and Use
      ix. Control Measures
      x. Primary Routes of Entry (Inhalation, Absorption, etc.)
      xi. Emergency and First Aid Procedures
5. If chemicals have been stored beyond their appropriate shelf life or have deteriorated, they shall be properly disposed of immediately.

O. Procedures for Storing Chemicals

1. Annual audits shall be conducted for the purpose of inspecting:
   a. If chemicals have been stored beyond their appropriate shelf life or have deteriorated;
   b. If containers have defaced or questionable labels;
   c. If the containers are leaking or have corroded caps;
   d. If the containers 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 used.*

P. Procedures for Storing Chemicals in Laboratories

1. 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 top and hoods is forbidden.
   c. Laboratory refrigerators shall 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 chemical that appear to have deteriorated should be disposed of.
2. 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. 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.
3. Toxic Substances:
   a. Chemicals known to be highly toxic, including those classified as carcinogens, should be stored in ventilated storage areas in unbreakable chemically resistant secondary containers.
   b. 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 AGENT *(See Sections XI.B.8 and 9.)*
   c. Storage areas for substances that have high acute or chronic toxicity should exhibit a sign warning of the hazard, have limited access, and be adequately ventilated.
   d. An inventory of toxic materials should be maintained.
   e. Adequate ventilation must be maintained for hazardous materials that have a high vapor pressure (mercury and mercaptans).
4. Compressed Gases:
   a. Cylinders of compressed gases should be securely strapped or chained to a wall or bench top prevent their being knocked over accidentally.
   b. When they are in use, it is good practice to keep them capped.
   c. Care should be taken to keep them away from sources of heat or ignition.

Q. Inspections

1. Shall be conducted quarterly beginning each calendar year.
2. Shall be documented in the lab safety manual.
3. Deficiencies shall be corrected immediately and noted on the inspection sheet or Safety Committee minutes.

R. Maintenance

1. All eye washes and safety showers shall be inspected weekly for adequate water flow and to insure they are full and operating properly. An inspection tag shall be installed and updated at each inspection.
2. Fire extinguishers shall be inspected monthly with date and initials on back of tag and annually to insure they are full and operating properly.
3. Fume hoods and other equipment should be inspected at least monthly to assure property operation.
   Note: See Appendix 2 for inspection procedure and checklist.

S. First Aid and Emergencies

1. Anticipated Emergencies are:
   a. Thermal and chemical burns;
   b. Cuts and puncture wounds form glass or metal, including possible chemical contamination;
   c. Skin irritation by chemicals;
   d. Poisoning by ingestion, inhalation, or skin absorption;
   e. Asphyxiation (chemical or electrical); and
   f. Injuries to the eyes from splashed chemical.
2. Accident Reporting:
   a. Follow your employer's Emergency Medical Plan. See Appendix C.
   b. Notify supervisor or CHO and fill out appropriate forms.
   c. Non-Medical (first aid only): Notify supervisor.
3. Fires and Explosions:
   a. Alert all laboratory personnel and call 911 for assistance.
   b. If authorized and trained in the use of portable fire extinguishers, try to extinguish fire immediately by:
      i. Using correct fire extinguisher:
         (A) Class A Fire: ordinary combustible solids such as paper, wood, coal, rubber, and textiles.
         (B) Class B Fire: petroleum hydrocarbons (diesel fuel, motor oil, and grease, volatile flammable solvents.
         (C) Class C Fire: electrical equipment.
         (D) Class D Fire: combustible or reactive metals (sodium and potassium), metal hydrides, or organ metallic.
      ii. Using an inverted beaker or watch glass to suffocate;
   c. Avoid entrapment in a fire; always fight a fire from a position accessible to and exit;
   d. If there is any doubt whether the fire can be controlled by locally available personnel and equipment, the following action should be taken:
      i. Call 911 or pull fire alarm;
      ii. Assist injured personnel;
      iii. Confine the emergency (close hood sashes, door between laboratories, fire doors) to prevent further spread of the fire;
      iv. Evacuate the building to avoid further danger to personnel.
   e. In case of explosion, immediately:
      i. Call 911 or pull fire alarm;
      ii. Turn off burners and other heating devices;

iii. Stop reactions in progress;
iv. Assist in treating victims;
v. Vacate the area until it has been decontaminated.

4. First Aid:
   a. Each laboratory person shall be trained in emergency first aid, pulmonary and cardiac resuscitation and AEDs if one is located on the premises.
   b. Refresher training shall occur as required by your employer's Emergency Medical Plan or every other year.
   c. Training records shall be documented and retained for a minimum of five years.
   d. All trained personnel should carry a valid first aid card.

T. Medical Consultation and Medical Examinations

1. All employees who work with hazardous chemicals shall 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 an exposure to an OR-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 a hazardous exposure.
2. All medical examinations or consultations shall be by, or under the supervision of, a licensed physician, and shall be provided without cost or loss of pay, and at a reasonable time and place.
3. The employer shall provide to the physician:
   a. The identity of the hazardous substance and/or the MSDS;
   b. Description of the conditions causing the exposure, including quantitative exposure data if available;
   c. Any medical condition which may be revealed which might place the employee at increased risk as a result 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 shall not reveal specific findings of diagnosis unrelated to occupational exposure.

U. Records

1. Accident records shall be written and retained.
2 CHP records will attempt to document that the facilities available and precautions taken in carrying out activities are compatible with the current state of knowledge of the potential risks and the law.
3. In work with chemicals of moderate, chronic or high acute toxicity, records shall indicate amounts of these materials on hand, amounts used, and the names of the workers involved.
4. Medical records or copies thereof shall be retained in accord with state and federal regulations.

V. Signs and Labels

1. Emergency telephone numbers to be called in the event of fire, accident, flood, or hazardous chemical spill shall be posted in the laboratory.

2. When possible, labels on containers of chemicals shall 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. 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 shall be posted with warning signs at the entrance. Standard signs and symbols have been established for a number of special situations such as radioactivity hazards, biological hazards, fire hazards, and laser operations.

W. Spills and Accidents

1. A written emergency plan is prepared for the unexpected event such as fire or explosion. The plan includes procedures for evacuation, shutdown, return, start-up, and drills. See Appendix C.
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.
   e. Reporting: Provisions for internal and external reporting (e.g., to state and federal agencies).
   NOTE: See Appendix C.
3. All accidents or near accidents shall be analyzed and the results of such analyses and recommendation for the prevention of similar occurrences shall be distributed to all who might benefit.

X. 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 in connection with laboratory operations. New employees assigned to the laboratory will be educated about safety procedures and the procedures to use in the event of accident.

1. **Emergency and Personal Protection Training:** Instruction on the proper use of protective apparel and safety equipment, emergency procedures, and first aid shall be available to everyone who might need it. Full-time personnel 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 shall include the physical handling of containers of chemicals so that they are not dropped, bumped, or subject to crushing by being piled one upon another. Information shall be provided about environmental and hazard initiating exposures that must be avoided. Some of the more common items with which receiving room, storeroom, and stockroom personnel will be familiar include the following:
   a. The use of proper material-handling equipment, protective apparel, and safety equipment.
   b. Emergency procedures, including the clean-up of spills and the disposal of broken containers.
   c. The meanings of the various DOT 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) and 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.

3. **Frequency of Training:** Training and education shall be regular, continuing activities. The frequency of refresher information and training shall be determined by the employer.

4. **Literature and Consulting Advice:** Literature and consulting advice on laboratory safety and on the physical and biological hazards of chemicals shall be readily available to those responsible for laboratory operations and those actually involved. Laboratory workers shall 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 shall be available in a form that is readily accessible both to those responsible for laboratory operations and to laboratory workers themselves.

Y. Waste Disposal Program

Chemicals shall be dispensed of in such a way 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 shall 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 form the institution will be in accordance with DOT regulations. **See Appendix C.**

2. **Discarding Chemical Stocks:** Unlabeled containers of chemicals and solutions shall undergo prompt disposal. If partially used, they shall not be opened.

3. **Frequency of Disposal:** Waste shall 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. Indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse for landfill burial is unacceptable.

c. Hoods will not be used as a means of disposal for volatile chemicals.

d. Disposal by recycling or chemical decontamination shall be used when possible.

APPENDIX A
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 Oregon OSHA:

Acetic Acid
Acetone
Ammonia
Arsenic
Arsine
Barium compounds
Benzene
Bromine
Butane
Butyl alcohols
Cadmium compounds
Calcium carbonate
Calcium hydroxide
Calcium oxide
Calcium sulfate
Carbon dioxide
Chlorine
Chromic acid and chromates
Chromium II and III compounds
Cyanides
Ethanol
Fluorides
Formaldehyde
Hydrogen chloride
Hydrogen peroxide
Hydrogen sulfide
Iodine
Isobutyl alcohol
Ketone
Lead inorganic compounds
Manganese compounds
Mercury vapor or compounds
Methyl alcohol
Methylene chloride
Nickel compounds
Nitric acid
Nitrous oxide
Oxalic acid
Phenol
Phosphoric acid
Potassium hydroxide
Pyridine
Selenium compounds
Silver compounds
Sodium azide
Sodium hydroxide
Starch
Strychnine (Brucine Sulfate)
Sulfuric acid
Sulfur dioxide
Trichloroethylene
Toluene
Xylenes
Zinc compounds

APPENDIX B: LAB INSPECTION CHECKLIST

Location: _____ Inspection Date:_____

General:

- ☐ Emergency phone numbers are posted.
- ☐ Warning signs are posted.
- ☐ Exits are lighted and clear of obstruction.
- ☐ Work area is free of debris and in good condition.
- ☐ Inventory of all chemicals is maintained and updated annually for review.
- ☐ Food is stored and consumed away from the work area.
- ☐ Hand washing facilities are provided inside the lab.
- ☐ Material Safety Data Sheets are readily available.
- ☐ Labels on chemical containers are legible and firmly secured.
- ☐ Labels identify the degree of hazard.
- ☐ Extension cords are not used in place of permanent wiring.
- ☐ UL listed/FM approved electrical equipment is provided.
- ☐ Electrical cords and equipment are protected against chemicals and temperature.
- ☐ Fume hoods are not used for storage.
- ☐ Personal Protective Equipment is provided and in use.
- ☐ A written Chemical Hygiene Plan is in the lab and available for inspection.
- ☐ Emergency numbers and evacuation procedures are posted in conspicuous locations in the lab.

Chemical Storage and Handling:

- ☐ Gas cylinders are properly secured.
- ☐ No leaking containers are present.
- ☐ All chemical containers are properly labeled.
- ☐ Chemicals are stored according to compatibility.
- ☐ Peroxide forming reagents are dated when opened.
- ☐ Peroxide forming reagents are disposed of or tested after expiration date.
- ☐ 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.
- ☐ A flammable storage cabinet is provided for flammable liquids when required.
- ☐ Carcinogen storage areas are labeled.
- ☐ Chemicals in the open are kept to a minimum.
- ☐ Flammable/Combustible liquids do not exceed NFPA storage limits.

Chemical Waste:

- ☐ Hazardous waste containers are labeled and have closed lids.

APPENDIX C: SAMPLE LABORATORY EMERGENCY ACTION PLAN

Building:	**Room:**	**Phone Number:**
The following people are designated and trained to assist Emergency Responders with information about this lab, including providing a hazardous material inventory, during an emergency		
Name	**Title**	**24 Hour Contact Phone**
	Lab Director	

When the fire alarm sounds, lab workers must EXIT the building, but first:

1. Turn off all flames and other ignition sources
2. Close all hazardous material containers
3. Close sash on all fume hoods
4. Turn off all electrical equipment
5. Other:

The following emergency equipment is located in this room:

☐ Emergency Eyewash ☐ Spill Kit/Control Equipment ☐ Phone ☐ Other:
☐ Fire Extinguisher ☐ Emergency Shower ☐ Fire Blanket

The following emergency equipment is not located in this room, but can be found at:

Equipment	*Location*

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 of coat 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:

1. Pull the handle to start the water flowing.
2. Hold your eyes open to get the water under your eyelids.
3. Remove all contaminated clothing and shoes.
4. 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:

Do not re-enter the building or laboratory until the Emergency Responders have notified everyone that it is safe to return!

PART 2: CHAPTER 11
ASBESTOS MAINTENANCE PROGRAM

A. Purpose

The purpose of this program is to ensure compliance with Oregon OSHA Asbestos Standard. The City has asbestos containing building materials that requires 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 City Public Works staff that may come into contact with asbestos or be project managers ensuring that the outside asbestos abatement contractors follow City, OSHA and DEQ procedures.

NOTE: This program <u>does not meet</u> DEQ asbestos worker training certification requirements nor is it intended to meet all possible Oregon OSHA Asbestos Requirements.

B. Applicable Legal Standards

1. Federal: 29 CFR 1926.1101
2. State: OAR 437 – Division 3

C. Procedures for Conducting Asbestos Building Inventories

1. **TESTING:**
   a. Exposed building materials that were likely to contain asbestos will be tested. The Safety Officer will see that appropriate testing is done. The testing results will be retained by the Safety office for 30 years. Sprayed on ceiling material containing asbestos and pipe insulation have been labeled.
   b. Additional sampling will be done prior to removal, demolition, or renovation on all potential asbestos containing materials.
   c. 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:
      i. Pipe insulation materials.
      ii. Floor tiles and mastic (tiles, mastic for molding, mastic for tiles or carpeting).
      iii. Sprayed on Asbestos containing ceiling materials.
      iv. Asbestos containing pipe.
2. Asbestos materials inventory results are maintained by the Safety Officer and are available for review. The inventories are done individually for each building.

D. Inspection Procedures

1. The City will use outside asbestos abatement and inspection contractors who have asbestos certified staff to take samples and to repair or properly remove asbestos containing materials.
2. The Public Works 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 Safety Officer.

3. Custodial staff is to immediately report broken insulated pipes and any broken or friable materials labeled as asbestos to their supervisor and/or Safety Officer.
4. The 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 Safety Officer and asbestos supervisor will determine interim measures necessary to protect all personnel that may be exposed to the material.

E. Reinspection

Reinspection of all visible asbestos materials will be done by certified asbestos contractors based on frequency noted in the previous inspection report.

F. Notice to All Building Occupants

Any damage to pipe insulation or other building surfaces and materials is to be reported to the Safety Officer for review in relationship to potential asbestos content. All asbestos insulation is labeled. Occupants in our buildings with sprayed on asbestos containing ceiling material will be notified by the Safety Officer or Building Manager. The building inventories are available to all occupants by contacting Safety Officer.

G. 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 provided that the removal of asbestos is not the primary objective and methods of removal are in compliance, 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 pipe.

H. Control Measures Used to Preclude Exposure and 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**
   The methods of removal need to involve one or a combination of the following practices and engineering controls which are capable of reducing employee exposure to below the action level of 0.1 fiber/cubic centimeter:
   a. Wet method (asbestos containing pipes).
   b. Glove bag for small isolated repairs.
3. **Maintenance staff shall not use the following procedures when working with or around asbestos containing materials:**
   a. Drill holes in asbestos material.
   b. Sand asbestos containing floor tiles.
   c. Dust surfaces with dry brushes or booms that may contain asbestos.
   d. Use regular vacuum cleaners to collect asbestos dust or debris.
   e. Remove material without proper respiratory protection and the proper type of clothing.
   f. Damage asbestos containing materials when moving or conducting general maintenance.
   g. Install curtains, drapes, or other dividers into asbestos containing materials.

I. Certified and Trained Asbestos Personnel

Staff or contractors selected to remove or repair asbestos containing materials shall be in compliance with the Oregon OSHA rules and Department of Environmental Quality Standards.

J. Asbestos Waste Disposal

Our staff will follow the Oregon 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 OR-OSHA and DEQ's.

K. Potential Asbestos Emergencies

1. **Type of Emergencies:** 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 emergency notifies their supervisor who shall notify the Safety Officer
   b. Seal off area or contain the problem. Proper danger/warning signs and area security is 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 OR-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.

L. General Asbestos Awareness Training

1. **What is Asbestos?**

   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.

   Asbestos has been used widely in building materials and in products that needed to be fireproof. In fact EPA, in 1985 estimates that 31,000 schools and some 733,000 commercial buildings had asbestos products in them.

   Asbestos was used because the mineral is:
   a. Fire Resistant.
   b. May be woven or used to provide strength and consistency to a product.
   c. Resistant to chemicals

2. In the United States two primary forms of asbestos were widely used:
   a. Amosite
      i. Resistance to heat and chemicals, and found extensively in pipe insulation, friction materials, roofing and flooring materials.
      ii. Characteristically a rigid, brittle fiber which cannot be woven.
      iii. Now banned in the U.S. due to the higher cancer health risk associated with amosite.
   b. Chrysotile
      i. A long, wavy, hair-like fiber that is easily woven. Chrysotile is used in asbestos clothing products, and extensively in many forms of insulation.
      ii. The shorter mill-end material is now being substituted for amosite applications.

3. **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.

4. **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. Fibers 75 microns will be trapped in the nose and Fibers1 - 5 microns are trapped in the bronchioles and lungs.

      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.

5. **Diseases Associated with Asbestos Exposures**
   - **a. Asbestosis of the Lung** - A fibrotic degeneration of the lung, 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.
   - **b. 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.
   - **c. Mesothelioma of the Lung Pleura** - This is 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.
   - **d. Gastrointestinal Cancers** - Asbestos workers exhibit higher rates of cancers of the stomach, intestines, bowel, and rectum.
   - **e. 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.

   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.

6. **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:

   a. Asbestos exposure can increase the risk of developing lung cancer in both cigarette smokers and nonsmokers. The risk in cigarette-smoking asbestos workers is greater than the sum of the risks of the independent exposures.
   b. The risk of developing lung cancer in asbestos workers increases with increasing number of cigarettes smoked per day and increasing cumulative asbestos exposure.
   c. 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.
   d. 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.
   e. Asbestos exposure is the predominant cause of interstitial fibrosis (asbestosis) in populations with substantial asbestos exposure.
   f. 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.

7. **Latency of Disease to Exposure**
   Asbestos related diseases typically develop 30-40 years subsequent to the beginning of the exposure. Workers who have been heavily exposed have shown symptoms within 5-10 years, but this is not typical.

8. **Personal Protective Equipment**
   Only asbestos abatement contractors who meet the PPE and respiratory protection rules shall be used. Contact the Safety Officer for more details on the program requirements.

M. Medical Surveillance

There is no need for our employees to be part of an asbestos medical surveillance but there is a requirement that the contractor's ensure that their employees are part of a comprehensive medical program.

N. Recordkeeping

1. **Any Exposure Measurements:** The record needs to include:
   a. Date of measurements
   b. The operation tested
   c. Sampling and analytical method used
   d. Number, duration, and results of the samples
   e. Type of protective devices worn
   f. Name, social security number, and exposure of the employees whose exposures are represented.
   g. The records need to be maintained for 30 years.
   h. Where the records are stored.

   Recordkeeper: _____

2. **Medical Surveillance -** The employer must ensure that the employees' medical records are maintained. The record needs to include:
   a. Name and social security number
   b. Copy of the medical exams results
   c. Physician's written opinion
   d. Any employee medical complaints which relate to asbestos exposure
   e. Copy of information supplied to the physician
   f. The records need to be maintained for the duration of employment plus 30 years.
   g. Where and how the records will be securely stored.

   Recordkeeper: _____

3. **Training Records -** The training records need to be retained for **one year beyond the last date of employment** by that employee.

4. **Availability** - Records are to be made available to Oregon OSHA, the affected employee, the former employee, and designated representatives.

PART 2: CHAPTER 12
LEAD COMPLIANCE PROGRAM

A. Introduction

There are various job operations that may result in lead exposures to the Public Works crews. These job tasks will require complying with the Oregon OSHA Construction Standard Lead Regulations and 29 CFR 1926.62.

It is City policy that its operations will comply with the Oregon OSHA Construction lead standard and the following lead compliance program. Any questions about this program should be directed to the Safety Officer.

B. Applicable Legal Standards

1. Federal: 29 CFR 1926.62
2. State: OAR 437 – Division 3 "Construction Safety Rules"

C. Responsibilities

To ensure compliance activities are carried out and that proper recordkeeping is done, the following outlines the overall responsibilities of the Maintenance and Facility staff:

1. **Management:** The Facility's management is responsible to ensure that the lead compliance program elements are implemented and that employees follow all painting and renovation site safe work practices and procedures. They are also responsible to ensure that a lead exposure assessment is completed and specific program elements are carried out, including:
   a. Conducting air exposure monitoring during surface preparation.
   b. Ensuring appropriate personal protective equipment is provided and used.
   c. Proper engineering or work practices are implemented and maintained
   d. Conducting inspection audits to ensure lead compliance plans are implemented and followed.
   e. Assisting in the development of lead compliance plans and the updating/revision of the plans.
   f. 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.
2. **Maintenance Foreman/Supervisor:** Responsible for reviewing the lead compliance plan with the crew, training the crew about the hazards of lead and the safe work practices to be used in lowering the potential lead exposures. He/she is also responsible for providing safe equipment, instructing the crew on 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 A)

D. Exposure Assessment

1. Initial Air Monitoring: The supervisor or Safety Officer will identify the 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 information.
3. **Observation of Monitoring:** The foreman/lead person will inform the crew about the exposure monitoring.

4. **Notification of Results**: The foreman will provide the 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 µg/m^3 is 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 Safety Officer or Public Works Department.

E. Medical Surveillance Program

1. All employees who may be exposed at or above the action level (30 µg/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 µg/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 medical surveillance. The Safety Officer will also maintain a list of all employees on medical surveillance and copies of the medical notification reports.
3. **Lung Function Testing** will be scheduled for all employees on mandatory negative pressure respirators. This procedure will follow Chapter 9 *Respiratory Protection Program*. The Safety Officer will maintain records on those employees included in this program and physician notification.
4. The **complete medical records** will be maintained by the medical facility/provider.

F. 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 OR-OSHA threshold levels.
2. The foreman will provide employee fit testing for employees included in this program.
3. This program will meet Chapter 9: *Respiratory Protection Program* standards.
4. Physician responses to the individual respirator questionnaires will be kept in the employee's confidential medical records file located in Human Resources.

G. Employee Training

1. All employees who work on lead containing materials will receive lead training.
2. A roster of employees' trained will be maintained
3. The safety officer or a training consultant will provide employee training.

H. Compliance Plan Development, Implementation, and Audit

1. The Safety Officer 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 Safety Officer. The plans are available for employee review.
3. The crew foreman will conduct inspection audits to ensure that the plans are implemented and followed by the employees.

I. Recordkeeping

1. The Public Works Department 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.

APPENDIX A

LISTING OF TEST RESULTS OF BUILDING LEAD-BASED PAINTS:

Building	Location	Amount of Lead in Paint

APPENDIX 2
MODEL LEAD COMPLIANCE PROGRAM PLAN

PLAN DEVELOPED BY: _____ DATE: _____

LOCATION/OPERATION COVERED: _____

LEAD PERSON & NUMBER OF EMPLOYEES IMPACTED: _____

EMPLOYEE RESPONSIBILITIES/DUTIES: _____

1. LIST each activity in which lead is emitted:
   a) _____
   b) _____
   c) _____

2. Type of equipment and/or materials in use:_____
   _____

3. Describe controls in place and 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:
   List names of persons conducting inspections:
   a)
   b)
   c)

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 (See SITE CHECKLIST)

Note: Written programs shall be established prior to commencement of a job, and revised and updated at least every 6 months to reflect current status of the program.

PART 2: CHAPTER 13
ERGONOMICS PROGRAM

A. Purpose

This chapter has been implemented with the goal of strengthening the City's 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 which are injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs.

B. Applicable Legal Standards

1. State: ORS 654.010 "Employers to furnish safe place of employment"
2. State: OR-OSHA Division 1 "Self-Insured requirements for ergonomic assessments and programs"

C. Definitions

1. **Ergonomics** is defined as 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:
   a. Biomechanics – The study of movement of body segments (fingers, hands, arms, back) to describe the abilities and limitations of the human body.
   b. Anthropometry – The analysis of dimensions and proportions of the human body in relation to workstation design, equipment, furniture, and tools.
2. **Musculoskeletal Disorder** (MSD) are 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, sciatica, herniated disc and low back pain.
3. **Job Hazard Analysis** is a tool or process to make a job safe before hazards become accidents 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 pro-active safety program.
4. **Hazard:** a potential danger which can result in injury or illness

D. Responsibilities

1. **Management** is responsible for ensuring that an ergonomics program is implemented and the employees are provided training on ergonomics. Ensure that employees have access to the ergonomic standard and to information about our ergonomic program. Management is committed to ensure safe workplace conditions. A key component is the support of ergonomic evaluations and implementing workplace changes to reduce risk of cumulative trauma injuries.
2. **Supervisor/manager** is responsible for responding promptly an employee who reports MSD signs and symptoms.
3. **Safety Officer** is responsible for assisting with the development, implementation, and evaluation of each element of our ergonomic program.
4. **Safety Committee** is responsible to conduct basic ergonomic inspections.
5. **Employees** are responsible to report MSD signs and symptoms to their supervisor. And they are also responsible to participate in the Job Hazard Analysis process when applicable.

E. Job Hazard Analysis and Control

The following basic principles are to be used during review of workstations for ergonomic related problems. It is our policy to use a Job Hazard Analysis tool in the identification of ergonomic issues and solutions.

1. The job analysis is done to identify the "ergonomic risk factors" that result in musculoskeletal disorder (MSD) hazards. Recommendations on how to eliminate or reduce the hazards are made based on the extent feasible and may involve an incremental abatement process.
2. The following procedure will be followed when performing a Job Hazard Analysis:
    a. 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.
    b. Employees will be observed performing the job to identify which physical work activities, workplace conditions and ergonomic risk factors are present.
    c. Evaluate the ergonomic risk factors in the job to determine the MSD hazards associated with the covered MSD. As necessary, we will evaluate the duration, frequency and magnitude of employee exposure to the risk factors.
    d. Identify, assess and implement feasible controls to eliminate or materially reduce the MSD hazards. This includes prioritizing the control of hazards.
    e. Track progress in eliminating or materially reducing the MSD hazards. This includes consulting with employees in problem jobs about whether the implemented controls have eliminated or materially reduced the hazards.
    f. Identify and evaluate MSD hazards when you change, design, or purchase equipment or processes in problem jobs.
3. Types of Controls
    a. Any combination of engineering, administrative and/or work practice controls will be used to eliminate or materially reduce MSD hazards.
    b. 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.

F. Training

1. Persons involved with conducting ergonomic assessment will be trained on how to identify ergonomic risks, workplace design, layout and operation, and job site modifications utilizing an ergonomic approach.

SAMPLE JOB SAFETY ANALYSIS FORM

Job Safety Analysis

The Job Safety Analysis (JSA) provides the basic assessment of safety and health needs for each employee. The information collected by use of a JSA form can be used to develop ergonomic solutions.

EMPLOYEE INTERVIEW / OBSERVATIONAL JSA FORM

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	• Listing of PPE, ergonomic aids, other safety equipment needed.	
TRAINING REQUIREMENTS	• List the type of training provided the inspectors and the safety training required by OR-OSHA.	

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 14
CRANES, DERRICK, AND HOIST OPERATIONS

A. Purpose

The City has adopted this Crane, Derrick, and Hoist safety policy and procedures to protect its employees from potential hazards that can be created by the usage of cranes. This chapter is also to help ensure compliance with the OR-OSHA standards.

It is important to note that this policy does not replace the need for the employees to fully understand the manufacturer's operating instruction.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.179-181 "Cranes"
2. State: OAR 437 Division 2
3. State: OAR 437 Division 3 Subdivision N "Construction Crane Standard"

C. Definitions

1. **Authorized Employee** (Designated personnel) are employees who have been designated by management to operate a crane in their work area. They shall have been trained and supervised in proper operation and troubleshooting.
2. **Crane** - is 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.
3. **Derrick** – is an apparatus consisting of a mast or equivalent member held at the head by guys or braces, with or without a boom, for use with a hoisting mechanism and ropes.
4. **Hoist motion** - means the motion of a crane which raises and lowers a load.
5. **Preventive Maintenance** is the regularly required maintenance checks (by OR-OSHA rules) and recommended manufacturer's preventive maintenance.
6. **Overhead crane** - means a crane with a moveable bridge carrying a moveable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

D. 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 our employees are required to follow the safeguards in this chapter.

1. **Maintenance managers** are responsible to ensure that all employees who are permitted to operate a crane are trained and authorized for the equipment he/she is using. They are also responsible to see that the required safety audits and preventive maintenance is done appropriately and timely.
2. **Authorized Operator:** The operator shall immediately report to the supervisor any unsafe conditions of equipment, and shall not use it until it is repaired.
3. **Licensed Construction Crane Operator** must meet OAR 437-002-0228 (2) or 437-03-0081 requirements.
4. **Safety Officer and Safety Committee** include crane safety as part of their quarterly safety audit functions.

E. Inspections

A crane in an unsafe working condition will not be used under any circumstances. All cranes and hoists shall be thoroughly inspected annually by a competent person. Records of monthly and annual inspections and results shall be maintained by the supervisor.

Cranes are to be inspected to ensure proper performance. Each crane must be checked prior to use daily or monthly and annually. The individuals assigned the inspection duties need to be trained in what to check and how to determine the proper function of the crane/hoist.

The annual detailed inspections may be performed by an outside contractor. The crane manufacturer's manuals will need to be used in providing additional information on performance inspection.

Crane Inspection - The inspections include but are not limited to the following requirements (as required by OR-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 shall immediately report to the supervisor any unsafe conditions of equipment, and shall not use it until it is repaired.
4. No unauthorized person shall repair any electrical or mechanical lifting equipment.
5. The following inspection schedule shall be implemented by the supervisor or a designated "Competent Person(s)":
    a. Daily Inspection (no written records required)
        i. All functional operating mechanisms which may interfere with the proper operation and for signs of excessive wear.
        ii. Deterioration of parts.
        iii. Visual inspection of the hooks for deformation or cracks.
        iv. Visual inspection of hoist and load attachment chains, and slings.
    b. Monthly Inspections
        i. All functional operating mechanisms which may interfere with the proper operation and for signs of excessive wear.
        ii. Deterioration of parts.
        iii. Visual inspection of the hooks for deformation or cracks.
        iv. Visual inspection of hoist and load attachment chains, and slings.
        v. Detailed findings on an inspection report.
        vi. Any defects found need to be immediately corrected.
        vii. A record of all monthly inspections, dates, and results shall be kept in the supervisor's office or in the equipment maintenance log.
    c. Annual Inspection
        i. A thorough annual inspection of all cranes shall be done by a competent person.
        ii. A record of the annual inspections, dates and results shall be kept by the supervisor.

F. Procedures

1. Cranes, derricks, and hoists shall 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.
   NOTE: 5 TON CRANES USED IN CONSTRUCTION ACTIVITIES HAVE ADDITIONAL REQUIREMENTS NOT COVERED IN THIS SECTION. - SEE DIVISION 3 CONSTRUCTION.
2. Crane/derrick operation regulations required employee training which includes OAR 437-002-0228(2) Crane Operator Training Requirements.
3. The employer shall establish written procedures for the safe operation of all cranes.
4. The employer shall 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, and wear appropriate PPE (hard hat, safety glasses, etc.)
5. The level of the training and experience determined by the employer as meeting section 2 above shall be recorded in writing.
6. The manufacturer's rated load capacity shall be conspicuously posted on all cranes and hoists.
7. The limit switch shall 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 shall not be permitted.
10. The loads lifted shall 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 shall ride a load or hook.
12. Two or more separately rigged loads shall not be hoisted at one time.
13. The person operating the crane is responsible for the load. If receiving signals or instructions they shall come from one authorized employee only.
14. The operator shall have a clear view of work and equipment at all times.
15. The load shall be attached to the crane by slings or by other approved devices.
16. Deformed or defective hooks, rings, or other lifting equipment links shall not be used.
17. Hooks shall 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% in excess of normal throat opening
    c. The hook has any cracks.
18. Wire rope cables that appear to be cut, frayed, kinked, or rusted shall not be used. Wire rope shall receive emphasis during daily, monthly and annual inspections.
19. Wire rope shall be taken out of service when any one of the following conditions exist:
    a. In running ropes, 6 randomly distributed broken wires in 1 lay or 3 wires broken in 1 strand in 1 lay.
    b. Wear of 1/3 the original diameter of outside individual ropes. Kinking, crushing, bird-caging, or other damage resulting in distortion of the ropes structure.
    c. Evidence of any heat damage from any cause.
    d. Reduction from nominal diameter of more than 1/64” from diameters up to and including 5/16”; 1/32” for diameters 3/8” to and including 1/2”; 3/64” for diameters 9/16” and including 3/4”; 1/16” for diameters 7/8” to 1-1/8” inclusive; 3/32” for diameters 1-1/4” to 1-1/2” 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.
b. Any rigging rope has 1 or more broken wires near an attached fitting.
c. Corroded, damaged or improperly applied end connections.

21. Knots shall not be used to shorten nylon or wire rope slings.
22. Chain links of a hoist shall not be secured by a nut and bolt, nails, pins or other means not recommended by the manufacturer.
23. Chain slings lifting equipment should not be subjected to sudden shock by twisting, snapping or jerking into place.
24. The working line of the hoist shall not be wrapped around the load.
25. Rope clips shall be installed and used according to the safety codes. When used for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope.
26. Before a load is lifted, it shall be inspected for loose parts or objects.
27. The safety latch on the hook of a hoist shall be secured in every instance when lifting or moving a load.
28. The operator shall see that the load is secure and properly balanced before it is lifted more than a few inches off the ground, floor or support.
29. The operator shall test the brake each time a load is lifted, by raising the load a few inches and applying the brake.
30. Care shall 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.
31. Lifting equipment must not drag under a load.
32. 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.
33. Do not grab the cable as it is being pulled through the sheave wheels.
34. Employees must stand clear of all suspended loads.
35. A loaded crane should never be left over machinery.
36. Suspended loads shall not be left unattended.
37. When lowering a load, the operator shall proceed carefully, making sure that he/she has it under safe control at all times.
38. Lifting hooks and fastenings shall not be removed until material is at rest in a stable position or safely secured by other fastenings.
39. 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.
40. When moving a crane make sure the hook and/or the load will clear all obstacles.

APPENDIX A
CRANE OPERATOR INSPECTION CHECKLIST FIXED FACILITIES CRANES

Crane:_____Date:_____
Operator: _____
Daily Inspection_____ Monthly Inspection:_____

CONDITIONS TO BE CHECKED
Mark each item with a N = No defect or Y = Yes a defect
EXPLAIN IF ANY OF THE ANSWERS ARE YES

Functional Operating Mechanisms - excessive wear, deterioration of parts, and visual inspection of hooks, hoist & load attachment chains, wire, slings.

___ Bearings: Loose, worn
___ Brakes: shoe wear
___ Bridge: alignment out of true (indicated by screeching or squealing of wheels)
___ Bumpers on bridge: loose, missing, improper placement
___ Collector shoes or bars: worn, pitted loose, broken
___ Couplings: loose, worn
___ Drum: rough edges on cable grooves
___ End stops on trolley: loose, missing improper placement
___ Gears: lack of lubrication or foreign material in the gear teeth
___ Guards: bent, broken, lost
___ Hosting cable: broken wires, kinked or twisted
___ Hook Block: chipped sheave wheels
___ Hooks: straightening (note when permanent set of hook is greater than 15% in excess of normal throat opening the hook shall be replaced.
___ Lights (if installed) are functional
___ Limit switch: functioning improperly
___ Lubrication: overflowing on rails, dirty cups
___ Mechanical parts (rivets, covers, etc.) loose
___ Overload relay: frequent tripping of power
___ Rails (trolley or runway): broken, chipped, cracked
___ Wheels: worn (indicated by bumpy riding)
___ Electric control buttons are functioning improperly & clearly marked as to direction of travel

Other conditions: Functional Operating Mechanism
___ Excessive wear
___ Deterioration of parts
___ Non-compliant hooks
___ Hoist and load attachment chain – wires and slings for signs of wear or deterioration

ADDITIONAL COMMENTS: _____

NOTE: THE INFORMATION ON CRANE INSPECTION SOURCE: ACCIDENT PREVENTION MANUAL FOR INDUSTRIAL OPERATIONS, 8th EDITION, BY NATIONAL SAFETY COUNCIL 1986.

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 15
CONTRACTOR SAFETY AND HEALTH HAZARD CONTROL NOTIFICATION POLICY

A. Purpose

Oregon OSHA regulations requires 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 work involving the need to control hazardous energy or enter confined spaces will be informed of the programs and the associated hazards that City staff is aware of. **The notification is not designed to take over the contractor's safety responsibilities to his or her employees but to provide appropriate notification under the Oregon OSHA rules**.

Appendix A 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 that a signed statement is completed by the contractor. Safety and occupational health questions should be directed to the Safety Officer.
This policy applies to all contractors hired including, but not limited to: **construction, electrical, confined space entry contractors, and bulk chemical haulers**.

B. Applicable Legal Standards

This policy applies to all contractors hired including, but not limited to: construction, electrical, confined space entry contractors, and bulk chemical haulers.

1. Federal: 29 CFR 1910
2. State: OAR 437 Division 2

C. Responsibilities

1. **Project Managers:** The Project Manager, generally, has the overall responsibility for construction and electrical contractors. It is the 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 Project Manager is responsible for keeping a contractor's file and if the same contractors are used for an on-going period of time the notification will be updated on an annual basis.
2. **Safety Officer:** The Safety Officer is to assist the Project Manager. Responsibilities include:
   a. ensuring that the safety policies and updated,
   b. specific safety questions are responded to,
   c. audits the Contractor Notification system,
   d. assists in ensuring that contractors follow City polices and do not endanger City employees.

D. Process Overview

The contractor notification process flow:

1. The Project Manager is to determine 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 Project Manager reviews the applicable chapters of the *Safety Manual*. This ensures that the contractor and employees acknowledge the information by signing the acknowledgment letter.
4. Copy of the acknowledgment letter is provided to Safety Officer and a copy is retained in the contractor's file.
5. The Project Manager is responsible to conduct periodic follow-up with the contractor representative to ensure the safety of our employees and that contractor is operating in a safe manner.

E. Specific Program Review

Globally Harmonized System When outside contractors perform work in the City facilities the Project Manager will ensure that the contractor management representative is informed of any hazardous chemicals and needed controls.

1. The following methods will be used to inform outside contractors of the potential chemical hazards in their work areas:
   a. Hazardous chemicals to which they may be exposed while on the job site.
   b. Precautions the employees may take to lessen the possibility of exposure.
   c. Location of Safety Data Sheets (SDS) for chemicals they are potentially exposed to.
2. Temporary service employees will be trained in the same manner as permanent employees.
3. If additional information is needed the Safety Officer should be contacted.
4. The contractor will be provided with the *Safety Manual.* The acknowledgment form is to be signed by the Contractor's representative. A copy of the signed checklist is kept by the Safety Officer as part of the contract file. (See Appendix A)

If the contractor is bringing in hazardous materials then the Project Manager will ensure that the contractor has all the pertinent SDSs at the job site. The Safety Officer office must be notified of the location of the job site SDSs.

Asbestos Material Notification

When outside contractors perform work in the City facilities or for building renovation, remodeling where asbestos building materials may be present the Project Manager will ensure that the contractor management representatives are informed of the present 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 Project Manager will ensure that the asbestos control manager (the Safety Officer) is informed of the planned work.
2. The Safety Officer will review the plans with the contractor to determine the work scope, assessing the potential contact with asbestos containing materials.
3. If asbestos materials will be disturbed or need to be removed the Safety Officer will arrange for a licensed asbestos abatement contractor to perform the work prior to the other contracting operation.
4. The Safety Officer 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 *Safety Manual* and notification of pertinent hazard informational checklists are to be signed by the Contractor's

representative. A copy of the signed checklist is to be kept by the Safety Officer and kept as part of the contract file. (See Appendix A)

Hazardous Waste Notification

When outside contractors perform work that involves removal and disposal of hazardous waste the Project Manager is the Safety Officer. 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. Safety Officer will only contract with licensed Hazardous Waste haulers and dispose of materials only in permitted methods.
2. Safety Officer will ensure that the hazardous waste contractor's employees are trained in the required DEQ and OR-OSHA programs and are informed as to the materials that are being collected, hauled and disposed of.
3. Safety Officer will ensure that all the proper DEQ/EPA and DOT paper work is prepared and available for all the parties involved as required.
4. The contractor will be provided with the *Safety Manual* and notification of pertinent hazard informational checklists are to be signed by the contractor's representative. A copy of the signed checklist is kept by the Safety Officer and kept as part of the contract file. (See Appendix A)

Informing Outside Contractors of the Hazardous Energy Control Program

1. When outside contractors are hired at 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 ensure that all employees know what kind of work is to be performed, where and when it is to be performed, and how they are being protected.
2. Project Manager will identify the energy isolating devices for the contractor, as necessary. The contractor's employees will be responsible to lockout all devices capable of locking or place 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 and a signed copy shall be returned to our Safety Officer and kept as part of the contract file. (See Appendix A)

Informing Outside Contractors of the Confined Space Plan and Known Space Hazards

1. If a contractor is hired to perform confined space entry work then the Project Manager and/or Safety Officer shall see that the contractor's management representative is notified of our Confined Space Policy and the known hazards associated with the space. This notification is to ensure that the company complies with rule 29 CFR 1910.146(c)(8) of the Confined Space regulations. If we contract for confined space entry work as the host employer the Department doing the hiring is responsible to:
    a. 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.
    b. Apprise the contractor of the hazards our organization has identified and any experience employees have had with the space.
    c. Apprise the contractor of any precautions City employees have taken for entry.
    d. Coordinate entry operations with the contractor if more than one contractor or if our employees will also be entering the space.

e. Debrief the contractor to determine if any problems were encountered requiring changes in procedures.

2. A copy of the contractor notification letter and hazard information will be provided and a signed copy shall be returned to our Safety Officer and kept as part of the contract file. (See Appendix A)

Hot Work - Welding Permission System

1. When outside contractors are hired and their work involves welding, it is the 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 available to our Project Manager or Safety Officer. The permit will not be required if the welding is done in a welding shop area. Hot Works Permit Procedures & Instructions located in Chapter 4 of this manual.
2. Project Manager will provide the contractor with the basic form required by our organization. If the contractor has their own hot work permit and system that can be used as long as it is done and available.

APPENDIX A

SAFETY FOR CONTRACTORS

The following document is to be provided to outside contractors and the pertinent information is to be reviewed by the Project Manager or designee and signed statement(s) from the contractor representative is to be obtained. Send or provide a copy of the signed state to the Safety Officer and retain a copy in the contractor's file.

For on-going contractors an annual updated copy and review is to be done and documented.

CONTRACTOR SAFETY NOTIFICATION
SAFETY RULES FOR CONTRACTORS WORKING

All contractors and their employees are required to review the Safety Manual and the contractor representative is to sign the acknowledgment letter that he/she and their employees have reviewed the appropriate material. The information that must be reviewed includes:

1.	Basic Safety Rules	Yes_____	No_____
2.	Hazardous Material Deliveries	Yes_____	No_____
3.	Confined Space Entry	Yes_____	No_____
4.	Tools & Personal Protection	Yes_____	No_____
5.	Equipment Lockout (Control of Hazardous Energy)	Yes_____	No_____
6.	Emergency Action & Fire Prevention	Yes_____	No_____
7.	Chemical Hazard Communication	Yes_____	No_____
8.	Asbestos Material Removal Program	Yes_____	No_____
9.	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 Project Manager.

CONTRACTOR GENERAL SAFETY NOTIFICATION SIGN-OFF

Date: _____

To: Contractor: _____

From: Project Manager: _____

It is our goal to provide a safe and health work environment for employees and ensure proper hazard notification to our contractors. As a result, each contractor has been provided the Safety Manual. The general safety issues have been reviewed with you as the contractor's representative by the 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 prior to them working at our facility. Additional information, as necessary, will be provided by the Project Manager. 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: _____

Additional hazard notification issues are attached as appropriate for:

Emergency Action Plan: _____
Confined Space Information: _____
Specific Lockout Procedures: _____
Hazardous Waste Information: _____
Presence of Asbestos Materials: _____
Presence of Lead Building Materials: _____
Presence of Hazardous Chemicals: _____

CONTRACTOR CONFINED SPACE NOTIFICATION CHECKLIST

PROJECT MANAGER:_____DATE:_____

CONTRACTOR REPRESENTATIVE: _____DATE: _____

LOCATION OF SPACE:_____

The following information outlines the basic features and safety control issues that management is aware of. There may be other hazards or conditions created by the contractor. It is imperative that the contractor follow the OSHA Permit Required Space rules OAR 437-002 and 29 CFR 1910.146.

CHECKLIST OF HAZARDS & RECOMMENDED SAFEGUARDS

Isolation:

1. **Electrical** _____
2. **Mechanical** _____
3. **Other** _____

Hazardous Work:

1. **Welding/Burning/Open Flame** _____
2. **Electrical Work** _____
3. **CHEMICALS** _____

Special Requirements:

1. **Lock-outs** _____
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** _____

Personal Protective Equipment Needed:

1. **Harness & Life Line** _____
2. **Respirator** _____
3. **Eye Protection** _____
4. **Hearing Protection** _____
5. **Protective Clothing** _____

Atmosphere Tests - List type of air testing that would be necessary _____

Contractor's Emergency Response Information Needed:

1. **Phone number and location of nearest telephone**_____

2. Name of first aid person & location of nearest first aid kit _____

_____

3. Emergency Rescue Plan _____

POST ENTRY DEBRIEFING NOTES: _____

_____

_____

_____

_____

_____

_____

_____

CONTRACTOR ENERGY CONTROL NOTIFICATION CHECKLIST

PROJECT MANAGER:_____ DATE: _____

CONTRACTOR REPRESENTATIVE:_____DATE: _____

SCOPE OF WORK REQUIRING ENERGY CONTROL:_____

_____

_____

_____

_____

_____

_____

_____

COPY OF THE CONTRACTOR'S ENERGY CONTROL PLAN: REVIEWED: _____ YES _____ NO

Asbestos Abatement Contractor Checklist and Sign-Off Form

Date: _____

To: Abatement Contractor: _____

From: Project Manager: _____

The locations of asbestos containing materials have been reviewed with the contractor's Project Manager and specific scope of the work is enclosed. All asbestos removal will meet DEQ and OR-OSHA requirements. We may audit the work operations and can require changes to the procedures if the operations do not meet the DEQ or OR-OSHA requirements.

- **OR-OSHA Division 3, 29 CFR 1926.58 Construction - Asbestos**
- **Asbestos Licensing and Certification Requirements: OAR 340-33 DEQ**
- **Asbestos Abatement Requirements from the Emission Standards and Procedural Requirements for Hazardous Air Contaminants: OAR 340-25 DEQ**
- **DEQ requires special handling of non-friable asbestos-containing materials.**
- **Asbestos Disposal Requirements DEQ – OAR 340 Division 25 (13)**

Name of Contractor: _____ Date: _____

Signature of Employee(s) and list DEQ Certification Training Number and Date:

_____

_____

_____

_____

Hazardous Materials - Solid Waste Storage and Disposal Contractor Notification Checklist

---

Date: _____

To: Hazardous Materials Contractor: _____

From: Project Manager: _____

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 OR-OSHA, DEQ/EPA and DOT applicable rules shall be followed by the contractor and employees. The 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 listing of contractor names that will be on the job and their DEQ, OR-OSHA and DOT Hazardous Materials Training Level.

Name of Contractor: _____Date: _____

List DEQ/OR-OSHA/DOT Hazardous Materials Training Level:

_____

_____

_____

_____

Lead Abatement Contractor Notification Checklist

Date: _____

To: Contractor: _____

From: Project Manager: _____

The locations of lead containing materials have been reviewed by the Project Manager and are listed below. The contractor understands that they must follow Oregon OSHA Lead Standard requirements in Construction Standard OAR 437 Division 3 and 29 CFR 1926.62. This may include provisions for regulated areas.

Disposal of lead containing materials will meet Oregon DEQ requirements as applicable.

Please provide a listing of contractor names that will be on the job and their DEQ, OR-OSHA and DOT Hazardous Materials Training Level.

Name of Contractor: _____Date: _____

List Lead Abatement Training Level:

_____

_____

_____

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 16
FORKLIFT SAFETY

A. Purpose

This Forklift/Industrial Vehicle Safety Policy and Procedures are to help ensure that our employees are protected from unsafe conditions and operations that potentially can occur in the use of industrial vehicles and to ensure compliance with OR-OSHA regulations dealing with the use of industrial vehicles.

Only trained and authorized employees are permitted to drive or operate industrial vehicles. All operators are required to follow the procedures in this chapter and manufacturer recommendations on vehicle usage and safety. All industrial vehicles are to be maintained in safe operating conditions.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.178 “Powered Industrial Vehicles"
2. State: OAR 437 Subdivision N

C. General Responsibilities

1. **Management:** Managers and supervisors are responsible to see that only trained employees are authorized to operate industrial vehicles. Supervisors are responsible to maintain training records and/or copies of licenses, which demonstrate the employee’s training. Management is required to see that adequate maintenance services are provided and used to ensure safe vehicle operating conditions.
2. **Authorized Operators:** Employees who are authorized to operate industrial vehicles must follow all safety procedures as outlined in this chapter, by OR-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 repair prior to use. All vehicle operators will immediately report any accidents to the supervisor.
3. **Safety Officer:** The Safety Officer will assist in providing employee training and auditing facilities for compliance with this chapter and OR-OSHA regulations.
4. **Safety Committee:** The Safety Committee will include review of industrial vehicle safety in their quarterly inspection activities.

D. Safety Procedures

Authorized Operators shall be trained and approved by their supervisor to operate various types of industrial vehicles. The training shall 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 shall operate forklift trucks.

Inspections and Fueling

1. Before start of shift, a visual inspection using the Lift Truck Operator Inspection checklist (Appx. A) must be made to determine that the horn, lights, brakes, tires, gas supply, hydraulic lines, etc. are in safe working condition.
   - **NOTE**: Any defects shall be reported immediately to your supervisor and or maintenance for correction. The vehicle will be out of service until proper repairs can be made.
2. The operator shall not operate an unsafe forklift or other industrial vehicles at any time.
3. Operators shall not make any repairs or adjustments on the vehicle unless authorized.
4. For electric powered vehicles the battery charging shall be done only in a well-ventilated area and no smoking or open flame is prohibited in battery charging area.
5. All fueling will be done by authorized personnel only.

Determining Load Capacity

1. Operators shall not exceed the safe load capacity of a vehicle at any time. Double tiered loads shall not be handled unless the vehicle is designed to accommodate the load.
2. The load capacity is shown on the "Forklift Nameplate".
3. The load center is determined by the center of gravity which is listed as the horizontal distance from the front of the face of the forks, or the load face of an attachment, to the center of gravity of the load.
4. The center of gravity of lift truck 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:
   a. Size of 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)
5. Operators shall not counterweight a forklift to increase lifting capacity, rather the load shall be broken down or a forklift with a higher rating shall be used.

General Operating Safety Rules

1. The operator needs to be in control of the forklift steering at all times.
2. No person shall 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 persons on it, except work platforms especially designed for this purpose. Work platforms must have standard guardrails, and must be securely fastened to the forks. In addition:
   a. The hydraulic system shall 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 shall attend the lift equipment while workers are on the platform.
   c. The operator shall be in the normal operating position while raising or lowering the platform.
   d. The vehicle shall 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 shall be guarded to prevent contact with chains or other shear points.
4. Operators shall not put their fingers, arms, or legs between the uprights of the mast, or beyond the contour of the forklift.
5. Operators shall 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 tipover. A lift truck is less stable when the forks are elevated, with or without a load. In fact, the lift truck will actually tip over easier when empty, than when loaded with the load lowered.
7. 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.
8. The operator will not use reverse as a brake.
9. Forklifts shall be driven on the right side of the aisleway/roadway.
10. Operators shall cross railroad tracks diagonally whenever possible.
11. All vehicles shall 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
12. Operators shall slow down on wet and slippery surfaces.
13. Operators shall slow down at cross walks and locations where vision is obstructed.
14. Operators entering a building or nearing a blind corner shall make their approach at reduced speed, sound horn, and proceed carefully. (Exception: blind corners equipped with mirrors providing a full view in all directions.)
15. Operators shall give pedestrians the right-of-way at all times.
16. Operators shall not drive toward any person who is in front of a fixed object or wall.
17. Operators shall not overtake and pass another forklift traveling in the same direction at intersections, blind spots, or hazardous locations.
18. No person shall stand or walk under elevated forks or any load.
19. When a forklift is not carrying a load the operator shall travel with the forks low.
20. The load shall be carried as low as possible (consistent with safe operations, 2 to 6 inches above the surface.)
21. Forks shall be placed under the load as far as possible.
22. Generally, do not lift a load with one fork.
23. No load shall be moved unless it is safe and secure. To maintain balance, the load should be centered and the forks properly spaced to be near the outside edges. Before traveling, the load shall be tilted back until it rests securely. A load backrest shall be used to prevent spilling of the load.
24. Position each fork 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.
25. 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.
26. Operators need to watch overhead clearance.
27. On a downgrade, the load shall be last.

28. Bridge plates shall be properly in place and secured. Wheels of trucks and railroad cars shall be blocked to prevent movement during loading.
29. Forklift drivers will come to a complete stop before reversing direction of travel.
30. Unstable loads shall be restacked or banded.
31. On an upgrade, the load shall be first.
32. Use extra care when handling long lengths of pipe, or other materials.
33. 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 injure or kill someone.
34. Hazardous materials will not be moved unless they are in approved containers.
35. Compressed gas cylinders shall be moved only in special pallets designed for this purpose.
36. When unloading trucks or trailers, the brakes on the vehicle will be set (locked) and the wheels choked.
37. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness. Powered industrial trucks shall not be driven onto flooring that is found to be of inadequate strength.
38. Operators shall never attempt to turn sideways on an incline. Do not run on an incline to reduce the possibility of a tipover a lift truck must not be driven across an incline.
39. All vehicles shall be equipped with audible warning signals and where practical shall have spark arrestors.
40. All vehicles operated in the dark or in poorly lighted areas shall be equipped with head and taillights.
41. All vehicles operated in areas where overhead hazards exist shall be equipped with an approved overhead guard.
42. Vehicle flywheels, gears, sprockets, chains, shear points and other exposed parts constituting a hazard to the operator or other employees shall be guarded.
43. Vehicles powered by internal combustion engines shall not operate in buildings unless the buildings are adequately ventilated.
44. Vehicles must be safely parked when not in use. The controls shall be neutralized, power shut off, brakes set, and the forks left in a down position flat on the surface, and 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).
45. A forklift shall not be left on an incline unless it is safely parked and the wheels blocked.
46. No forklift shall be parked within 10 feet of a railroad track.
47. Forklifts shall not be parked or left unattended in aisles or by exits or doors.

E. LPG Tank Filling Procedure

1. Oregon OSHA Requirements:

- OAR 437-125-230(3) Industrial trucks (including lift trucks) equipped with permanently mounted fuel containers shall be charged outdoors.
- OAR 437-125-430(7) The dispensing of LP gas into the fuel container of a vehicle shall be performed by a competent attendant who shall remain at the LP-gas dispenser during the entire transfer operation.

- OAR 437-125-230(5) Engines on vehicles shall be shut down while fueling if the fueling operation involves venting to the atmosphere.
- OAR 437-125-435: There shall be no smoking on the driveway of the (fueling area) ,in the dispensing areas or transport truck unloading areas.
- Signs prohibiting smoking shall be posted within sight of the person refueling. Letters on such signs shall be not less than 4 inches high. The motors of all vehicles being fueled shall be shut off during the fueling operations.

2. Basic Rules: Industrial Truck Use of LPG

a. When filling forklift tanks, the employee must wear eye, face and hand protection.
b. No more than two LP-Gas containers shall be used on an industrial truck for motor fuel purposes.
c. Industrial trucks shall not be parked and left unattended in areas of possible excessive heat or sources of ignition.
d. All sources of ignition should be eliminated to the extent possible. Conspicuous signs must be posted in the storage area forbidding smoking.
e. Outside tank area all readily ignitable material such as weeds and long dry grasses shall be removed within 10 feet of any container.

3. Container valves and container accessories

a. Valves, fittings, and accessories connected directly to the container including primary shutoff valves, shall have rated working pressure of at least 250 p.s.i.g. and shall be of material and design suitable for LP-Gas service. Cast iron shall not be used.
b. Shutoff valves located as close to the container as practicable.

F. 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 shall 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 shall 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.

APPENDIX A
FORKLIFT Training Checklist Record

Assigned Employee:_____Type of Vehicle:_____

Supervisor/Instructor:_____Date:_____

Part 1: Forklift Safety Policy: Check if Reviewed _____
The Basic Forklift Safety Policy was reviewed with the employee and the written forklift test part 1 and 2 was given and reviewed.

Part 2: Machine Operator Pre-Shift Checklist: Check if Reviewed _____
The pre-shift vehicle checklist was reviewed and the employee was shown and demonstrated the visual inspection procedures per form (see attached).

Part 3: Driver Skill Demonstration: Check if Reviewed _____
The vehicle operation and controls were demonstrated. The employee was observed during operation of the vehicle which included the following driving skill test:

___1. Handling of the vehicle including: forward and backwards driving while unloaded.
___2. Handling the vehicle with a banded or bundled load and rearranging a stack of boxes or other materials on pallet.
___3. Hauling unbanded material.
___4. 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.
___5. Demonstrates proper method for parking the vehicle.

Comments on Driving Ability:_____

LIFT TRUCK OPERATOR INSPECTION CHECKLIST

A. Inspection before Operations - Checks with the Engine Stopped

Vehicle Element	**Initial if OK, not 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 belts latches properly	
9. Set is secure & latched to the hood	
10. Hood is securely latched.	

B. 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 power shift 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 power shift 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.	

APPENDIX C
FORKLIFT & VEHICLE OPERATOR TEST

CIRCLE THE CORRECT ANSWER

Part 1: Inspection, Maintenance & Vehicle Care

1. The operator shall make an operational test or check of all parts which are vital to safe operation:
   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 really 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 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. 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 of the above

PART 2: SAFE OPERATION OF THE FORKLIFT

1. 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
2. Forklifts are steered by the:
   a. Front wheels
   b. Back wheels
3. 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
4. Forklifts are so stable that bumps, holes and slick spots cannot upset them or cause loads to spill:
   a. True
   b. False
5. 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
6. 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
7. 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
8. 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 of the above
9. When going down inclines, drive in reverse. Drive forward when climbing inclines:
   a. True
   b. False
10. Forklifts may be used as heavy-duty jacks:
    a. True
    b. False
11. 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
12. Loads may be lifted while traveling:
    a. True
    b. False

FORKLIFT & VEHICLE OPERATOR TEST ANSWER SHEET

Part I.

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 contacted by the operator must be insulated or guarded.

PART II.

1. c. Riders are never permitted on forklifts unless proper seats are provided within the canopy.
2. b. Because they are steered with the rear wheels, the rear end swings can injury workers on the floor. The operator must always be aware of the rear swing hazard.
3. a. True. The load should be tilted only enough so the load rests against the heel of the forks or the back load rest.
4. b. False. Any of these conditions can cause the vehicle to upset. Surfaces should be leveled and holes filled in. All slick spots should be cleaned up or neutralized.
5. b. False. No part of the body is allowed outside of the canopy when traveling or operating the vehicle.
6. d. 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.
7. a. True. In both instances cited in 6 above, the vehicle must be rendered harmless when “unattended”.
8. d. It is essential that the operator by aware of overhead clearance restrictions, that the direction of travel be watched and that the forks be kept as low as possible at all times when traveling.
9. a. True. In order to keep the load against the heel of the forks, drive in reverse when going down inclines, forward when climbing inclines.
10. 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.
11. b. False. Loads should be carried close to the ground. Usually 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.
12. 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.

APPENDIX D
FORKLIFT TRAINING CERTIFICATION

THE FORKLIFT TRAINING REGULATIONS REQUIRE THAT EMPLOYEES BE TRAINED AND CERTIFIED DRIVERS 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 THAT HAS INCLUDED THE FOLLOWING MATERIAL:

1. **SAFETY EQUIPMENT**
2 **VISUAL CHECKS**
3. **LOAD HANDLING EQUIPMENT**
4. **HYDRAULIC SYSTEM**
5. **FLUID LEAKS**
6. **FLUID LEVELS**
7. **OPERATIONAL CHECKS**
8. **SAFE REFUELING PROCEDURES**
9. **KNOWING THE TRUCK**
10. **HANDLING LOADS**
11. **SAFE DRIVING**
12. **PARKING YOUR FORKLIFT**
13. **STAYING ALERT**
14. **WHAT TO DO IN AN EMERGENCY**
15. **SAFETY RULES**

I HAVE HAD MY RESPONSIBILITIES RELATING TO THE HANDLING AND 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.

_____ _____
INSTRUCTOR SIGNATURE DATE

THE ABOVE EMPLOYEE HAS PASSED/NOT PASSED THE DRIVING PORTION OF THE FORKLIFT TESTING.

_____ _____
INSTRUCTOR SIGNATURE DATE

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 17
AERIAL LIFTS

A. An aerial lift is any vehicle-mounted device used to elevate personnel, including:

1. Extended boom platforms
2. Aerial ladders
3. Articulating (jointed) boom platforms
4. Vertical towers
5. Any combination of the above

Aerial lifts have replaced ladders and scaffolding on many job sites due to their mobility and flexibility. They may be made of metal, fiberglass, reinforced plastic, or other materials. They may be powered or manually operated and are considered to be aerial lifts whether or not they can rotate around a primarily vertical axis.

B. Hazards Associated with Aerial Lifts

The following hazards, among others, can lead to personal injury or death:

1. Fall from elevated level
2. Objects falling from lifts
3. Tip-overs
4. Ejections from the lift platform
5. Structural failures (collapses)
6. Electric Shock (electrocutions)
7. Entanglement hazards
8. Contact with objects
9. Contact with ceiling and overhead objects

C. Training

Only trained and authorized persons are allowed to operate an aerial lift. Training shall include:

1. Explanations of electrical, fall, and falling object hazards
2. Procedures for dealing with hazards
3. Recognizing and avoiding unsafe conditions on the work site
4. Instructions for correct operation of the lift device (including maximum intended load and load capacity)
5. Demonstrations of skills and knowledge needed to operate an aerial lift before operating in the field
6. When and how to perform inspections
7. Manufacturer's requirements

D. Refresher or additional Training

Workers should be retrained if any of the following conditions occur:

1. An accident occurs during aerial lift use
2. Workplace hazards involving an aerial lift are discovered
3. A different type of aerial lift is used
4. Re-certification after 3 years

E. What To Do Before Operating an Aerial Lift

1. Pre-start inspection

Prior to each work shift, conduct a pre-start inspection to verify that the equipment and all its components are in safe operating condition. Follow the manufacturer's recommendations and include a check of:

a. Vehicle components
   i. Proper fluid levels (oil, hydraulic, fuel and coolant)
   ii. Check for leaking fluids
   iii. Wheels and tires
   iv. Battery and charger
   v. Lower-level controls
   vi. Horn, gauges, lights and backup alarms
   vii. Steering and brakes

b. Lift Components
   i. Operating and emergency controls
   ii. Personal protective devises
   iii. Hydraulic, air, Pneumatic, fuel and electrical systems
   iv. Fiberglass and other insulating materials
   v. Missing or unreadable placards, warnings, or operational, instructional and control markings
   vi. Mechanical fasteners and locking pins
   vii. Cable and wiring harnesses
   viii. Outriggers, stabilizers, and other structures if included
   ix. Loose or missing parts
   x. Guard rail systems

Do not operate any aerial lift if any of these components are defective until it is repaired by a qualified mechanic. Remove defective aerial lifts from service (tag out) until repairs are made.

F. Work Site Inspections

Employers must assure that work zones are inspected for hazards and take corrective action to eliminate such hazards before and during operation of an aerial lift. Items to look for include:

1. Drop-offs, holes, or unstable surfaces such as soil
2. Inadequate ceiling heights
3. Slopes, ditches, or bumps
4. Debris and floor obstructions
5. Overhead electric power lines and communication cables
6. Other overhead obstructions
7. Other hazardous locations and atmospheres
8. High wind and other severe weather conditions such as ice
9. Presence of others in close proximity to the work being done

G. What to Do While Operating an Aerial Lift

1. Fall Protection

a. Ensure that access gates or openings are closed
b. Stand firmly on the floor of the bucket or lift platform
c. Do not climb on or lean over guardrails or handrails

d. Do not use planks, ladders, or other devices as a working position
e. Use a body harness or restraining belt with a lanyard attached to the boom or bucket
f. Do not belt-off to adjacent structures or poles while in the bucket or platform

2. Operating/Traveling/Loading

a. Do not exceed the load-capacity limits. Take the combined weight of the worker(s), tools and materials into account when calculating the load
b. Do not use aerial lifts as a crane
c. Do no carry objects larger than the platform
d. Do not drive with the lift platform raised (unless the manufacturer's instructions allow this)
e. Do not operate lower-level controls unless permission is obtained from the worker(s) in the lift (except emergencies)
f. Do not exceed vertical or horizontal or horizontal reach limits
g. Do not operate an aerial lift in high winds above those recommended by the manufacturer
h. Do not override hydraulic, mechanical, or electrical safety devices

3. Overhead Protection

a. Be aware of overhead clearance and overhead objects, including ceilings
b. Do not position aerial lifts between overhead hazards if possible
c. Treat all overhead power lines and communication cables as energized**, 10 feet is the minimum approach distance**
d. Ensure that the power utility or power line workers de-energize power lines in the vicinity of the work being performed

4. **Stability in the Work Zone**

a. Set outriggers on pads or on a level, solid surface
b. Set brakes when outriggers are used
c. Use wheel chocks on sloped surfaces when it is safe to do so
d. Set up work zone warnings, such as cones and signs, when necessary to warn others

Insulated aerial lifts offer protection from electric shock and electrocution by insulating you from electrical ground. However, an insulated aerial lift does not protect you if there is another path to ground (for instance, if you touch another wire). To maintain effectiveness of the insulating device, do not drill holes in the bucket.

AERIAL LIFT PRE-USE INSPECTION FORM

AERIAL LIFT PRE-USE INSPECTION CHECKLIST		
Operator Print Name:	Aerial or Scissor Lift ID#	
Unit Type: Scissor Lift / Articulating Boom /Man Lift / Other:	Date:	Location of Use:

#	Inspection Item and Description	P/F/NA
1.	Operating and emergency controls are in proper working condition, EMO button or Emergency Stop Device.	
2.	Functional upper drive control interlock (i.e. foot pedal, spring lock, or two hand controls)	
3.	Emergency Lowering function operates properly	
4.	Lower operating controls successfully override the upper controls	
5.	Both upper and lower controls are adequately protected from inadvertent operation.	
6.	Control panel is clean & all buttons/switches are clearly visible (no paint over spray, etc.)	
7.	All switch & mechanical guards are in good condition and properly installed	
8.	All Safety Indicator lights work	
9.	Drive controls function properly & accurately labeled (up, down, right, left, forward, back)	
10.	Motion alarms are functional	
11.	Safety decals are in place and readable	
12.	All guard rails are sound and in place, including basket chains	
13.	Work platform & extension slides are clean, dry, & clear of debris	
14.	Work platform extension slides in and out freely with safety locking pins in place to lock setting on models with extension platforms.	
15.	Inspect for defects such as cracked welds, fuel leaks, hydraulic leaks, damaged control cables or wire harness, etc.	
16.	Tires and wheels are in good condition, with adequate air pressure if pneumatic	
17.	Braking devices are operating properly	
18.	The manufacturer's operations manual is stored on the unit	
19.	Oil level, Hydraulic Oil Level, Fuel Level, Coolant Level	
20.	Battery Charge	
21.	Outriggers in place or functioning. Associated alarms working	

Safety Precautions (Have, Look For, or be Aware of)	Check to Confirm
Personal Protection in use. (Harness, Lanyard, Hardhat etc.)	
In windy conditions see manufacturer guidelines **or if not in guidelines then …if lift begins to rock in the wind lower the lift**	
Floor conditions: Drop offs, holes, uneven surfaces, and sloped floors.	
Housekeeping: Debris, floor obstructions, cords, construction material and supplies.	
Electrical power cables or panels, (minimum 10 feet away). If larger lines or wet conditions contact Facilities Utilities Department for guidance.	
Chemical lines, gas lines, drain lines, utilities	
Overhead obstructions	
Loads (do not exceed capacity)	
Watch for vehicular and pedestrian traffic. Set up barricades if necessary	
If the Aerial lift fails any part of this inspection, remove the key and report the problem to your supervisor. Do not operate. If anything has been jerry-rigged notify your supervisor at once.	

PART 2: CHAPTER 18
EXCAVATION SAFETY

A. 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.

    c. Acceptable protective systems include:

        i. Sloping

        ii. Benching

        iii. Support or shield systems (i.e. timber systems, aluminum hydraulic shoring systems, trench coffins, etc.)

2. A ***competent person*** is someone who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them. This person must have had specific training in, and be knowledgeable about, soils analysis, the use of protective systems and the requirements of the occupational safety and health rules.

3. At every excavation where employee exposure can be reasonably anticipated, OSHA requires that we or our contractor assign a competent person to conduct a daily inspection of the excavation. 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. 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.

B. Minimum Requirements for Excavations

1. Utility locates must be done before ANY digging or excavation is started.

2. Excavations deeper than five feet requires 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 have the ability to 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 back-filled.

b. Conduct frequent and regular inspections of the job site, materials and equipment for unsafe or unhealthful conditions or practices.

4. Sloping and benching techniques must be evaluated by the competent person.

5. Trenches or pits four feet deep or greater must be tested for atmospheric hazards before entering 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.

C. General Hazards of Excavations

The competent person must evaluate all of the following conditions and specify methods of control.

1. Unstable soils: cave-in, sloughing, shifting soils, water in the excavation

2. Underground and overhead utilities

3. Vehicle traffic

4. Nearby structures, sidewalks, roadways that could collapse from vibration, water flow or soils changes

5. Heavy equipment operations

6. Atmospheric hazards – low oxygen, flammable gas, toxics, vehicle and equipment exhaust

7. Falls and other physical hazards

8. Spoils piles

9. Flying debris (kicked off from heavy equipment, dump trucks)

D. 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 three feet above the top of the trench.

4. Spoils piles must be set back at least three 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, alert the competent person if changes develop, and exit 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 in operator's view during excavation.

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.

E. 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.

F. 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 lock-out pressure vacuum pressure, air and water pressure before servicing or un-jamming equipment.

7. Required PPE includes hardhat, eye protection, hearing protection, steel toe boots, and gloves.

G. 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 four feet past side shielding.

6. Structures outside of the trench must be braced or protected from cave in (i.e. poles, buildings, sidewalks).

H. 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 for cave in before entry.

7. Competent person ensures appropriate shielding or shoring before employees enter.

I. Trench Emergencies and Rescue

1. If an emergency occurs in an excavation, contact 911 immediately.

2. Trench rescue can be extremely hazardous because of conditions ranging from unsafe atmosphere to cave-in. Co-workers often become victims of secondary collapse during rescue attempts. Call 911 right away for emergency help.

3. When calling 911, be SPECIFIC about the exact nature of the emergency in order to mobilize the correct technical rescue resources as quickly as possible

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 19
FALL PROTECTION COMPLIANCE PLAN

A. General Procedure

_____ has responsibility for employee job site safety, and our management and employees must be accountable for meeting these responsibilities. Our staff will work with the Safety Committee in ensuring that the work can be done in a safe manner and that appropriate fall protection is either available or provided.

There are various rules that apply to fall protection. To reduce confusion _____ will comply with the most restrictive system which is found in the Construction Code under Fall Protection. Basic maintenance work, as well as construction related work, requires fall protection systems at 6 feet. General industry related work requires fall protection at 4 feet but does not require a written plan. This policy applies to all fall protection needs. Changes to the following procedures may only be done by the job site competent person (usually the Supervisor or Lead Person) if different regulations apply:

1. Fall protection needs will be evaluated by the competent person which may be the Foreman or Lead Person. When fall protection is needed based on the construction site needs or general maintenance or repair work task, it is _____ responsibility to implement the system and train all our employees in the system.

2. Exception from the use of conventional fall protection equipment is only available when our employees are engaged in leading edge work, or residential construction work and it can be demonstrated that it is not feasible or it creates a greater hazard to use conventional fall protection equipment.

A Fall Protection Plan work sheet has been developed and is found as APPENDIX 1 of this compliance plan. The Fall Protection Plan includes the following elements:

1. Prepared by our competent person and is specific for the site where the leading edge work is being done.

2. A copy of the Fall Protection Plan is to be kept at the job site.

3. Our competent or qualified person shall approve any changes to the Plan.

4. The Plan shall be implemented and employees are to follow the plan.

5. The Plan must document why conventional fall protection cannot be used.

6. The Plan will outline the measures taken to reduce or eliminate the fall hazard for workers.

7. The Plan identifies each location where conventional equipment is not feasible to use. These locations are classified as controlled access zones.

8. If there is an employee fall, the qualified person is to investigate the circumstances of the fall, determine if the Fall Protection Plan needs to be changed and shall implement those changes.

B. Fall Protection System

A fall protection system can be a variety of equipment, facilities and work procedures. The fall protection used, like a guardrail, can prevent a fall by restraining a worker from falling or safely stopping a fall by arresting the fall through the use of personal protective equipment.

Oregon OSHA requires fall protection when employees are working six feet or higher (four feet in general industry activities). The systems can include:

1. **Guardrail System**

    a. A **standard guard railing** consists of a top rail, midrail and posts which can support an impact of 200 pounds in any direction. The top rail must be installed at 42 inches, plus or minus three inches, from floor level. Required on all open-sided floors, ramps, balconies, walkways and platforms elevated 4 to 6 feet or more above the floor, ground or other working surface. The midrail and toe board may be omitted where materials are regularly passed over the edge or where the railing is set back 12 inches or more from the leading edge.

    b. If **wire rope** is used for top rails it must be marked at six-foot intervals or less with high visibility material.

    c. A **standard stair railing** is constructed in the same configuration as a standard railing but at a height of 30-34 inches. Required on all fixed stairways consisting of 4 or more risers, be installed on each open side.

    d. A **standard handrail** consists of a single lengthwise member 1-1/2 to 2 inches in diameter mounted on a wall or partition with brackets at a height of 30 - 34 inches from the stair tread. Required on enclosed stairways, preferably on the right side descending.

    e. A **standard toe board** is at least 4 inches in vertical height and is installed no more than 1/4 inch above floor level at the perimeter of the open-sided working/walking surface. Required whenever persons pass below and there is a potential for being struck by falling objects.

2. **Safety Net Systems** are arrest systems consisting of mesh nets, including panels, connectors and other impact absorbing components. These would not generally be used by our employees. If safety nets are needed, our competent person will oversee the installation and performance requirements of the system. Oregon OSHA and Washington Industrial Safety and Health Act (WISHA) have specific requirements for the performance of safety nets.

3. **Personal Fall Arrest Systems** are safety harness and lanyard fall arrest systems where the harness is worn on the body and attached to a lanyard and lifeline or structure. The lanyard consists of a rope suitable for supporting one person. One end is fastened to a safety harness and the other end is secured to a substantial object or a safety line. Required wherever a

person is exposed to a fall while working from an unguarded surface more than six feet above a lower level or at any height above dangerous equipment.

(NOTE: The Occupational Safety and Health Rules do not require compliance with the safety harness rules whenever ". . . the work is of limited duration and limited exposure and the hazards involved in rigging and installing the safety devices equal or exceed the hazards involved in the actual construction, these provisions may be temporarily suspended provided adequate risk control is exercised under competent supervision." Consequently, no point of attachment may be available at the site. Under these circumstances, the employee shall not access the unguarded area unless an alternate protection is used to prevent exposure to a fall hazard (i.e. observation from a safe area, a secured ladder, a guard railed personnel lift or scaffold).

The _____ will provide affected employees with a safety harness and lanyard for use at sites meeting the above requirements. Training and proper fitting will be conducted prior to use. It will be the responsibility of the person using the belt/harness and lanyard to confirm with the client that the lifeline to which the lanyard is secured is above the point of operation and is capable of supporting a minimum dead weight of 5,000 pounds.

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

b. PPE shall be chosen based on the following:

    i. Distance of potential fall.

    ii. Impact on the body from the PPE during a sudden stop.

    iii. Intended use of PPE (stopping fall as opposed to retrieval from a confined space).

    iv. Fall arresting forces on the body.

c. Type II chest harnesses shall be worn for rescue purposes only, and in no case be used to stop a vertical fall. Attachment must be located in the center of the wearer's back near the shoulder level or above the wearer's head for fall arrest.

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

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

    i. Authorized personnel shall ensure the use of a lifeline attached to a manual or power operated winch with 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 over speed mechanism is incorporated. An anchorage point, such as that provided by a seven or ten-foot tripod should be available before work is commenced.

ii. Full body harnesses, yokes and wristlets shall be used when retrieval is through narrow openings.

f. Strength Requirements:

i. All components of fall protection shall 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).

ii. When tied off while working on suspended scaffolding, each worker must use a separate line which is not connected to the scaffold.

iii. Permanent lifelines must be a minimum one-half inch steel cable capable of supporting 5,000 pounds per person at the center of the line.

iv. Hardware for body belts/harnesses and lanyards must be drop forged, corrosion resistant with smooth edges, a minimum of 5,000-pound breaking strength without cracks or breaks.

v. Knots shall not be used in components of a fall protection system since a knot will reduce the strength by at least 50%.

vi. Lanyards shall be kept as short as possible. In no case shall they exceed six feet to minimize the possibility and length of a free fall without contacting a lower level; and must completely stop a free-fall and limit deceleration distance to 3.5 feet with a shock-absorbing lanyard.

vii. Wire rope or rope-covered wire lanyards shall not be used where impact loads are anticipated or where there is an electrical hazard.

viii. Belts and lanyards that have been subjected to impact loading shall be removed from service and destroyed or returned to the manufacturer for recertification.

ix. Rope lanyards shall not be stored in work pouches where they may be subject to deterioration.

x. Where there is exposure to abrasion, spun nylon rather than filament nylon shall be used.

xi. Only safety belts/harnesses with locking snaps shall be used to prevent "rollout" or disengagement. All hardware shall be compatible with the locking snap.

xii. Only shock-absorbing lanyards shall be used to reduce the fall arresting impact on the wearer.

xiii. 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.

g. Inspection and Recordkeeping:

i. The user shall inspect the fall protection prior to each use.

ii. A trained and competent person shall inspect all components of each fall protection device at least once each six months. The dates of this biannual inspection shall be recorded on a permanent tag attached to the belt.

iii. Every five years the fall protection system shall be returned to the manufacturer for recertification.

iv. Any defective body belt/harness or lifeline shall be destroyed or returned to the manufacturer before use.

v. Any unit subjected to impact loading shall be immediately removed from service and destroyed or sent to the manufacturer for recertification.

4. **Ladder Climbing Safety**

a. A ladder cage is required on all fixed ladders more than 24 feet to a maximum unbroken length of 30 feet. Employees shall not ascend a fixed ladder more than 24 feet long unless a properly designed cage is installed or a ladder-climbing device is available.

b. A ladder-climbing device may be substituted for ladder cages in certain circumstances and usually consists of a safety belt, lanyard, friction brake and sliding attachment.

c. A floor opening cover is required whenever an opening measures 12 inches or more in its least dimension through which a person may fall. Whenever the cover is not in place, the opening must be constantly attended by a person or temporary guardrails or other physical barricades installed.

5. **Positioning Devices**. These systems are primarily intended to protect construction workers doing form work and reinforcing steel work which would not generally apply to electrical construction work.

6. **Warning lines and safety monitoring systems** have specific applications for roofing operations on low-slope roofs. Safety monitoring systems also have applications when conventional fall protection cannot be used and when no alternative measures have been implemented. These systems do not provide a physical means of preventing or arresting falls but warn of the leading

edge. An example could be a barricade is a device which physically prevents entry by a person into a danger zone.

C. When Fall Protection Systems are Required

SUMMARY OF THE REQUIREMENTS

HEIGHT BEFORE GUARDING OR FALL PROTECTION IS REQUIRED BY OSHA

ACTIVITY	HEIGHT	OSHA RULE
Construction:		
1. Guard Rails	6 feet**	1926.500(d)
2. Fall Protection General	6 feet	1926.500-502
3. Low pitched roofs	6 feet (10 ft exception)*	437-03-75
4. Steel erection	25 feet max unless floor exists within 30 feet	1926.105
5. Perimeters and Over Water	25 feet max at perimeter	1926.105
6. Fixed Ladders	24 feet	1926.1053(a)(19)
7. Excavations	Edge not seen	1926.501(b)(7)(I)
1. General Industry – General	4 feet	1910.23
2. Fall Protection General	10 feet	437-50-50-(1)
3. Fixed Ladders w/o Cages	24 feet	437-02-1910.27(d)(5)

NOTE: To measure height:

1. The distance from the working/walking surface to grade or lower level.

2. The worst fall hazard should be considered in each particular application or work/access method.

* Oregon OSHA permits roof work up to 10 feet above a lower level without guardrails, safety nets or arrest systems if they are constructing leading edges, setting walls and trusses, or doing roofing and sheathing work.

** Guardrails can be required at less than 6 feet if there is dangerous equipment below.

D. Employee Training

1. Our employees are all potentially exposed to fall hazards. As a result, all employees are required to be part of the Fall Protection Training Program. This program will be given by the employee's supervisor or Safety Manager.

2. Employee attendance shall be documented by a written certification report. (See copy of form in APPENDIX C)

3. At least the latest training certification shall be maintained by the Supervisor or employee assigned recordkeeping.

4. The program includes the following training materials:

    a. Recognition of fall hazards due to the nature of the work area.

    b. Fall protection requirements.

    c. Correct procedures for erecting, maintaining, disassembling and inspecting the fall protection system to be used.

    d. The use and operation of the following systems as they apply to the need for fall protection at the job site:

        i. guardrail systems

        ii. personal fall arrest systems

        iii. safety net system

        iv. warning line system

        v. safety monitoring

        vi. controlled access zones

        vii. and other protection to be used

    e. Each employee needs to understand their role if a safety monitoring system is used.

    f. The correct procedures for the handling and storage of equipment and materials and erection of overhead protection.

    g. The role of employees in fall protection plans as applicable.

    h. Review of the OR-OSHA fall protection standard.

5. Retraining will be given if there are changes on the fall protection program, if the equipment changes, or if there are any inadequacies in the use of fall protection systems or equipment.

APPENDIX A
MODEL FALL PROTECTION PLAN

The following plan was developed to ensure that Fall Protection is properly addressed, and when conventional protection is not feasible, a written plan is developed which meets Oregon OSHA requirements.

The Fall Protection Plan must be completed, signed and posted at each jobsite where standard guard-railing and other conventional fall protection is not in use.

FALL PROTECTION PLAN

Job Number: _____
Job Description: _____
Foreman: _____
Crew Size: _____ 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:

_____ _____
_____ _____
_____ _____
_____ _____

GENERAL FALL PROTECTION WORK PLAN

Job Location: _____

Job Description: _____

INSTRUCTIONS:
1. Inspect the site prior to the start of the job.
2. Complete this form.
3. Post at worksite where it can be plainly seen along with the summarized plan.

FALL HAZARDS - Six feet or more:

_____ Open Beam/Truss/Frame Work
_____ Beyond Guard Rails
_____ Hanging Scaffolds/Staging
_____ Tank/Vessel/Equipment Tops
_____ Equipment Frame
_____ Other, Describe:_____

_____ Standard Scaffold/Staging
_____ Roof Edge
_____ Erection/Disassembly
_____ Ripe Rack System
_____ Floor Opening

OTHER HAZARDS

____ Electrical
____ Water
____ Chemical
____ Hot Surfaces
____ Foot Traffic
____ Other, Describe:_____
____ Overhead
____ Below

METHODS OF PROTECTION TO BE USED

____ Guardrail
____ Parapet Wall
____ Barrier Structure
____ Fixed Lanyard
____ Retractable Lanyard
____ Harness
____ Safety Block
____ Rope Grab
____ Lifeline
____ Rope Protection
____ Sling/Runners
____ RFP w/Boatswain
____ Safety Net
____ Warning Line (low pitched roofs/floors only)
____ Other, Describe:_____

METHODS OF WORK AREA ACCESS

_____ Portable Ladder
_____ Fixed Ladder
_____ Scaffolding
_____ Roof
_____ Manlift
_____ Staging
_____ Truss/Beam
_____ Framework
_____ Suspended Descent
_____ Other, Describe:_____

General Fall Protection Work Plan – Page 2

METHODS OF MATERIAL/TOOL HANDLING:

_____ Line
_____ Hoist
_____ Crane
_____ Tool Belt
_____ Tool Bucket
_____ Designated Lifting Zone
_____ Material stored at least 10 feet away from edge and no higher than barrier

METHODS OF SECURING LANYARDS/LINES (Minimum 5,000 lbs. Holding Force):

_____ Ladder Siderail (secured)
_____ Eye Bolts
_____ Other, Describe:_____
_____ Structural Workings
_____ Steel Pipe

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(S) ASSIGNED:

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

COMPETENT PERSON: _____ DATE: _____

APPENDIX B
FALL PROTECTION TERMS

The following terms are used in the last section on fall protection equipment:

Anchorage: A secure point of attachment for lifelines, lanyards or deceleration devices.

Arresting Force: The force generated by arresting the test weight that is transmitted through the fall arresting system components to the anchorage or load cell.

Body Belt (Safety Belt): A strap that both secures around the waist and attaches to a lanyard, lifeline or deceleration device.

Body Harness: Straps that are secured about an employee 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.

Buckle: Any device for holding the body belt, chest harness and body harness close around the employee's body.

Chest Harness: Straps secured only around the chest with shoulder straps to assure proper chest strap positioning.

Classification According to Use: Safety belts, harnesses and lanyards are classified according to their intended use as:

> **Type I**: A personal fall arrest/restraint system that is used to arrest a wearer's fall from a work level. It consists of an anchorage(s), hardware, body belt or body harness, a lanyard or deceleration device and may include a lifeline, or a device that subsequently allows the employee to be lowered to the ground or to a lower work level.
>
> **Type II**: A personal fall restraint 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 body belt, a chest or body harness and anchor, as applicable.

Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate such hazards.

Construction Activities: Work for construction, alteration or repair, including painting and decorating.

Drop Line: A vertical line from a fixed anchorage, independent of the work surface, to which the lanyard is affixed.

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 5,400 pounds per person.

Hardware: Buckles, D-rings, snap-hooks and associated hardware used to attach the components of the system together.

Lanyard: A flexible line used to secure a body belt or body harness to a lifeline or directly to a point of anchorage.

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 5,400 pounds per person applied at the center of the lifeline.

Positioning Belt: Simple or compound straps that may be secured about the body to hold the wearer in the work position.

Positioning Device System: A body belt or body harness system rigged to support employees on elevated vertical surfaces, such as a wall or windowsill, allowing them to work with both hands free.

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.

Quick Release Buckle: A multiple component buckle that can be released with one positive action and whose releasing mechanism is positively locked in normal use.

Retracting Line: An automatic tensioning system that pays out and retracts line at a certain speed and locks or brakes when the speed is exceeded.

Rope Grab: A device that attaches to a lifeline as an anchoring point to provide a means for arresting a fall.

Snap Hook: A self-closing device with a keeper, latch or other similar arrangement that will remain closed until manually opened. This includes self-closing, single action, double action, double locking snap hooks.

Strength Factor: The ratio of the minimum strength of a personal fall arrest/restraint system to the arresting force generated by a 250 pound person free-falling the length of the lanyard.

Suspension Belts: A design of simple or compound straps that may be secured about the wearer's body as an independent work support. These are commonly referred to as saddle belts, boatswain's chairs or tree trimmers' belts.

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.

Total Fall Distance: The maximum vertical distance between a wearer's body belt or body harness attachment points before and after the fall is arrested, including lanyard extension and/or deceleration distance.

APPENDIX C
TRAINING RECORD FORMS

The following record is to be used by the qualified trainer to document the name of the employees trained, date of the training, and the signature of the person who conducted the training.

If another employer provided the training, your supervisor will complete the certification form based on the training dates and type of information provided by the employee. Your supervisor needs to decide if the training was adequate for your current work assignment.

A. Employee Fall Protection Written Certification Record

B. Employee Previous Training Record

FALL PROTECTION

EMPLOYEE TRAINING CERTIFICATION

(Employee Name) **(Date)**

The City's fall protection policy and procedures have been reviewed with me. This included information on the following:

1. Recognition of fall hazards due to the nature of the work area.
2. Fall protection requirements.
3. Correct procedures for erecting, maintaining, disassembling and inspecting the fall protection system to be used.
4. The use and operation of the following systems as they apply to the need for fall protection at the job site:
   a. guardrail systems
   b. personal fall arrest systems
   c. safety net system
   d. warning line system
   e. safety monitoring
   f. controlled access zones
   g. other protection to be used.
5. Each employee needs to understand their role if a safety monitoring system is used.
6. The correct procedures for the handling and storage of equipment and materials and erection of overhead protection.
7. The role of employees in fall protection plans as applicable.
8. Review of the OR-OSHA or WISHA fall protection standard.
9. The City's enforcement and discipline policy.

I understand the fall protection procedures and policy. My supervisor has shown me the specific equipment procedures.

_____

Employee Signature

_____

Trainer's/Supervisor's Signature **Date**

The following training has been given to ensure that the employee understands the specific fall equipment operation procedure. This includes providing the following information: (Fill in as applicable)

A.

B.

FALL PROTECTION
EMPLOYEE'S PAST TRAINING CERTIFICATION

_____

(Employee Name) (Date)

My previous employer, _____, or other trainers provided me with fall protection training that included the following:

1. Recognition of fall hazards due to the nature of the work area.
2. Fall protection requirements.
3. Correct procedures for erecting, maintaining, disassembling and inspecting the fall protection system to be used.
4. The use and operation of the following systems as they apply to the need for fall protection at the job site:
   a. guardrail systems
   b. personal fall arrest systems
   c. safety net system
   d. warning line system
   e. safety monitoring
   f. controlled access zones
   g. other protection to be used.
5. Each employee needs to understand their role if a safety monitoring system is used.
6. The correct procedures for the handling and storage of equipment and materials and erection of overhead protection.
7. The role of employees in fall protection plans as applicable.
8. Review of the OSHA or WISHA fall protection standard.
9. The company's enforcement and discipline policy.

I understand the fall protection procedures and policy. My supervisor has shown me the specific equipment procedures.

_____

Employee Signature

_____

Trainer's/Supervisor's Signature **Date**

The following training has been given to ensure that the employee understands the specific fall equipment operation procedure. This includes providing the following information: (Fill in as applicable)

A.

B.

C.

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 20
WELDING – FIRE & EXPOSURE CONTROL

A. Purpose

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 work place safety and compliance with 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 OSHA standard (1910.1026) a written plan is required. APPENDIX B provides a model hexavalent chromium plan.

B. Applicable Legal Standards

1. Federal: 29 CFR 1910.252 Gas and Electric Welding
2. Federal: 29 CFR 1910.1026 Hexavalent Chromium
3. State: OAR 437 Division 2

C. Chapter Format

This chapter reviews welding safety procedures. Specific information on the welding hazards is also found in the *Hazard Communication Program*.

D. 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 OSHA standard are in accordance with American Welding Society - Terms & Definitions A3-0.969.

E. Policy

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).

F. Responsibilities

Supervisors are responsible to see 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.

1. **Authorized Operators:** Employees who are authorized to perform welding must follow all safety procedures as outlined in this chapter, by 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.

2. **Safety Officer:** Assist in providing employee training and auditing facilities for compliance with this chapter and OSHA regulations.

3. **Safety Committee:** The Safety Committee will include review of welding safety in their quarterly inspection activities.

G. Procedures

1. **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 Safety Officer to ensure that all welders and fire watch personnel understand these hazards.

   a. 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.

   b. Fire Hazards:

      i. Flying sparks are the source of many industrial fires.

      ii. In areas where flammable gases, vapors, and dusts 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.

      iii. 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.

      iv. 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.

   c. Radiant energy hazards in welding include: ultraviolet light, infrared light and visible light.

i. Exposure to the welding arc (ultraviolet rays) may result in very painful irritation of the eyes and skin.

ii. Infrared rays act upon the eyes simply as heat and can cause a burn or irritation of the tissue affected.

iii. The glare of excessive visible radiation can cause headaches, eye fatigue and loss of visual efficiency.

iv. Protective eye wear must be worn during welding to prevent harm to the eyes from light energy.

d. 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.

2. Authorized Employees: Welding shall be performed by qualified welders only.

3. Welding operations need to be performed away from flammable materials.

   a. If the object to be welded cannot be moved to a safe location, all movable hazardous materials should be moved to a safe location.

   b. 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 A - Hot Work Permit)

   c. 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).

6. 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 or emission of toxic vapors (see Hot Work Permit).

7. 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*).

8. 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 perform welding in confined areas (See Confined *Space Procedures*).

9. Precautions need to be taken to avoid shock from electric welding operations.

    a. The welder should not stand in water while doing electric welding.

    b. Hot electrode holders should not be dipped in water.

    c. Cables with damaged insulation or exposed conductors must not be used, and should be replaced before any such work is attempted. If necessary, to join lengths of cable, it must be done using only connectors designed specifically for the purpose.

10. 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.

11. The eyes and skin should be protected against the glare and radiation from a welding arc or flame.

    a. Helpers and attendants should also be provided with eye protection.

    b. Other personnel in the vicinity of welding operations should be protected from reflections by suitable shields and barriers.

12. Respiratory equipment may be necessary if ventilation is not sufficient. Specific operation requirements should be made by your supervisor.

13. Gas cylinders must be handled carefully (breaking the neck from a full cylinder can turn the bottle into a missile).

14. Cylinders shall be secured to keep them from falling.

15. Acetylene cylinders must always be maintained in an upright position.

16. 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.

    a. 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.

b. Grease and oil should be kept away from and never used to lubricate oxygen cylinder valves or regulators.

c. Do not handle oxygen cylinders with oily hands or gloves.

d. 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.

17. 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.

18. 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.

19. 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.

20. 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.

21. Backflow or flashback preventers shall be installed on all oxygen/flammable gas welding and cutting units between the torch or blowpipe and the hoses.

22. Gauges shall be maintained in good condition. Cracked or missing glass shall be replaced prior to use.

APPENDIX A
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 on the next page 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 two to four 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 following 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 issue 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 turned into the Safety Officer after the final checkup has been completed.

CHECKLIST OF REQUIRED PRECAUTIONS:

_____ Floor swept clean of combustibles.

_____ Floor wet down.

_____ 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 at LEAST 30 minutes after work 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:

_____

FINAL CHECKUP BY MAINTENANCE: Work area and all adjacent areas to which sparks and heat might have spread (i.e. floors above and below and opposite side of walls) were inspected after the work was completed and found to be fire safe.

MAINTENANCE PERSON SIGNATURE: _____

FINAL CHECKUP BY SUPERVISOR: 2 TO 4 hours after work completed:
DATE & TIME: _____

SIGNATURE OF SUPERVISOR:_____

CUTTING – WELDING HOT WORK PERMIT

DATE:_____
LOCATION:_____

WORK TO BE DONE:

_____
_____
_____
_____
_____

MAINTENANCE:

_____
_____

INSTRUCTIONS TO FIRE WATCH:

_____
_____

FIRE WATCH NAMES:

_____
_____
_____

APPENDIX B
HEXAVALENT CHROMIUM EXPOSURE PLAN

A. Purpose and Scope

1. This plan provides the required OSHA Exposure Assessment Plan per 29 CFR 1910.1026 Chromium (VI). 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 time-weighted average (TWA) 8-Hour exposure for plant operations.

2. This plan is also the compliance plan for protection of employees whose exposures exceed the action limit and the permissible exposure limit.

B. Key Definitions

1. **Action level** means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

2. **Employee exposure** means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

3. **Permissible exposure limit (PEL).** The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an 8-hour time-weighted average (TWA).

4. **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.

C. Responsibilities

1. **Management** must ensure compliance with this program and supervisors are responsible to implement the program with their employees.

2. **Safety Officer** is responsible to ensure that adequate exposure monitoring is conducted, written program for Cr VI protection are developed and implemented by the affected departments and various records are appropriately maintained.

D. Applicable Legal Standards

1. Federal: 29 CFR 1910.1026 Hexavalent Chromium
2. Federal: 29 CFR 1910.134 Respiratory Protection
3. Federal: 29 CFR 1910.1200 Hazard Communication
4. State: OAR 437 Division 2

E. The following processes result in exposure to CrVI during welding and grinding operations.

NOTE: Each employer must arrange for baseline and periodic sampling of employees' exposures during welding, cutting, and grinding on stainless steel. The results of monitoring should be included in this plan.

F. Employee Job Classes with CrVI 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.

G. Compliance Issues

1. **Exposure Determination and On-going Monitoring:**

    a. Initial sampling done _____ shows exposures levels (in compliance or exceeding) the standard.

    b. The follow up sampling will be based on quarterly to semi-annual monitoring based on OSHA requirements if the action limit or permissible exposure limit is exceeded.

2. **Regulated Area:** If overexposures occur to the employees during welding and grinding operations then the work area becomes a regulated area. The employees working in these areas will be trained and required to wear respiratory equipment when working with stainless steel. Warning signs are posted in appropriate areas.

3. **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.

4. **Respiratory Protection**: For complete respirator program see separate plan.

5. **Emergencies**: No emergency release of CrVI is possible based on the exposure processes.

6. **Protective work clothing and equipment**:

    a. The welders and grinders are provided coveralls that are part of special laundry process.

    b. The coveralls used in the regulated area are laundered by an outside company that has been informed of the potential CrVI contamination.

    c. The employees have assigned change room lockers for placing clean street clothing.

    d. The welding leather coats and other style non-flammable clothing are stored in the regulated area welding supply lockers.

    e. The leather gloves will also be stored with welding supplies and leather clothing in regulated area lockers.

7. **Hygiene areas and practices**:

    a. The welders and grinders have wash facilities available at _____.

    b. Laundry bins are located in the change room at _____.

    c. 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.

    d. The employees shall wash face and hands prior to entering lunchroom.

8. **Eating and Drinking Areas**:

    a. The employees are not permitted to eat or drink in the regulated area.

    b. Welders and grinders shall doff protective outer clothing prior to eating and wash face and hands.

9. **Housekeeping**: General housekeeping is done. Housekeeping methods prohibit the use of compressed air and dry sweeping of CrVI contaminated dust.

10. **Medical Surveillance:** The welders and grinders are part of CrVI medical surveillance program managed by _____ outside consulting occupational health physician and providers. The employees are part of the respiratory protection clearance program.

11. **Training:** All welders, grinders and supervisors are part of the CrVI training and information program. The employees shall be informed of the quarterly exposure monitoring results and any changes in compliance plan.

12. **Recordkeeping:** All exposure records, exposure assessment and related documents are maintained for a minimum of 30 years by the main office administration.

THIS PAGE INTENTIONALLY LEFT BLANK

PART 2: CHAPTER 21
ELECTRICAL SAFETY

A. Purpose

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 work around overhead or underground electrical lines must follow these guidelines.

PLEASE ALSO REFER TO THE LOCKOUT/TAGOUT PROGRAM WHEN COMPLETING WORK ON EQUIPMENT AND MACHINERY

B. Applicable Legal Standards

1. State: OAR 437 Division 2, Subdivision S (Electrical Safety - 1910.301 – 1910.399)

2. Federal: 29 CFR 1910.399

C. General Responsibilities

1. Direct Supervisor: The Direct Supervisor is responsible for the overall implementation of the policy working with the Safety Committee and employees. The Direct Supervisor is also responsible to see that there are periodic audits and an annual review of the policy. To protect employees from hazards when working with electrical equipment, tools and appliances the direct Supervisor must:

    a. Inspect all electrical equipment to make sure the equipment is safe.

    b. Require that all electrical equipment is used for its approved or listed purpose.

    c. Require that all electrical equipment used or located in wet or damp locations is designed for such use.

    d. Require that electrical equipment that isn't marked (?) by the manufacturer can't be used.

    e. Identify disconnecting means (see also lockout/tagout program).

    f. Maintain electrical fittings, boxes, cabinets and outlets in good condition.

    g. Maintain all flexible cords and cables in good condition and use safely.

    h. Guard electrical equipment to prevent employees from electrical hazards.

i. Require that all electrical equipment be effectively grounded.

j. Require that all electrical equipment have overcurrent protection.

2. Authorized Employees: Only workers and supervisors who have received special training to recognize and understand the particular hazards involved with the tasks to be performed and the type and magnitude of electrical hazards are authorized to implement the procedure.

3. 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.

4. 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 on working around 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. Has been approved or listed by a recognized testing laboratory, such as Underwriters Laboratories (UL) or other approving agency.

2. Is approved, or listed as approved, for the purpose it is being used.

3. Has strong and durable guards providing adequate protection, including parts designed to enclose and protect other equipment.

4. Is insulated.

5. Won't overheat under conditions of use.

6. Won't produce arcs during normal use.

7. Is classified by:

   a. Type

   b. Size

   c. Voltage

   d. Current Capacity

   e. Specific Use

f. Other Factors

E. Ensuring Electrical Equipment Used for Approved or Listed Purpose

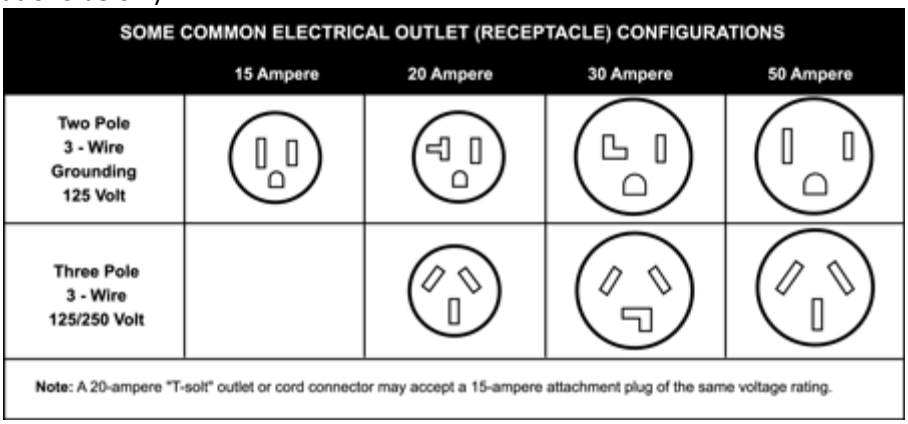
1. Electrical Outlets: Places on an electric circuit where power is supplied to equipment through receptacles, sockets and outlets for attachment plugs.

2. Receptacles: Outlets that accept a plug to supply electric power to equipment through a cord or cable.

3. Electrical outlets should be rated equal or greater to the electrical load supplied.

4. The proper mating configuration should exist when connecting the attachment plug to the receptacle.

5. 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).



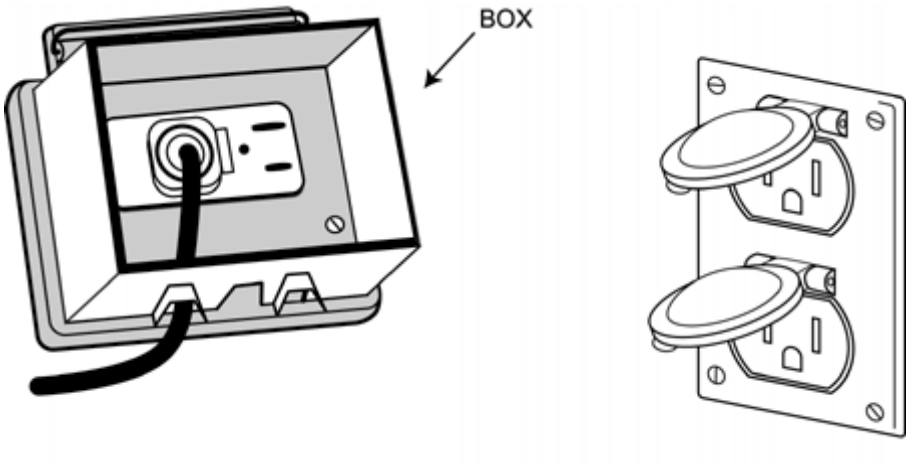
F. Ensure Electrical Equipment Used or Located in Wet / Damp Locations is Designed for Such Use

1. 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 wireways, lampholders, or other electrical parts.

2. 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.



G. Electrical Equipment has Manufacturers Markings

1. Markings on electrical equipment must be durable and appropriate for the environment.

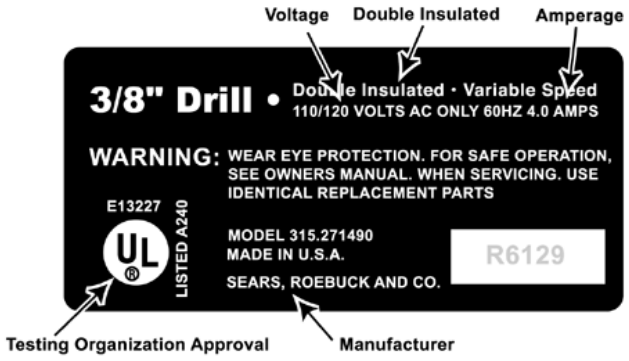
2. Appropriate markings include:

    a. The manufacturer's name; or

    b. Trademark; or

    c. The organization responsible for the product; and

    d. Voltage, current, wattage or other ratings as necessary (see illustration below).



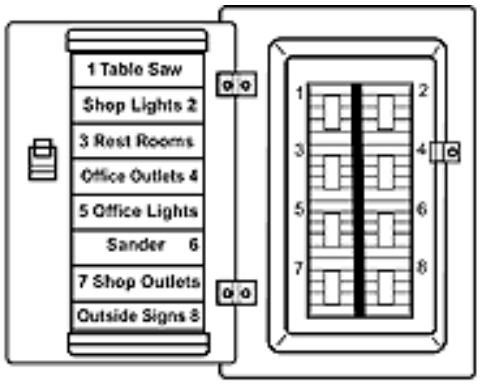
Electrical tools and equipment marked to show manufacturer, approvals and power requirements.

H. 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 that the disconnect is located.



I. 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 operational 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 maintained at all times.

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 Volts to Ground
a	**3 ft**	**3 ft**
b	**3 ft**	**3½ ft**
c	**3 ft**	**4 ft**

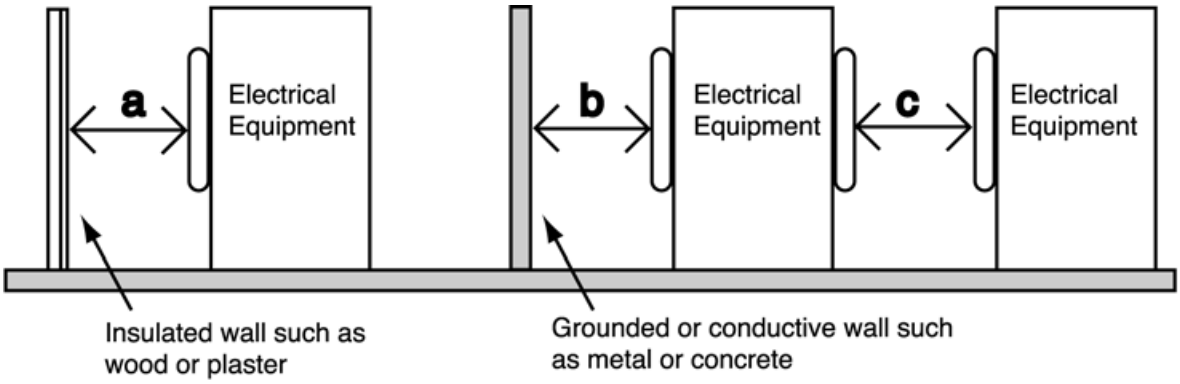
Minimum clear distances may be 2 feet 6 inches for equipment built or installed before 3/20/82.

*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).



Distance are measured from live parts if they are exposed or from the enclosure front if live parts are enclosed.

J. Maintain All Flexible Cords and Cables in Good Condition and 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.
4. Use flexible cords only as follows:
    a. Wiring of equipment and appliances
    b. Data processing cables approved as a part of the data process system
    c. Pendants

d. Wiring for fixtures

e. Connecting portable lamps or appliances to an approved outlet with an attached plug

f. Connecting stationary equipment that is frequently changed with an attachment plug energized from an approved outlet

g. Preventing noise or vibration transmission

h. 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

i. Elevator cables

j. Wiring of cranes and hoists

5. If additional power supplies are needed, utilize an approved surge protector with multiple outlets.

6. Extension cords cannot be plugged into or piggybacked onto other extension cords or surge protectors.

7. 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.

8. Cheater boxes plugged into electrical receptacles are not allowed.

9. Flexible cords cannot be used in the following ways:

    a. As a substitute for fixed wiring of a structure

    b. To run through holes in walls, ceilings, or floors

    c. To run through doorways, windows or similar openings

    d. To attach to building surfaces

    e. To conceal behind building walls, ceilings, or floors

    f. To raise or lower equipment

10. Flexible cords and cables are approved and suitable for the way they will be used and the location where they will be used.

11. 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.

12. Insulation on flexible cords and cables must be intact.

13. 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.

14. Do not plug or unplug equipment or extension cords of equipment that is energized using wet hands.

K. Temporary Use of Cords

1. Temporary electrical power 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) Experimental or development work.

    c) For no more than 90 days for:

        i. Christmas decorative lighting

        ii. Carnivals

        iii. Other similar purposes

        iv. Halloweentown

2. Flexible cords and electrical cords used on a temporary basis must be protected from accidental damage by avoiding sharp corners and projections, especially where they pass through doorways and other pinch points.

L. 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.

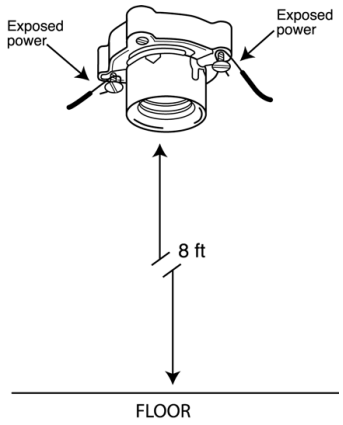
d. By location on a balcony, gallery, or platform that will exclude unqualified personnel.

e. By being located 8 feet or more above the floor or other working surface.

2. All electrical appliances, fixtures, lampholders, lamps, rosettes, and receptacles should not have live parts normally exposed to employee contact.

    a. Rosettes and cleat type lampholders 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.



M. Ensure Electrical Equipment is Effectively Grounded

1. The path to 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 noncurrent 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. Clothes washers and dryers

f. Electrical aquarium equipment

g. Hedge clippers

h. Electric lawn mowers

i. Electric snow blowers

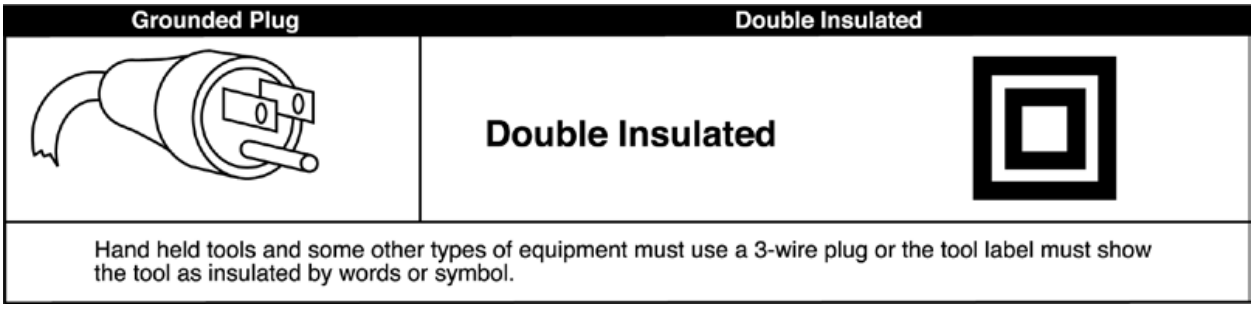
j. Web scrubbers

k. Tools likely to be used in damp or wet locations

l. Appliances used by employees standing on the ground, on metal floors or working inside of metal tanks or boilers

m. 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).

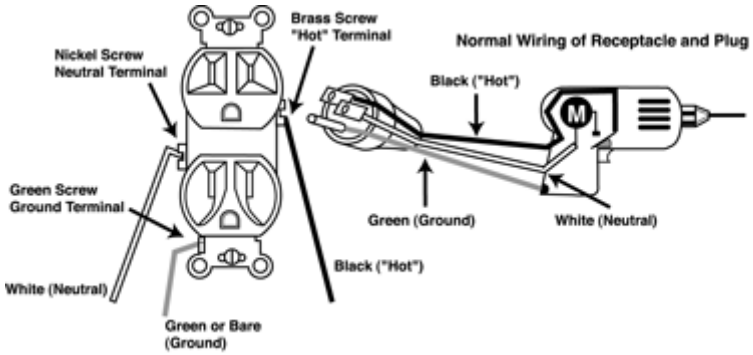


6. Exposed metal parts of fixed equipment that don't conduct electricity (but may become energized) must be grounded if the equipment is in a wet or damp location and isn't isolated.

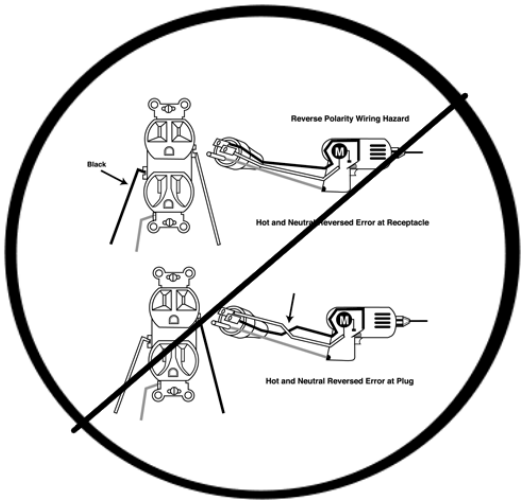
7. Grounded wires must be identified and look different than the other conductors (wires).

8. Grounded 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).
9. Grounding terminals or grounding-type devices on receptacles, cords, connectors, or attachments plugs should not be used for purposes other than grounding.

Correct wiring



Incorrect Wiring



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.

N. 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 thermo 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. 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.

O. 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 as long as 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 – grounding program at each job site that includes specific procedures.

9. One or more competent persons should be designated to run the program. (A competent person is someone who is capable of identifying 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.

P. 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 on the standard read www.cbs.state.or.us/external/osha/pdf/rules/division 3/div3p.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 the area of work must be de-energized 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.

Q. 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:

1. Coordination of work schedules

2. Identification of temporary mechanical barriers to prevent contact with the lines

3. Temporary de-energizing and grounding of the lines

4. Temporary raising or moving of the lines

R. Personal Protective Equipment (PPE)

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 shall be maintained in a safe, reliable condition.

3. Insulating equipment shall 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 shall be given an air test, along with the inspection.

4. Insulating equipment shall 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.

PART 2: CHAPTER 22
LADDER SAFETY

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 or 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.

A. 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.

1. **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 a minimum distance, based on the ladder's overall length. The overall length is determined by the 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.

Ladder length	Overlap
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.

   a. **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.

2. **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.

a. **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.

3. Other types of stepladders include:

a. **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.

b. **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.

c. **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 wood or fiberglass rail and metal step. 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.

i. **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 spreader braces — also called electrician's ladders — are common on construction sites, too.

d. **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.

e. **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.

4. Determine the proper length.

    a. **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.

    b. **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.

5. 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:

    a. Special duty (IAA) 375 pounds

    b. Extra heavy duty (I-A) 300 pounds

    c. Heavy duty (I) 250 pounds

    d. Medium duty (II) 225 pounds

    e. Light duty (III) 200 pounds

6. Determine the right material.

    a. **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.

    b. **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.

    c. **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.

B. How to set up your ladder

1. Setting up the ladder.

    a. Move the ladder near your work. Get help if the ladder is too heavy to handle alone.

    b. Lock the spreaders on a stepladder. Secure the lock assembly on extension ladders.

    c. Make sure there are no electrical wires overhead.

    d. Use traffic cones or other barriers to protect the base of the ladder if vehicles or pedestrians could strike it.

    e. 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.

    f. 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.

2. Achieving a 4:1 set-up angle.

    A non-self-supporting ladder should have a set-up angle of about 75 degrees — a 4:1 ratio of the ladder’s working length to set-back distance.

    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.

3. Five steps for setting up an extension ladder.

    a. 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.

b. 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.

c. Firmly grip the ladder, keep it vertical, and carefully move back from the structure about one quarter the distance of the ladder's working length. This allows you to place it at the correct angle against the structure.

d. 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.

e. 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.

C. 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.

D. 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

E. How to store your ladder.

You'll extend a ladder's life by storing it properly:

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.

F. How to transport your ladder.

When you carry 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.

When you transport a ladder in a truck or a trailer, make sure that it's 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.

G. Safe practices checklist.

1. When portable ladders are used for access to 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 — 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 nonconductive 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 by 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.

H. OR-OSHA requirements for portable ladders.

1. General Industry 2/D - Walking-working surfaces

   OAR 437-002-0026 Portable Ladders

2. Ladder requirements frequently cited by Oregon OSHA

   29 CFR 1926.1053(b) (1), Portable ladders do not extend 3 feet above an upper landing.

   29 CFR 1926.1053(b) (4), Ladders not used for their designed purpose.

   29 CFR 1926.1053(b) (13), Top of ladder may not be used as a step.

3. LADDER REGULATIONS

   a. OAR 437-002-0026(5)(a-h)

      i. (a) Step spacing must be uniform and not more than 12 inches. Steps must be parallel and level when the ladder is in the normal use position.

      ii. (b) All joints, attachments and working parts of ladders must be tight and not worn to a point that causes a hazard. Do not use ladders with damaged or bent parts.

      iii. (c) Replace frayed or badly worn rope.

      iv. (d) Safety feet and other auxiliary equipment must in good condition.

      v. (e) Inspect ladders and remove from use any with defects. Ladders awaiting repair must be tagged, "Dangerous, Do Not Use."

      vi. (f) There can be no dents, breaks or bends in the side rails or rungs;

      vii. (g) Do not make ladders by fastening cleats across a single rail.

      viii. (h) Portable ladders must have non-slip bases.

b. OAR 437-002-0026(7)(h)(A-C)

I. (h) Secure ladders as necessary when used on surfaces that may allow slipping or movement. Use one of the following methods:

II. (A) non-slip bases on the ladder feet; or,

III. (B) steel points or safety shoes on the ladder feet, designed for the type of surface the ladder is on; or

IV. (C) nail the ladder to the floor, or set it against secured blocks or chocks.

I. Definitions.

1. **Check-** A lengthwise separation of the wood that occurs across the rings of annual growth.

2. **Cleat-** A rectangular ladder crosspiece placed on edge, upon which a person may step while ascending or descending.

3. **Competent person-**One who can identify existing and predictable hazards where employees work and who can take prompt corrective measures to eliminate the hazards.

4. **Decay-** Disintegration due to action of wood-destroying fungi. Also known as dote or rot.

5. **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.

6. **Extension trestle-** A self-supporting portable ladder that is adjustable in **ladder** 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.

7. **Fastening-** A device that attaches a ladder to a structure, building, or equipment.

8. **Platform ladder-** A self-supporting ladder of fixed size with a platform at the working level.

9. **Rungs-** Ladder crosspieces on which a person steps when ascending or descending.

10. **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.
11. **Single (or straight) -** A single section non-self-supporting portable ladder, **ladder** nonadjustable in length. Its length is measured along a side rail.
12. **Special-purpose-** A general-purpose portable ladder with modified **ladder** features for specific uses.

13. **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.

14. **Steps-** The flat crosspieces of a ladder on which a person steps when ascending or descending.

15. **Tread-** The horizontal member of a step.

16. **Tread width-** The horizontal distance from front to back of the tread, including nosing.

17. **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.

PART 2: CHAPTER 23
HEAT ILLNESS PREVENTION PLAN

A. Purpose

The purpose of this plan is to protect our employees from the hazards of hot working environments.

B. Scope

This plan implements efficient and safe work practices that will prevent both indoor and outdoor heat-related illnesses among employees at our workplace. It will be used for training new employees and for the annual refresher training of employees. All employees potentially exposed to hot working environments are subject to his plan.

C. Background

Heat-related illnesses can happen if workplace activities in a hot environment overwhelm the body's ability to cool itself. This becomes more likely if any of the risk factors are present. Examples include working in a hot environment without adequate access to water for rehydration, working in protective gear that does not allow air circulation across the skin, or working where the humidity is too high for sweat to evaporate.

D. Risk Factors

The following are environmental risk factors for heat illness (see heat index on page 272):

- Air temperature above 90 degrees F
- Relative humidity above 40 percent
- Radiant heat from the sun and other sources
- Conductive heat sources such as dark-colored work surfaces
- Lack of air movement
- Physical effort needed for the work
- Use of nonbreathable protective clothing and other personal protective equipment

The following are personal risk factors for heat illness:

- Lack of acclimation to warmer temperatures
- Poor general health
- Dehydration
- Alcohol consumption
- Caffeine consumption
- Previous heat-related illness
- Use of prescription medications that affect the body's water retention or other physiological responses to heat such as beta blockers, diuretics, antihistamines, tranquilizers, and antipsychotics.

E. Heat-Related Illnesses

- Heat rash is the most common health problem in hot work environments. It is caused by sweating and looks like a red cluster of pimples or small blisters. Heat rash usually appears on parts of the body that overlap or rub other parts of the body, such as in the groin area, under the arms or breasts, and in knee or elbow creases. If an employee has symptoms of heat rash, provide a cooler, less humid work environment, if possible. Advise the employee to keep the area dry and not to use ointments and creams that make the skin warm or moist, which can make the rash worse.
- Heat exhaustion can best be prevented by being aware of one's physical limits in hazardous environment on hot, humid days. The most important factor is to drink enough clear fluids (especially water, not alcohol or caffeine) to replace those lost to perspiration. Signs and symptoms of heat exhaustion typically include:

    - Profuse sweating
    - Weakness and fatigue
    - Nausea and vomiting
    - Muscle cramps (associated with dehydration)
    - Headache
    - Light-headedness or fainting; fainting or loss of consciousness is potentially serious and should be treated as a medical emergency.

  When you recognize heat exhaustion symptoms in an employee, you must intervene; stop the activity, and move the employee to a cooler environment. Cooling off and rehydrating with water (or electrolyte- replacing sports drinks) is the cornerstone of treatment for heat exhaustion. If the employee resumes work before their core temperature returns to normal levels, symptoms may quickly return.

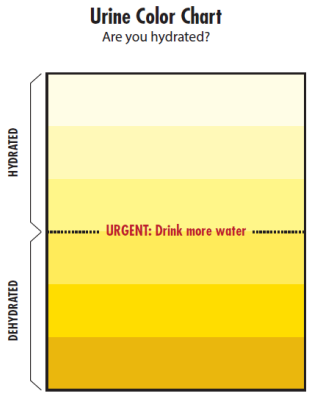
  If there is no intervention and the body's temperature regulation fails, heat exhaustion can rapidly progress to heat stroke, a life-threatening condition!
- Heat stroke requires an immediate emergency medical response. The person may stop sweating, become confused or lethargic, and may even have a seizure! The internal body temperature may exceed 106 degrees F. Signs and symptoms of heat stroke typically include:
    - Absence of sweating
    - Dry skin
    - Agitation or strange behavior
    - Dizziness, disorientation, or lethargy
    - Seizures or signs that mimic those of a heart attack

  Ensure that emergency responders are summoned immediately if heat stroke is suspected. While waiting for emergency responders to arrive, cool the employee; move the employee to an air-conditioned environment or a cool, shady area; and help the employee remove any unnecessary clothing. Do not leave the employee unattended. Heat stroke requires immediate medical attention to prevent permanent damage to the brain and other vital organs that can result in death.

Heat index	Risk level	Protective measure
Less than 91°F (33°C)	Lower (caution)	Basic health and safety planning
91°F to 103°F (33°C to 39°C)	Moderate	Implement precautions and heighten awareness
103°F to 115°F (39°C to 46°C)	High	Additional precautions to protect workers
Greater than 115°F (46°C)	Very high to extreme	Even more aggressive protective measures

F. Preventing Heat-Related Illnesses

- Gradually increase workloads and allow more frequent breaks during the first week of work so that employees become acclimatized to higher temperatures, especially those who are new to working in the heat or have been away from that work for a week or more.
- Encourage employees to frequently drink small amounts of water before they become thirsty to stay hydrated. During moderate activity, in moderately hot conditions, employees should drink about 8 ounces of liquid every 15 to 20 minutes. Employees can monitor their hydration with a urine chart. Urine should be clear or slightly colored; dark urine is a warning sign! See urine color chart.



- Encourage employees to eat regular meals and snacks as they provide enough salt and electrolytes to replace those lost through sweating as long as enough water is consumed.
- Provide a buddy system where employees encourage each other to drink water, use shade to stay cool, and to watch each other for symptoms of heat-related illness.
- Educate employees that drinking extreme amounts of water can also be harmful (more than 12 quarts in a 24-hour period).
- Schedule frequent rest periods with water breaks in shaded or air- conditioned recovery areas. Note that air conditioning does not result in loss of heat tolerance.
- Ensure employees are aware of the signs of heat-related illnesses.
- and encourage them to report immediately if they or their co-workers show symptoms.
- Monitor weather reports daily and reschedule jobs with high heat exposure to cooler times of the day, if possible. Be extra vigilant when air temperatures rise quickly. When possible, schedule routine maintenance and repair projects for the cooler parts of the year.
- Provide shade or cool areas for breaks.

Water is located throughout the work area including vehicles and break areas.

Shade or cooling areas are located in vehicles and break area. Shade will be provided if there are no other locations for cooling.

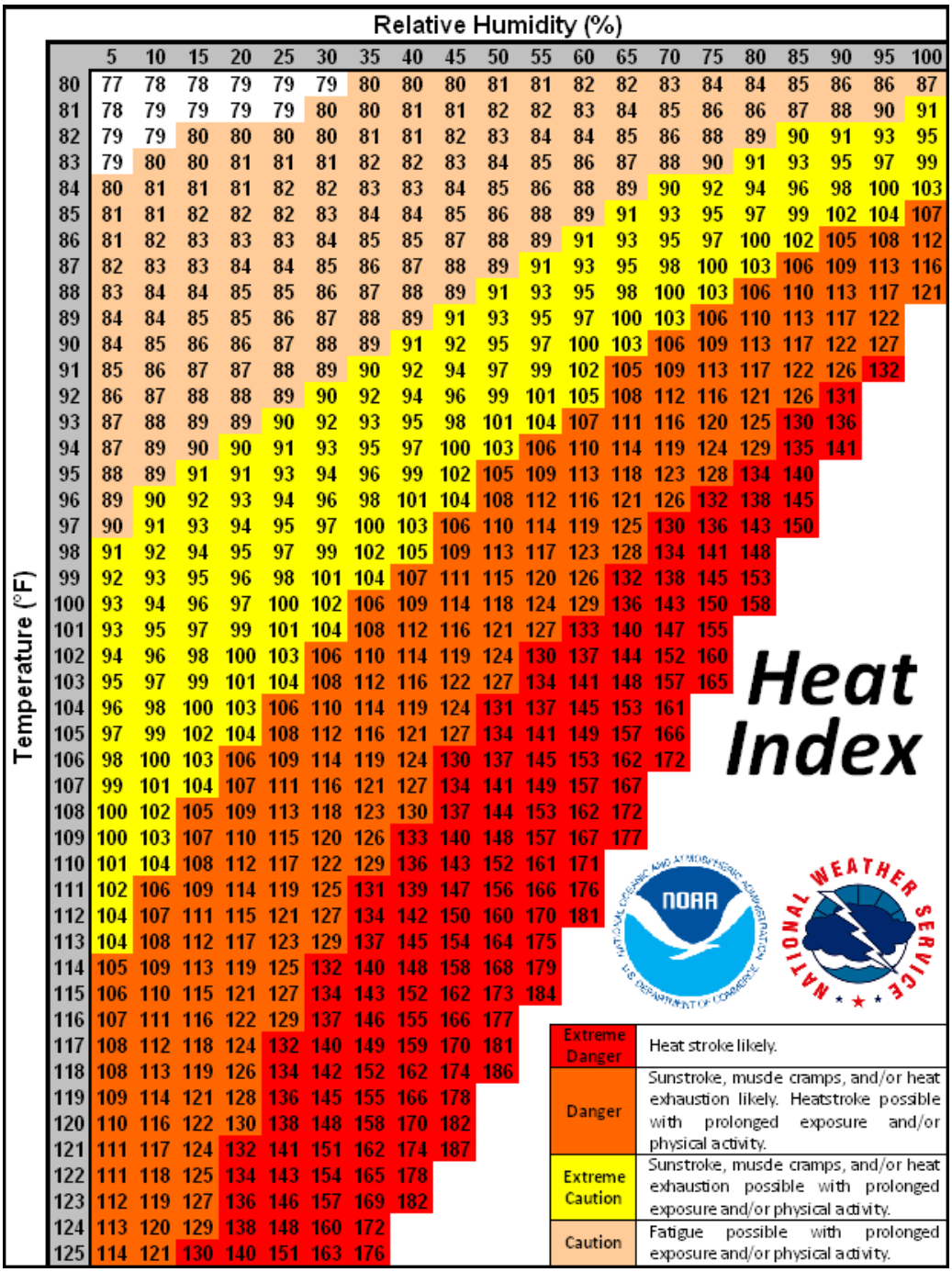
Other measures we will follow to prevent heat-related illness at our workplace are working in pairs (Buddy System) when working in high temps and providing more frequent breaks, if needed.

The City of St. Helens is serious about preventing heat-related illness and we have adopted the best practices from Appendix A.

G. Responsibilities

All employees are responsible for protecting themselves from heat illnesses by following these guidelines for prevention and immediately reporting any signs or symptoms to his or her supervisor.

H. Heat Index



Temp (°F)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
80	77	78	78	79	79	79	80	80	80	81	81	82	82	83	84	84	85	86	86	87
81	78	79	79	79	79	80	80	81	81	82	82	83	84	85	86	86	87	88	90	91
82	79	79	80	80	80	80	81	81	82	83	84	84	85	86	88	89	90	91	93	95
83	79	80	80	81	81	81	82	82	83	84	85	86	87	88	90	91	93	95	97	99
84	80	81	81	81	82	82	83	83	84	85	86	88	89	90	92	94	96	98	100	103
85	81	81	82	82	82	83	84	84	85	86	88	89	91	93	95	97	99	102	104	107
86	81	82	83	83	83	84	85	85	87	88	89	91	93	95	97	100	102	105	108	112
87	82	83	83	84	84	85	86	87	88	89	91	93	95	98	100	103	106	109	113	116
88	83	84	84	85	85	86	87	88	89	91	93	95	98	100	103	106	110	113	117	121
89	84	84	85	85	86	87	88	89	91	93	95	97	100	103	106	110	113	117	122	
90	84	85	86	86	87	88	89	91	92	95	97	100	103	106	109	113	117	122	127	
91	85	86	87	87	88	89	90	92	94	97	99	102	105	109	113	117	122	126	132	
92	86	87	88	88	89	90	92	94	96	99	101	105	108	112	116	121	126	131		
93	87	88	89	89	90	92	93	95	98	101	104	107	111	116	120	125	130	136		
94	87	89	90	90	91	93	95	97	100	103	106	110	114	119	124	129	135	141		
95	88	89	91	91	93	94	96	99	102	105	109	113	118	123	128	134	140			
96	89	90	92	93	94	96	98	101	104	108	112	116	121	126	132	138	145			
97	90	91	93	94	95	97	100	103	106	110	114	119	125	130	136	143	150			
98	91	92	94	95	97	99	102	105	109	113	117	123	128	134	141	148				
99	92	93	95	96	98	101	104	107	111	115	120	126	132	138	145	153				
100	93	94	96	97	100	102	106	109	114	118	124	129	136	143	150	158				
101	93	95	97	99	101	104	108	112	116	121	127	133	140	147	155					
102	94	96	98	100	103	106	110	114	119	124	130	137	144	152	160					
103	95	97	99	101	104	108	112	116	122	127	134	141	148	157	165					
104	96	98	100	103	106	110	114	119	124	131	137	145	153	161						
105	97	99	102	104	108	112	116	121	127	134	141	149	157	166						
106	98	100	103	106	109	114	119	124	130	137	145	153	162	172						
107	99	101	104	107	111	116	121	127	134	141	149	157	167							
108	100	102	105	109	113	118	123	130	137	144	153	162	172							
109	100	103	107	110	115	120	126	133	140	148	157	167	177							
110	101	104	108	112	117	122	129	136	143	152	161	171								
111	102	106	109	114	119	125	131	139	147	156	166	176								
112	104	107	111	115	121	127	134	142	150	160	170	181								
113	104	108	112	117	123	129	137	145	154	164	175									
114	105	109	113	119	125	132	140	148	158	168	179									
115	106	110	115	121	127	134	143	152	162	173	184									
116	107	111	116	122	129	137	146	155	166	177										
117	108	112	118	124	132	140	149	159	170	181										
118	108	113	119	126	134	142	152	162	174	186										
119	109	114	121	128	136	145	155	166	178											
120	110	116	122	130	138	148	158	170	182											
121	111	117	124	132	141	151	162	174	187											
122	111	118	125	134	143	154	165	178												
123	112	119	127	136	146	157	169	182												
124	113	120	129	138	148	160	172													
125	114	121	130	140	151	163	176													

Appendix A

Best practices could include providing employees with:

1. Containers that hold ice or otherwise keep drinking water and other beverages cold.
2. Chilled beverages such as electrolyte type sports drinks. Discourage caffeine consumption.
3. Cold treats at break time such as popsicles, ice cream, or fruit with high water content.
4. Evaporative accessories (cooling neck wraps, head bands).
5. Cooling vests designed to safely use ice packs.
6. Ventilated PPE (high-visibility garments or powered air purifying respirators, if appropriate).
7. Cell phone text orders from supervisor to stop and rest in shade and drink.