Washington State
Department of Transportation

Safety Procedures and Guidelines Manual

M 75-01.22

May 2012

Maintenance Operations Division
Safety and Health Services Office

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Washington State Department of Transportation
Safety and Health Services
PO Box 47311
Olympia, WA 98504-7311

Phone: 360-705-7099
Email: safety@wsdot.wa.gov
wwwi.wsdot.wa.gov/employee/safety/

Foreword

Providing employees a safe environment in which to work is the Washington State Department of Transportation's top priority. The department is committed to the safety of its employees. To ensure this commitment is met, the department provides training and guidance about working in a safe and safety conscious manner. It is the responsibility of every employee to provide for workplace safety.

Consistent with the Secretary's Executive Order E 1033.00, the *Safety Procedures and Guidelines Manual* M 75-01 is written with this commitment to safety in mind. This publication provides guidance to all employment levels outlining responsibilities and procedures to follow to ensure workplace safety. Ongoing training will inform employees about safety concerns and programs. Regular updates to this manual will occur to emphasize the department's commitment.

Following and observing the procedures and responsibilities in this manual will reduce the number of workplace injuries and unsafe conditions. Everyone is responsible to:

- Report unsafe conditions,
- Prevent and report all accidents,
- Use personal protective clothing and equipment, and
- Develop a pre-activity safety plan.

/s/ Chris Christopher	/s/ Joel Amos
Robert "Chris" Christopher, P.E. Director of Maintenance Operations	Joel Amos Safety and Health Administrator

Washington State Department of Transportation

Secretary's Executive Order

Number: E 1033.01

/s/ Paula J. Hammond
Secretary of Transportation

Date: June 2, 2008

Employee Safety

I. Introduction

At the Washington State Department of Transportation (WSDOT) safety is our highest priority.

This Secretary's Executive Order focuses on improving safety performance and embracing a safety-first culture. It sets the expectations for all employees to achieve our workplace safety goals.

II. Supersession and Changes

This Secretary's Executive Order 1033.01 supersedes *WSDOT Employee Safety* Secretary's Executive Order 1033.00 dated July 1, 2006. This revision is the result of language changes and continued endorsement by Executive Management.

III. Secretary's Executive Order

Workplace injuries are preventable. Employees are responsible for workplace safety. All employees are directed to:

- Include workplace safety and health objectives in designing, planning, training for and carrying out all work activities.
- Create a workplace where employees take responsibility for safety and health.
- Involve employees in reaching our goal of zero workplace injuries.
- Help co-workers meet the expectation of working injury-free every day.
- Report workplace injuries, accidents, and illnesses.
- Ensure data from workplace injuries, accidents, and illness is used to remedy unsafe conditions.

IV. Expectations for Performance

The Secretary of Transportation will establish safety performance goals for the department.

V. Immediate Actions

Working safely is a critical job expectation. Non-performance in this area will be treated as grounds for corrective personnel action.

The following basic safety provisions will be followed in every work activity:

- Participation in work group safety plans which includes the Ferries *Safety Management System*.
- Identification of hazards and safety concerns prior to performing task.
- Implementation of corrective actions for identified hazards prior to performing task.
- Wearing appropriate personal protective equipment when other preferred control measures are infeasible.
- Prompt reporting of all incidents.

WSDOT employees must follow the policies and procedures in the *Safety Procedures and Guidelines Manual* M 75-01, except WSDOT Ferries employees.

Ferries employees must follow the policies and procedures in the Ferries *Safety Management System*.

VI. WSDOT Assistant Secretary of Administrative Operations

The Assistant Secretary of Administrative Operations is responsible for annual review and updates to this document. All executives are responsible for informing the Assistant Secretary of Administrative Operations of changes needed for the maintenance of this document.

VII. Information to Carry Out This Order

For information about employee safety and policies on employee safety, contact the Headquarters Safety Office at (360) 705-7747.

Employee Safety
Secretary's Executive Order E 1033.01
June 2, 2008

VIII. Directional Document References

- *Human Resources Desk Manual* M 3007
- *Maintenance Manual* M 51-01
- *Risk Management Manual* M 72-01
- *Safety Management System* Ferries
- *Safety Procedures and Guidelines Manual* M 75-01
- *Work Zone Traffic Control Guidelines* M 54-44

Americans with Disabilities Act (ADA) Information

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Chapter 1 Accident Prevention Program

1.0 Purpose

To establish an Accident Prevention Program for the Washington State Department of Transportation (WSDOT) operations and facilities as required by Washington Administrative Code (WAC) 296-800-140 and where applicable Title 30 Code of Federal Regulations (CFR) Mine Safety and Health Act (MSHA).

2.0 Scope and Applicability

This program has been developed for employee protection using the referenced WAC chapters and Title 30 CFR MSHA as guidance. This program excludes Washington State Ferries which utilizes the Safety Management System (SMS).

3.0 References

- WAC 296-14 *Industrial insurance*
- WAC 296-24 *General safety and health standards*
- WAC 296-27 *Recordkeeping and reporting*
- WAC 296-62 *General occupational health standards*
- WAC 296-155 *Safety standards for construction work*
- WAC 296-800 *Safety and health core rules*
- Title 30 CFR MSHA

4.0 Definitions

Work Activity Safety Planning Approach – Is an approach that may include safety awareness, risk assessment, and planning. Needs to be both proactive and ongoing in the dynamic work environment and changing conditions often encountered by WSDOT employees.

Pre-Activity Safety Plan (PASP) (also known as Activity Hazard Analysis or Job Hazard Analysis) – A written review of the activity to be performed, including environmental conditions, tools and or equipment to be used, the associated hazards and their method of control. PASP's for most activities are available on the Safety website or may be developed for a specific activity or worksite.

Priority of Hazard Control (also known as hierarchy of hazard control) – See Appendix 1-A. A systematic order of hazard control with preference to the most effective at eliminating hazards.

Most Effective to Least Effective Hazard Controls

- Elimination or Substitution
- Engineering Controls
- Training and Administrative Controls
- Personal Protective Equipment

Recordable Injury – Any injury consistent with the definition of OSHA-recordable accident in Chapter 6 Accident Reporting and Review Policy of this manual.

Safety Organization – Headquarters Safety and Health Services Office and staff, Region Safety Office and staff.

Supervisor, Lead Person – Position title, may also include any person in a position of authority or who oversees the work of others.

5.0 Organizational Responsibilities

5.1 Executive Management

Executive management shall be accountable for the following safety program activities:

- Visibly demonstrate and communicate their commitment to safety as a top priority of the department.
- Abide by safety policies/procedures.
- Establish expectations for employees to conduct Work Activity Safety Planning before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.
- Review, approve, and communicate the safety and health policies and procedures as a foundation for the overall WSDOT Safety Program.
- Establish annual agency injury/accident reduction goals.
- Use data to monitor the performance of the overall safety program and report program performance to WSDOT and stakeholders.
- Prioritize and advocate for the needed resources to meet the department's injury reduction goals and to support the safety program.
- Set direction that employee safety is a performance expectation of all positions and safety performance will be evaluated for all personnel.
- Recognize agency safety achievements.
- Use all appropriate personal protective equipment.

5.2 Senior Management

Senior management shall be accountable for the following safety program activities:

- Develop and implement injury and accident reduction and prevention plans for their respective organizations consistent with the department's goals and evaluate them annually.
- Visibly demonstrate and communicate their commitment to safety as a top priority of the department.
- Abide by safety policies and procedures.
- Ensure employees conduct Work Activity Safety Planning before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.
- Provide the needed resources to meet injury and accident reduction goals and support the safety program.
- Ensure there is a safety training plan for their area of responsibility.
- Ensure that accident review procedures maximize the "lessons learned" opportunity and that resulting prevention plans are communicated within the organization.
- Actively review data with mid-level managers and provide clear performance expectations.
- Recognize the organization's safety achievements.
- Incorporate safety performance expectations into all position descriptions and include safety performance in the evaluation of all personnel.
- Use all appropriate personal protective equipment.
- Coach and mentor co-workers in safety performance.

5.3 Mid-Level Management

Mid-level management shall be accountable for the following safety program activities:

- Develop, implement, and monitor injury and accident reduction and prevention plans for their respective organizations consistent with the department's goals and evaluate them annually with their supervisors.
- Visibly demonstrate and communicate their commitment to safety as a top priority of the department.
- Abide by safety policies and procedures.
- Ensure employees conduct Work Activity Safety Planning before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.

- Determine PASP, Tailgate, or Safety Briefing needs based on injury and accident data and associated risk assessments.
- Ensure that the Accident Review Process is conducted promptly and completely in accordance with Chapter 6 of this manual.
- Actively participate in accident review procedures to ensure that "lessons learned" are communicated and implemented within their organization.
- Recognize employee safety achievements.
- Incorporate safety performance expectations into all position descriptions and include safety performance in the evaluation of all personnel.
- Conduct periodic inspections of field and facility operations to ensure consistency with safety program policies and procedures.
- Address safety non-performance consistent with all other job performance expectations in accordance with current Human Resources policy.
- Use all appropriate personal protective equipment.
- Coach and mentor co-workers in safety performance.
- Conduct site visits to demonstrate the department's safety commitment and concern for employee safety.
- Incorporate safety performance expectations into every position description and communicate those expectations to each employee.

Ensure employees have the education, experience, and training necessary to perform work or effectively administer other employees who are contracted to perform work safely.

5.4 Supervisors

Supervisors shall be accountable for the following safety program activities:

- Develop, implement, and monitor injury and accident reduction and prevention plans for their respective staff consistent with the department's goals and evaluate the plans annually with employees and supervisors.
- Visibly demonstrate and communicate their commitment to safety as a top priority of the department.
- Abide by safety policies and procedures.
- Ensure that all work is planned and implemented with safety as an integral part of the process.
- Ensure employees conduct Work Activity Safety Planning before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.
- Actively participate in accident review procedures to ensure that "lessons learned" are communicated and implemented within their organization.

- Make safety a priority agenda item for all operational meetings and communications.
- Participate in the development and implementation of PASP, Tailgate, or Safety Briefings.
- Ensure that all employees are provided with and trained in the use and maintenance of all appropriate personal protective equipment (PPE).
- Ensure employee participation in each of the following as appropriate:
  - PASP, Tailgate, or Safety Briefings.
  - Safety meetings.
  - Appropriate safety training.
  - Safety inspections of work activities, facilities, equipment, and vehicles.
  - Reporting any unsafe conditions to their supervisor immediately.
- Take immediate action when necessary to address any imminent hazard and inform supervisors of any additional safety issues.
- Report accident or injuries to the mid-level manager of the injured employee as soon as practical.
- Ensure employees have the education, experience, and training necessary to perform work or effectively administer other employees who are contracted to perform work safely.
- Recognize employee safety achievements.
- Monitor field and facility operations to ensure consistency with safety program policies and procedures.
- Incorporate safety performance expectations into all position descriptions and include safety performance in the evaluation of all personnel.
- Use all appropriate personal protective equipment.
- Coach and mentor co-workers in safety performance.
- Meet with the appointing authority of the accident in compliance with Chapter 6 of this manual.
- Ensure employees have the education, experience, and training necessary to perform work or effectively administer other employees contracted to perform work safely.

5.5 Employees

Employees shall be accountable for the following safety program activities:

- Visibly demonstrate and communicate their commitment to safety.
- Conduct Work Activity Safety Planning before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.
- Abide by safety policies and procedures.
- Attend and participate in safety meetings, trainings, and the development and implementation of PASP, Tailgate, or Safety Briefings.
- Ensure that all work is planned and implemented with safety as an integral part of the process.
- Inform work site supervisors/co-workers or contractor foreman of any safety hazards in the workplace and immediately address those safety hazards if possible.
- Stop specific work activities if unanticipated hazardous or unsafe conditions are encountered and secure the scene. Report those conditions to their supervisor and TMC, if appropriate.
- Report any injury and accident or near miss to their supervisor immediately.
- Perform safety inspections of work activities, facilities, equipment, and vehicles.
- Use all appropriate personal protective equipment.
- Coach and mentor co-workers in safety performance. Recognize employee safety achievements

5.6 Safety Organization

Region Safety Office staff shall be accountable for the following safety program activities:

- Encourage and promote safety program improvement.
- Provide guidance/technical assistance to all levels of the department for identifying, evaluating, and correcting hazards (i.e., injury/accident prevention activities).
- Communicate and support WSDOT Safety Program policies and procedures.
- Identify and communicate requirements for compliance with applicable and statutorily required safety standards.
- Prepare data and reports of WSDOT injuries/accidents and “lessons learned” for use by all levels within the department.

- Ensure that lessons learned are communicated within the department and actively participate with the accident review process.
- Assist with the development of safety and health goals.
- Assist in the development of Work Activity Safety Planning.
- Assist in developing or securing required training and other tools/materials to support a safe and healthful workplace.
- Assist in the development, implementation, and monitoring of safety orientation training.
- Attend organizational safety meetings as available.
- Work with the mid-level manager to conduct routine office and field visits to support their organizational safety plan.
- Provide guidance/technical assistance to the senior and mid-level managers in the development and implementation of their organizations safety and training plans.
- Notify the mid-level manager of safety issues as soon as practical.

6.0 Work Activity Safety Planning

Safety awareness, risk assessment, and planning needs to be both proactive and ongoing in the dynamic work environment and changing conditions often encountered by WSDOT employees. As such, it is expected that Work Activity Safety Planning will be conducted before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered. The key elements of this planning effort need to include awareness, risk assessment, and communication.

Given that WSDOT will be utilizing a proactive and ongoing planning effort in regard to Work Activity Safety Planning, different tools will be utilized that best fit the work activities and situations encountered.

PASPs are the preferred method for planned work activities as a group or as an individual documentation is required.

6.1 Unscheduled Work Activities

When unscheduled work activities occur, conduct a safety briefing to address awareness, risk assessment, and communication before transitioning to the new activity. If practical, this briefing can include an in-person conversation, phone call, or radio call with co-worker and/or supervisor to discuss the change in work activities. Formal documentation may not be practical.

To this end, Work Activity Safety Plans may include, but not be limited to the following tools:

- Safety Stand-down
- Safety Meetings
- Pre-Activity Safety Plan
- Tailgate Meeting Checklist
- Safety briefing

7.0 Employee Insurance Coverage for Work Injuries/Illnesses

Injured employees will be provided Department of Labor and Industries (L&I) Industrial Insurance coverage for occupational injuries and illnesses.

Employees injured on the job will be covered for all approved medical, hospital, and related services essential to their treatment and recovery. The injured employee may receive a percentage of wage replacement payments if they are temporarily unable to work as a result of an occupational injury or illness.

Note: Volunteers are also under this industrial insurance program (medical only).

More information on L&I and the Return to Work Program can be found on the Human Resources website in the employees section.

L&I has approved the employee's workers' compensation application under Chapter 51.32 RCW, or for maritime employees, the WSDOT Risk Management Office has approved maintenance and cure benefits under USC Sec. 688 et seq.

7.1 Assaults by Motorists on Department Employees

Under Revised Code of Washington (RCW) 47.04.250, *Assaults by motorists on department employees* defines "assault" as an act by a motorist that results in physical injury to a WSDOT employee while engaged in highway construction or maintenance activities along the roadway or right of way or in the loading and unloading of passenger vehicles in service of the vessel as a maritime employee or engaged in those work activities as a Washington State Ferries terminal employee covered under Chapter 51.32 RCW.

This law provides a supplementary program to reimburse employees of WSDOT for some of their costs attributable to their being the victims of assaults by motorists.

In general, to be eligible for assault benefits, the WSDOT Secretary shall find the following conditions occurred:

- A motorist assaulted a WSDOT employee engaged in highway maintenance/construction operations along a roadway right of way (fence line to fence line) which resulted in injury and lost work days.
- The assault was not attributable, to any extent, to the employee's negligence, misconduct, or failure to comply with any rules or conditions of employment.
- L&I has approved the employee's workers' compensation application under Chapter 51.32 RCW, or for maritime employees, the WSDOT Risk Management Office has approved maintenance and cure benefits under USC Sec. 688 et seq.

8.0 Emergencies – Fire and Natural Disasters

Many WSDOT facilities have evacuation alarm stations throughout the facility that can be activated any time there is an emergency requiring evacuation. Each facility should have written emergency instructions for emergencies such as fire, severe weather, earthquakes, or bomb threats. In those facilities without an evacuation alarm, voice communication is used to spread an alarm.

Not all WSDOT facilities have a sprinkler system installed. However, all WSDOT facilities have portable fire extinguishers available. In the event of a fire, sound the alarm and exit the building. If you are trained to do so, attempt to put out the fire with the appropriate extinguishers.

Emergency assistance may be reached by calling 911. In some facilities, dialing 9-911 is required.

When an alarm is sounded, all occupants of a building shall evacuate. Elevators in facilities should not used for evacuation. Each office or section is responsible for assisting disabled individuals from a building. Once out of a building, one able person will stay with the disabled person until the emergency is over. Each facility should have a staging area located at least 100 feet away from the building used to account for the employees.

Do not re-enter buildings until the building has been cleared for re-entry by emergency officers.

Because of the wide variety of facility layouts, it is important that when an employee arrives at a new work location, they familiarize themselves with the procedures for that work site. Each supervisor will give new employees a complete job site safety orientation, which includes emergency instructions.

In the event that an employee or their family are involved in a disaster, the employee should notify their supervisor and take care of their family's needs, then report to work when available.

9.0 Safety Meetings

WSDOT is required to have either a designated safety committee composed of employer-selected and employee-elected members or conduct routine safety meetings. In most instances, safety meetings are used throughout the department and for many different organizations/offices (e.g., crew level safety meetings and office level safety meetings). At a minimum, crew/office level meetings will be conducted quarterly—monthly safety meetings are encouraged. Document meeting attendance and topics covered using DOT Form 750-007 EF, Supervisor's Report of Safety Meeting.

Safety meetings shall be tailored for the specifics of the work area or work activity. Regardless of the working environment or the work tasks and equipment used, at a minimum the following items should be accomplished during the scheduled safety meetings:

- Review accident/incident reports for injuries occurring within the work group and use these reports to assist in the correction of identified unsafe conditions or practices.
- Receive and consider accident prevention and loss control suggestions and improvement ideas from supervisors, employees, and employee organizations and recommend appropriate actions for injury prevention.
- Solicit employee input regarding safety concerns and issues.
- Discuss recommendations for improvement.
- Discuss and implement controls to minimize or eliminate injuries/accidents.
- Demonstrate agency concern for reducing injury and property damage accidents.

10.0 Safety Bulletin Board

A safety bulletin board must be installed and maintained in every fixed establishment employing eight or more persons. The safety bulletin board should be sufficient in size to display and post:

- Safety bulletins, newsletters, posters, accident statistics, and other safety education material.
- Notice to Employees – If a Job Injury Occurs (F242-191-909).
- Job Safety and Health Protection (F416-081-909).
- Your Rights as a Non-Agricultural Worker (F700-074-909).

- Emergency telephone numbers.
- OSHA 300 Log Summary of Injuries and Illnesses (posted every February).
- Labor and Industries Citations and Notices of Appeal.

The safety bulletin board should display only safety and health related information.

11.0 Safety Training

Training is a powerful influence and motivation in safety, just as it is in many other areas. Training is one of the most important elements of an effective accident prevention program. An effective training program allows employees to learn their jobs properly, brings new ideas into the workplace, reinforces existing ideas and best practices, and puts the safety and health program into action.

12.0 Safety Recognition Program

A Safety Recognition Program is an essential part of WSDOT's accident prevention program. It reinforces the agency's commitment to safety by recognizing individuals and organization units for their safety performance. It is also a means by which all employees can show appreciation to each other for their individual and team efforts, commitments, and accomplishments.

Specific criteria and nature for each award are established and re-evaluated periodically to ensure that they are meaningful to the recipients, individually or as a team, and that the program helps motivate WSDOT employees to work safely.

13.0 Appendices

Appendix 1-A Priority of Hazard Controls

Appendix 1-A Priority of Hazard Controls

Controlling exposures to occupational hazards is the fundamental method of protecting workers. Traditionally, a priority of controls has been used as a means of determining how to implement feasible and effective controls.

Most Effective to Least Effective Hazard Controls

Elimination or Substitution

Elimination and substitution, while most effective at reducing hazards, also tend to be the most difficult to implement in an existing process. If the process is still at the design or development stage, elimination and substitution of hazards may be inexpensive and simple to implement. For an existing process, major changes in equipment and procedures may be required to eliminate or substitute for a hazard.

- Substitute safe materials for hazardous ones.
- Remove employee from hazard.
- Automate material handling.
- Use mechanical advantage.
- Reduce energy, speed, voltage, sound level, and force.
- Change process to eliminate hazard noise.
- Perform tasks at ground level.

Engineering Controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The initial cost of engineering controls can be higher than the cost of administrative controls or personal protective equipment, but over the longer term, operating costs are frequently lower, and in some instances, can provide a cost savings in other areas of the process.

- Ventilation systems
- Automatic shut offs
- Fail safe devices
- Back up cameras
- Mirrors
- Machine guarding
- Sound enclosures
- Circuit breakers
- Platforms and guard railing
- Lift tables, conveyors

Training and Administrative Controls

Administrative controls and personal protective equipment are frequently used with existing processes where hazards are not particularly well controlled. Administrative controls and personal protective equipment programs may be relatively inexpensive to establish but, over the long term, can be very costly to sustain. These methods for protecting workers have also proven to be less effective than other measures, requiring significant effort by the affected workers.

- Safe job procedures
- Rotation of workers
- Safety equipment inspections
- Worker training
- Lockout
- Computer warnings
- Odors added hazardous materials
- Backup alarms
- Labels

Personal Protective Equipment

- Safety glasses
- Ear plugs
- Face shields
- Fall arrest equipment
- Gloves
- Seat belts
- Safety-toe footwear

Chapter 2 Accident Prevention Signs

1.0 Purpose

Provide guidance for the establishment of methods for marking physical hazards.

2.0 Scope and Applicability

This chapter has been developed for Accident Prevention Signs using the referenced Washington Administrative Code (WAC) chapters as guidance. This document provides a listing of color codes adopted by Washington State Department of Transportation (WSDOT) and specifies guidelines for accident prevention signs and tags application. It includes provisions for training and discussion on the design and messages contained on these accident prevention signs and tags.

This document also details the areas of responsibility for executives, senior, and mid-level managers, supervisors, and employees within WSDOT.

This safety procedure and guideline affects all WSDOT employees.

3.0 References

- WAC 296-62-07721, *Communication of hazards to employees*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-62-07721

4.0 Definitions

Major Message: The portion of a sign or tag that indicates the specific hazardous condition or provides instructions for individuals in proximity to the message.

Sign: A surface prepared to warn or provide safety instructions for workers and/or the public that may be exposed to hazards. This category does not include highway signs or safety posters used for employee education.

Signal Word: The word(s) printed on a sign or tag intended to capture a person's immediate attention.

Tag: A device made of paper, pasteboard, plastic, or other material used to identify a hazardous condition. International safety symbols are acceptable for use where a multilingual workforce is present.

5.0 General Responsibilities

In addition to the responsibilities outlined in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01, there are responsibilities specific to Accident Prevention Signs as detailed below.

5.1 Executive, Senior, and Mid-Level Management

- Ensure that adequate funds are available and budgeted for the purchase of accident prevention signs and tags in their areas.
- Obtain and coordinate the required training for affected employees.
- Ensure compliance with accident prevention signs and tags specifications through their auditing process which ensures that items are properly tagged.

5.2 Supervisors

- Ensure that an adequate supply and variety of accident prevention signs and tags are maintained in their inventory.
- Ensure that areas needing accident prevention signs and tags are so marked.
- Consult with the Safety Office if guidance on signs and tags are needed.

5.3 Employees

- Comply with the warnings and instructions given on accident prevention signs and tags.
- Notify their supervisors about those work areas requiring accident prevention signs and tags.

5.4 Safety Organization

- Region Safety Office staff will provide prompt assistance to managers, supervisors, or others as necessary on any matter concerning accident prevention signs and tags.
- Will assist in developing or securing the required training.
- Will provide consultative and audit assistance to ensure effective implementation of this safety policy and procedure.

6.0 Policy

6.1 General

In WSDOT, a key objective is to provide a place of employment that is free from recognized hazards that cause or are likely to cause death and serious physical harm to employees or the public. Therefore, accident prevention signs and tags will be used to establish uniformity and promote a safe working environment throughout WSDOT. When hazards exist that cannot be eliminated, then engineering practices, administrative practices, safe work practices, and proper training regarding accident prevention signs and tags shall be implemented to minimize those hazards and ensure the safety of employees and the public.

6.2 Color Codes

The following color codes are adopted by WSDOT:

- Red is recommended for identifying fire protection equipment, danger, and emergency stops on machines.
- Yellow, because of its high visibility, is the standard color for marking hazards that may result in accidents from slipping, falling, striking against, etc.
- Green in combination with white, such as the green cross on a white background, designates the location of first aid and safety equipment.
- Black and white and combinations of the two in stripes or checks are used for housekeeping and traffic markings.
- Orange is the standard color to highlight hazardous parts of machines or electrical equipment, such as exposed edges of cutting devices, the inside of removed guards, and the doors and covers of switch boxes. Orange is also used for biological and similar types of hazards.
- Reddish-Purple (magenta) identifies radiation hazards, such as radioactive materials in rooms and containers.

6.3 Accident Prevention Signs

Accident prevention signs are not considered the final step to be taken against hazards. Hazards are to be eliminated whenever possible.

Too many signs may cause people to ignore signs. Generally signs should be used prudently in accordance with Division of Occupational Safety and Health (DOSH), Fire Marshall, and *Manual on Uniform Traffic Control Devices* (MUTCD) standards.

Where accident prevention signs must be affixed to a WSDOT building or site, the region facilities manager should be notified through the use of a direct request for signage or as part of the annual Facilities Condition Assessment on each facility. The Facilities Condition Assessment includes a review of the facility needs for safety signage. The region facilities manager is responsible for managing the funding for such needs. Requests for safety signage on equipment should be directed to the Transportation Equipment Fund (TEF) Equipment Manager.

The design of accident prevention signs will be uniform throughout WSDOT. These signs must be visible at all times when work is being performed. The messages on these signs will be removed or covered when the hazard no longer exists.

- Danger signs will be red, black and white. They will be used when an immediate hazard exists or when special precautions are necessary. These signs will be conspicuously posted.
- Caution signs will have a black upper panel and yellow letters. The lower panel will have a yellow background and black letters. These signs will be used to warn of possible hazards or against unsafe practices.
- Safety instruction signs will be white with a green upper panel and white letters. Any additional wording on the sign will be black letters on a white background. These signs will be used where general instructions or guidelines for safety are required such as Fasten Seat Belts, Look Before Backing, etc.
- Biological hazard signs will be florescent red and white with lettering or symbols in a contrasting color. These signs will be used to inform employees of the actual or possible presence of biological hazards.
- Radiation hazard signs will contain the conventional radiation caution colors (magenta or purple on yellow background) and the standard radiation symbol.
- Directional signs, other than automotive traffic signs, must be white with a black panel and white directional symbol. Any additional wording on the sign shall be black letters on the white background.
- Exit signs, when required, must be lettered in legible red letters not less than 6 inches high on a white field and the principal stroke of the letters must be at least 3/4 inch wide.
- Traffic signs shall be posted in construction areas with legible traffic signs at points of hazard. All traffic control signs or devices used for protection of state employees and the public shall conform to the latest version of the MUTCD.

For asbestos areas, caution labels are to be affixed to all raw materials containing asbestos.

The label shall state:

CAUTION:

Contains Asbestos Fibers

Breathing Asbestos Dust May Cause

Serious Bodily Harm

6.4 Accident Prevention Tags

Accident prevention tags are a temporary method to warn of a hazardous condition, defective equipment, radiation hazard, etc. However, Accident Prevention Tags will not be used as a substitute for accident prevention signs. The designs of accident prevention tags will be the same as accident prevention signs. The messages on these tags will be removed or covered when the hazard no longer exists.

Accident prevention tags will contain a signal word or emblem (such as Danger, Caution, or Biohazard) and a major message. The signal word will be readable from a distance of at least 5 feet. The major message will indicate the particular hazard involved or instructions to the exposed person. Accident prevention tags will be located and secured as close as possible to the hazard.

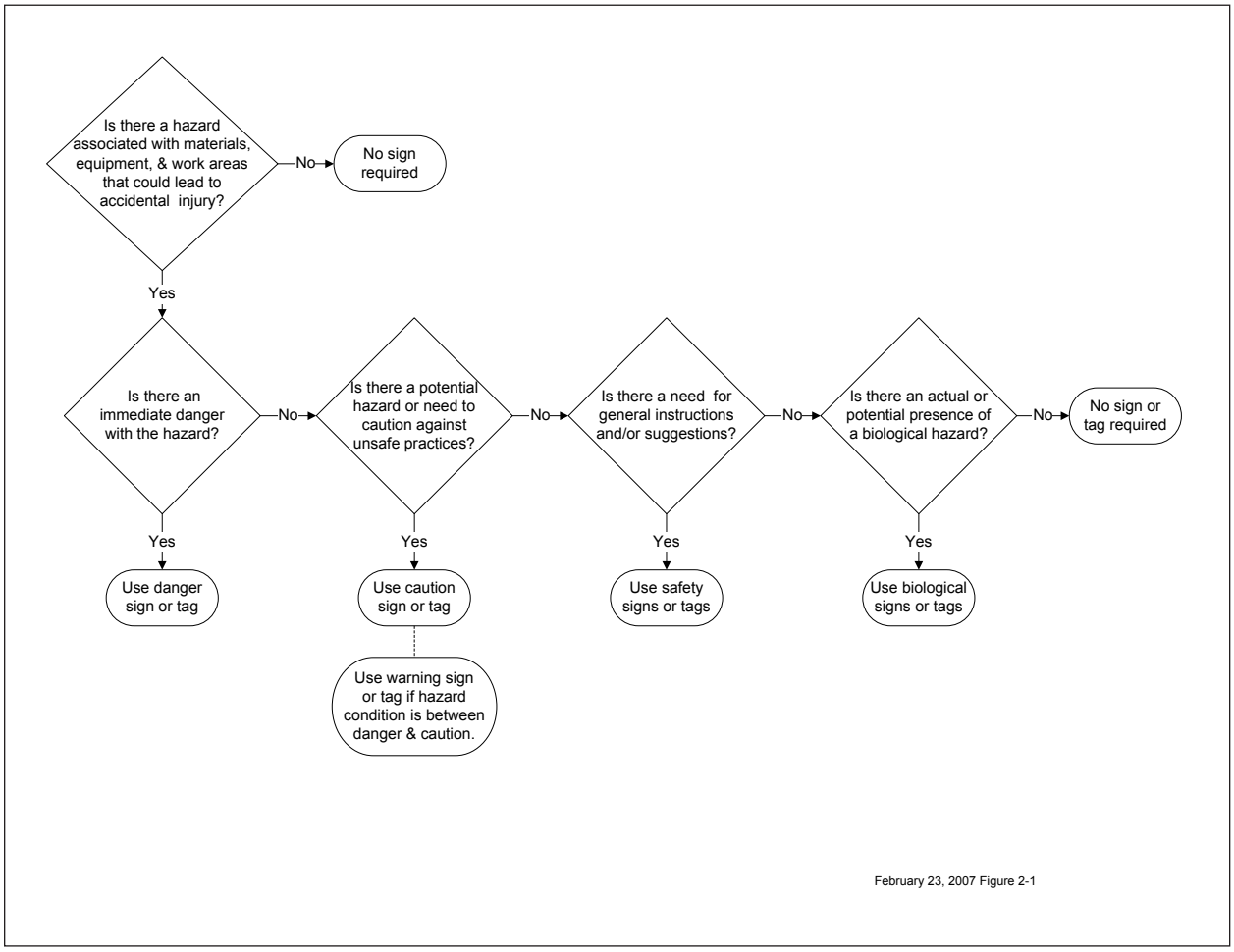
7.0 Training

Employees will be trained to recognize and understand the warning information conveyed on accident prevention signs and tags. Training will include:

- The purpose of color codes.
- The purpose of accident prevention signs and tags.
- The types of accident prevention signs and tags.
- The use of accident prevention signs and tags.
- The meanings of messages on accident prevention signs and tags.
- The special precautions made necessary by messages on accident prevention signs and tags.

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

8.0 Tables and Appendices



Accident Prevention Signs/Tags Flowchart
(Workplace Application)
Figure 2-1

Chapter 3 Work Zone Safety

1.0 Purpose

To establish coordinated work zone safety systems for Washington State Department of Transportation (WSDOT) and the traveling public that facilitate construction, maintenance, and related activities to the highway transportation system without injury or fatality.

2.0 Scope and Applicability

This chapter of the *Safety Procedures and Guidelines Manual* M 75-01 affects any employees in work zones using the referenced Washington Administrative Code (WAC) chapters and Division of Safety and Health (DOSH) Directive as guidance.

3.0 References

- DOSH Regional Directive 6.55 WSDOT and Cone-Setting Requirements
  www.lni.wa.gov/safety/rules/policies/pdfs/wrd655.pdf
- WAC 296-155, *Safety Standards for Construction Work*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155
- WAC 296-155-305, *Signaling and flaggers*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155-305
- WAC 296-155-200, *General requirements for personal protective equipment*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155-200
- WAC 296-155, *Part M, Motor Vehicles, Mechanized Equipment, and Marine Operations*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155
- WAC 296-155-205, *Head protection*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155-205
- WAC 296-800-160, *Personal protective equipment (PPE)*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-800-160
- WSDOT *Work Zone Safety* Secretary's Executive Order E 1001.01
  wwwi.wsdot.wa.gov/publications/policies/fulltext/1001.pdf
- WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* M 41-10
  www.wsdot.wa.gov/publications/manuals/m41-10.htm
- *Washington State Modifications to the Manual on Uniform Traffic Control Devices* (MUTCD) M 24-01
  www.wsdot.wa.gov/publications/manuals/m24-01.htm

- WSDOT *Construction Manual* M 41-01
  www.wsdot.wa.gov/publications/manuals/m41-01.htm
- WSDOT *Work Zone Traffic Control Guidelines* M 54-44
  www.wsdot.wa.gov/publications/manuals/m54-44.htm
- WSDOT *Traffic Manual* M 51-02
  www.wsdot.wa.gov/publications/manuals/m51-02.htm
- WSDOT *Maintenance Manual* M 51-01
  www.wsdot.wa.gov/publications/manuals/m51-01.htm
- ANSI/ISEA 107-2004, American National Standard for High-Visibility Safety Apparel

4.0 Definitions

Back-up Alarm: An automatic reverse signal alarm on a vehicle.

Construction Site: Any highway work zone or other location where construction and maintenance work is performed.

Construction Work: As defined in WAC 296-155-012. WSDOT activities that fall within the scope of construction work include:

- Construct, maintain, or repair roads
- Construct, maintain, repair, or dismantle buildings
- Excavate trenches
- Construct, maintain, repair, or remove bridges, culverts, docks, wharfs, or piers

High-visibility Safety Apparel: Personal protective safety clothing that is intended to provide conspicuity during both daytime and nighttime usage, and that meets the Performance Class 2 or 3 requirements of the ANSI/ ISEA 107–2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear."

Hours of Darkness: One-half hour before sunset to one-half hour after sunrise.

Safety Organization: Headquarters Safety and Health Services Office and staff, Region Safety Office and staff.

Workers: People on foot whose duties place them within the right of way, such as highway construction and maintenance forces, survey crews, utility crews, responders to incidents within the highway right of way, and law enforcement personnel when directing traffic, investigating crashes, and handling lane closures, obstructed roadways, and disasters within the right of way of a Washington State highway.

Work Zone: A roadway work zone is an area of a highway or street (including the shoulder area and beyond) where road construction, road maintenance, utility work, litter control and right of way maintenance activities are present. The work zone is the area between the first traffic warning sign or flashing lights on a work vehicle and the last traffic control device, as well as non-roadway (e.g., shoulders and drainages) and ancillary areas that serve as staging or support areas for the work zone (e.g., temporary batch plants). A work zone is typically marked by signs, channeling devices, barriers, pavement markings, and/or work vehicles.

5.0 General Responsibilities

Are as assigned in Chapter 1 of this *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to the *Work Zone Safety* E 1001.01 policy.

Work Zone Safety Secretary's Executive Order E 1001.01 states WSDOT's highest priority in its construction, maintenance, and related activities is to provide for the safety of workers and the traveling public in roadway work zones.

Work Zone Safety E 1001.01 also states WSDOT's commitment at all levels of the organization to support work zone safety at the Washington State Department of Transportation. The implementation of E 1001.01 is the responsibility of all agency employees and shall be facilitated by improved communications and coordination among the varied disciplines and offices within the department in cooperation with our external partners, through the continued efforts of the Work Zone Safety Task Force.

5.1 Executive, Senior, and Mid-Level Management

- Provide adequate funds and budget to support this program.
- Demonstrate executive commitment to work zone safety through supporting and implementation of the Work Zone Safety Task Force recommendations.
- Demonstrate executive commitment to work zone safety through support and implementation of the Work Zones Safety Task Force recommendations.
- Establish region policies on work zone safety.
- Measure safety performance of highway work crews.
- Ensure compliance to standards and WSDOT policies and procedures for their employees.

5.2 Supervisors

- Communicate Work Zone Safety Task Force information and recommendations to the highway work crews.
- Conduct periodic safety meetings on work zone safety procedures and best practices for safety.
- Ensure compliance to standards and WSDOT policies and procedures for their employees.

5.3 Employees

- Use safety procedures and equipment to minimize the risk of the work zone work crew to drivers and work zone work vehicles.
- Inform the supervisor of unsafe or uncomfortable work zone conditions so actions can be taken, if possible, to minimize risks.
- Remain continually alert for the danger from the traveling public and work vehicles, and for the safety of oneself and fellow workers, regardless of all safety precautions and procedures taken and in place.
- Be diligent in providing safe and understandable routes through the work zone for the traveling public.
- Make suggestions to improve work zone safety as necessary.

5.4 Safety Organization

Region Safety Office staff will:

- Disseminate work zone safety information.
- Track work zone worker injuries and incidents and report them to the Region and Headquarters Safety and Health Services Office within 24 hours, including contractor and subcontractor worker injuries and incidents.

5.5 Region Work Zone Specialist (Traffic Office)

The work zone specialist plays a key role in work zone safety. The work zone specialist works within the Region Traffic Office and has work zone skills and is knowledgeable on work zone standards and responsibilities as part of their overall job duties:

- Acts as the region contact person for work zone issues.
- Conducts/participates in work zone field reviews.
- Reviews/develops traffic control plans.
- Responds to region work zone inquires.
- Provides expertise to develop work zone solutions as needed.

6.0 Work Zone Organizations and Their Responsibilities

6.1 Work Zone Safety Task Force

The Work Zone Safety Task Force is a cross-organizational group which provides overall direction in work zone safety matters to department operations and WSDOT highway projects. The Director for Maintenance and Operations chairs the Task Force. Members include representatives from the Headquarters Maintenance, Construction, Traffic, Safety, Design, Transportation Data Office, the regions, Washington State Patrol, and representatives from the highway construction industry and labor unions.

The Task Force meets quarterly to plan and discuss work zone safety initiatives and review work zone safety initiative implementation and safety performance.

The Task Force is responsible for the following:

- Examine current work zone safety accident trends and issues.
- Develop recommended safety practices for WSDOT operations and WSDOT projects that will reduce the frequency of vehicle intrusions into highway work zones.
- Monitor implementation of safety practices and measure their effectiveness through work zone field reviews and analysis of accident trends.
- Communicate information on work zone safety issues and best work zone safety practices to various disciplines and offices within the department, to external partners, and the roadway construction and maintenance industry.

Employees with recommendations to improve work zone safety may communicate their ideas to the Work Zone Safety Task Force through their region representative or directly to the Headquarters Traffic Office. The task force may be contacted through Frank Newboles, WSDOT State Work Zone Safety and Mobility Manager, newbolf@wsdot.wa.gov, or any of the task force members at www.wsdot.wa.gov/safety/workzones/taskforce.htm.

6.2 Traffic Control Oversight Committee

The Traffic Control Oversight Committee is an interagency committee that has the designated authority by the Work Zone Safety Task Force and responsibility to administratively oversee training programs for Traffic Control Flagger and Traffic Control Supervisor. The committee has members from WSDOT, Labor and Industries, State Board of Technical and Community Colleges, Employer, Employee, Utilities, Association of Cities and Counties, and Flagging Instructor Providers.

The committee meets at least quarterly to discuss work zone traffic control training and safety issues.

The committee is responsible for the following:

- Establish the minimum requirements for the qualification and training of flagging instructors authorized to issue the state Traffic Control Flagger card.
- Maintain, modify, and enforce the criteria and administrative process for obtaining the State Traffic Control Flagger and Traffic Control Supervisor cards.
- Maintain, modify, and enforce the criteria and administrative process for agreements of reciprocity with other states for Flagger and Traffic Control Supervisor cards.
- Provide suggestions and recommendations for the improvement of work zone safety and work zone safety education to the department through the Work Zone Safety Task Force.
- Communicate information on work zone safety issues and education to interested parties in the roadway construction and maintenance industry.

Employees with recommendations to the committee, or desiring information from or about the committee, can contact either their Region Safety Manager or the Safety and Health Administrator in the Headquarters (HQ) Safety and Health Services Office.

7.0 Policy

A worker engaged in construction or maintenance activities along the highway in highway construction or maintenance is one of the most hazardous work environments in the Department of Transportation. Work zones are established for the safety of workers and the traveling public whether a pedestrian or driver. The risk to workers of being struck by a vehicle traveling though the work zone increases as traffic gets more congested and the traveling public becomes more impatient with traffic conditions. To deal with this increased risk, improved planning and better protection measures for the workers are needed.

Work zone safety should be continually emphasized during the year. Additional emphasis activities should be conducted during the months of April through November, when the greatest exposure occurs due to increases in construction and maintenance activities. Supervisors should continually stress work zone safety awareness to all highway construction, maintenance, and field data collection workers.

The WSDOT *Traffic Manual* M 51-02, *Design Manual* M 22-01, *Maintenance Manual* M 51-01, and the *Work Zone Traffic Control Guidelines* M 54-44 provide present work zone traffic control information for providing a safer work zone for workers and the traveling public. Different criteria will apply to the design and planning of the necessary traffic control measures for each type of work zone.

Work zone traffic control allows vehicles and pedestrians to move safely and easily through and around the work areas. Effective temporary traffic control enhances traffic safety and efficiency and protects WSDOT workers working within the work zone.

The *Manual on Uniform Traffic Control Devices* (MUTCD) is adopted by WSDOT as the legal standard for traffic control. The principles set forth in Part VI of the MUTCD titled "Standards and Guide for Traffic Control for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations" are presented in WSDOT's *Work Zone Traffic Control Guidelines* M 54-44.

7.1 Flagging

When operations are such that signs, signals, and barricades do not provide the necessary protection on or adjacent to highways or streets and direct control of vehicles in a work zone is required to provide direction to stop or proceed in a designated path, flaggers or other appropriate traffic controls shall be provided. Flaggers are to be used only when other reasonable means of control will not adequately control traffic in the work zone.

All personnel performing flagging duties must have in their possession either a valid Washington State Traffic Control Flagger Card or a valid flagger card from a state having flagging training reciprocity with Washington. The card must verify completion of the traffic control flagger training and be carried on the worker. The card must be renewed every three years.

When flaggers are used, a method to ensure that flaggers have adequate warning of objects approaching from behind them must be used. Flaggers should not be assigned other duties while flagging. Flaggers should not use personal cell phones, pagers, or radio headsets that could distract their vision, hearing, or attention while flagging. Two-way radios used for communications between flaggers to direct traffic or ensure flagger safety are acceptable.

Flagger workstations **must** be illuminated at night to increase their visibility to the public and other work zone vehicles and equipment.

7.2 Setting Traffic Control

Back-mounted cone cages (pickups and one-ton trucks) will be the accepted standard method allowed for use when setting cones and signs at work sites on all highways. Truck-mounted front platform and single purpose signing vehicles such as a Road Warrior are also acceptable standard methods for setting cones.

Platforms shall meet safety requirements involving load carrying capacity and shall have a standard top, midrail, and toe board. While the cage is occupied and the vehicle is moving, the person occupying the cage shall have the closest end rail (bar or chain) closed. Workers standing on moving equipment with no top, midrail, toe board or safety chain must wear a lanyard to keep from being ejected or falling from the vehicle.

Detailed information on WSDOT's traffic control procedures are found in WSDOT's *Maintenance Manual* M 51-01 and *Standard Specifications for Road, Bridge, Municipal Construction Manual* M 41-10 and must comply with DOSH Regional Directive 6.55 WSDOT and Cone-Setting Requirements.

7.3 Motor Vehicle Operation

Each person authorized to operate an agency-provided motor vehicle has the responsibility to be familiar with, and adhere to, Washington State traffic laws, the rules and instructions outlined in the *Use of State Provided Motor Vehicles* M 53-50, accident reporting procedures outlined in the *Safety Procedures and Guidelines Manual* M 75-01 and the rules outlined in Chapter 12, Transportation, of the *State Administrative and Accounting Manual* (SAAM) online at www.ofm.wa.gov/policy/12.htm.

7.3.1 Rolling Equipment Operation

When operating any rolling equipment such as cars, trucks, tractors and excavators, it will be in accordance with manufacturer's operating instructions, Washington State motor vehicle laws and WAC 296-155, Part M.

7.3.2 Backing

Backing accidents are often life threatening and costly. Backing can be done safely but caution must be exercised. The most important precaution is for drivers to be aware of the potential for backing accidents and take steps to prevent them.

7.3.2.1 Vehicle Backing Policy Elements

The following elements will fit most situations. In situations where they do not completely meet safety and operational needs, they are to be supplemented by good planning and judgment.

Advance Planning

- Vehicles operating on construction sites are to comply with WAC 296-155-610, *Motor vehicles on construction sites*.
- Pre-Activity Safety Plans are to include a vehicle backing component
- Park defensively! Plan in advance. When possible, park the vehicle to position it to enable it to move forward instead of backing out of its parking location.

Preparation

- The vehicle driver is responsible for the vehicle backing operation. Check the backing operation area for obstructions, other vehicles and people.
- When, in the drivers judgment, vision is obstructed and a spotter is available to the driver; the spotter will guide the driver back.
- When returning to your vehicle/equipment and backing is required, conduct a walk-around first. Traffic cones may be utilized as a reminder to conduct the walk-around if deemed appropriate.

Operation

- Drivers are to stay alert and focused while operating any vehicle.
- On equipment larger than a passenger sedan, the operator is required to sound the horn twice in warning before backing.
- When backing a vehicle or piece of equipment that is not equipped with an audible back-up alarm: If vision is obstructed or use of the mirrors is required, the operator will intermittently sound the horn while backing.

Back-up Alarms

- All vehicles (excluding passenger cars and pickups) with obstructed rear vision that are operated by WSDOT employees on a construction site must be equipped with an audible back-up alarm. Under specific conditions listed in #4 below, an amber strobe light may be substituted for the audible back-up alarm.
- Back-up alarm must meet the following criteria:
  1. Maintained in good working order.
  2. Automatically activated when the vehicle is operated in reverse gear.
  3. Audible back-up alarm can be heard above the surrounding noise level and from at least 15 feet from the rear of the vehicle.

4. Visible amber strobe light back-up alarm may be substituted for an audible back-up alarm only if **all** the following conditions are met:
    a. Approved in advance by a Region Operations engineer.
    b. Only used during night operations.
    c. Noise sensitivity concerns in residential areas.
    d. There is no hazard to workers on foot in the operating area of the vehicle.
5. If a back-up alarm fails or is missing, see #2. below.

- WSDOT employees must properly use back-up alarms. This includes:
    1. Always be certain a back-up alarm is connected and in good working order on all required vehicles in construction sites and work zones.
    2. When a back-up alarm fails or is missing, the vehicle operator must sound the horn and use another employee as a spotter when backing up the vehicle.
    3. When an amber strobe back-up alarm fails or is missing during night operations, the vehicle operator must either:
        a. Use an audible back-up alarm.
        b. Sound the horn and use another employee as a spotter when backing up the vehicle.
- Current list of equipment requiring back-up alarms can be obtained from TEF.

The intent of this section is to provide minimum criteria across the state. Each region and division is asked to use this information as the basic backing policy and to add information to localize their own policy.

7.3.2.2 Vehicle Backing Accidents

Following any vehicle backing accidents, the employee and his or her supervisor will meet (in person or telephone per Appointing Authority's discretion) with the appointing authority within three (3) workdays to discuss the accident and identify measures that will be taken to ensure that future incidents will be prevented.

8.0 Training

8.1 Traffic Control, Flagging – CC AFZ

Selected employees whose work tasks require that they perform flagging operations must have in their possession a valid Traffic Control Flagger Card. The training is required every three years. The Washington State Traffic Control Flagger Card may be obtained by attending this training course and passing an open book test.

This course provides employees with the knowledge to perform flagging operations where conditions require traffic control. This course is intended to meet the requirements of WAC 296-155-305.

Upon completion of this course, participants will be able to:

- Understand the responsibilities of the flagger.
- Understand the basics of traffic control setup.
- Use the flagging paddle safely and correctly in controlling traffic.

Workers requiring this training register through ATMS.

8.2 Work Zone Traffic Control Supervisor Seminar – CC A42

This course is for WSDOT Construction Project Office Chief Inspectors and Project Inspectors to maintain certification. The course provides basic fundamentals in the proper techniques and procedures for designing, implementing, maintaining, and reviewing temporary work zone traffic control.

On completion of the course, participants will be able to:

- Implement work zone traffic control plans and review them for consistency and uniformity in accordance with Part VI of the *Manual of Uniform Traffic Control Devices* and the WSDOT *Traffic Manual* M 51-02, Chapter 5.
- Monitor work zone traffic control to identify unanticipated site specific needs to ensure the safety of pedestrians, drivers, and workers and determine effective methods of meeting those needs.
- Conduct ongoing inspections and maintenance of traffic controls to verify continued effectiveness and to identify any needed revisions.
- Interpret work zone traffic control plans so field revisions may be effectively designed, approved, and implemented as needed.
- Serve as an onsite traffic control supervisor within a dynamic work zone, representing either WSDOT or the contractor on a daily basis.

8.3 Work Zone Traffic Control Supervisor Seminar Refresher – CC BQD

This course is for WSDOT Construction Project Office Chief Inspectors and Project Inspectors and contractor personnel who will be designated as Traffic Control Supervisors.

This course provides a refresher of basic fundamentals in the proper techniques and procedures for designing, implementing, maintaining, reviewing, and modifying temporary work zone traffic control in accordance with the *Standard Specifications for Road, Bridge, and Municipal Construction* M 41-10, the MUTCD Part VI, the WSDOT *Traffic Manual* M 51-02, and the WSDOT *Construction Manual* M 41-01.

8.4 Maintenance Traffic Control Operations – CC B7Z

This course is designed for WSDOT maintenance supervisors, lead technicians and other maintenance personnel involved in implementing work zone traffic control. The course is six to eight hours long and provides participants with principles and practices of traffic control which will enable them to provide the safest and most efficient operation of temporary traffic control in work zones. Refresher training is due every three years.

At the completion of the course participants will be able to:

- Understand each step involved in providing temporary traffic control.
- Identify and apply workable concepts and techniques during the installation, maintenance, and evaluation of controls for maintenance situations.
- Adhere to appropriate design principles and standards for temporary traffic control.
- Apply traffic control plans which are appropriate to site conditions, monitor the plans, and make changes indicated by traffic accidents, incidents, and operational difficulties.
- Assess the legal consequences of actions or inaction relative to temporary traffic control, and risk management procedures.

9.0 Personal Protective Equipment

The risks that workers face in or near the roadway are serious but manageable if work is planned and implemented appropriately. Personal protective equipment (PPE) is a key element of this planning and is a worker's last line of defense to serious injuries. For additional policy information regarding PPE, see Chapter 5 of this manual.

9.1 General

Workers shall wear substantial footwear, shirts with sleeves, and long pants when working in a work zone. Employee clothing and footwear shall be compliant with WAC 296-155-200, *General requirements for personal protective equipment*. Soft caps are permitted in certain situations. For that information please refer to Chapter 3, Section 9.4, Soft Cap Usage, and Chapter 5, Section 5.3, Head Protection, of this manual. Also refer to Chapter 5, Section 5.7, Foot Protection, for information on foot protection requirements.

9.2 High-Visibility Clothing

High-visibility clothing is required on all WSDOT construction and maintenance operations. The high-visibility clothing will provide increased protection to workers and motorists by providing greater worker visibility at a distance, particularly during high-risk nighttime operations. All high-visibility clothing must meet the ANSI/ISEA 107-2004 standards and be worn as outermost garment. (***Note:*** Garments currently in use labeled ANSI/ISEA 107-1999 may be worn until they are no longer serviceable as shown in Appendix 3-A, Vest Check Station.)

Care should be taken to ensure high-visibility garments are in contrast with traffic devices and equipment. The Appointing Authority and/or Region Safety Manager shall have final approval authority over the "High-Visibility" T-shirt itself and its use by WSDOT employees in their region.

Workers on foot in a highway right of way (fence line to fence line, landscaped areas) and other areas exposed to vehicular traffic must wear the following:

Daytime Operations

Flaggers shall wear an ANSI Class 2 or 3 high-visibility vest or jacket. A white or yellow hard hat marked with at least 12 square inches of retro-reflective material applied to provide 360 degrees of visibility must also be worn.

Non-flagger WSDOT workers shall wear either an ANSI Class 2 or 3 high-visibility garment.

Nighttime, Inclement Weather, and Limited Visibility Operations

During nighttime and other low-visibility conditions, flaggers shall wear an ANSI Class 3 ensemble consisting of an ANSI Class 2 or 3 upper garment and an ANSI Class E lower garment. A white or yellow hard hat marked with at least 12 square inches of retro-reflective material applied to provide 360 degrees of visibility must also be worn.

During nighttime operations, non-flagger WSDOT workers shall wear either an ANSI Class 2 or 3 garment with either white coveralls or ANSI Class E garment. When rain gear is worn, it shall be ANSI Class 3 or have a required high-visibility garment worn as outermost layer.

	Flagging		Non-flagging	
	Daylight	**Darkness or Low-Visibility Conditions**	**Daylight**	**Darkness or Low-Visibility Conditions**
Hard hat (High-Visibility)	Required	Required		
ANSI Class 2 or 3 upper garment	Required (T-shirts not allowed)		Required	Required in tandem with white coveralls or ANSI Class E lower garment
Two piece ANSI Class 3 Ensemble (Class 2 or 3 upper garment in tandem with pants Class E)		Required (T-shirts not allowed)		

Garment Maintenance

Retro-reflective vests, hard hats, white coveralls, rain gear, and other high-visibility apparel shall be maintained in a neat, clean, and presentable condition. High-visibility garments must be replaced periodically because of increased fading of the high-visibility colors. High-visibility garments shall be periodically compared to the High-Visibility Check Station in Appendix 3-A to determine if the reflectivity has been compromised. The supervisor or Region Safety Manager has final authority for replacement of high-visibility garments.

9.3 Hard Hat Usage

In addition to Chapter 5, Personal Protective Equipment, Section 5.3, Head Protection, of the *Safety Procedures and Guidelines Manual* M 75-01, hard hat usage must be consistent with the following WACs:

- 296-155-205
- 296-155-305
- 296-800-160
- 296-45-255

9.4 Soft Cap Usage

Employees performing work activities which do not require use of a hard hat may wear "soft caps." This headwear must not impair visibility or otherwise create a safety hazard.

WSDOT regions may develop criteria or limitations on types of acceptable alternate head wear and messages which may or may not be displayed on them.

Employees must have a hard hat on site and readily available for use when work conditions require their use.

10.0 Recordkeeping

For the purpose of developing a work zone accident profile, injuries to WSDOT workers working in roadway work zones should be annotated "work zone" on the Employee Report of Accident. All injuries that occur as the result of being struck by vehicles traveling through the work zone or work vehicles within the work zone should be identified.

"Near miss" and "road rage" incidents should be reported to the Washington State Patrol (WSP) and follow up with a report to the Region Safety Office or Headquarters Safety Office with as much information regarding date and time, location, and description of incident, as possible.

Upon completion of training listed in Section 8 above, all workers must have their training record updated in the Automated Training Management System (ATMS) by their Org unit.

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

11.0 Appendices

Appendix 3-A Vest Check Station

To print the Vest Check Station poster only, click on this link:
www.wsdot.wa.gov/publications/manuals/fulltext/m75-01/poster.pdf
This poster is in color and should be printed on 11 x 17 inch paper (tabloid).

VEST CHECK STATION

NEW OR LIKE NEW VEST

- Excellent Color Contrast
- Excellent Reflectivity
- No Fading or Soiling

ACCEPTABLE USED VEST

- Excellent Reflectivity
- Limited No Fading or Soiling

UNACCEPTABLE VEST
(Replace if any)

- Poor Color Contrast
- Compromised Reflectivity
- Significant Fading or Soiling

Washington State Department of Transportation

Chapter 4 — Control of Hazardous Energy (Lockout/Tagout)

1.0 Purpose

To provide guidance for the establishment of methods isolating machines or equipment from energy sources to permit routine maintenance and servicing of those machines and equipment by Washington State Department of Transportation (WSDOT) employees.

2.0 Scope and Applicability

This chapter has been developed for control of hazardous energy (lockout/tagout [LOTO]) using the referenced Washington Administrative Code (WAC) chapters as guidance.

This safety procedure affects employees who service, maintain, and operate stationery equipment and machines. Uncontrolled energy is a hazard to operators and other employees in the area of the machinery, equipment, or processes. Those who service and maintain machinery or equipment are especially vulnerable because the machinery or equipment might become energized while being serviced or stored energy might be unexpectedly released.

3.0 References

- WAC 296-803, *Control of hazardous energy (lockout/tagout)* http://apps.leg.wa.gov/WAC/default.aspx?cite=296-803

4.0 Definitions

Affected Employee: An employee whose job duties require operation or use of a machine or piece of equipment in a location in which servicing or maintenance is being performed under LOTO procedures.

Authorized Employee: An employee who locks out or tags out a machine or piece of equipment in order to perform servicing or maintenance on that machine or piece of equipment. An affected employee becomes the authorized employee when that employee's duties require him or her to perform the service or maintenance covered under this policy.

Energized: Connected to an energy source or containing residual or stored energy.

Energy-isolating Device: A mechanical device that physically prevents transmitting or releasing energy. This includes, but is not limited to: manually operated electrical circuit breakers, disconnect switches, line valves, blocks, or similar devices used to block or isolate energy.

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

Lockout: Placing a lockout device on an energy-isolating device using an established procedure to make sure the machine or equipment cannot be operated until the lockout device is removed.

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 a safe position to prevent the energizing of a machine or piece of equipment.

Safety Organization: Headquarters Safety and Health Services Office staff, or Region Safety Office staff.

Service and Maintenance: Activities such as constructing, installing, setting-up, adjusting, modifying, maintaining, and servicing machines or equipment. It also includes lubricating, cleaning, unjamming, and making tool changes.

Tagout: The placement of a tagout device or an energy-isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

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

See WAC 296-803 for additional definitions.

5.0 General Responsibilities

In addition to the responsibilities outlined in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01, there are responsibilities specific to lockout/tagout as detailed below.

It is the policy of WSDOT to provide a place of employment free from recognized hazards that cause or are likely to cause death or serious physical harm to employees or to the public. Therefore, all energized machines and equipment must be locked out and/or tagged out before any maintenance or servicing is performed. These measures will be implemented to minimize those hazards to ensure the safety of WSDOT employees.

5.1 Executive, Senior, and Mid-Level Management

- Ensure that site managers, supervisors, and other site personnel have the required experience to perform assessments and identify all LOTO applications at sites under their control.

- Provide or replace LOTO equipment as required to perform work in compliance with this policy.
- Perform periodic audits of employee training related to LOTO.
- Complete a survey of machinery and equipment within their area to determine which machinery and equipment should be included in the Lockout/Tagout Equipment Inventory Program.
- Identify all affected and authorized employees.
- Ensure annual compliance with this safety procedure through their inspection processes.

5.2 Supervisors

- Ensure that all precautions required by this safety procedure be observed.
- Ensure that this safety procedure is implemented in their areas.
- Ensure that an adequate supply of locks, tags, and other safety equipment is available and is utilized in accordance with this safety procedure.
- Attend LOTO training when equipment is introduced into the work environment, assignments changed or work habits identify need.
- Ensure affected and authorized employees have received the training required in this safety procedure; and, records are maintained.
- Maintain in their office, energy source survey forms, and record of tagout system justification forms as required by this chapter.

5.3 Authorized Employees

- Follow WSDOT's lockout/tagout procedures before any maintenance or servicing activities are begun.
- Attend LOTO training when equipment is introduced into the work environment, assignments changed or work habits identify need.
- Ensure that all precautions required by this safety procedure are observed.
- Report to their supervisors any changes in the machinery or equipment that would require a change in the lockout/tagout procedure.
- Notify affected employees before beginning a lockout/tagout procedure on a piece of equipment or machinery.
- Report to their supervisors any changes in the machinery or equipment that would require a change in the lockout/tagout procedure.

5.4 Affected Employees

- Attend LOTO training when new employees or equipment are introduced into the work environment, assignments changed, or work habits identify need.

- Follow all precautions required by this safety procedure.
- Report to their supervisors any changes in the machinery or equipment that would require a change in the lockout/tagout procedure.

5.5 Safety Organizations

- Provide prompt assistance to managers/unit heads, supervisors, or others as necessary on any matter concerning this safety procedure.
- Assist in developing or securing required training.
- Monitor the lockout/tagout program and any changes in the machinery and equipment that may require modification of the program.
- Provide consultative and audit assistance to ensure effective implementation of this safety procedure.

6.0 Policy

Before any authorized employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start up, or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative.

If an energy-isolating device is not capable of being locked out, the authorized employee shall utilize a tagout system.

If an energy-isolating device is capable of being locked out, the authorized employee shall utilize lockout unless the authorized employee can demonstrate that the utilization of a tagout system will provide full employee protection.

When a tagout device is used on an energy-isolating device, which is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and the employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program.

In demonstrating that a level of safety is achieved in the tagout device which is equivalent to the level of safety obtained by using a lockout program, the authorized employee must be in full compliance with all tagout-related provisions of WAC 296-803 together with such additional elements as are necessary to provide the equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstration of full employee protection includes the implementation of safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent operation.

6.1 Periodic Inspection

The supervisor shall conduct a periodic inspection of the energy control procedure for machinery and equipment that his authorized employee services at least annually to ensure that the procedure and the requirements of this chapter and WAC 296-803 are being followed.

The periodic inspection is conducted to correct any deviations or inadequacies identified. Where lockout is used for energy control, the periodic inspection shall include a review, between the supervisor and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.

Where tagout is used for energy control, the periodic inspection shall include a review, between the supervisor, each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

7.0 Training

7.1 General Training Requirements

General training requirements for the lockout/tagout program shall consist of:

- Basic LOTO training.
- Training on the limitations of tags.
- Authorized and affected employee retraining.
- Documentation of LOTO training.

7.2 Basic Lockout/Tagout Training

Basic LOTO training (Course Code BYJ) shall communicate awareness of the procedures and skills that employees are required to possess. This training will be the responsibility of the supervisor. This training shall ensure that:

- Each authorized employee receives training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- Each affected employee shall be instructed in the purpose and application of the energy control procedure.
- All other employees shall be instructed when work operations are in an area where energy control procedures are used.

7.2.1 Training on the Limitations of Tags

Training on the limitations of tags must be provided to authorized and affected employees. This training will be the responsibility of the supervisor. Tagout systems are not completely foolproof. Instructions should include, among others, the following examples of tag limitations:

- Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock.
- When a tag is attached to an energy isolating means, it is not to be removed without authorization by the person indicated on the tag and it is never to be bypassed, ignored, or otherwise defeated.
- In order to be effective, tags must be legible and understandable by all authorized and affected employees, and all other employees whose work operations are or may be in the area.
- Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- Tags may evoke a false sense of security and their meaning needs to be understood as parts of the overall energy control program.
- Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

7.2.2 Authorized Employee Training

Authorized employees are those who use lockout/tagout devices. This training will be the responsibility of the supervisor.

Training requirements for authorized employees will include the following:

- Purpose of the standard and hazards controlled.
- When the standard applies.
- Definitions of terms used.
- Equipment used for lockout/tagout:
  - Standardized appearance.
  - Personal identification procedures.
- Procedures, including:
  - Preparation for shutdown.
  - Shutdown, isolation, blocking, and securing.
  - Placement, removal, and transfer of devices.
  - Release of stored energy.
  - Testing to verify effectiveness of energy control.

- Release from lockout/tagout:
  - Procedural requirements.
  - Release if employee who applied device is no longer at facility.
- Special procedures and rules for tagout systems.
- Special procedures for changes of shifts and personnel changes.
- Special procedures and practices for group lockout/tagout:
  - Procedure.
  - Authority for lockout/tagout in group situations.
- Inspection program.
- Communication and reporting of problems.

Appendix 4-A presents WSDOT's lockout/tagout procedure for authorized employees. Appendix 4-B provides the Lockout/Tagout Equipment and Energy Source Survey Form. Appendix 4-C provides the Tagout System Justification Form.

7.2.3 Affected Employee Training

Affected employees are those who operate equipment locked or tagged, or employees who work in the area where the devices are in use. This training will be the responsibility of the supervisor. Affected employee training may cover:

- Introduction to procedures outlined above for authorized employees.
- Prohibition against energizing any machine or piece of equipment that is locked or tagged out.

7.2.4 Authorized and Affected Employee Retraining

Authorized and affected employee retraining is required when:

- There is a change in their job assignments, a change in machines, equipment, or processes that presents a new hazard, or when there is a change in the energy control procedure.
- A supervisor has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

This retraining shall establish employee proficiency and introduce new or revised control, methods and procedures, as necessary.

8.0 Personal Protective Equipment (PPE)

Determination of PPE to be worn is made after a hazard analysis of the work task as outlined in the PPE chapter. See Personal Protective Equipment, Chapter 5, for additional details.

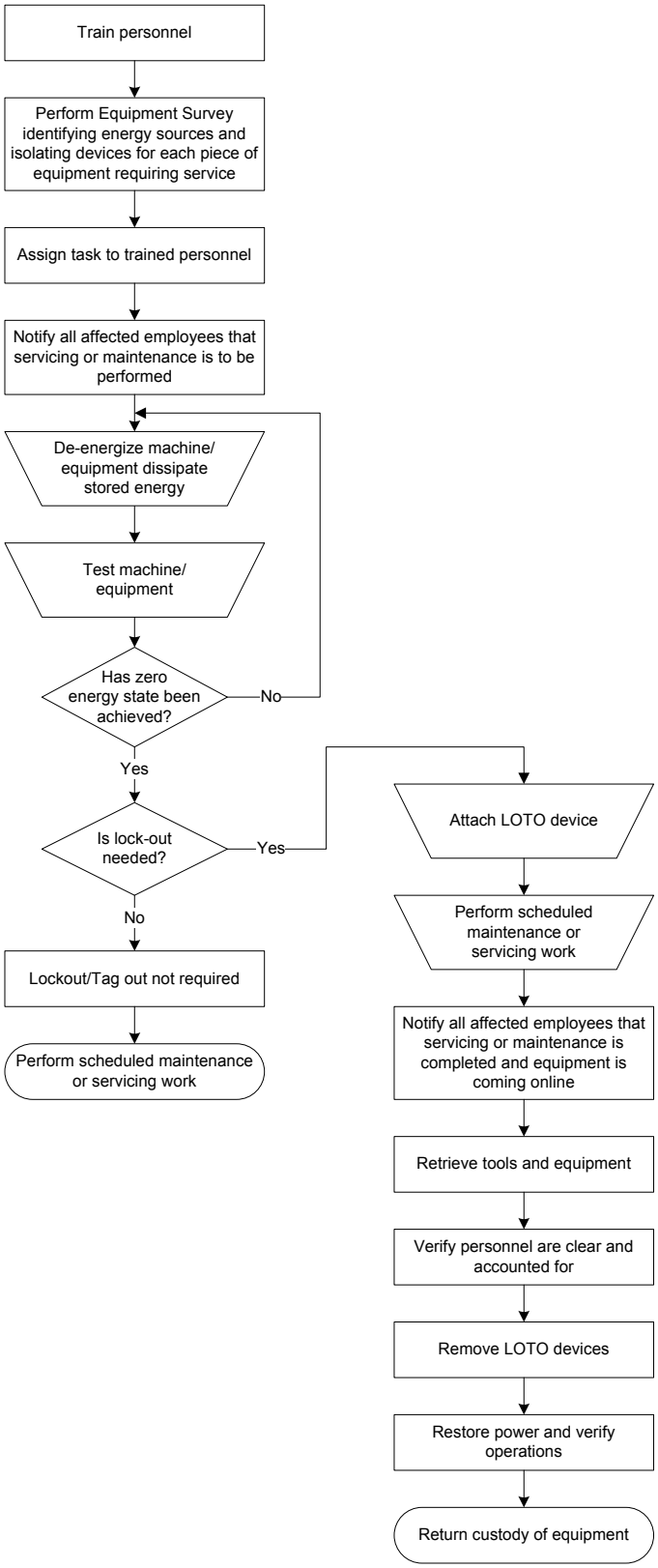
9.0 Recordkeeping

Documentation of lockout/tagout training must be accomplished and updated when such training has taken place.

Employee training shall be documented in ATMS. In addition to ATMS training recordkeeping requirements, supervisors shall maintain in their office, records of lockout/tagout training, energy source survey forms, and record of tagout system justification forms as required by this chapter. This training will include electrical, hydraulic, chemical, thermal, and any other energy sources that have the ability to release without warning.

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

10.0 Lockout/Tagout Flow Chart



11.0 Appendices

Appendix 4-A Lockout/Tagout Procedure

Appendix 4-B Lockout/Tagout Equipment and Energy Source Survey Form

Appendix 4-C Tagout System Justification Form

Recommended Sequence of Lockout

1. Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
2. The authorized employee shall refer to the procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, understand the hazards of the energy, and know the methods to control the energy.
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).
4. Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).
5. Lock out the energy isolating device(s) with assigned individual lock(s).
6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

   Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.
8. The machine or equipment is now locked out.

Recommended Sequence of Restoring Equipment to Service

1. When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.
2. Check the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

3. Check the work area to ensure that all employees have been safely positioned or removed from the area.
4. Verify that the controls are in neutral.
5. Remove the lockout devices and reenergize the machine or equipment.

   Note: The removal of some forms of blocking may require re-energizing of the machine before safe removal.

6. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place his or her own personal lockout device or tagout device on the energy isolating device(s).

When an energy-isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used.

If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet, which allows the use of multiple locks to secure it. Each employee will then use his or her own lock to secure the box or cabinet. As each person no longer needs to maintain his or her lockout protection that person will remove his or her lock from the box or cabinet.

TYPES OF HAZARDOUS ENERGY AT THIS FACILITY:			
Facility Name			
	Yes	No	General Description and Location
Electrical:			
Pneumatic:			
Hydraulic:			
Stored:			

ELECTRICAL EQUIPMENT			
Equipment Name	Service Panel Disconnect	Identification Number	Lockout/Tagout Device Needed
Comments			

PNEUMATIC EQUIPMENT			
Equipment Name	Service Panel Disconnect	Identification Number	Lockout/Tagout Device Needed

HYDRAULIC EQUIPMENT			
Equipment Name	Service Panel Disconnect	Identification Number	Lockout/Tagout Device Needed

Comments

STORED ENERGY EQUIPMENT			
Type of Equipment	Isolation Point	Auxiliary Device Needed	Lockout/Tagout Device Needed
Comments			

Appendix 4-C Tagout System Justification

Location:

FULL EMPLOYEE PROTECTION: If you cannot indicate a "yes" answer to all of the following items, do not use the tagout system.

Yes	No		Yes	No	
☐	☐	Tagout system provides full employee protection	☐	☐	Tagout system provides equivalent safety to the lockout program.
☐	☐	Tagout devices placed at the same location where the lockout device would have been placed	☐	☐	Employees fully comply with all tagout-related provisions.

ADDITIONAL SAFETY MEASURES: Check measure(s) used to provide equivalent employee protection.

☐ Isolating circuit element removal
☐ Control switches blocked
☐ Extra disconnecting device opened
☐ Removal of valve handles
☐ Other_____

TAGOUT DEVICES: The tagout device must satisfy each of the following criterion:

☐ Singularly identified
☐ Only devices used for controlling energy
☐ Not used for other purposes
☐ Durable/Substantial
☐ Withstand environment
☐ Non-reusable
☐ Attachable by hand
☐ Self-locking
☐ Indicates employee identity
☐ Exposure does not cause deterioration
☐ Does not deteriorate in corrosive environment
☐ Standardized
☐ Color
☐ Shape and Size
☐ Print and Format
☐ Minimum unlocking strength of no less than 50 pounds.
☐ Equivalent to a one-piece, all environment-tolerant, nylon cable tie

Warning: The tagout device must:
☐ Warn against hazardous conditions
☐ Include Do Not Start, Open, Close, Energize, Operate, etc.

Tag Limitations: Employees should be trained to know that:

☐ Tags are warning devices
☐ Tags do not provide physical restraint
☐ Tags must never be removed without authorization
☐ Tags may evoke false sense of security
☐ Tags are part of the overall security
☐ Tags must be securely attached
☐ Tags must never be bypassed, ignored, or defeated

EMPLOYEE TRAINING ON LOCKOUT/TAGOUT

DATES: LOCATION:

DESCRIPTION:

REASON (S) FOR USING TAGOUT SYSTEM

HOW EQUIVALENT EMPLOYEE PROTECTION PROVIDED

OTHER COMMENTS

Conducted by:	Date:	Authorized By:	Date:

Chapter 5 Personal Protective Equipment

1.0 Purpose

To provide guidance for Washington State Department of Transportation (WSDOT) employees in minimizing exposure to work hazards.

2.0 Scope and Applicability

The use of personal protective equipment (PPE) to reduce injuries is an important component of WSDOT's safety program. PPE includes all clothing and accessories designed to create a barrier against workplace hazards. PPE should be considered a means of minimizing the hazards after engineering controls, administrative controls, and safe work practices have been implemented.

This chapter has been developed for Personal Protective Equipment (PPE) using the referenced Washington Administrative Code (WAC) chapters as guidance and apply to all employees exposed to hazards that require the use of PPE.

3.0 Reference

- WAC 296-800-160, *Personal protective equipment (PPE)*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-800-160
- WAC 296-155, *Part C, Personal protective and life saving equipmen*t
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155
- WAC 296-155, *Part E, Signaling and flaggers*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-155
- WAC 296-45, *Electrical workers*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-45

4.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* as well as the items below specific to personal protective equipment policy.

It is the responsibility of each manager, supervisor, and employee to ensure implementation of the department policy on PPE. It is the responsibility of the department to provide and maintain equipment that is adequate and is safe in design and construction.

4.1 Executive, Senior, and Mid-Level Management

- Ensure that site managers, supervisors, and other site personnel have the required experience to perform assessments and identify all PPE required at sites under their control.
- Provide or replace PPE as required to perform work in compliance with this policy.
- Perform periodic audits of employee use and training related to PPE.
- Ensure that adequate funds are available and budgeted for the purchase of PPE in their areas.
- Identify the employees affected by this policy.
- Obtain and coordinate the required training for the affected employees.
- Ensure compliance with PPE policies.

4.2 Supervisors

- Assess the hazards and implement best control method according to the Priority of Hazard Control (Appendix 5-A).
- Communicate the compliance expectations to employees and address noncompliance.
- Communicate the appropriate needs to managers and/or employees.
- Ensure that employees are properly trained in PPE use, care, and maintenance before using PPE and that they are worn properly.
- Ensure that no employee is allowed in a work environment without the PPE consistent with the hazard recognized.
- Provide appropriate PPE and related training to employees.

4.3 Employees

- Comply with all applicable PPE policies.
- Identify and report any hazards which may require PPE.
- Keep all assigned PPE readily available, in good working order, wear them when appropriate, and have them replaced when they become worn or unsafe.

4.4 Safety Organization

Region Safety Offices shall be responsible for the following PPE Program activities:

- Provide prompt assistance to managers, supervisors, or others as applicable on any matter concerning this safety procedure.
- Assist in developing or securing required training.

- Provide assistance in performing hazard assessments.
- Conduct hazard assessments and secure training for other designated employees to perform hazard assessments.
- Work with Purchasing and Supply Officers to ensure that all newly purchased PPE comply with current regulations and meet work place needs; and provide consultative and audit assistance to ensure effective implementation of this safety procedure.

5.0 Policy

5.1 General

It is the policy of the department to provide a place of employment free from recognized hazards that cause or are likely to cause death or serious physical harm to employees. PPE shall be specified, appropriate to the hazard, and used after engineering practices, administrative practices, or other safe work practices have been considered to control the hazard(s). Please refer to Appendix 5-A Priority of Hazard Control and Appendix 5-B PPE Flow Chart.

Proper training regarding PPE will also be conducted prior to its use. These measures will be implemented to minimize those hazards to ensure the safety of employees.

5.2 Hazard Assessment and Control

A hazard assessment will be performed in the workplace as part of the Pre-Activity Safety Plan (PASP) to identify all hazards that would necessitate control, which may include the use of PPE.

- The activity or project shall be broken down into definable tasks or processes.
- The tools or equipment to be used shall be identified.
- The environmental conditions that may create a hazard shall be identified.
- The hazards associated with each task, tool and environmental condition (or their combinations) shall be identified.
- Specific controls shall be assigned to each identified hazard according to the Priority of Hazard Control (Appendix 5-A).

5.3 Head Protection

Hard hats protect employees from head injuries caused by falling or flying objects, bump hazards in close or confined spaces, and electrical shocks or burns. The hard hat should be easily adjustable so employees will wear the hat properly.

Department hard hats should:

- Resist a reasonable impact force without breaking or collapsing the shell or damaging the internal suspension.
- Dissipate and/or absorb as much impact force as possible to avoid transmitting the force to the head, spinal column, or other parts of the body.
- Resist impact penetration.
- Provide electrical protection as applicable.
- Enhance visibility of a worker at their work location.

Department hard hats are designated either as Class A or Class B hard hats. Class A hard hats provide protection against impact and falling or flying objects. Class B hard hats protect the head against high voltage electricity. All department hard hats should be disposed of whenever the helmet has received impact or shows signs of deterioration.

All department employees are required to wear a hard hat in accordance with this section and with WAC 296-155-205, WAC 296-155-305, and WAC 296-800-160.

The hard hat should be high-visibility and marked with at least 12 square inches of retro-reflective tape applied to provide 360 degrees of visibility at night.

Employees are required to wear a hard hat when working on or around the following:

- Asphalt plant, crushers, blasting areas, and asphalt-grinding operations.
- Construction of bridges, structures, retaining walls, etc.
- Overhead work such as in a trench, rock-fall areas, installing signs, installing poles, work under bridges, electrical conductors, etc.
- Operating equipment with arms, booms, buckets, etc.
- Cranes, pile drivers, drilling.
- Working as a flagger.
- Brush cutting work, dangerous tree work, and other logging operations.
- On any construction site whenever there is a potential exposure to danger of falling objects to persons working or occupying the area.
- Any designated hard hat area.

Supervisors have the authority to require employees to wear hard hats for safety considerations. Employees must have their hard hat on site and readily available when work conditions require their use, per WAC 296-155-205(2).

Other acceptable head wear:

- Employees performing work activities, which do not require use of a hard hat may wear other types of head wear. This head wear must not impair visibility or otherwise create a safety hazard.
- The regions may develop criteria or limitations on types of acceptable alternate head wear, or messages which may or may not be displayed on them.

5.4 Eye and Face Protection

Flying particles, cuts, chemicals, injurious light, heat rays, and blows to the face and eyes cause injuries.

There are three basic types of eye and face protection used at WSDOT which meet the American National Standards Institute (ANSI) Z87.1 1989. They are:

- Safety glasses.
- Goggles.
- Face shields.

Eye and face protection devices should protect against the intended hazard and be:

- Fitted properly.
- Durable.
- Capable of being disinfected.
- Easy to clean.
- In good repair.

The eye and face protection required will depend upon the potential hazards. Appendix 5-C presents an eye and face protection selection chart for use within the department.

All department employees must use appropriate eye and face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

As an addition to PPE, special eye wear for welders and wearers of full-face mask respirators may be provided by the department on a case-by-case basis as determined by the safety manager, manager, supervisor and employee.

5.4.1 Allowance Payable to Designated Permanent Employees for Prescription Safety Glasses

A permanent department employee that wears prescription glasses and is exposed to eye hazards may elect to purchase and wear prescription safety glasses during the course of regular duties. The employee is eligible for a reimbursement allowance of up to $75 per biennium to help offset the purchase cost of prescription safety glasses.

5.4.1.1 Procedure

Employee Provides Receipt – Employees must provide their supervisor with proof of purchase (receipt) of prescription safety glasses that meets the specified standards to request reimbursement (i.e., must have ANSI Z87.1 label).

Supervisor Reviews and Approves Reimbursement – The supervisor ensures that any employee requesting reimbursement must wear approved prescription safety glasses while engaged in their regular duties and when, in the opinion of the Appointing Authority or designee, performing other duties that require prescription safety glasses. Supervisors may grant exceptions for those times when the employee is not performing fieldwork, such as meetings or training sessions.

The supervisor makes a copy of the receipt and indicates they have verified the PPE meets the required standard for reimbursement on the Invoice Voucher, DOT Form 134-139 EF (see Appendix 5-G for an example of recommended text for verification). The receipt is then attached to the Invoice Voucher and submitted to the person with delegated authority to authorize/approve payments from their organization's budget for processing.

Disputes – Any disputes concerning the wearing of prescription safety glasses, eligibility for the allowance, safety glasses quality, or exceptions to this procedure are to be referred to the Appointing Authority or designee.

5.5 Ear Protection

Exposure to high noise levels can cause hearing loss or impairment. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is required to avoid hearing damage.

Types of ear protection devices used in the department include:

- Ear plugs
- Ear muffs

There are a variety of earplugs available from WSDOT. For information on the department's Hearing Conservation Program, see Chapter 9 of the *Safety Procedures and Guidelines Manual*.

5.6 Hand and Arm Protection

Hand and arm injuries are a significant component of workplace injuries. Hands and fingers are used to accomplish nearly all workplace activities and must be protected from injury. The types of hand and arm protective wear used in the department include:

- Cut-resistant.
- High and low temperature.
- Splinter and abrasion resistant.
- Electrical protection.
- Repetitive motion and vibration.
- Chemical resistant.

The required hand and arm protective wear will be appropriate to the hazard of the activity being performed.

Appendix 5-D presents details on the types of hand and arm protective wear used in department operations. Also, see WAC 296-45-25505 for further details on electrical protection gloves and protective equipment.

5.7 Foot Protection

Safety shoes are used to protect the feet against injuries from falling objects, rolling objects, objects piercing the soles, electrical hazards, crushing or lacerations. They are required for employees whose job duties present a risk of foot injury due to exposure to the above hazards.

5.7.1 Definitions

5.7.1.1 Approved Safety Footwear

Approved safety footwear is a substantial boot, made up of leather or equally firm material, with the sole and heel designed and constructed for slip resistance, and with laces that extend above the ankle for over the ankle support. Over the ankle rubber or Gortex boots are acceptable when working in water or wet conditions.

Approved safety footwear is used for work activities that present foot injury hazards from falling or moving objects, or from other hazards such as burning, scalding, cutting, and penetration.

Approved safety footwear meets the safety shoe requirements established by the Occupational Safety and Health Act (OSHA) or the American National Standards Institute (ANSI) or the American Society for Testing and Materials (ASTM).

Footwear that has deteriorated to the point where it does not provide adequate protection is not approved.

5.7.1.2 Approved Safety-Toe Footwear

Approved safety-toe footwear is approved safety footwear that also extends above the ankle, has a defined heel, slip resistant sole, a puncture resistant shank, and built in steel or composite protection for the toe areas.

Approved safety-toe footwear is used for work activities that present frequent exposure to foot injury from heavy objects or equipment.

Approved safety-toe footwear must have a label attached indicating it meets the specifications of ANSI Z41 or ASTM F2413-05.

5.7.2 Electrical Hazard

There is an additional requirement for foot protection for employees exposed to hazards of accidental contact with live electrical circuits, electronically energized conductors, parts, or apparatus. These employees must wear footwear constructed with electrical hazard soles and heels, indicated on the footwear label with the code EH.

5.7.3 Footwear Rules

Managers and Supervisors Responsible for Compliance – Managers and supervisors are responsible for ensuring employees are aware of, and follow the requirements of this chapter. Employees at Washington State Ferries (WSF) shall be covered by the existing WSF Safety Management System relative to foot protection.

All Risk Class 5307 Designated Employees Must Wear Safety Footwear – Employees in Risk Class 5307 (medical aid code 2) must wear approved safety footwear while engaged in duties where there is danger of a foot injury. A listing of these job classes is attached as Appendix 5-E. Please note: not all positions with these job classes are designated as Risk Class 5307.

Employees defined in Appendix 5-E must wear “approved safety footwear” on the job. These same employees may elect to wear “approved safety-toed footwear” for a greater level of protection.

Visiting Work Sites With Foot Hazards – Employees who visit work sites where there is a danger of foot injury must use approved safety footwear to minimizing their exposure to locations and/or operations where there is the potential for foot injury.

5.7.3.1 Allowance Payable to Designated Permanent Employees for Safety-Toe Footwear

When a permanent department employee designated in Appendix 5-F elects to purchase and wear approved safety-toe footwear during the course of regular duties, the employee is eligible for a reimbursement allowance of up to $125 per biennium to help offset the purchase cost of approved safety-toe footwear.

Permanent department employees designated in Appendix 5-F may choose to have their approved safety-toe footwear rebuilt as an alternative to purchasing a new pair. Employees are eligible for a reimbursement allowance of up to $125 per biennium.

The safety-toe footwear reimbursement benefit is extended to non-permanent employees at the manager's discretion.

5.7.3.2 Procedure

Employee Provides Receipt – Employees must provide their supervisor with proof of purchase (receipt) of safety-toe footwear that meets the specified standards to request reimbursement (i.e., must have ANSI Z41 or ASTM F2413-05 label).

Employees must provide their supervisor with a receipt for rebuilt safety-toe footwear and proof that footwear meets the ANSI Z41 or the ASTM F2413-05 standard (i.e., written documentation or a new stamp in the rebuilt footwear) to request reimbursement.

Supervisor Reviews and Approves for Reimbursement – The supervisor ensures that any employee requesting reimbursement must wear approved safety-toe footwear while engaged in their regular duties and when, in the opinion of the Appointing Authority or designee, performing other duties that require approved safety footwear. Supervisors may grant exceptions for those times when the employee is not performing fieldwork, such as meetings or training sessions.

The supervisor makes a copy of the receipt and indicates they have verified the PPE meets the required standard for reimbursement on the Invoice Voucher, DOT Form 134-139 EF (see Appendix 5-G for an example of recommended text for verification). The receipt is then attached to the Invoice Voucher and submitted to the person with delegated authority to authorize/approve payments from their organization's budget for processing.

Disputes – Any disputes concerning the wearing of safety footwear or safety-toe footwear, eligibility for the allowance, footwear quality, or exceptions to this procedure are to be referred to the Appointing Authority or designee.

5.8 Body Protection

Protective clothing is used to protect the body from potential exposures associated with work.

Personal protective vests, aprons, coats, pants, coveralls, and suits are available and shall be worn consistent with the workplace hazard. Protective clothing shall include, but not be limited to: cooling vests and suits, foul weather gear, knife and saw cutting protection, high-visibility apparel, flotation vests, and welding and high heat protective clothing.

The department will require the use of protective clothing for those employees who are exposed to body hazards. Examples include: employees in laboratories, welders, employees in special processing areas or employees exposed to other body hazards.

5.9 Respiratory Protection

All employees wearing respirators must be medically approved, trained, and successfully fit tested annually.

The workplace can present hazards to the lungs. Some of the most common hazards are the lack of oxygen and the presence of harmful dust, fogs, smokes, mists, fumes, gases, vapors, or sprays. Respirators with cartridges prevent the entry of harmful substances into the lungs during breathing by filtering out harmful substances. Some respirators (Self Contained Breathing Apparatus or SCBA) provide breathable air so work can be performed where there is inadequate oxygen.

Warning: **Cartridge respirators shall not be used in oxygen deficient atmospheres.**

The prevention of atmospheric contamination at the work site should be accomplished as far as feasible by engineering control measures (such as enclosing or confining the contaminant-producing operation, exhausting the contaminant, or substituting with less toxic materials). However, when engineering controls are not feasible, appropriate respiratory protection must be used.

Respirators have their limitations and are not substitutes for effective engineering controls. No employee shall wear a respirator until he or she has completed the respiratory training program Course Code: ARZ. Respirator training is arranged through the Region and Headquarters Safety Offices.

Refer to the Respiratory Protection Program Chapter 8 of the *Safety Procedures and Guidelines Manual* for further details.

5.10 Fall Protection

Guardrails are the preferred method of fall prevention. When employees are exposed to a hazard of falling from a location of four feet or more in height, supervisors shall ensure that fall prevention, restraint, or positioning device systems are provided and installed. Fall arrest systems may be utilized at elevations of ten feet or greater. Fall prevention training is required for employees working at heights, including training in the use of fall protection equipment.

Fall protection devices are those devices and systems designed to prevent or catch and hold a person after an accidental fall from heights. Fall protection may consist of fall restraint equipment or fall arrest equipment.

When personal fall arrest systems are used, make certain that employees can be promptly rescued or can rescue themselves should a fall occur. The availability of rescue personnel, ladders or other rescue equipment should be evaluated and included in the Fall Protection Plan.

Refer to the Fall Protection Chapter 11 of the *Safety Procedures and Guidelines Manual* for further details.

5.11 PPE Use and Maintenance

All PPE must be kept clean and in reliable condition. Maintenance and cleaning of PPE shall be in accordance with PPE manufacturer's recommendations. PPE that is damaged or deemed to be unsafe must be replaced.

6.0 Training

Training must be provided in the use of all PPE. Affected employees will be trained in:

- Hazard awareness.
- When PPE is necessary.
- How to don, remove, adjust, and wear PPE.
- Limitations of PPE.
- Proper care, storage, maintenance and removal from service of PPE.

Refresher training will be given when changes in work place conditions, type of PPE or work habits show need. All employees must be trained before the specific PPE is put into use. No employee shall be at risk at any time without knowledge of the proper PPE to reduce the risk. Additionally, supervisors will be trained in conducting hazard assessments to ensure the appropriate PPE is matched to the hazard.

7.0 Recordkeeping

Records on PPE training will be maintained in the Automated Training Management System (ATMS).

Written documentation is required to show that each employee using PPE has received and understood the required training. This documentation must include:

- Name of each employee.
- Date(s) of training.
- Subject of the training.

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

8.0 Appendices

Appendix 5-A Priority of Hazard Control

Appendix 5-B PPE Flow Chart

Appendix 5-C Eye and Face Protection Selective Chart

Appendix 5-D Hand and Arm Protective Wear

Appendix 5-E Job Classes in Risk Class 5307

Appendix 5-F Designated Employees Exposure List

Appendix 5-G Invoice Voucher

Appendix 5-A Priority of Hazard Control

From Most Effective to Least Effective

Elimination or Substitution

- Substitute safe materials for hazardous ones
- Remove employee from hazard
- Automate material handling
- Use mechanical advantage
- Reduce energy; speed, voltage, sound level, force
- Change process to eliminate hazard noise
- Perform tasks at ground level

Engineering Controls

- Ventilation systems
- Automatic shut offs
- Failsafe devices
- Back up cameras
- Mirrors
- Machine guarding
- Sound enclosures
- Circuit breakers
- Platforms and guard railing
- Lift tables, conveyors

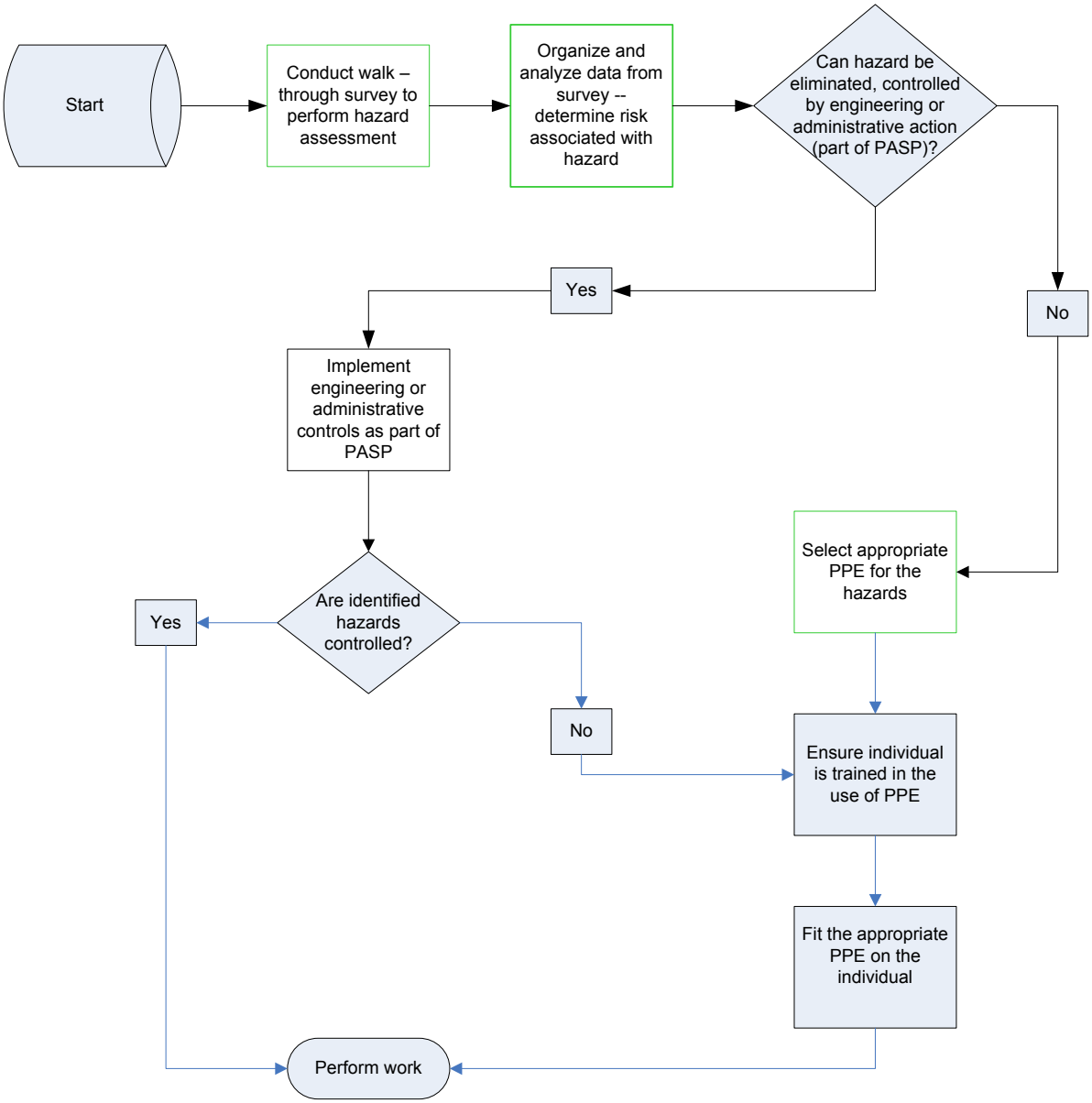
Training and Administrative Controls

- Safe job procedures
- Rotation of workers
- Equipment inspections
- Worker training
- Lockout
- Computer warnings
- Odors added to hazardous odorless gaseous materials such as natural gas
- Backup alarms
- Labels signs

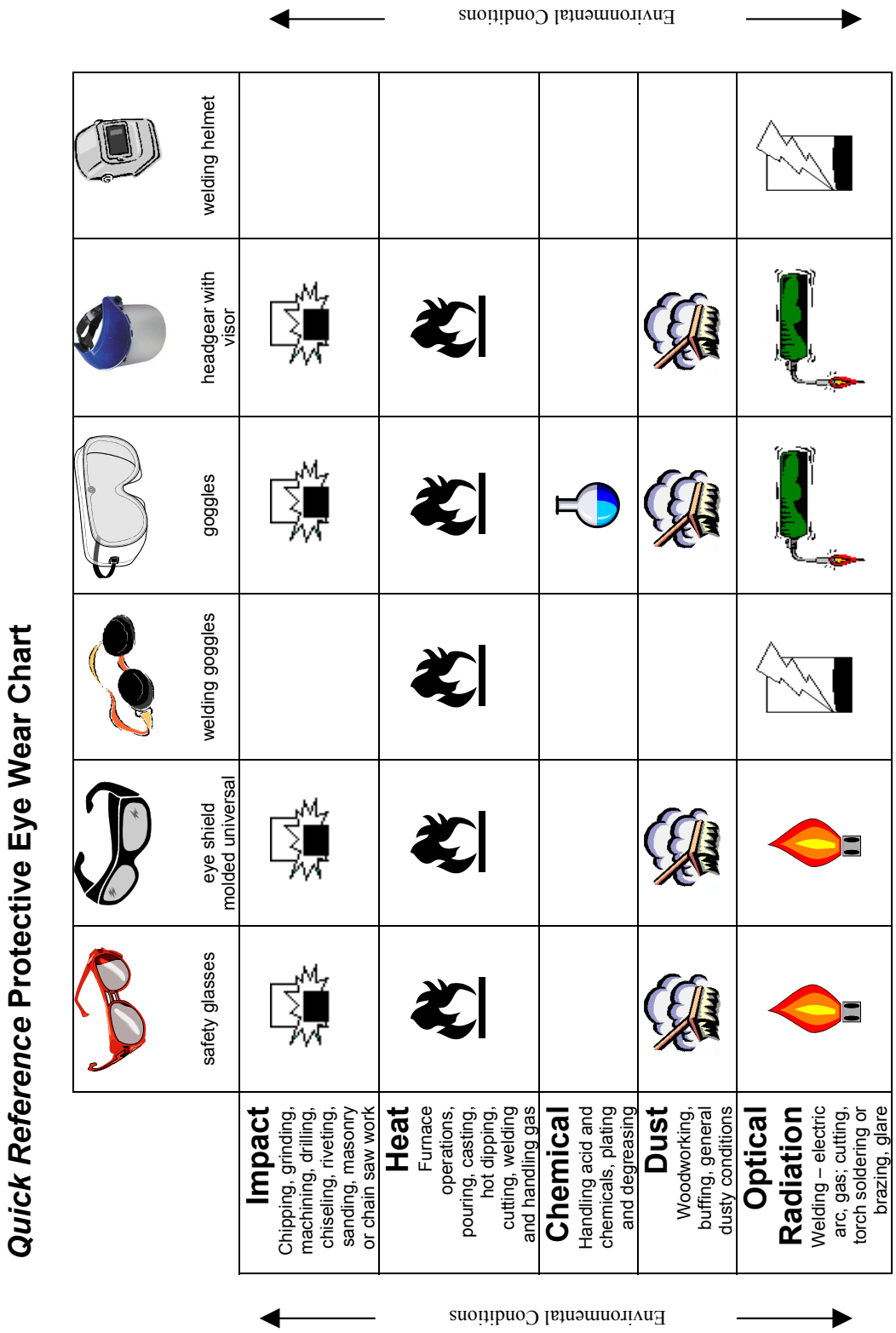
Personal Protective Equipment

- Glasses
- Ear plugs
- Face shields
- Fall arrest equipment
- Gloves
- Seat belts
- Steel-toed safety footwear
- Respirators
- High visibility clothing
- Hard hats

Appendix 5-B *PPE Flow Chart*



Appendix 5-C Eye and Face Protection Selective Chart



Selection Chart

for Personal Protective Equipment

MOTORIZED EQUIPMENT If You Operate This... ...Then Wear This	VEST	HEAD	FEET	EYES	HANDS	EARS	RESP	BODY
Aerial Device Truck								HARNESS
Aggregate Spreader								
Asphalt Distributor								TYVEK
Asphalt Patch Truck								TYVEK
Backhoe and Loader								
Bark Spreader								
Broom Tractor								
Centerline Paint Machine								
Crane Truck								
Crane/Dragline								
Crawler Tractor								
Crew Cab/Flatbed Trucks								
Dump Truck								
Field Mechanics Truck								
Force Feed Loader								
Fork Lift								
Front End Loader								
Fuel and Lube Truck								
Grader								
Herbicide Truck								
Hydraulic Excavator								
Hydroseeder								
Lawn Mower								
Mower Tractor								
Patch Rollers								
Pavement Grinder								
Paving Machine/Widener								
Post Driver								
Rotary Slope Mower								
Scraper (Pan)								
Sign Erector Truck								
Truck Tractor & Trailer								
Vibratory Rollers								
Wheel Tractor								
Work Boat								P.F.D.
Wrecker								

See Other Side for Tools and Assessories

Selection Chart

for Personal Protective Equipment

TOOLS / ACCESSORIES If You Operate This... ↓ ...Then Wear This →	VEST	HEAD	FEET	EYES	HANDS	EARS	RESP	BODY
Air Compressor								
Brush Chipper								
Chain Saw								CHAPS
Concrete Mixer								
Concrete Pump								
Concrete Saw								
Crawler Rock Drill								TYVEK
Curb Machine								
Fumigation Rig								
Generator								
Hand Tools								
Hand-Operated Compactors								
Impactor-Asphalt Cutter								
In-Body Salt Spreader								
Ladder								
Material Spreader - Tow								
Mulch Blower								
Paint Line Remover								
Pavement Breaker								
Pile Driving Analyzer								
Post Puller								
Power Washer								
Rotary Soil Conditioner								
Scaffolding								HARNESS
Snow Plow								
Tailgate Spreader								
Towed Equipment								
Tractor Attachments								
Trenching Machine								
Water Pump								

NOTES: PPE categories are very broad. "EYES" may include safety glasses, goggles, face shield, welding hood, etc. Likewise, "BODY" may include tyvek suit, harness, chaps, floatation device, etc. This chart makes suggestions for your consideration based upon the actual activity involved. Contact your Safety Engineer or Safety Officer with any questions.

Appendix 5-D Hand and Arm Protective Wear

Cut-Resistant

This type of glove is used where protection against cuts is required. Plastic dots can be adhered to the metal mesh to facilitate gripping. Another type of cut-resistant glove combines stainless steel with cut-resistant fiber wrapped with nylon fibers for enhanced flexibility and surface softness. These materials resist knives, glass, sheet metal, sharp edges, and other cutting surfaces. They are cut-resistant but not cut-proof or puncture proof. These materials must not be subjected to high-speed knives or serrated blades.

High and Low Temperatures

Gloves, mittens, and arm and sleeve protectors are available in a wide variety of materials. Leather is a common welder's glove material. Heavy-duty terry cloth gloves can provide heat protection of up to 350°F. For extreme high and low temperature protection, specially processed silica fiber cloth (non-asbestos) can withstand temperatures of from -100°F to 1100°F. Do not use asbestos gloves.

Splinters, Cuts, Abrasion, and General Use

Lightweight pigskin, goatskin, or calfskin leather gloves enable dexterity and grip while offering some resistance to cuts and abrasions. Other materials which offer similar protection include laminated nitrile coating on stretch fabric, vinyl, rubber coated, or impregnated fabrics.

Electrical Protection

Rubber devices that protect against electrical shock must meet the ANSI J6 series standards. Rubber insulating gloves must meet ANSI J6.6. These gloves are available to meet different voltage exposures. Lightweight low voltage gloves are for use on voltages of under 1000V. Gloves for use on high voltage are of thicker material for the dielectric strength. As the voltage rating increases, so does the glove weight. Leather glove protectors are available to protect rubber gloves against punctures and abrasion. Employees who use this type of equipment must be qualified (see 29 CFR 1910.331 [a]). Rubber gloves must be visually inspected and an "air" test must be performed before they are used.

Repetitive Motion and Vibration

Protective gear is available to minimize repetitive hand and wrist motions. One glove has openings for the fingers but offers palm protection. These anti-vibration gloves may be worn under regular work gloves.

Chemicals

Glove materials used to protect against chemicals include natural rubber, neoprene, polyvinyl chloride, polyvinyl alcohol, and nitrile. Chemical degradation guides are available to determine the general suitability of various glove materials to exposures of specific chemicals. Many operational variables may affect the performance of chemical protection gloves, including chemical combinations and concentrations, temperature, and exposure time. Safety and loss control will assist managers and supervisors in determining the suitability of the glove material for the job

Appendix 5-E Job Classes in Risk Class 5307

Architect 1
Architect 2
Associate Marine Engineer
Avalanche Forecast and Control Specialist 1
Avalanche Forecast and Control Specialist 4

Bridge Engineer 1
Bridge Engineer 2
Bridge Engineer 3
Bridge Engineer 4
Bridge Engineer 5
Bridge Engineer 6
Bridge Engineer 7
Bridge Technician 1
Bridge Technician 2
Bridge Tender

Carpenter
Chemist 3
Communication Consultant 2
Construction Project Coordinator 4
Customer Services Specialist 2
Custodian 1
Custodian 2
Custodian 3

Electrical Engineer 3
Electrical Engineer 4
Electrical Inspector - Transportation
Electronic Communications System Technician - Field
Electronic Design Engineer
Electronics Engineering Manager
Electronics Parts Specialist
Electronics Supervisor - Transportation
Emergency Management Program Specialist 2
EMS Band 4
Environmental Technician
Equipment Technician 2
Equipment Technician 3
Equipment Technician 4
Equipment Technician 5
Equipment Parts Specialist 1
Equipment Parts Specialist 2

Facility Services Coordinator 1
Facility Services Coordinator 2
Ferry Operator
Ferry Operator Assistant
Fleet Safety/Training Administrator - Ws

Grounds and Nursery Services Specialist 3

Horticulturist

Industrial Hygienist 3
Inspector Specialist, Marine

Laborer
Law Enforcement Equipment Technician 2

Mail Carrier-Driver
Maintenance Lead Tech
Maintenance Mechanic 1
Maintenance Mechanic 3
Maintenance Mechanic 4
Maintenance Specialist 2
Maintenance Specialist 3
Maintenance Specialist 4
Maintenance Specialist 5
Maintenance - Operations Staff Assistant
Maintenance - Operations Superintendent
Maintenance Specialist, Suspension Bridge
Maintenance Supervisor
Maintenance Supervisor, Bridge
Maintenance Technician 1
Maintenance Technician 1, Bridge
Maintenance Technician 2
Maintenance Technician 2, Bridge
Maintenance Technician 3
Maintenance Trainee
Marine Engineer
Marine Mechanical Engineer
Marine Project Engineer

Offset Duplicator Operator 2

Photo Technician 2, Aerial
Photographer, Aerial
Procurement and Supply Specialist 3
Property and Acquisition Specialist 1
Property and Acquisition Specialist 1
Property and Acquisition Specialist 5

Reproduction Supervisor 1
Rest Area Attendant - Transportation

Safety Officer 1
Security Guard 2
Senior Marine Engineer
Senior Telecommunications Specialist
Supply Control Technician
Supply Officer 1

Trades Helper
Traffic Safety Systems Operator 1
Traffic Signal Supervisor
Transportation Engineer 1
Transportation Engineer 2
Transportation Engineer 3
Transportation Engineer 4
Transportation Engineer Intern
Transportation Planning Specialist 1
Transportation Planning Specialist 2
Transportation Planning Specialist 3
Transportation Planning Specialist 4
Transportation Planning Specialist 5
Transportation Planning Technician 1
Transportation Planning Technician 2
Transportation Planning Technician 3
Transportation Systems Technician A
Transportation Systems Technician B
Transportation Systems Technician C
Transportation Systems Technician D
Transportation Technical Engineer 5
Transportation Technician 1
Transportation Technician 2
Transportation Technician 3
Truck Driver 1
Tunnel Maintenance Supervisor

Utility Worker 1

Vessel Project Engineer

Warehouse Operator 1
Warehouse Operator 2
WMS Band 1
WMS Band 2
WMS Band 3

Appendix 5-F Designated Employees Exposure List

Field personnel in Design, Construction, or Maintenance who engage in the following types of work activities may elect to wear approved safety-toe footwear in accordance with the rules and procedures of this chapter:

- Work in open pits.
- Daily exposure to foot injury from heavy objects.
- Work in close proximity to wheel or track vehicles.
- Jack hammer and chipping.
- Drill crew operations.
- Shipping and receiving in stores and warehouse.
- Changing plow and wing blades.
- Heat straightening.
- Working in the railway right of way.
- TEF equipment repair and maintenance.
- Working in field locations.
- Other activities identified by the Appointing Authority.

Appendix 5-G *Invoice Voucher*

Washington State Department of Transportation

Invoice Voucher

MINORITY BUSINESSES MARK BOX(ES) IF APPROPRIATE	
M	%
W	%
E	

VENDOR OR CLAIMANT (WARRANT TO BE PAYABLE TO)	VENDOR NO.	VENDOR'S CERTIFICATE. I hereby certify under penalty of perjury that the items and totals listed herein are proper charges for materials, merchandise or services furnished to the State of Washington, and that all goods furnished and / or services rendered have been provided without discrimation on the grounds of race, creed, color, natural origin, sex or age. BY (SIGNATURE IN INK)
FEDERAL I.D. NO. OR SOCIAL SECURITY NO. (FOR REPORTING PERSONAL SVCS. CONTRACT PAYMENT TO IRS)		TITLE DATE

INSTRUCTIONS TO VENDOR OR CLAIMANT: Show complete detail for each item below.

DATE	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	I (Supervisor's Name) I have verified				
	that the employee and PPE meet the				
	requirements for reimbursement as				
	stated in the Safety Procedures and				
	Guidelines Manual.				
	Signature and date.				

AGREEMENTS	INVOICE				
AUTHORIZATION	DESCRIPTION	DATE	GROSS TOTAL	DISCOUNT	NET TOTAL

ACCOUNTING CLASSIFICATION

JOB NUMBER	WORK OP	ACCOUNT OBJ	ACCOUNT SUB OBJ	ORG. NUMBER	CONTROL SECTION EQUIPMENT NUMBER ORDER NUMBER	FEDERAL NON-PARTICIPATING	NET AMOUNT
					TOTAL →		

SIGNATURE OF APPROVING AUTHORITY	DATE	RECEIVING VERIFICATION (SIGNATURE)	DATE RECEIVED
CHECKED AND APPROVED FOR PROCESSING BY	DATE	WARRANT NUMBER	VOUCHER NUMBER

DOT Form 134-139 EF
Revised 11/09

Chapter 6 Accident Reporting and Review

1.0 Purpose

To provide guidance for Washington State Department of Transportation (WSDOT) employees in the reporting, investigating, and reviewing of all employee occupational injuries and illnesses, motor vehicle/vessel accidents, and property/equipment damage accidents.

2.0 Scope and Applicability

These procedures are not intended to address disciplinary action nor are they intended to determine eligibility regarding department employee recognition programs. Employee fault and any subsequent actions or determinations resulting from an accident are separate from this accident reporting and review process and come under the jurisdiction of Executive Management, Appointing Authorities, and applicable Human Resources policy and contractual obligations.

This chapter has been developed for accident reporting and review using the referenced Washington Administrative Code (WAC) chapter as guidance and apply to all department employees.

3.0 References

WSDOT accident reporting and review is administered in accordance with the following references:

- WAC 296-27, *Recordkeeping and reporting*
  http://apps.leg.wa.gov/wac/default.aspx?dispo=true&cite=296-27
- Health Insurance Portability and Accountability Act (HIPAA)
  http://www.hhs.gov/ocr/hipaa/

4.0 Definitions

Accident Investigator: The supervisor or person in charge of the involved employee who performs the accident investigation. Depending on the seriousness and complexity of the accident, safety staff at the region, Ferries Division or Headquarters Safety and Health Services may assist in or conduct the accident investigation. In the case of a fatality or multiple injuries, the Department of Labor and Industries will conduct an additional parallel investigation.

Accident Reviewer: The next-level manager or other manager to whom the accident investigator is a direct report. The reviewer is typically in the same organization as the involved employee and the investigator but may also be specifically appointed by the Region Administrator.

Injury or Illness: An abnormal condition or disorder. Injuries include cases such as, but not limited to, a cut, fracture, sprain, or amputation. Illnesses include both acute and chronic illnesses, such as, but not limited to, a skin disease, respiratory disorder, or poisoning, typically involving treatment by a Licensed Health Care Professional (LHCP).

Injury, Minor: An injury that is not OSHA recordable as defined by WAC 296-27-01101 and did not result in care by an (LHCP).

Near-Miss/Close Call: An event that, under slightly different circumstances, could have resulted in personal harm or property damage.

OSHA Recordable Accident: (***Note:*** ALL accidents are reportable. OSHA recordable accidents are a subset of reportable accidents.) All work-related deaths and illnesses which result in loss of consciousness, or occupational injuries resulting in restriction of work or motion, transfer to another job, lost workdays, or medical treatment beyond first-aid.

Note: The record-keeping and reporting requirements of this chapter are separate and distinct from the record-keeping and reporting requirements under Title 51 RCW (the Industrial Insurance Act).

Preventative Action Plan (PAP): A written preventative plan of action prepared by the investigator/supervisor outlining the steps to be taken to correct a deficiency in the system, including standard operating procedures, training, or equipment for accident prevention purposes. The PAP includes the plan objective, the action steps to be taken, who is responsible to take the steps, and the proposed or actual completion date. The accident reviewer should sign the plan. The PAP must include systemic issues that may have contributed to the accident and the proposed changes to prevent recurrence. Examples of these are:

- Modifications or additions to training.
- Use of different tools and/or equipment.
- Allowing more time to complete the assignment.
- Modifications to the Pre-Activity Safety Plan.
- Clearer direction.
- Actions and support by others.

Reportable Accident: All work-related accidents that result in deaths, injuries, illnesses; incidents or near-misses (see definition below for OSHA Recordable Accident); accidents involving state/third party motor vehicle/ vessel, property and equipment. All Transportation Equipment Fund (TEF) vehicles and equipment damage will be reported. For other property or non-inventoried equipment, only accidents resulting in damages estimated at $300 or greater will be reported. All reportable accidents will be documented using Accident/Incident Report, DOT Form 750-100 EF.

Safety Organization: Headquarters Safety and Health Office staff, Region Safety Office staff.

Serious Accidents or Injuries: An event that results in employee being struck in a work zone, admitted to medical facility, fatality, or has likelihood of becoming a high profile incident.

5.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to accident reporting and review policy.

5.1 Executive, Senior, and Mid-Level Management

- Notify other appropriate managers of accident information.
- Inform supervisors of their responsibility to report and investigate accidents in accordance with this chapter.
- Appoint another supervisor to investigate the accident if the immediate supervisor is not available.
- Review the Employee's and Supervisor's Sections for completeness in accordance with Section 6.2.
- Interview the employee and supervisor about the report as necessary.
- Ensure that preventive actions are taken to prevent similar accidents. Preventive action must consider systemic issues that may have contributed to the accident.
- Complete the Reviewer's Section of the report.
- Forward the completed report to the Region Safety Office and Equipment Superintendent if equipment damage is involved including the final PAP within 10 working days after receiving the Accident/Incident Report from the supervisor.
- Manager will ensure that the supervisor of injured employee receives appropriate support as needed, i.e., job site coverage, and document completion.
- Review of accidents reported and subsequent review to ensure the proper procedures are followed.
- Appointing Authority is to meet with immediate supervisor of involved employee within three days of reportable accident.
- Determine if Preventative Action Plan (PAP) is appropriate; if appropriate controls were utilized; and if lessons learned should be communicated to others in the department.

5.2 Immediate Supervisor of Employee

- Ensure that the injured employee is transported to a medical facility.
- Accompany or meet the injured employee at a medical facility.
- Notify the next-level manager.
- Investigate accidents, as described in Section 6.1, and complete the Investigator's Section of the accident report, including the Preventive Action Plan (PAP); forward the form to the next level manager and HQ HR within five workdays.
- Immediately notify the Region Safety Office of a work-related accident resulting in:
  - A death.
  - A probable death.
  - One or more employees being admitted to a hospital.
- Secure scene of accident resulting in death, probable death, or hospitalization for purposes of investigation.

Other occupational injury accidents will be reported within 24 hours after the accident. Incidents are to be reported to the Region Safety Office.

- Notify the Region Safety Office of reportable accidents involving state/third party motor vehicle/vessel, property, and equipment within eight hours after the accident or during the next workday.
- Advise the involved employee on how to report the accident. If the employee is unavailable to complete the Employee's Section of the Accident/Incident Report, the immediate supervisor is responsible for obtaining the information from the involved employee and/or other witnesses and entering the information onto the form.
- Ensure Employee's and Supervisor's Sections of the Accident/Incident Report, DOT Form 750-100 EF, have been filled out completely and copy of Pre-Activity Safety Plan (PASP) is attached.
- Ensure that injured employee obtains required documents from medical provider. See Section 5.3.
- Take immediate short-term action steps to safeguard department staff and assets;
- Meet with their Appointing Authority within three workdays of the injury accident.

5.3 Employee

- Immediately seek first-aid or medical care in the event of an injury.
- Immediately notify the Traffic Management Center (TMC) according to region policy concerning reportable accidents (typically involving state/third party motor vehicle/vessel, property, and equipment).
- Notify your immediate supervisor of all reportable accidents and near misses.
- Complete the Employee Section of the Accident/Incident Report, DOT Form 750-100 EF, according to the following timetables and forward it to their supervisors.
  - Injury Accidents: Within 24 hours of the accident or the next scheduled workday.
  - Near Misses or Close Calls: Within 24 hours of the incident. Only blocks 1-18 of the Accident/Incident Report, DOT Form 750-100 EF, are required to be completed.
  - Injuries Including Minor Injuries: Within 24 hours of the incident. Blocks 1-26 are required to be completed in the Accident/Incident Report, DOT Form 750-100 EF.
- Notify the immediate supervisor of reportable accidents involving state/third party motor vehicle/vessel, property, and equipment within 8 hours after the accident or during the next workday. Blocks 1-26 and 69-157 of the Accident/Incident Report, DOT Form 750-100 EF, are required to be completed.
- Secure from medical provider on initial visit for work related injury or illness;
  - Physician's Report of Medical Evaluation (DOT Form 750-002) or Insurer Activity Prescription Form (APF) (L&I form number F242-385-000).
  - Labor and Industries Claim Number.
- Provide accident prevention information about the accident to the Investigator.
- Notify your immediate supervisor of non-occupational injury.

5.4 Safety Organization

5.4.1 Region Safety Office

- Support the accident review procedures and ensure that lessons learned are communicated.
- Assist in developing or securing training of supervisors on conducting accident investigations.

- Assist in developing or securing training of supervisors and employees on the accident reporting process.
- Contact the nearest office of the Department of Labor and Industries in person or by phone at 1-800-4BE-SAFE to report within eight hours of the work-related incident or accident resulting in:
  - A death.
  - A probable death.
  - One or more employees being admitted to a hospital.
- Notify management and the Headquarters Safety and Health Services Office of an accident as follows:
  - Serious injuries requiring hospitalization: within 24 hours.
  - Fatalities: immediately.
  - Incidents that could have potential public relations impact: within 24 hours.
- Assist supervisors in conducting, or personally conduct accident investigations as necessary.
- Receive and review the completed accident report for accuracy and completeness and forward the reports involving vehicles to Headquarters Safety and Health Services Office.
- Enter accident data into the statewide or Ferries database, as appropriate.
- Maintain region accident records.
- Review, store, and analyze region accident information for trends and causal factors.
- Prepare periodic region reports for managers.
- Disseminate region accident trend data and charts to executives.
- Communicate lessons learned.

5.4.2 Headquarters Safety and Health Services Office

- Assist accident investigators, as necessary.
- Notify Executive Management and Communications Office of serious worker accidents.
- Analyze statewide accident information.
- Maintain the accident reporting and review system forms and database.
- Prepare periodic statewide reports for managers.
- Disseminate statewide accident trend data and charts to executives.

- Work with the regions and Ferries Division to identify, develop, and execute actions for long-term accident prevention strategies with department-wide impact.
- Forward accident reports involving vehicles to OFM Risk Management.

6.0 Policy

6.1 Investigating Accidents

Any equipment involved in an accident resulting in a fatality or hospitalization shall not be moved except to remove any victims or to prevent further incidents and injuries.

The Accident Investigator will receive the Employee Section of the Accident/Incident Report from the involved employee and gather additional information about the accident, assist in determining what their organization will do to prevent a similar occurrence, and fill out the Supervisor's Section of the Accident/Incident Report.

The accident investigation is conducted to:

- Determine the pertinent facts surrounding the accident.
- Determine the contributing factors to the accident.
- Develop controls to minimize or eliminate the cause.
- Define trends.
- Demonstrate agency concern for reducing injury and property damage accidents.

The Investigator shall interview the involved employee and other witnesses to clarify, get additional information, and to develop an accident diagram for vehicle accidents, as appropriate.

If initial investigation suggests immediate short-term actions need to be taken to safeguard personnel or assets, they should be taken.

The Accident Investigator:

- Determines the primary and contributing factors to the accident.
- Identifies the dates and steps in the PAP that are to be completed.

6.2 Accident Review

The Accident Reviewer ensures that the Employee and Supervisor Sections of the Accident/Incident Report are complete and that a thorough analysis of the accident was conducted as to the primary and contributing factors that led to the accident. If a PAP is needed, the Reviewer will ensure that PAP is reviewed, approved, and implemented. The Reviewer is also to report

completion of the PAP to the Region or Ferries Division Safety Office. The appropriate Region or Ferries Division Safety Manager will provide a copy of the completed report to the involved employee and Accident Reviewer upon request.

6.3 Training

Accident reviewers, supervisors, and employees shall be trained on their roles and responsibilities related to the accident reporting and review process.

Because accident investigation is critical to determining root cause/s of the accident, those responsible for conducting accident investigations, primarily supervisors, shall be trained on conducting accident investigations. Accident reviewers, because they are responsible for the appropriateness of the accident investigation and the preventive action plans, also need to be trained on the process and the principles of accident prevention and hazard control to effectively perform quality control.

6.4 Recordkeeping

The official Safety and Health Files of department employees are maintained in Region Safety Offices. The official Safety and Health Files of Ferries Division employees are maintained in the Ferries Division Safety Office.

The Safety and Health Files contain accident and incident records, medical evaluations, Labor and Industries claim information, medical surveillance records, and disability accommodation information. Recordkeeping must comply with the privacy requirements of the Health Information Portability and Accountability Act (HIPAA).

7.0 Appendices

Appendix 6-A Accident / Incident Report

To download a current copy of DOT Form 750-100, go to the Forms Management Web site:
http://wwwi.wsdot.wa.gov/fasc/adminservices/forms/formfiles/WSDOT_Forms/

Washington State Department of Transportation

Accident / Incident Report

To Be Completed By Employee or Employee's Supervisor

[1] Employee Name (Last, First, MI) | [2] Phone Number | [3] Region

[4] Org Code | [5] Job Title | [6] Work Hours | [7] Work Days

[8] Date and Time of Incident | [9] Date of Report | [10] Date and Time Reported to Supervisor

[11] Supervisor's Name | [12] Phone Number

[13] Type of Workplace Incident (Check all that apply)

- ☐ State-Owned Property/Equipment
- ☐ Involving State Vehicle
- ☐ Involving POV on Official Business
- ☐ Involving Marine Vessel
- ☐ Non-State-Owned Property/Equipment
- ☐ Near Miss - Close Call (Complete Questions 1 thru 18)
- ☐ Injury, Minor (Not involving Licensed Healthcare Professional, complete 1 thru 26)
- ☐ Injury (Involving Licensed Healthcare Professional)
- ☐ Illness
- ☐ Fatality

[14] Describe in Detail the Incident and Work Activity (Attach additional documentation, if necessary)

[15] List any Witnesses and Phone Numbers

[16] Specific Location of Incident (e.g., SR / Milepost / Address, Vessel, etc.)

[17] Did Incident Occur Within a Workzone? ☐ Yes ☐ No

[18] Work Operation Code

[19] Type of Injury | [20] Specific Part of Body Injured

[21] Source of Injury | [22] Cause of Injury

[23] Medical Treatment (Check all that apply)

- ☐ On-site First Aid Only
- ☐ Treated at Clinic
- ☐ Treated at Emergency Room
- ☐ Treated via Outpatient Care
- ☐ Hospitalized
- ☐ Other
- ☐ None

L&I Claim # _____

[24] Report Completed By (Printed Name and Signature) | [25] Date | [26] Phone Number

If this incident involved any vehicles or equipment complete questions 69 through 157 (pages 4 and 5) of this form.

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Revised 3/09

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To Be Completed By Employee's Supervisor

[27] Investigator's Name (Last, First, MI)	[28] Title	[29] Phone Number

[30] Date Investigation Began	[31] Date Investigation Completed	[32] Supervisor's Org Code

[33] Has the Employee Returned to Work?

☐ No - Anticipated Return Date _____

☐ Yes - Date Returned to Work _____

☐ Full Duty ☐ Restricted Duty - Anticipated Return to Full Duty _____

[34] Investigation Summary (Describe in detail - Who, What, Where, When?)
(Attach additional documentation, if necessary)

[35] Prior to Starting Work Was a Safety Briefing Conducted? (Check all that apply and attach)

☐ Pre Activity Safety Plan (PASP) ☐ Tailgate Talk ☐ Safety Briefing

[36] List the Personal Protective Equipment (PPE) in Use at the Time of the Incident. If NO PPE was in Use, Explain Why.
(Attach additional documentation, if necessary)

[37] Preventative Action Plan (PAP) - Include planned date of completion, and what operational and/or administrative changes to be made to prevent similar incidents. Outline the steps to be taken to correct a deficiency in standard operating procedures, training, or equipment for accident prevention purposes. See Chapter 6 of the Safety Manual.
(Attach additional documentation, if necessary)

[38] Is There any Equipment or Vehicle Damage?

☐ Yes ☐ No If Yes, Ensure that Questions 69 through 157 (pages 4 and 5) of this form are Completed.

[39] Investigated By (Printed Name and Signature)	[40] Date

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Incident Reviewer

[41] Date Report Reviewed	[42] Reviewer's Name (Last, First)	[43] Reviewer's Org Code
[44] Title		[45] Phone Number

[46] Reviewer Comments (e.g., preventative actions taken, compliance with safety standards, cause, etc.)
(Attach additional documentation, if necessary)

[47] Reviewer Signature [48] Date

Region Safety Manager

[49] Employee Risk Classification Code (Check One)

☐ 4902-00 Clerical/Administrative Office Personnel ☐ 5307-00 Employees - N.O.C.
☐ 5300-00 Administrative Field Personnel

[50] OSHA Recordable
☐ Yes ☐ No ☐ Not Sure

[52] Are all applicable sections of this report complete? ☐ Yes ☐ No

CS Case Number _____

[51] If "Yes", Recordability Criteria (Check All that Apply)

☐ Death - § 1904.7(b)(2)
☐ Days away from work - § 1904.7(b)(3)
☐ Restricted work or transfer to another job - § 1904.7(b)(4)
☐ Medical treatment beyond first aid - § 1904.7(b)(5)
☐ Loss of consciousness - § 1904.7(b)(6)
☐ A significant injury or illness - § 1904.7(b)(7)
☐ Chiropractic
☐ Other

[53] Safety Manager (Printed Name and Signature) [54] Safety Manager Phone [55] Date

Equipment Technician

[56] Type of Vehicle and/or equipment involved (Check **all** that apply)
☐ State Owned ☐ POV on State Business ☐ Other (Describe) _____

[57] Vehicle/Equipment Make	[58] Body Type	[59] Model	[60] Year	[61] License Number

[62] Equipment Number (If State Owned)	[63] Estimated Cost of Repairs	[64] Charge Codes

[65] Repairs Chargeable To ☐ Maintenance ☐ Engineering ☐ Other _____

[66] Equipment Technician Notes - Include estimated repair costs, replacement equipment costs, and any mechanical factors that may be pertinent to the incident. (Attach additional documentation, if necessary)

[67] Equipment Technician (Printed Name and Signature) [68] Date

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If this incident involved any vehicles or equipment complete questions 69 through 157 (pages 4 and 5) of this form.

To Be Completed By Employee or Employee's Supervisor

Conditions

[69] Type of Road Surface | [70] Road Condition | [71] Weather Condition

[72] Warning Equipment in Use When the Incident Occurred (Check **all** that apply)
☐ Rotating Flashers ☐ Arrow Board ☐ TMA ☐ Other (Describe)

[73] Was Vehicle and/or Equipment Damage Caused by other Non-WSDOT Party? ☐ Yes ☐ No

Vehicle / Equipment No. 1

[74] Type of Vehicle and/or equipment involved (Check **all** that apply)
☐ State Owned ☐ POV on State Business ☐ Other (Describe)

[75] Vehicle/Equipment Make | [76] Body Type | [77] Model | [78] Year | [79] License Number

[80] Equipment Number (If State Owned) | [81] Estimated Cost of Repairs

[82] Operator's License No. | [83] Was vehicle being used on Official State Business? ☐ Yes ☐ No | [84] Have you had a previous accident while driving on state business? ☐ Yes ☐ No

[85] If Privately Owned, Name and Address of Owner

Other Vehicles / Equipment

[86] Owner Car No. 2	[106] Owner Car No. 3
[87] Phone	[107] Phone
[88] Address [89] City [90] Zip Code	[108] Address [109] City [110] Zip Code
[91] Driver	[111] Driver
[92] Phone	[112] Phone
[93] Address [94] City [95] Zip Code	[113] Address [114] City [115] Zip Code
[96] Driver's License No.	[116] Driver's License No.
[97] Vehicle License No.	[117] Vehicle License No.
[98] Vehicle Make	[118] Vehicle Make
[99] Year	[119] Year
[100] Body Type	[120] Body Type
[101] Name of Passengers	[121] Name of Passengers
[102] Repair Cost	[122] Repair Cost
[103] Describe Damage	[123] Describe Damage
[104] Insurance Company	[124] Insurance Company
[105] Policy No.	[125] Policy No.

Other Property

[126] What was Damaged?

[127] Name and Address of Owner | [128] City | [129] Zip Code | [130] Phone

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To Be Completed By Employee or Employee's Supervisor

Injured Parties

[131] Name and Address	[132] Extent of Injury	[133] Age	[134] Veh 1	[135] Veh 2	[136] Veh 3	[137] Peds
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐

Witnesses

[138] Witness Name	[139] Address	[140] City	[141] Zip Code	[142] Phone

Other

[143] Did Police Investigate? ☐ Yes ☐ No

[144] If Yes, Division (Sheriff, WSP, City)

[145] Was Citation Issued? ☐ Yes ☐ No

[146] If Yes, Issued To ☐ You ☐ Veh2 ☐ Veh3

[147] Have you filed a Motor Vehicle Collision Report (MVCR) as Required by Law? ☐ Yes ☐ No

[148] Type of Incident
☐ Front to Rear ☐ Head-On ☐ Sideswipe ☐ Bike - Car ☐ Hit Object
☐ Broadside ☐ Rollover ☐ Parked Car ☐ Pedestrian ☐ Other _____

Incident Information

	[149] No. 1, Your Vehicle	[150] No. 2, Other Party (Name)	[151] No. 3, Other Party (Name)
a. At what distance was danger first noticed?			
b. What warning signals were given?			
c. Obstruction to vision (weather and other)?			
d. Lights On? Wipers On? Windows Fogged?			

Equipment Incident Diagram and Damage

[152]
☐ Straight Road ☐ Hillcrest ☐ One Lane
☐ Curve - R or L ☐ Uphill ☐ One and One-Half Lane
☐ Level ☐ Downhill ☐ Two Lane or Four Lane

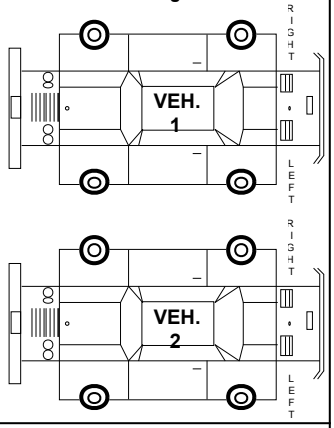
Show on diagram position of each car, vehicle or injured person, indicating by arrow direction of each.

Sidewalk
Street
Center
Sidewalk

IMPORTANT
If street or view was obstructed in any way, indicate where and how; also indicate any street car or tracks and traffic signals or signs.

Indicate points of compass
N. E. S. W.

[153] **Mark Damaged Areas**



[154] Employee Signature	[155] Date	[156] Supervisor Signature	[157] Date

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Revised 3/09

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Chapter 7 Bloodborne Pathogen Exposure Control Plan

1.0 Purpose

To provide guidance for the establishment of a Bloodborne Pathogen Exposure Control Plan for the Washington State Department of Transportation (WSDOT) operations and facilities as required by Washington Administrative Code (WAC) 296-823. The objective of this safety procedure and guideline is to eliminate or minimize employee occupational exposure to blood or other potentially infectious materials and to fully comply with the referenced DOSH Bloodborne Pathogens Standard.

2.0 Scope and Applicability

This document affects all WSDOT employees that, as a result of performing their job duties, are "reasonably anticipated" to come into contact with bodily fluids or other bloodborne pathogens contaminated sources/materials.

3.0 References

- Federal OSHA CPL 2-2.69 – Enforcement Procedures for Occupational Exposure to Bloodborne Pathogens
- WAC 296-823-100 through 200, *Occupational Exposure to bloodborne pathogens*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-823

4.0 Definitions

Blood: Blood means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens: 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 Immune Deficiency Virus (HIV).

Bodily Fluids: Bodily fluids include, but are not limited to: blood, semen, vaginal fluids, saliva, vomit, amniotic fluid, or other body fluids that contain blood.

Contaminated: The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Sharps: Any contaminated object that can penetrate the skin including, but not limited to: needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination: The use of chemical or physical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Disinfectant: An agent that disinfects by destroying, neutralizing, or inhibiting the growth of harmful microorganisms. The most common disinfectant is a solution of at least 10 percent chlorine bleach mixed with water.

Engineering Controls: Controls that isolate or remove the bloodborne pathogens hazard from the workplace. Examples of engineering controls are sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps disposal containers and puncture resistant gloves.

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

Non-Intact Skin: Skin that show signs of dermatitis, hangnails, cuts, abrasions, chafing, or acne.

Parenteral: Piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.

Personal Protective Equipment (PPE): Equipment used to prevent the spread of infectious diseases. Examples include disposable gloves, face shields, protective garments, mouth-to-mouth resuscitation devices, etc. Normal work attire is not considered to be protective clothing.

Regulated Bio-Hazardous Waste: Liquid or semi-liquid blood or other potentially infectious materials, contaminated items that would release blood or other potentially infectious materials if compressed, items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated needles, any other wastes containing blood or potentially infectious materials.

Safety Organization: Headquarters Safety and Health Services Office and staff, and Region Safety Offices and staff.

Universal Precautions: The concept of universal precautions is to treat all blood and body fluids as if they contain infectious bloodborne pathogens regardless of the source. This includes avoiding contact with any human blood products, use of PPE, and immunization for the HBV virus should an occupational exposure occur.

Work Practice Controls: Controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

5.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to Bloodborne Pathogens Policy.

It is the responsibility of each employee to ensure implementation of WSDOT's safety procedure and guideline on bloodborne pathogens.

5.1 Executive, Senior, and Mid-Level Management

- Ensure that site managers, supervisors, and other site personnel have the required experience to perform assessments and identify all hazards at sites under their control.
- Provide resources necessary to comply with this policy.
- Assure that periodic audits of employee training are conducted.

5.2 Supervisors

- Ensure proper use of appropriate personal protective equipment.
- Ensure that all personnel working at risk have been properly trained in bloodborne pathogens (course code BBS) along with the use and limitations of the protection devices that they are utilizing.
- Assist in the development of site specific plans requirements under their responsibility.
- Replace equipment that is damaged.

5.3 Employees

- Identify hazards and take proper action to prevent infection through contact with bodily fluids or other potentially infectious materials.
- Notify their supervisors immediately when a bloodborne hazard condition is identified.
- Ensure that protection in use at the work site has been inspected daily prior to use for defects that would render it unusable.
- Coach and mentor co-workers in bloodborne pathogen control.
- Notify supervisors/competent person of defective equipment and unsafe conditions immediately.
- Ensure that all work at risk is performed in accordance with the Bloodborne pathogen exposure control plan Appendix 7-A.

5.4 Safety Organization

Region Safety Offices shall be responsible for the following bloodborne pathogen control activities:

- Assist in developing or securing required bloodborne pathogen training.
- Provide assistance in performing hazard assessments.
- Provide consultative and audit assistance to ensure effective implementation of this policy.

6.0 Policy

6.1 General

In WSDOT, a key objective is to provide a place of employment that is free from recognized hazards that cause or are likely to cause death and serious physical harm to employees or the public. Therefore, WSDOT will ensure that those employees who are exposed to bloodborne pathogens are provided with confidential, fair, and equal treatment.

When hazards exist that cannot be eliminated, then engineering practices, administrative practices, safe work practices, and proper training regarding bloodborne pathogens shall be implemented to minimize those hazards and ensure the safety of employees and the public.

6.2 Exposure Determination

In developing an exposure control plan, WSDOT has evaluated the work tasks associated with the functions of WSDOT to determine which tasks could be reasonably anticipated to result in exposure to bloodborne pathogens. WSDOT uses the following categorical distinctions to determine the level of potential exposure:

6.2.1 Category I

Definition: Category I tasks are either:

- **Category Ia:** Work tasks that involve frequent exposure to blood, body fluids, or tissues. Normal work procedures or other job related tasks that involve an inherent potential for mucous membrane or skin contact with blood, body fluids or tissues, or a potential for spills or splashes of them.

  Examples of Category Ia tasks are those normally associated with frequent and repetitive handling and working directly with blood products such as those performed by physicians, nurses, emergency medical technicians (EMTs), handling of regulated waste, etc.

  Within WSDOT, crew members of Washington State Ferries who have duties as a first responder perform Category Ia tasks.

- **Category Ib:** Those work tasks that involve no exposure to blood, body fluids, or tissues, but exposure may be required as a condition of employment.

  Examples of Category Ib tasks are those normally associated with employees whose primary job function does not require them normally to be exposed to blood or body fluids but who are trained to respond to emergency situations or clean-up activities that may involve periodic exposure to blood or body fluids.

  Within WSDOT, personnel involved with maintenance of rest area sanitation facilities, litter pick-up, clean-up/repairs after a vehicle accident, garbage collection, maintenance of vessel sanitation facilities, bridge related work activities, and members of certain volunteer emergency response teams, e.g., Medical Emergency Response, Search and Rescue, and Damage Assessment teams, perform Category Ib tasks.

Category I personnel shall receive bloodborne pathogens training and will be offered Hepatitis B vaccinations. All Category I employees shall have a bloodborne pathogen control plan (Appendix 7-A) included as a component of their Pre-Activity Safety Plan (PASP). Members of the volunteer emergency response teams listed above shall receive bloodborne pathogens training and will be provided post-exposure evaluation and follow-up, including post-exposure prophylaxis, when medically indicated. (See Appendix 7-B)

If the employee declines the vaccination, he or she is required to signify this in writing using Appendix 7-C.

Please Note: *Participation on emergency response teams is strictly voluntary, it is not a condition of employment. Participants on Medical Emergency Response Teams may choose not to render assistance in any situation.*

6.2.2 Category II

Definition: Tasks that involve no exposure to blood, body fluids, or tissues, and Category I tasks are not a condition of employment. The normal work routine involves no exposure to blood, body fluids, or tissues (although situations can be imagined or hypothesized under which anyone, anywhere, might encounter potential exposure to body fluids).

Persons who perform these duties are not called upon as part of their employment to perform or assist in emergency medical care or first aid or to be potentially exposed in some other way.

Example: Category II tasks are those tasks associated with normal work routines where there are no direct work tasks or pre-planned emergency response actions reasonably anticipated for the employee. All Category II employees should follow universal precautions Appendix 7-D in the performance of their duties, avoiding contact with blood, body fluids, or physical items contaminated with blood or body fluids.

Category II personnel do not require bloodborne pathogens training or vaccinations.

6.3 Engineering and Work Practice Controls

Engineering and work practice controls are to be used to eliminate or minimize the risk of employee exposure. Engineering controls and/or work practice controls are reviewed by supervisors on a regular basis not to exceed one year and any time a work task changes where the potential for occupational exposure is present. Where potential occupational exposures remain after placing engineering and work practice controls in place, PPE shall also be used.

Hand-washing facilities that are readily accessible to employees are to be provided in WSDOT facilities. Hospital antiseptic hand cleaners are effective and can also be used where it is not feasible to provide hand-washing facilities such as on a work site, first aid kits will include an appropriate antiseptic hand cleanser or antiseptic towelettes. If an occupational exposure occurs where antiseptic hand cleansers or antiseptic towelettes are used, the employee should be transported to the nearest facility with hand washing facilities and the affected area thoroughly washed with soap and running water.

When gloves or other PPE are used and removed, employees are to wash their hands immediately after removal of the protective gear. All gloves, and disposable PPE should be safely discarded. Other non-disposable PPE (e.g., boots, face shield and clothing) should be cleaned and laundered accordingly.

Equipment that may become contaminated with blood or potentially infectious materials is to be visibly examined before use and decontaminated as necessary. For example, in operations where employees share hand-held equipment such as slings or bush axes where there is a possibility of blood or body fluid contamination of the equipment from open cuts, abrasions, or blisters, employees should inspect the equipment for visible signs of blood or body fluids.

Where practical, work gloves are to be used by employees working with common equipment where blood or body fluids could be present. Where blood or body fluids are detected, the equipment is to be thoroughly disinfected, even if work gloves are to be worn.

All Category I employees shall have a bloodborne pathogen control plan (Appendix 7-A) included as a component of PASP.

6.4 Housekeeping

Supervisors will ensure that equipment, working surfaces, and floors are cleaned and decontaminated after contact with blood or other potentially infectious materials.

All bins, pails, cans, and similar receptacles that have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials are to be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately upon visual observation of blood contamination. Examples of this are trashcans or bins in rest rooms. These receptacles are often used for blood-carrying products such as expended sharps (injection needles) and sanitary napkins.

Gross contamination must first be cleaned by using towels and soap and water solution.

Contaminated work surfaces must be cleaned with an appropriate disinfectant. A common and readily available disinfectant is a solution of at least 10 percent chlorine bleach mixed with water (see special note below). If used in accordance with the manufacturer's instruction, other acceptable disinfectants include Environmental Protection Agency (EPA) registered:

- Sterilants (List A)
- Tuberculocides (List B)
- HIV/HBV (List D)

Sterilants/High Level disinfectants cleared by the U.S. Food and Drug Administration are also acceptable.

Special Note on the Use of Bleach as a Disinfectant: The bleach solution must be mixed within 24 hours of use. You may not store bleach for longer periods for use as a disinfectant. The bleach should not be stored in glass. The required contact time for bleach to be effective is generally considered to be the time it takes to air dry.

6.5 Disposal of Contaminated Materials

All items that have been contaminated with blood or other potentially infectious materials are to be disposed of as a regulated waste. While it is not practical or economically feasible to place specially designed waste receptacles at all WSDOT facilities and work sites, this does not diminish the requirement for proper labeling, handling, and disposal of biohazardous materials. Sharps containers should be provided if there is past indication that hypodermic needles and syringes have been used or discarded in the facility. If there is waste material generated which contains or is contaminated with blood or body fluids, take the following steps:

- Do not handle contaminated items without proper PPE.
- Place all contaminated items in a sealable container being careful not to contaminate the outside of the container. If the contaminated item is sharp or likely to puncture the container, use a container that is sufficiently sturdy to prevent the puncture of the container walls.

- Label the container prominently to identify that the contents are blood and/or body fluids—a biological hazard.
- Place the container in a secure area with the label completely visible.
- Dispose of gloves and other protective equipment in the same container. Ensure that glove outer surfaces do not touch the skin as they are removed.
- Region "Stores" will maintain appropriate regulated waste containers with appropriate labeling and provide these containers for the disposal of contaminated articles. Contact your Region Safety Office if you need assistance in acquiring proper containers.

6.6 Safe Operating Procedures

The general safe operating procedures which address conditions where an employee may be required to perform unplanned Category I tasks, shall include necessary controls and PPE requirements to preclude exposure to bloodborne pathogens.

6.7 Pre-Exposure Vaccinations

Employees identified as having Category I work tasks will be provided the Hepatitis B vaccination at no cost. If the employee refuses the HBV vaccination, the employee must sign a Hepatitis B Vaccination Declination form (See Appendix 7-C). When completed, this form must be retained indefinitely in the employee's safety and health file. If an employee has received an HBV vaccination from a previous employer, evidence of that vaccination must be obtained by the employee and placed in the employee's safety and health file.

6.8 Post-Exposure Procedures

Any employee, regardless of their classification, who report work-related biological exposure will be provided a Hepatitis B and other vaccinations at no cost as determined by the attending physician as soon as possible after the exposure incident. If the employee refuses a vaccination, the employee must comply with the refusal procedure outlined in Section 6.7.

6.8.1 Medical Evaluation and Follow-up

Following a report of an exposure incident, the department shall make immediately available (1 to 2 hours is desirable) to the exposed employee a confidential medical evaluation and follow-up at no cost to the employee, including at least the following elements:

- Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred.
- Identification and documentation of the source individual, unless it is infeasible to establish the identification of the source individual or prohibited by state or local law.

- Collection and testing of blood to detect the presence of HBV, HCV, and HIV.
- Post-exposure preventive treatment, when medically indicated, as recommended by the United States Public Health Service.
- Counseling.
- Evaluation of reported illnesses.

Make sure that a laboratory licensed by the state or Clinical Laboratory Improvement Amendments Act (CLIA) conducts all laboratory tests.

The Safety Office, with the assistance of the exposed employee and their supervisor, will provide the following information to the health care professional evaluating the employee after an exposure incident:

- A copy of WAC 296-823-160.
- A description of the job duties the exposed employee was performing when exposed.
- Documentation of the routes of exposure and circumstances under which exposure occurred.
- Results of the source persons blood testing, if available.
- All medical records that the department is responsible to maintain, including vaccination status, relevant to the appropriate treatment of the employee.

The exposed employee should get the medical evaluation. The exposed employee should fill out a Department of Labor and Industries (L&I) accident report at the time of the evaluation to initiate an L&I claim for the exposure. The L&I Claim will pay costs for the evaluation and blood testing.

A copy of the health care professional's written opinion will be provided to the employee within 15 days following the completion of the evaluation.

6.8.2 Post Exposure Source Person Blood Test

If an exposure incident has occurred, arrangements should be made through the Safety Office to test the source individual's blood for HBV and HIV as soon as feasible after getting their consent. If consent is not given, document that legally required consent can not be obtained. When the law doesn't require the source individual's consent, their blood, if available, must be tested and the results documented.

The local health authority should be contacted for assistance in determining consent rules and evaluating an employee's exposure.

The results of the source person's blood test will be provided to the exposed employee, if possible. The exposed employee must also be informed of applicable laws and regulations regarding disclosure of the identity and infection status of the source person.

Laws and regulations that currently apply are:

- Chapter 70.02 RCW, *Medical records – health care information access and disclosure*, and
- Chapter 70.24 RCW, *Control and treatment of sexually transmitted diseases*.

These rules may be found at http://apps.leg.wa.gov/rcw/ and click on Title 70.

6.8.3 Post Exposure Exposed Employee Blood Test

WAC 296-823-16020 requires that following an exposure incident the exposed employee's blood should be collected and tested as soon as feasible after employee consent is obtained.

If the employee consents to the baseline blood collection, but doesn't give consent for HIV serologic testing at the time of the collection, the blood sample must be preserved for at least 90 days in case the employee changes their mind to have the sample tested.

6.8.4 Confidentiality

All employee medical records shall remain confidential. No information regarding employee medical information is to be disclosed or reported to any person outside the workplace except as required by law.

Employee medical and training records shall be provided upon request for examination and copying to the subject employee and to anyone having express and written consent of the employee.

Copies of medical records shall be given to the employee if the employee leaves WSDOT.

7.0 Training

All employees performing at risk tasks shall receive education about precautionary measures, epidemiology, modes of transmission, and prevention of HIV/HBV and other associated infectious agents.

Bloodborne Pathogens Training (Course Code BBS) will be provided at the time of initial assignment to tasks where occupational exposures are "reasonably anticipated" to occur and at least annually thereafter.

The training will contain the following elements:

- An accessible copy of WAC 296-823 and an explanation of its contents.
- A general explanation of the epidemiology and symptoms of bloodborne diseases.
- An explanation of how bloodborne pathogens are transmitted.
- An explanation of the department's exposure control plan and how employees can obtain as copy of the written plan.
- An explanation of how to recognize tasks and other activities that could involve exposure to blood or other infectious materials.
- An explanation of the use and limitations of methods that will prevent or reduce exposure.
- Information about PPE, including:
  - The types.
  - Proper use and limitations.
  - Selection.
  - Location.
  - Putting it on and taking it off.
  - Handling.
  - Decontamination.
  - Disposal.
- Information about Hepatitis B vaccine, including:
  - Information on its effectiveness.
  - Safety.
  - Method of administration.
  - The benefits of being vaccinated.
  - Offered at no cost to the employee for the vaccine.
- Information about procedure if an exposure incident occurs, including
  - Method of reporting the incident.
  - The medical evaluation and follow-up.

8.0 Personal Protective Equipment

Determination of PPE to be worn is made after a hazard analysis of the work task as outlined in Chapter 5, Personal Protective Equipment, of this manual. See Chapter 5 for additional details.

9.0 Recordkeeping

The department shall maintain records at the Headquarters and Region Safety Office for each employee involved in a Category I task or for Category II employees who have been exposed to bloodborne pathogens. Records will be maintained for a minimum period of their employment duration plus 30 years. These records will consist of:

- Training records that indicate the dates of the training sessions, the content of the training sessions, trainer's name and qualifications.
- Inspection reports for the areas and/or tasks where biohazardous tasks are performed, identifying conditions noted and corrective actions taken.
- Incident investigation reports for each incident of mucous membrane or parenteral exposure to body fluids or tissue, an evaluation of these conditions, and a description of corrective measures taken to prevent a recurrence or similar exposure.

A medical record consisting of the following:

- Employee name and social security number.
- A copy of the employee's Hepatitis B vaccination records and medical records relative to the employee's ability to receive vaccination.
- A copy of all results of physical examinations, medical testing and follow-up procedures as they relate to the employee's ability to receive vaccination or to post exposure evaluation following an exposure incident.
- WSDOT's copy of the physician's written opinion.
- A copy of all information provided to the physician.

10.0 Appendices

Appendix 7-A Bloodborne Pathogens Exposure Control Plan

Appendix 7-B Health Care Professional's Written Opinion for Post-Exposure Evaluation

Appendix 7-C Hepatitis B Vaccination Declination

Appendix 7-D Universal Precautions

Appendix 7-E Biohazard Symbol

Facility Name: _____
(insert facility/site/project name)

Date of Preparation: _____

A. Purpose

The Bloodborne Pathogens Exposure Control Plan is to reduce or eliminate occupational exposure to bloodborne pathogens.

B. Exposure Determination

Designated employees that may come into contact with human blood or other potentially infectious materials (OPIM):

1.
2.
3.
4.

C. Methods of Compliance

Universal Precautions will be utilized in the handling of all human blood and OPIM's. Please refer to WSDOT's Bloodborne Pathogens Exposure Control Plan, Chapter 7, of the *Safety Procedures and Guidelines Manual* M 75-01.

D. Engineering Controls

- Employees will wash their hands and any other exposed skin with soap and hot water immediately or as soon as possible after contact with blood or OPIM, for 15 seconds, in a manner causing friction on both inner and outer surfaces of the hands.
- Employees will be provided with antiseptic hand cleaner and paper towels when hand washing is not feasible. However, hand washing must still take place as soon as possible after exposure.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses is prohibited in work areas where there is the potential for exposure to bloodborne pathogens.
- If professional medical attention is required, a local ambulance will be the first choice, a personal car will be the second. If a personal car is taken, impervious material should be used to prevent contamination of the vehicle.

- New employees or employee being transferred to other sections will receive training about any potential exposure from the Region Safety Manager.

E. Personal Protective Equipment

All personal protective equipment, such as gloves, contaminated materials handling tools or equipment, and biohazard bags used will be provided without cost to employees. Personal protective equipment will be chosen based on the anticipated exposure to blood or OPIM. The protective equipment will be considered appropriate only if it does not permit blood or OPIM to pass through or reach the employees' clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use.

F. Disposal of Contaminated Items and Communication of Hazard

1. Employees must:
   a. Use bleach to disinfect any blood or OPIM.
   b. Apply the bleach with single-use gloves and allow to sit for 15 minutes.
   c. Place any single-use gloves that have been contaminated in a biohazard bag and cover.
      (1) Contact your Region Safety Managers for the proper disposal of biohazard bags or other impervious containers.
      (2) Regulated waste should be placed in appropriate containers, label and disposed of in accordance with Chapter 296-823 WAC.
2. Employees will be warned of biohazard bags by labels attached to the disposal bags. Labels used will be orange-red and marked with the word BIOHAZARD or the biohazard symbol.

G. Housekeeping

Maintaining our work areas in a clean and sanitary condition is an important part of WSDOT's Bloodborne Pathogens Compliance Program. Employees must decontaminate working surfaces and equipment with an appropriate disinfectant after completing procedures involving blood or OPIM. All equipment, environmental surfaces and work surfaces shall be decontaminated immediately or as soon as feasible after contamination.

1. Employees must clean and disinfect when surfaces become contaminated and after any spill of blood or OPIM.
2. Employees will use a solution of one part bleach to ten parts water for cleaning and disinfecting.
3. Working surfaces and equipment will be cleaned, disinfected, and maintain.

4. Potentially contaminated broken glass will be picked up using mechanical means, such as dustpan and brush, tongs, etc.

5. Use universal precautions for handling of all soiled laundry.

6. Laundry contaminated with blood or OPIM will be handled as little as possible. Employees who handle contaminated laundry will utilize personal protective equipment to prevent contact with blood or OPIM from coming into contact skin or street clothes.

7. Contaminated clothing will remain on the premises or will be sent directly to a laundry facility for cleaning. Employees will be given the option of reimbursement for the cost of contaminated clothing and the clothing will be disposed.

H. Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-Up

1. WSDOT shall make available within 24 hours of possible exposure the Hepatitis B vaccine and vaccination series to all employees who have occupational exposure. Vaccination is not required if:

   Employee has previously received the completed Hepatitis B vaccination series.

   a. An antibody test has revealed that the employee is immune to Hepatitis B.

   b. There are medical reasons not to give the vaccine, usually determined by the employee's physician.

      An employee who refuses the vaccination is required to sign a Hepatitis B Vaccination Declination Form, Appendix 7-C, in Chapter 7 of the *Safety Procedures and Guidelines Manual* M 75-01 which will be retained indefinitely in the employee's Safety and Health file located at the HQ Safety and Health Services Office.

2. An exposure incident means a specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood or OPIM that results from the performance of an employee's duties. Examples of non-intact skin include skin with dermatitis, hangnails, cuts, abrasions, chafing, or acne. Any employee having an exposure incident shall contact the Region Safety Manager. All employees who have an exposure incident will be offered a confidential post-exposure evaluation and follow-up in accordance with the DOSH standard. This includes a visit to a physician selected by the employee where an L&I claim can be initiated. The health care professional's written opinion will be provided to the employee within 15 days of the evaluation.

I. Training

Training is provided at the time of initial assignment to tasks where occupational exposure may occur, and that it shall be repeated within 12 months of the previous training. Training shall be tailored to the education and language level of the employee, and offered during the normal work shift. The training will be interactive and cover the following:

1. A copy of the standard and an explanation of its contents.
2. A discussion of the epidemiology and symptoms of bloodborne diseases.
3. An explanation of the modes of transmission of bloodborne pathogens.
4. An explanation of the WSDOT Bloodborne Pathogen Exposure Control Plan (this program), and a method for obtaining a copy.
5. The recognition of tasks that may involve exposure.
6. An explanation of the use and limitations of methods to reduce exposure, for example engineering controls, work practices and personal protective equipment.
7. Information on the types, use, location, removal, handling, decontamination, and disposal of PPE.
8. Explanation of the basis of selections of PPE.
9. Information on the Hepatitis B vaccination, including efficacy, safety, method of administration, benefits, and that it will be offered free of charge.
10. Information on the appropriate actions to take and persons to contact in an emergency involving blood or OPIM.
11. Explanation of the procedures to follow if an exposure incident occurs, including the method or reporting and medical follow-up.
12. Information on the evaluation and follow-up required after an employee exposure incident.
13. An explanation of the signs, labels, and color-coding systems.

J. Exposure Reporting and Recordkeeping

1. Exposures, including first aid incident exposures that involve the presence of blood or OPIM must be reported to the supervisor and the Region Safety Manager before the end of the work shift. An Accident Form, 750-100 must be completed to include the names of all the first-aid providers who rendered assistance, the time and date of the first-aid incident and a description of the first-aid incident.
2. Medical records shall be maintained in accordance with DOSH Standards. These records shall be kept confidential, and must be maintained at the HQ Safety and Health Office for at least the duration of employment plus 30 years.

Health Care Professional's Written Opinion for Post-Exposure Evaluation

Employee's Name: _____

Date of Incident: _____

Date of Evaluation: _____

Health Professional's Address: _____

Health Professional's Telephone: _____

_____ The employee named above has been informed of the results of the evaluation for exposure to blood or other potentially infectious materials.

_____ The employee named above has been told about any health conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

_____ Hepatitis B vaccination **is** ____ **is not** ____ indicated.

Health Care Professional's Name: _____

_____ _____

Health Care Professional's Signature Date

Return this form to the employer and provide a copy to the employee within 15 days. Please label the outside of the envelope "Confidential."

Employer's Name: _____

Employer's Address: _____

_____

Confidential Fax: _____

Appendix 7-C Hepatitis B Vaccine Declination

Completion of this form is mandatory for all Category I employees and for Category II employees who decline to receive the Hepatitis B vaccination after an exposure incident.

I fully understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring the Hepatitis B virus (HBV) infection.

I have been provided with the opportunity to be vaccinated with the Hepatitis B vaccine at no charge to myself. However, I decline the Hepatitis B vaccination at this time.

I fully understand that, by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____

Employee Name (Please PRINT)

_____

Employee Signature

_____

Date

Infection Through Blood and Bodily Fluids

Universal precautions will be utilized to ensure WSDOT employees are safeguarded against the spread of infectious diseases through contact with human blood or other bodily fluids. Regardless of the "perceived" risk involved, all employees should protect themselves from potential infection.

- Any accident/incident involving the transfer of blood or bodily fluids should be reported by the supervisor before shift end.
- Personal protective equipment (PPE) will be provided for and used by all employees considered to be at risk of infection.
- Gloves should be worn for touching blood and bodily fluids, mucous membranes or non-intact skin of all persons, for handling items or surfaces soiled with blood or bodily fluids, and for rendering assistance to injured persons. Always wash hands and arms after helping a victim.
- For those employees trained to perform CPR, separate yourself from direct contact with the victim by using a face shield or mask or one-way resuscitating device.
- Needlestick injuries should be reported to the supervisor immediately.
- Any items located that are believed to be human waste products (i.e., blood, soiled clothing, needles, or items identified with the universal biohazard symbol) should be handled only by a properly trained employee.
- All known items soiled with blood or other bodily fluids (i.e., clothing) should be disposed of by a properly trained employee.
- All equipment and working surfaces shall be decontaminated with an appropriate disinfectant to eliminate the potential for infection.
- WSDOT will provide Hepatitis B vaccination series at no cost to supervisors and those employees considered to be at the greatest risk of infection.
- A post-exposure evaluation will be provided at no cost to the employee.

The following is a universal symbol identifying material or objects contaminated with human blood or bodily fluids. When this symbol is identified, follow all universal precautions in this safety policy and procedure to ensure infectious diseases are not transmitted.

BIOHAZARD

Chapter 8 Respiratory Protection Program

1.0 Purpose

The purpose of the Respiratory Protection Program is to establish guidelines for use of respiratory protection by Washington State Department of Transportation (WSDOT) employees.

2.0 Scope and Applicability

This chapter of the *Safety Procedures and Guidelines Manual* M 75-01 affects any employee who, as a result of his or her job duties, is exposed to air contaminants or hazardous environments where contaminants exceed the Permissible Exposure Limit (PEL) or are Immediately Dangerous to Life and Health (IDLH).

3.0 References

The WSDOT Respiratory Protection Program is administered in accordance with:

- WAC 296-841, *Airborne contaminants*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-841
- WAC 296-842, *Respirators*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-842

Note: Washington State Ferries (WSF) Division is governed by additional regulations aside from WAC Standards. WSF shall maintain a separate Respiratory Protection Program in accordance with the above WAC Standards and other regulative agencies (e.g., United States Coast Guard).

4.0 Definitions

Air-purifying respirator (APR): A respirator equipped with an air-purifying element such as a filter, cartridge, or canister, or having a filtering facepiece, for example, a dust mask. The element or filtering facepiece is designed to remove specific contaminants, such as particles, vapors, or gases from air that passes through it.

Canister or Cartridge: Part of an air-purifying respirator that consists of a container holding materials such as fiber, treated charcoal, or a combination of the two that removes contaminants from the air passing through the cartridge or canister.

Contaminant: A harmful, irritating, or nuisance airborne material.

Dust: Solid particles suspended in air. Dusts are generated by handling, drilling, crushing, grinding, rapid impact, detonation, or decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, grain, etc.

Dust Mask: A name used to refer to filtering-facepiece respirators. See air-purifying respirator.

Exposure: The contact an employee has with a toxic substance, harmful physical agent, or oxygen deficient condition. Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

Exposure Limit: The maximum allowable concentration of a contaminant in the air to which an individual may be exposed. These may be time-weighted averages, excursion limits, ceiling limits, and short-term limits.

Filter: A component used in respirators to remove particulates or liquid aerosols from the inspired air.

Fit Test: Fit testing is an activity where the facepiece seal of a respirator is challenged, using an accepted protocol, to determine if the respirator provides an adequate seal.

High Efficiency Particulate Filter (HEPA): A powered air purifying respirator (PAPR) filter that removes at least 99.97 percent of monodisperse particles with a mean particle diameter of 0.3 micrometer from contaminated air. Filters designated, in 42 CFR Part 84, as an "N100," "R100," or "P100" provide the same filter efficiency (99.97 percent) as HEPA filters.

Immediately Dangerous to Life and Health (IDLH): An atmospheric condition that would cause an immediate threat to life, cause permanent or delayed adverse health effects or interfere with an employee's ability to escape.

Licensed Health Care Professional (LHCP): An individual whose legally permitted scope of medical practice allows him or her to provide some or all of the health care services required for respirator users' medical evaluations.

Negative Pressure Respirator: Any tight-fitting respirator in which the air pressure inside the facepiece is less than the air pressure outside the respirator during inhalation.

NIOSH: The National Institute for Occupational Safety and Health. NIOSH is the federal agency that certifies respirators for occupational use.

Oxygen Deficient: An atmosphere with an oxygen content below 19.5 percent by volume.

Permissible Exposure Limit (PEL): The amount of an airborne chemical toxic substance, or other harmful agent that must not be exceeded during any part of the workday.

An airborne chemical or toxic substance can have 3 PEL values:

- TWA8. This is an 8-hour, time weighted average limit.
- Short-term exposure limit (STEL). This is typically a 15-minute, time-weighted average limit.
- Ceiling limit (C). This is an instantaneous limit.

Qualified Person: Safety and supervisory personnel who have training and experience in air monitoring, exposure assessment, and workplace evaluations under the direction of a Certified Industrial Hygienist (CIH).

Qualitative Fit Test: A test that determines the adequacy of respirator fit for an individual. The test relies on the employee's ability to detect a test substance. Test results are either "pass" or "fail."

Seal Check: A pressure/vacuum test conducted by the wearer to determine if the respirator is properly sealed to the face.

5.0 General Responsibilities

It is the responsibility of employees at all levels to ensure implementation of WSDOT's Respiratory Protection Program. It is also the responsibility of each employee to immediately report any unsafe act or condition to his or her supervisor.

5.1 Organizational Responsibilities

Are as assigned in Chapter 1 of this *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to Respiratory Protection Program.

5.1.1 Executive, Senior, and Mid-Level Management

- Ensure that adequate funds are available, budgeted for the purchase of respiratory protection equipment and related supplies.
- Perform periodic audits of employee training.

5.1.2 Supervisors

- Ensure employees have received required training, medical evaluation and fit testing prior to performing any work task requiring respiratory protection.
- Ensure that respirators are properly worn and maintained.

- Communicate appropriate needs to managers.
- Ensure that an adequate supply of respirators, cartridges, and replacement parts are available.

5.1.3 Qualified Persons

- Conduct air monitoring where there is suspicion of air contamination.
- Perform exposure assessments, workplace evaluations, and recommend exposure controls.

5.1.4 Respirator User

- Wear appropriate respirator when and where required, and according to the site conditions, recommendations provided by the program manager, supervisor, or Safety Office, and in accordance with respirator manufacturer requirements.
- Address any and all concerns regarding respirator usage with their supervisor.
- Assist the supervisor in the development and maintenance of specific respirator usage plans.
- Care for, clean, and maintain their respirators as instructed and store them in a clean, sanitary location.
- Inform the supervisor if the respirator no longer fits and request a new one that fits properly.
- Understand the work task hazard requiring respirator protection.

5.1.5 Safety Organization

5.1.5.1 Respirator Program Administrator

The Respiratory Protection Program Administrator is the WSDOT Industrial Hygiene Program Manager.

- Provide leadership and guidance to Region Respiratory Protection Program Managers.
- Develop Respiratory Protection Program policy statements, goals, and strategies.
- Identify Respiratory Protection Program needs regarding personnel, training, and equipment.
- Provide guidance, technical expertise, training, and support.
- Consult with and assist managers, supervisors, and respirator users.
- Recognize and interpret respiratory regulations.
- Perform, assist with, and coordinate airborne exposure monitoring.

- Assist with fit testing and training regarding the proper use and care of respirators.
- Review and evaluate air monitoring data for quality assurance.

5.1.5.2 Region Respiratory Protection Program Manager (Program Manager)

- Executes the development and implementation of the Respiratory Protection Program through region managers and supervisors of employees requiring the use of respirators to perform work tasks.
- Identify work areas, processes, or tasks that require workers to wear respirators, and evaluate hazards.
- Develop and maintain Pre-Activity Safety Plans regarding respirator requirements.
- Understand and apply regulative guidelines and laws regarding respiratory protection.
- Select and assist with respiratory protection options.
- Monitor respirator use to ensure that respirators are used in accordance with their certifications.
- Arrange for and/or conduct training.
- Monitor proper storage and maintenance of respiratory protection equipment.
- Conduct or arrange appropriate fit testing.
- Administer the region medical surveillance program.
- Maintain records required by the program and region.
- Evaluate the program.
- Update the written Region Respiratory Protection Program as needed.

5.1.5.3 Region Safety Office

- Assist in developing or securing the required training.
- Provide assistance to managers and supervisors on respirator fit testing, program review, and training.
- Maintain a quality assurance program for respiratory protection through field evaluations.
- Work with Purchasing and Region Stores to ensure that all newly purchased respirators and supplies comply with current safety regulations and this safety policy and procedure.
- Provide consultative and audit assistance to ensure effective implementation of this safety policy and procedure.

5.1.6 Region Stores

Region Stores will maintain an inventory of approved respirators and replacement parts for WSDOT employee use.

6.0 Training

- The material safety data sheets for the chemicals that the employee could be exposed to will provide information on the health effects and hazards for those materials.
- Employees will be instructed on the use and limitations of their respirators. There is not one all-purpose respirator. The respirators on which the employee will be trained were selected by WSDOT for your work environment. The uses and limitations of the respirator on the NIOSH approval label and other information contained on/in each new respirator package will be covered.
- Employees will be trained on the proper donning of the respirator. A respirator must be put on and worn properly if it is to fit and offer effective protection. The employee will be instructed to always inspect the respirator prior to donning. Instruction will include how to inspect the respirator. Donning instructions are found on or in each new respirator package and will be fully explained and demonstrated to the wearer.
- Once proper donning and adjustment procedures have been demonstrated, each employee will complete the same procedure as the trainer talks the employee through the directions.
- While wearing a respirator, the employees will be instructed on how to conduct a user seal check. A user seal check is a method of determining if the respirator has been put on properly and has been fitted properly. A user seal check must be conducted each time the respirator is worn. Refer to user seal check procedures on each respirator package. They are sometimes referred to as positive pressure and negative pressure user seal checks.
- If a proper fit cannot be accomplished, the wearer must select another respirator and repeat the user seal check procedure.
- A training roster shall be completed for each training session. This documentation will be used to facilitate the recordkeeping requirements. Respirator training records should be entered into ATMS (Course Code ARZ).
- Employees must leave the contaminated work area:
  - Upon malfunction of the respirator.
  - Detection of leakage of contaminant into the respirator.
  - If increased breathing resistance of the respirator is noted.
  - If severe discomfort in wearing the respirator is detected.

- Illness of the respirator wearer, including: sensation of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, and chills.
- To wash face to prevent skin irritation.
- To change filter/cartridge elements or replace respirators whenever they detect the warning properties of the contaminant or increased breathing resistance.

6.1 Hazard Assessment

A qualified person shall assess employee exposures to airborne contaminants to assure proper respirator selection. Based on the assessment, the proper respirator shall be selected to control the exposure. Exposure assessments shall be based on process information, work environment, historical data, and/or work practices relative to the type of contaminant. Where employees may be exposed to air contaminants in excess of a Permissible Exposure Limit (PEL), air monitoring shall be conducted to assure proper selection of respiratory protection and filter change out schedules (where applicable).

The PEL of an air contaminant does not have to be exceeded for an employee to use a respirator. The employee may request the use of a respirator because of a nuisance exposure or for personal reasons. These circumstances should be evaluated and respirator use approved if the circumstances favor the use of a respirator.

As needed, the Program Manager, supervisor, and qualified person should continually update and assess site hazards and respiratory requirements. This is especially true when work processes change and/or new chemicals or products are introduced to the work environment.

6.2 Respirator Selection

Respirators are selected for use by the Region Safety Office. The selection is based upon the physical and chemical properties of the air contaminants and the concentration level likely to be encountered by the employee. The Respiratory Program Administrator via supervisors will make a respirator available immediately to each employee who is placed as a new hire or a transferee to a job that requires respiratory protection. Replacement respirators/cartridges and filters will be made available as required. The selection of the proper respirator type will be made following the respirator manufactures guide. All respirators shall be NIOSH approved.

All tight fitting respirators (both negative and positive pressure) shall not be used with beards or other facial hair that prevents direct contact between the face and the sealing surface of the respirator. A loose fitting facepiece does not seal directly to the face. Therefore facial hair is not a concern. Example: a PAPR can be equipped with a loose fitting facepiece, such as a hood or helmet, and the employee can have facial hair.

6.2.1 NIOSH Certification

Supervisors and program managers (region specific) should become familiar with all the various types of respirators, the protection factors assigned to respirators, and the various filter cartridges used to protect employees against hazardous chemicals. All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. All filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. Filter labels and respirator identification numbers must not be removed or defaced at any time. Respirator "parts" cannot be interchanged. If a part is broken, the respirator must be taken out of service until repaired. The various protection factors assigned to respirators and the filter cartridge color-coding and chemical protection assignments are identified and described in the following sections.

6.2.2 Assigned Protection Factors

- Filtering Face Piece P, R or N-100 (Dust Mask) Assigned Protection Factor (APF) = 10
- Half-face air purifying respirator (tight-fitting) – APF = 10
- Powered air purifying respirator (PAPR loose-fitting) – APF = 25
- Full-face air purifying respirator (tight-fitting) – APF = 50
- Powered air purifying respirator (PAPR tight-fitting) – APF = 1000
- Assigned Protection Factors for respirators not listed above can be found in Table 5 of WAC 296-842-13005

6.2.3 Chemical Protection and Color Coding

- Acid gases – white cartridge/filter
- Ammonia – green cartridge/filter
- Acid gases, organic vapors and ammonia – brown cartridge/filter
- Acid gases and organic vapors – yellow cartridge/filter
- Carbon monoxide – blue cartridge/filter
- Chlorine gas – white with ½ inch yellow stripe cartridge/filter
- Organic vapors – black cartridge/filter
- Heavy metal dusts/fumes/mists – purple or "magenta" cartridge/filter (also referred to as HEPA or P100)

Note: There are "other" chemical specific filter/cartridges available. Knowing or estimating the potential exposure to chemicals is essential for choosing the appropriate respirator. This is especially important when considering respirator and filter selection. For example, if based on exposure monitoring data and based on the scheduled work to be performed, you estimate that

an employee will be exposed to lead (heavy metal) at five times above the permissible exposure limit (PEL). The employee should be able to use a half-face respirator or dust mask with an assigned protection factor (APF = 10). In general, the assigned protection factor (APF) for a respirator is based on an exposure above the applicable PEL. Considering the example above, an estimate of exposure 20 times above the PEL would require a respirator user to use a respirator with an assigned protection factor of 20 or greater.

6.2.4 Recordkeeping

Records shall be kept on each employee who receives training and fit testing. This record will include the name, employee ID, location of respirator use, type of contaminant(s), respirator type, tester, medical evaluation, and results of fit testing. See Appendix 8-A for the form.

In addition, training records and recommendations from the licensed healthcare practitioner should be maintained. ATMS and/or Safety Record Database can be used to assist with recordkeeping.

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

6.2.5 Purchasing

Only NIOSH approved respirators shall be purchased and kept in stock along with an adequate supply of cartridges and replacement parts. Unapproved respirators shall be removed from inventory.

6.2.6 Medical

Medical Questionnaire/Evaluation

Employees required to wear respirators as part of their job must be medically approved to do so. Voluntary use of filtering facepieces, also called “dust masks,” is excluded. Employees must complete a medical questionnaire before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a Licensed Health Care Professional (LHCP) has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in the area requiring respirator use. Regions will identify a qualified LHCP who will provide a written recommendation regarding respirator use. The following shall be provided to WSDOT and the employee:

- Whether or not the employee is medically able to use the respirator.
- Any limitations of respirator use for the employee.
- What future medical evaluations, if any, are needed.
- A statement that the employee has been provided a copy of the written recommendation.

To initiate a medical questionnaire/evaluation, provide the employee with a respirator questionnaire. Once the employee has completed the questionnaire, it shall be submitted to the Region Program Manager in a sealed and addressed envelope. The Program Manager will forward the questionnaire to the contracted LHCP for review. The LHCP will provide the written recommendation for respirator use to the Program Manager and the employee.

Additional Medical Questionnaire/Evaluation

After an employee has received medical clearance and has begun to wear a respirator, additional medical evaluations will be provided under the following circumstances:

- Employee reports signs and/or symptoms related to one's ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
- At the discretion and frequency of the written report prepared by the LHCP.
- The LHCP informs the Program Manager in writing that the employee needs further examination or evaluation.
- Observations made during fit testing or program evaluations indicate a need for reevaluation.

6.2.7 Fit Testing

Employees who use tight-fitting respirators will be properly fitted and tested for a face seal prior to use of the respirator in a contaminated area. Qualitative fit testing will be performed every 12 months.

Fit testing is done initially upon employee assignment to an area where respirators are required. All tight-fitting respirators will be fit tested.

If it is determined that an individual cannot obtain an adequate fit or face seal with any negative pressure respirator, a loose fitting powered air purifying respirator will be used instead.

Fit testing of employees with any hair growth such as stubble beard growth, beard, or long sideburns that extends under the face seal or interferes with valve function is prohibited.

Fit testing will be conducted utilizing an irritant smoke tube. The smoke will be continuously discharged around the respirator while the employee completes the following exercises to verify the seal of the respirator:

- Regular breathing.
- Deep breathing.
- Turning of the head side to side (Do not to let the respirator contact the shoulders while performing this step.).

- Tilting of the head up and down (Do not to let the respirator contact the chest while in the down position.).
- Talking (If the employee wishes to be supplied something to read to the instructor, then the following shall be used.).

The Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

6.2.8 Respirator Cleaning

Respirators shall be cleaned and disinfected as necessary. All respirators shall be cleaned using the methods provided in Appendix 8-B of this chapter.

6.2.9 Respirator Maintenance

Respirators are to be properly maintained at all times to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced before use. The following checklist will be used when inspecting respirators:

- Facepiece
  - Cracks, tears or holes
  - Facemask distortion
  - Cracked or loose lenses/face shield
- Head straps
  - Breaks or tears
  - Broken buckles
- Valves
  - Residue or dirt
  - Cracks or tears
- Filters/Cartridges
  - Approval designation
  - Gaskets
  - Cracks or dents in housing
  - Proper cartridge for hazard

6.2.10 Cartridge Change Schedules

Employees wearing air-purifying respirators (APR) with P100 high efficiency particulate air (HEPA) filters for protection against dusts, silica, heavy metals, aerosols, asbestos, bird guano, and other particulates shall change the cartridges on their respirator in accordance with manufacturer recommendation, or if there is noticeable air restriction/flow, or if the filter is "lightly caked" with dusts/particles.

In general, employees wearing APRs with organic vapor cartridges or other types of cartridges shall change the cartridges in accordance with manufacturer recommendations or when there is any indication of breakthrough.

In many instances, breakthrough of certain chemical types (e.g., pure carbon monoxide, hydrogen sulfide) cannot be detected by an employee's olfactory system. Therefore, specific change out requirements for chemical types encountered for a project or work activity shall be identified in a Site Specific and/or Work Specific Pre-Activity Safety Plan.

Respirator manufacturers, as well as the National Institute for Occupational Safety and Health, have developed software to evaluate change out schedules which can be accessed through their Web site.

6.2.11 Respirator Storage

Respirators must be stored in a clean, dry area according to the manufacturer's recommendations. Each employee shall clean and inspect their respirator according to the provisions of this program. Respirators shall be stored in a clean, dry environment in a manner that won't cause the respirator to be deformed. Storage in air-tight container, such as a bag and/or rigid, plastic container is strongly recommended. Cartridges will be stored in areas designated by the supervisor or Program Manager. Employees will have immediate access to filtering cartridges and replacement parts for their respirator type. Respirators that contain face-shields should be stored in a manner that reduces lens scratching or damage.

7.0 Appendices

Appendix 8-A Respirator Record

Appendix 8-B Repirator Cleaning Procedures

To download a current copy of DOT Form 750-090, go to the Forms Management Web site:
http://wwwi.wsdot.wa.gov/fasc/adminservices/forms/formfiles/WSDOT_Forms/

Washington State Department of Transportation

Respirator Record

Name	Social Security Number	Organization Code
Supervisor's Name	Telephone Number	

Exposure

- ☐ Welding/Cutting/Brazing
- ☐ Spray Painting
- ☐ Vehicle Body Repair
- ☐ Pavement Marking
- ☐ Lead
- ☐ Pestcides
- ☐ Asbestos
- ☐ Silica
- ☐ Solvents
- ☐ Bridge Maintenance
- ☐ Abrasive Blasting
- ☐ Grinding/Sanding
- ☐ Pigeon Droppings
- ☐ Other (Specify) _____

Restrictions

- ☐ Facial Hair
- ☐ Corrective Lenses
- ☐ Reduced Lung Function
- ☐ None
- ☐ Other (Explain) _____

Fit Test

Date of Fit Test	Type of Fit Test Used ☐ Qualitative ☐ Quantitative ☐ N/A
Tester	☐ Pass ☐ Fail

Respirator

Size
☐ Small ☐ Medium ☐ Large

Facepiece
☐ 1/2 Mask ☐ Full Face ☐ Hood/Helmet

Type
- ☐ SCBA
- ☐ PAPR
- ☐ Air Line
- ☐ Dust / Mist
- ☐ Other (Describe) _____
- ☐ Chemical Cartridge
- ☐ Gas Mask
- ☐ Combination

Manufacturer
- ☐ North
- ☐ MSA
- ☐ Willson
- ☐ Survivair
- ☐ 3M
- ☐ Bullard
- ☐ Northstar
- ☐ American Optical
- ☐ Scott
- ☐ Glendale
- ☐ Uvex
- ☐ Other _____

Model Number	Approval Number

Comments

DOT Form 750-090 EF
Revised 12/98

Appendix 8-B Respirator Cleaning Procedures

Use only the manufacturer respirator cleaning instructions or the instructions identified below for cleaning and disinfecting your respirator:

1. Remove filters, cartridges, or canisters. Remove speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

2. Wash components in warm (43°C [110°F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

3. Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably running water. Drain.

4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

   a. Hypochlorite solution (50 ppm of chlorine) made by adding approximately 1 milliliter of laundry bleach to 1 liter of water at 43°C (110°F).

   b. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6 to 8 grams ammonium and/or potassium iodide/100 cc of 4 percent alcohol) to 1 liter of water at 43°C (110°F).

   c. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

5. Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

6. Components should be hand-dried with a clean lint-free cloth or air-dried.

7. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

8. Test the respirator by performing a negative and positive pressure check to make sure that all components work properly.

Chapter 9 Hearing Conservation Program

1.0 Purpose

The Washington State Department of Transportation (WSDOT) Hearing Conservation Program (HCP) is designed to protect workers with significant occupational noise exposures from hearing loss.

2.0 Scope and Applicability

This chapter applies to all employees who may be exposed to 85 decibels or greater as measured on the A-weighted scale (dBA), though different elements may apply depending on the nature of the noise exposure.

3.0 References

- WAC 296-817, *Hearing loss prevention (noise)*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-817
- WAC 296-27-01113, *Recording criteria for cases involving occupational hearing loss*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-27-01113

4.0 Definitions

A-Weighted – An adjustment to sound level measurements that reflects the sensitivity of the human ear. Used for evaluating continuous or average noise levels.

Baseline Audiogram – The audiogram against which future audiograms are compared. The baseline audiogram is collected when an employee is first assigned to work with noise exposure. The baseline audiogram may be revised if persistent standard threshold shift (STS) of improvement is found.

Recordable Threshold Shift – There is a change in the hearing threshold, relative to the baseline audiogram for that employee, of an average of 10 decibels (dB) or greater at 2000, 3000, and 4000 hertz (Hz) in one or both ears, AND the employee's overall hearing loss (threshold) is 25 dB or greater (averaged at 2000, 3000, and 4000 Hz) in the same ear as the change, AND age corrected.

Safety Organization – Headquarters Safety and Health Services Office staff, and Region Safety Office staff.

Standard Threshold Shift – A hearing level change, relative to the baseline audiogram, of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

5.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual*, as well as the items below specific to Hearing Protection Policy. It is the responsibility of each employee to ensure implementation of WSDOT's Hearing Conservation Program.

5.1 Executive, Senior, and Mid-Level Management

- Understand and implement the provisions of WSDOT's Hearing Conservation Program.
- Ensure adequate funds are available to support the program including audiometric testing, employee training and appropriate hearing protection devices.
- Request engineering or administrative control alternatives be evaluated and implemented before employees are included in the HCP.
- Support supervisors in providing all elements of the HCP.

5.2 Supervisors

- Understand and implement the provisions of the Hearing Conservation Program.
- Assist Region Safety Office staff in identifying occupational noise exposures.
- Ensure that designated noise areas are clearly posted with warning signs.
- Ensure that employees attend required audiometric testing and training.
- Discuss noise hazards and hearing protection as a part of Pre-Activity Safety Planning.
- Assist Region Safety Office staff in coordinating training, audiometric testing, and follow-up investigations to hearing threshold shifts.
- Ensure that employees exposed to 85 dBA or greater (regardless of duration) wear hearing protection.
- Ensure that employees who will be exposed to noise, at or in excess of 85 dBA based on an eight-hour time-weighted average (8 hr TWA), obtain a baseline audiogram within 30 days of employment or transfer to a position with such noise exposures.
- Ensure that employees who are no longer exposed to high noise obtain a termination audiogram. These may include employees who transfer from high-noise positions or leave service with WSDOT.
- Know how to properly use and care for hearing protection devices.
- Assist in coordinating and conducting hearing threshold shift investigations.

5.3 Employees

5.3.1 Employees Enrolled in the HCP

- Comply with all provisions of the HCP.
- Undergo baseline, annual, and termination audiometric testing, as required by the program.
- Properly and consistently use and care for hearing protection devices.
- Attend scheduled training, testing, and/or retesting.
- Assist the supervisors and managers in identifying work activities and locations which may provide high noise exposure levels.
- Wear hearing protection appropriately.
- Cooperate when hearing threshold shift investigations are conducted.

5.3.2 Employees Not Required to Enroll in the HCP

Employees who have occasional exposure to occupational noise of 85 dBA or higher, but less than 85 dBA when averaged for an eight-hour exposure, are not required to participate in the HCP, but are required to use hearing protection when in environments at or above 85 dBA.

5.4 Human Resource Staff

- Include in the New Employee Orientation Packet a check-off for audiometric testing for employees who will be exposed to high-noise work areas.
- Notify supervisors of new personnel so that the supervisor can determine the employee's occupational noise exposure and work with the Region Safety Office in scheduling baseline audiograms if required in this policy.

5.5 Safety Organization

5.5.1 Safety and Health Administrator

- Implement a Hearing Conservation Program.
- Provide leadership and guidance on hearing protection and HCP administration.
- Develop program performance measurements, goals, and strategies.
- Identify and support program needs regarding personnel, training, and equipment.
- Align resources to meet program needs.

5.5.2 Industrial Hygienist

- Obtain and maintain contractual agreements with medical, training and equipment providers, as necessary.
- Provide day-to-day technical consultation and oversight of the HCP.
- Provide guidance, technical expertise, training, and support.
- Consult with and assist Region Safety staff, supervisors, and employees who are enrolled or participate in the HCP.
- Recognize, interpret, update, and implement regulatory compliance standards.
- Conduct, assist with, and coordinate occupational noise exposure monitoring.
- Identify hearing protection and HCP needs regarding personnel, training, and equipment.
- Provide training and information regarding the proper use and care of personal protective equipment (PPE) relative to the hearing protection and HCP.

5.5.3 Region and HQ Safety Offices

- Develop and implement the HCP through region executives, managers, and supervisors.
- Identify job classifications, work activities and areas, processes or tasks, and equipment that require workers to be enrolled in the HCP.
- Coordinate employee baseline, annual, and termination audiometric testing and training with contracted vendors and/or affiliate clinics.
- Evaluate the following, at a minimum, when responding to a standard threshold shift:
  - Employee noise exposure measurements.
  - Noise controls in the work area.
  - The selection of hearing protection available and refit employees as necessary.
  - Employee training on noise and the use of hearing protection and conduct additional training as necessary.
- Assist line management, such as managers and supervisors, in implementing activities toward the prevention of hearing loss.
- Coordinate, conduct, and assist with occupational noise exposure monitoring in accordance with regulatory requirements.
- Develop HCP performance measurements, goals, and strategies.

- Identify and support program needs regarding personnel, training, and equipment.
- Maintain records of region employees in HCP.

Appendix 9-D contains questions and answers on program issues with respect to responsibilities of Region Safety Office staff and supervisors.

6.0 Hearing Protection Policy

Hearing protection is required when working for any duration in an environment where the sustained noise levels are at or above 85 dBA.

This policy requires employees to use hearing protection anytime they are working in or around equipment that generates noise at or above 85 dBA, or are otherwise working in a location where background noise levels are at or above 85 dBA (i.e., freeway traffic noise, shop noise, overall construction site noise).

This policy does not require hearing protection where employees are working in conditions that are below 85 dBA but may be subject to occasional instantaneous noise level increases that exceed 85 dBA (i.e., rural setting and the occasional loud truck drives by).

Employees who are exposed to noise levels at or above 85 dBA on an eight-hour time weighted average exposure are required to participate in the Hearing Conservation Program (HCP). Revised HCP requirements include:

- New employees will obtain a baseline audiogram within 30 days of employment.
- Employees who transfer to an HCP position will obtain a baseline audiogram within 30 days of transfer.
- Employees leaving HCP positions will obtain a termination audiogram. This will include transfers and those leaving service.

6.1 Hearing Protection Devices (HPD) – Personal Protective Equipment (PPE)

WSDOT shall provide several types of hearing protection devices at no cost to employees. Hearing protection devices are available in facilities and vehicles throughout WSDOT. In the event that hearing protection is not readily available to an employee, the employee shall not work in areas or with equipment generating high noise levels (see examples in Section 6.2, Typical Noise Exposures at WSDOT) until hearing protection is available.

Employees concerned about the use, care and effectiveness of hearing protection devices shall immediately contact their supervisor or their Region Safety Manager.

6.1.1 Allowance Payable to Designated Permanent Employees for Custom Molded Earplugs

When a permanent department employee (that is enrolled in the hearing conservation program) elects to purchase and wear custom molded earplugs when exposed to noise at or above 85dB during the course of regular duties, the employee is eligible for a reimbursement allowance of up to $75 per biennium to help offset the purchase cost.

6.1.1.1 Procedure

Employee Provides Receipt – Employees must provide their supervisor with proof of purchase (receipt) of custom molded earplugs to request reimbursement

Supervisor Reviews and Approves Reimbursement – The supervisor ensures that any employee requesting reimbursement must be enrolled and participate in the hearing conservation program and exposed to noise at or above 85dB during their regular duties.

The supervisor makes a copy of the receipt and indicates they have verified the PPE meets the required standard for reimbursement on the Invoice Voucher, DOT Form 134-139 EF (see Appendix 5-G for an example of recommended text for verification). The receipt is then attached to the Invoice Voucher and submitted to the person with delegated authority to authorize/approve payments from their organization's budget for processing.

Disputes – Any disputes concerning the wearing of custom molded earplugs, eligibility for the allowance, custom molded earplugs quality, or exceptions to this procedure are to be referred to the Appointing Authority or designee.

Hearing Protection Devices (HPDs)

HPD	Description	Advantages	How to Use	Care and Cleaning
Formable Type Plugs	Expandable and compressible foam construction.	Inexpensive and readily available.	Roll, pull, and hold. Compress plug into a tight cylinder. Quickly insert the plug (reach over your head and pull on the top of the opposing ear to open the ear canal during insertion). Hold plug in place until it has fully expanded.	Dispose after use or use manufacturer recommendations for cleaning and care.
Premolded Plugs	As compared to the formable ear plugs, pre-molded plugs have more dense foam and plastic construction.	Longer use, inexpensive, various sizes, and readily available.	Choose the size that has optimal ear canal fit.	Wash in warm soapy water and keep dry.
Custom Molded Plugs	Custom molded plugs are typically made of silicone that hardens while in ear of wearer providing a “custom fit.”	Last for years and provide consistent protection.	Simply slide into ear.	Per manufacturer’s instruction which may very due to materials used.
Ear Muffs	Hard plastic and foam construction.	Can be used in conjunction with other hearing protection devices.	Ear cups must fit snug around the entire ear.	Keep equipment clean with warm soapy water and keep dry.

6.2 Typical Noise Exposures at WSDOT

The following are some of the known and potential high noise work areas, activities, or equipment at WSDOT:

- Noise levels in the right of way along urban corridors can range from 80 dBA to 98+. These noise levels can increase if working in areas of amplification (e.g., tunnels, under bridges).
- Chain sawing noise levels can range from 100 dBA to 115 dBA.
- The use of pneumatic tools (e.g., jack hammers, rivet busters) noise levels can range from 95 dBA to 120 dBA.

- Typical WSDOT mowing equipment noise levels can range from 90 dBA to 100 dBA.
- Typical lawn maintenance or landscaping equipment (e.g., trimmers, edging equipment) noise levels can range from 85 dBA to 95 dBA.
- Typical maintenance shop equipment (e.g., grinders, air impact tools) noise levels can range from 90 dBA to 100 dBA.
- Road sweeping operation noise levels can range from 85 dBA to 95 dBA.
- Button/reflector installation work activities noise levels can range from 90 dBA to 115 dBA.

6.3 Job Titles to Be Considered for Audiogram Testing

- All TEF jobs.
- Most Maintenance jobs.
- All Rest Area jobs.
- All Field Engineering jobs.
- Other job titles identified by the supervisor and safety staff.

Regions should maintain a list of high noise work activities and employees who may be exposed to those noise levels. Furthermore, if there are changes to production or equipment that impact noise levels, the region should conduct noise monitoring to determine the new level of noise exposure.

The HQ Safety and Health Services Office and Northwest Region Safety websites provide a Noise Exposure Table with data and information for various WSDOT equipment.
wwwi.wsdot.wa.gov/employee/safety/evaluatingnoiseexposure.htm

6.4 Hearing Conservation Program (HCP) Participation

WSDOT's HCP requires baseline, annual, and termination (from high noise exposure) audiometric tests to determine the effectiveness of its Hearing Conservation Program. Enrollment and participation in the baseline, annual, and termination audiometric testing is mandatory for all WSDOT employees determined or estimated to have noise exposure at or in excess of 85 dBA based on an eight-hour day average. Enrollment and participation in the HCP shall be determined at the Region/HQ/WSF levels of the department.

Employees whose exposure to occupational noise is at least 85 dBA, but less than 85 dBA, when averaged for an eight-hour exposure, are not required to participate in the audiometric testing program.

6.5 Affiliate Clinics

Affiliate clinics in Appendix 9-E have been identified to conduct audiometric testing when it is not feasible to have audiometric testing done by WSDOT's primary contractor. Washington Audiology Services, Inc. has provided the list of clinics around the state that provide audiometric testing. Supervisors are required to contact their respective Region Safety Office for referral where the employees can obtain their audiometric testing. The HQ Safety and Health Office maintain the Affiliate Clinics list and update it when changes are received from Washington Audiology Services, Inc., or other sources.

7.0 Appendices

Appendix 9-A Washington Audiology Testing Form
(This form is provided by WA Audiology for employees to complete prior to audiogram testing.)

Appendix 9-B Form letter for Potential Hearing Loss from a Baseline Audiogram

Appendix 9-C Tools for Determining Hearing Loss Baseline Calculation and OSHA-Recordability

Appendix 9-D Supervisor and Safety Manager Responsibilities – Questions and Answers

Appendix 9-E Affiliate Clinics

Appendix 9-A Washington Audiology Testing Form

WASHINGTON AUDIOLOGY SERVICES, INC.

Last Name (Please Print)	First	Middle	Sex: ❑ Male ❑ Female
Social Security # (optional):	Date of Birth:	Date of Hire:	**Employee ID#:**
WSDOT Region/Location:			
Org. Code:	**Job:**	Shift:	Shift Length:

1 *CHECK ALL THAT APPLY JUST BEFORE YOUR HEARING TEST:*

1. IS THIS YOUR FIRST HEARING TEST WITH *YOUR* COMPANY? ❑ YES ❑ NO
2. HAVE YOU BEEN EXPOSED TO **LOUD*** NOISE IN THE PAST 14 HOURS? ❑ YES ❑ NO
   (LOUD* = If you would have to shout to be heard at arm's length away during the noise.)
   IF YES, DESCRIBE THE NOISE:_____
3. IF YES, DID YOU WEAR HEARING PROTECTION DURING THE ENTIRE NOISE EXPOSURE? ❑ YES ❑NO
4. **WHEN IN HIGH NOISE AREAS AT WORK, I USE MY HEARING PROTECTION: (CHECK A BOX)**

Never = 0% **Always = 100%**

Not Exposed	0 0%	1 20%	2 40%	3 60%	4 80%	5 100%

5. HOW WOULD YOU RATE YOUR HEARING? (CIRCLE ONE) **UNKNOWN, VERY POOR, POOR, AVG, GOOD, VERY GOOD**

6. I wear: ❑ ear plugs ❑ ear muffs ❑ banded caps ❑ custom earplug ❑ (Brand & Model):_____

2 *CHECK ALL THAT APPLY IN YOUR LIFETIME:*

❑ Perceived hearing loss ❑L ❑R
❑ Dr. evaluated hearing loss ❑L ❑R
Approximate Date(s)_____
Cause, if known_____
19 ❑ High blood pressure
20 ❑ Have seen Dr. for ear problems ❑L ❑R
Describe_____
21 ❑ Ear surgery_____ ❑L ❑R
22 ❑ Head injury/unconsciousness
23 ❑ Hearing Aid(s) ❑L ❑R
32 ❑ Hearing loss common in family
36 ❑ Military service
37 ❑ Noisy hobbies
List:_____
39 ❑ Firearms: I shoot ❑ L or ❑R handed
❑ Worked in noisy jobs previously

00 ❑ I have read all the above and none apply.
This audiometric evaluation is not meant to be a substitute for regular medical care. If you are experiencing problems or concerns with your ears and/or hearing, please seek the advice of your physician.

3 *CHECK ALL THAT APPLY WITHIN THE LAST 12 MONTHS:*

❑ Have seen doctor for ears within the last 12 months? (explain below) ❑L ❑R
❑ Ear problems when using hearing protection devices? _____ ❑L ❑R

Have seen Dr.
10 ❑ Ear pain (continuous or often) ❑L ❑R - ❑
11 ❑ Ear discharge (pus) ❑L ❑R - ❑
12 ❑ Unexplained dizzy spells
13 ❑ Severe ringing in ears ❑L ❑R - ❑
❑ Constant ❑ Intermittent
Number of years:_____
14 ❑ Sudden hearing loss ❑L ❑R - ❑
15 ❑ Fluctuating hearing loss ❑L ❑R - ❑
16 ❑ Feeling of fullness in ears ❑L ❑R - ❑
(unrelated to common cold)

35 ❑ Do you have a head cold, sinus or allergy problems **TODAY** that seems to be affecting your ears or hearing?

Still experiencing any of the above reported symptoms? ❑ Yes ❑ No

00 ❑ I have read all of the above and none apply.

PLEASE EXPLAIN ANY CHECKED RESPONSES:

OTOSCOPIC: L_____ R_____

Tester Comments:

I authorize the release of my hearing test data and the information I have provided above to my employer or other health care providers designated by my employer for the purposes of the hearing conservation program.

Employee signature:_____ **Date:**_____

e:\general office\client forms\testing\was annual testing form updated 1-24-00

Appendix 9-B Form Letter for Potential Hearing Loss from a Baseline Audiogram

Date:

Employee:
Address:

Subject: Audiometric testing (Audiogram) Results

Dear Employee:

The Washington State Department of Transportation (WSDOT) provides a comprehensive hearing protection and Conservation Program (HCP). As part of its program, WSDOT has an aggressive audiometric testing and training program. It is important for your safety, the safety of your co-workers, and that of the motoring public that your hearing is conserved and hearing loss is prevented.

As a WSDOT employee, we expect you to protect your hearing. Every WSDOT employee who is exposed to noise level of at least 85 dBA is expected to wear hearing protection. Employees who are occupationally exposed to high noise levels (85 decibles as averaged over an 8-hour period) shall be enrolled and participate in the WSDOT Hearing Conservation Program. WSDOT provides hearing protection devices at facilities across the state. If your job activities require you to be exposed to high noise levels, you are required to use and maintain all appropriate hearing protection devices. We also expect and strongly encourage you to protect your hearing away from work.

The results of your recent audiometric test indicate that you may have a hearing loss which may be attributable to your exposure to excessive noise in the past. We encourage you to consult with your medical provider regarding important hearing conservation matters.

Enclosed please find your audiometric test results.

May you have a safe and healthy career with WSDOT. Should you have any questions or if I can provide you with any additional information, please don't hesitate to contact the Regional Safety Office.

Sincerely,

Region Safety Manager/Office

cc: Employee Supervisor

To: Outside Audiogram Provider (Place clinic name here)

Audiometric Testing Authorization Form

This individual has been instructed to obtain a audiometric test as part of his/her required participation in a Hearing Conservation Program provided by his/her employer, the Washington State Department of Transportation (WSDOT). This Hearing Conservation Program is in accordance with Chapter 296-817 WAC of the Division of Occupational Safety and Health (DOSH). Please adhere strictly with the outline below which summarizes what is required of your clinic with regards to this audiometric test.

Pure tone audiometric testing only. Please obtain thresholds bilaterally at the following frequencies: 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz.

Please use the Washington Audiology Testing Form attached form (below) for recording threshold and medical history information. Please note that the employee must sign the statement at the bottom which authorizes his/her release of information to employer designated health care providers for the purposes of the Hearing Conservation Program.

Results of the audiometric test are to be sent or faxed to Washington Audiology Services, Inc. within 48 hours of the date of testing. This is critical because retesting, if applicable, is only permitted within a specified period of time from the original test date.

Washington Audiology Services, Inc.
6987 Perimeter Road So, Ste 100
Seattle, WA 98108
Fax: 206 764-4760

Audiometric tests must meet DOSH standards for Hearing Conservation Programs. This means that certain required standards apply to audiometric testers, audiometers, sound booths, etc. You already have or will be asked by Washington Audiology Services, Inc. to complete a survey to ensure that you meet these requirements and you may be asked to provide them with records to document this compliance. WSDOT requests your support in this very critical process.

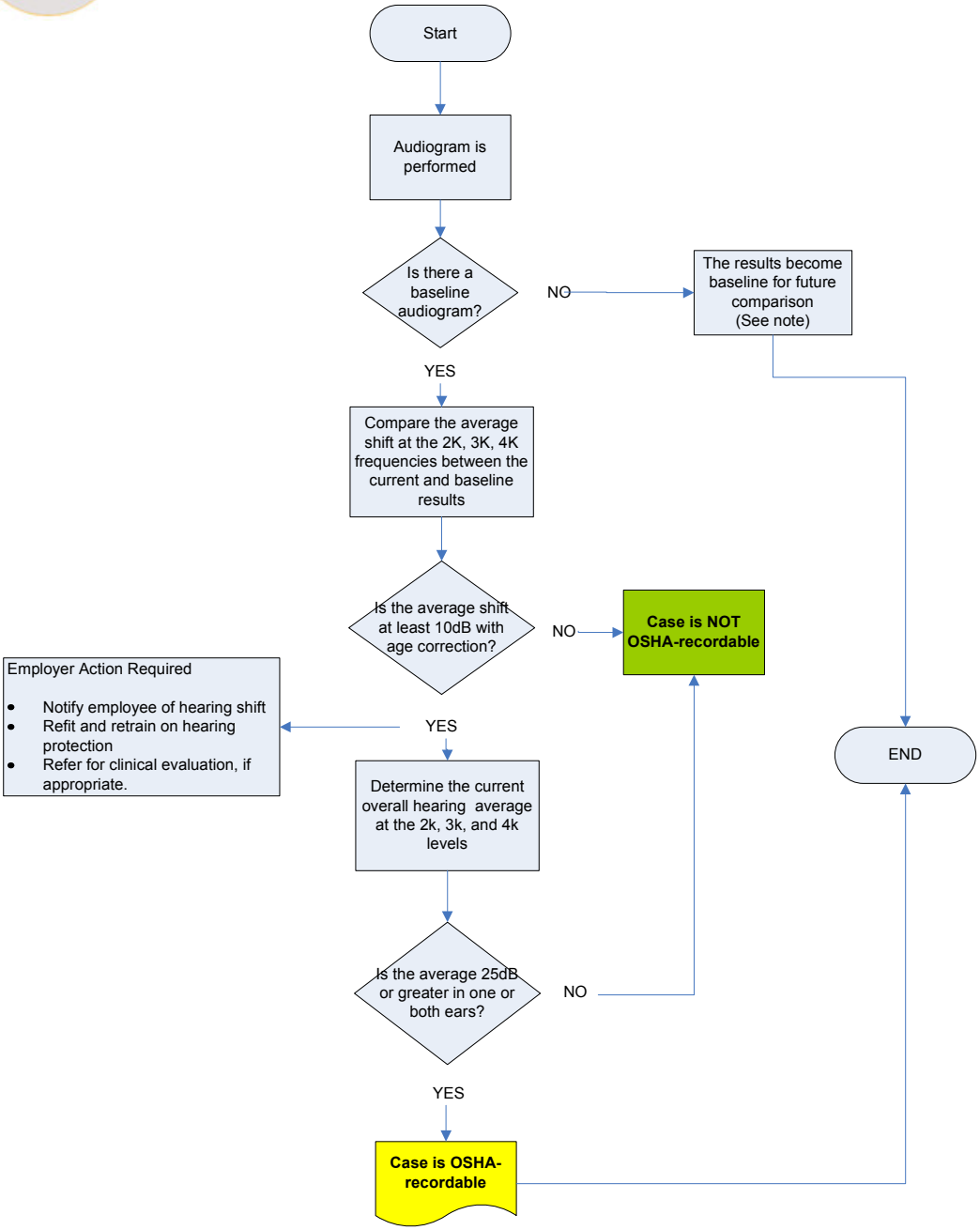
Please send all invoices to Regional Safety Office: (address)

Thank you for your cooperation in these matters. Please contact the WSDOT individual noted below or Washington Audiology Services, Inc. with any questions you may have. Thank you.

Employee Signature/Date_____

Supervisor or Safety Manager Signature/Date/Phone_____

Appendix 9-C Tools for Determining Hearing Loss Baseline Calculation and OSHA-Recordability



NOTE: The baseline for comparison with annual audiograms will remain the same until the baseline is changed as a result of an OSHA-recordable case (that is, the case meets both the 10dB with age correction shift AND the 25dB average hearing at 2, 3, and 4K frequencies). The results of the OSHA-recordable case then becomes the new baseline for future comparison.

Appendix 9-D Supervisor and Safety Manager Responsibilities – Questions/Answers

Who is required to be enrolled in the WSDOT Hearing Conservation Program?

WSDOT employees who have occupational exposure to noise at or in excess of 85 decibels based on an eight-hour time weighted average must participate in the HCP. All new WSDOT employees who may be exposed at or above the 85 dBA noise exposure criteria based on an eight-hour day shall be provided with a baseline audiogram within 30 days of employment. Appendix 9-A form letter will be provided to new employees whose baseline audiometric test indicates hearing loss (25 dBA or greater average at the 2000, 3000, 4000 hertz levels).

Should WSDOT employees have their high noise exposure termination audiogram when transferred from a high noise "field" position to a low-noise position (office setting) or when leaving WSDOT service?

Yes. WSDOT employees who transfer from high-noise positions to low-noise positions or leave WSDOT service will undergo a termination audiogram. This final audiometric test may be performed during a regularly scheduled testing schedule with the contract audiogram testing provider or at an affiliate clinic of the contracted audiometric service provider. The final audiometric testing results shall be provided to the employee in writing.

What are some typical employee job classifications potentially requiring enrollment in the HCP?

- Maintenance employees (Highways and Bridges)
- Equipment, Facilities, and Landscape employees
- Traffic Signal employees
- Transportation Technicians (field)
- Transportation Engineers (field)
- Avalanche Control employees
- Transportation Planning Specialists (field)
- Drillers
- Safety Employees
- Carpenters
- Caretakers
- Electronic Technicians (field)
- Electrical Engineers (field)

The above classifications are not all inclusive. Supervisors and managers of WSDOT employees, working together with their respective safety offices, shall make final determination for HCP enrollment based on potential and estimated noise exposures (see the Excel file in Section 3, Sound Level Readings, for a list of noise sources).

If employees want to participate in the HCP and don't have noise exposure as part of their regular job duties, can they have their audiometric tested annually as part of the WSDOT audiometric testing program?

No. If an employee does not have occupational noise exposure as part of their normal work operations, participation or enrollment in the WSDOT audiometric testing program is not authorized/approved.

Who is responsible for reporting OSHA recordable hearing losses?

The region is responsible for reporting the OSHA recordable hearing loss cases to HQ Safety and Health Office based on audiogram results from an authorized audiogram provider. Headquarters will complete the OSHA 300 log. See Appendix 9-C, Flow Chart in Determining Hearing Loss Baseline Calculation and OSHA-recordability.

Who is responsible for maintaining and compiling audiology testing data/information?

HQ Safety and Health Office will maintain contractual agreements with audiometric providers to maintain testing and training records. As part of the contractual agreement, the audiometric vendor shall be responsible for maintaining employee records and other pertinent data/information. The HQ Safety and Health Office will routinely receive reports from the audiometric testing providers of the results of audiograms conducted.

What happens if an employee has his/her audiometric tested at another clinic?

All attempts should be made to get the employee's audiometric tested through the contracted audiometric vendor or one of their affiliate clinics. If an employee cannot get their audiometric tested at Washington Audiology or an affiliate clinic – then the employee is required to use the form provided in Appendix 9-B.

What happens if a Recordable Threshold Shift is observed in a WSDOT employee?

If you believe the audiogram may be inaccurate or the loss may not be persistent (e.g., employee had sinus congestion, testing was conducted with high levels of external noise), you can retest. If a retest is conducted within 30 days and indicates there was no RTS, it does not need to be recorded on the OSHA 300. If testing greater than 30 days after the initial test indicates the shift was not persistent, the entry on the 300 log can be deleted or lined out.

What happens if retesting confirms the STS?

If the RTS is confirmed, the following action will be taken:

- The employee shall be notified of the STS in writing by the RSO.
- Evaluate the following, at a minimum, when responding to a standard threshold shift:
  - Employee noise exposure measurements.
  - Noise controls in the work area.
  - The selection of hearing protection available and refit employees as necessary.
  - Employee training on noise and the use of hearing protection and conduct additional training as necessary.

Appendix 9-E Affiliate Clinics

West Coast Hearing Clinic
1812 Summer Avenue
Aberdeen, WA 98520
(360) 533-0633 or 1-800-962-1396

North Cascade ENT Clinic
20302 77th Avenue NE
Arlington, WA
(360) 435-6300

Occupational Health Services – Auburn
1000 Auburn Way South
Auburn, WA 98002
(253) 395-2002

Hear for Life
124 Winslow Green
Bainbridge Island, WA 98110
(206) 842-6374

Evergreen Speech & Hearing
1800 116th Avenue NE Ste #103
Bellevue, WA 98004
(425) 454-1883

Whatcom Occupational Health
3015 Squalicum #220
Bellingham, WA 98225
(360) 676-1693

Northland ENT
3130 Sequalicum Prkway Ste #100
Bellingham, WA 98225-1936
(360) 734-6645

Kitsap Audiology
2635 Wheaton Way
Bremerton, WA 98310
(360) 373-1250

Advanced Hearing & Speech
1800 Cooks Hill Road Suite K
Centralia, WA 98531
(360) 807-8856

Colville Medical Group (NE Medical Group)
1200 East Columbia
Colville, WA 99114
(509) 684-3701

Everett Clinic – Occupational
3927 Rucker Avenue
Everett, WA 98201
(425) 317-3632

Sonus Pacific Hearing & Speech Services
3224 Colby Avenue #B
Everett, WA 98201
(425) 259-5066

Healthforce (Paine Field)
11001 31st Place West #1
Everett, WA 98204
(425) 267-0299

Healthforce (Formerly Providence Occ Med)
3311 Wetmore Avenue
Everett, WA 98201-4322
(425) 259-0300

U.S. Healthworks
1300 South 320th Street
Federal Way, WA 98003
(253) 839-2727

Multicare Healthworks
502 54th Avenue East
Fife, WA 98424
(253) 459-7500

Virginia Mason
100 NE Gilman
Issaquah, WA 98027
(425) 557-8000

Columbia Basin Hearing Center
1149 N. Edison ste D
Kennewick, WA 99336
(509) 736-4005

KGH Occupational Health Services
241 W 8th Avenue
Kennewick, WA 99936
(509) 586-5133

U.S. Healthworks
24031 104th Avenue SE
Kent, WA 98031
(253) 852-1824

Hear for Life
25995 NE Barber Cut Off Road
Kingston, WA 98346
(360) 297-0431

Evergreen Speech & Hearing – Kirkland
12333 NE 130th Lane Ste #203
Kirkland, WA 98034
(425) 899-5050

Lower Columbia Hearing Services
820 11TH Avenue Ste #A
Longview, WA 98632-2402
(360) 425-0044

U.S. Healthworks – Lynnwood
4320 196th Street SW Ste #428
Lynwood, WA 98036
(425) 774-8758

Moses Lake Clinic
840 East Hill
Moses Lake, WA 98837
(509) 765-0216

North Cascade ENT Clinic
111 South 13th Street
Mount Vernon, WA 98273
(360) 336-2178

Sound ENT Olympia
406 Yauger Way #B
Olympia, WA 98502
(360) 754-6069

Robertson Hearing Clinic
3230 14th Avenue NW
Olympia, WA 98502
(360) 866-2500

Hear for Life
115 Village Way
Port Ludlow, WA 98365
(360) 437-7767

Peninsula Hearing Inc.
19319 7th Avenue Ste #114
Poulsbo, WA 98370
(360) 697-3061

Hearing Advantage (The)
20700 Bond Road NE
Poulsbo, WA 98370
(360) 697-1300

U.S. Healthworks
3850 South Meridian
Puyallup, WA 98373
(253) 840-1840

Evergreen Speech & Hearing – Redmond
8301 161st Avenue NE Ste #203
Redmond, WA 98052
(425) 882-4347

U.S. Healthworks
15937 Redmond Way
Redmond, WA 98052
(425) 882-0100

Occupational Health Services – Renton
3600 Lind Avenue SW #170
Renton, WA 98055
(425) 656-5020

Columbia Basin Hearing Center
215 Van Gieson
Richland, WA 99352
(509) 943-2682

U.S. Healthworks – North Seattle
8313 Aurora Avenue North
Seattle, WA 98103
(206) 784-0737

U.S. Healthworks
1151 Denny Way
Seattle, WA 98109
(206) 682-7418

Work Clinic
13030 Military Road South Ste #100
Seattle, WA 98168
(206) 243-9675

Healthforce Occupational Medicine
3223 First Avenue South Ste #C
Seattle, WA 98134
(206) 624-3651

North Seattle Public Health Center
10501 Meridian Avenue North
Seattle, WA 98733
(206) 296-4765

Hearing Advantage (The)
777 North Fifth Avenue Ste #201
Sequim, WA 98382
(360) 582-2616

Shelton Family Medicine
939 Mountain View Drive Ste #100
Shelton, WA 98584
(360) 426-2653

Spokane Valley ENT
1300 West Knox Avenue
Spokane, WA 99205
(509) 354-6450

Spokane ENT
217 W. Cataledo
Spokane, WA 99201
(509) 789-1020

Occupational Medicine Associates
323 East Second Avenue Ste #102
Spokane, WA 99202
(509) 455-5555

U.S. Healthworks – N. Newport Way
9222 North Newport Hwy Ste #1
Spokane, WA 99218
(509) 467-4545

Occupational Health Solutions, Inc.
P.O Box 14317 (99206)
200 N. Mullan Ste #222
Spokane, WA 99214
(509) 534-6820

Multicare Healthworks – Allenmore
Medical Center
1901 S. Union Street #A-203
Tacoma, WA 98405
(253) 459-6811

Port Clinic
1930 Port of Tacoma Road
Tacoma, WA
(253) 272-6677

Dr. Rone & Erwin
316 MLK Jr. Way #305
Tacoma, WA 98405
(253) 272-7114

U.S. Healthworks – Tacoma
2624 S. 38TH STREET
Tacoma, WA 98984
(253) 475-5908

U.S. Healthworks
200 Andover Park East #8
Tukwila, WA 98188-3722
(206) 575-3136

Healthforce – Tukwila
6720 Fort Dent Way
Tukwila, WA 98188-2580
(206) 242-3651

Columbia River Occupational Health
2105 NE 129th Street #107
Vancouver, WA 98686
360-891-4900

Evergreen Audiology Clinic
16209 SE McGillivray Blvd #M
Vancouver, WA 98683
(360) 892-3445

Earcare Hearing Aid Centers
8317 E. Mill Plain Blvd
Vancouver, WA 98664
(360) 690-4388

Walla Walla ENT Clinic
320 Willow
Walla Walla, WA 99362
(509) 525-3720

Yakima Hearing & Speech Center
303 S. 12th Avenue
Yakima, WA 98902
(509) 453-8248

Chapter 10 Confined Space Entry

1.0 Purpose

To provide guidance for the establishment of confined space entry programs for Washington State Department of Transportation (WSDOT) operations and facilities as required by applicable regulations.

2.0 Scope and Applicability

This chapter has been developed for confined space entry using the referenced WAC chapters as guidance. All confined space entries shall comply with this document to ensure the safety of personnel entering confined spaces on all WSDOT work sites. Contractors or subcontractors entering confined spaces shall develop and implement their own confined space program.

3.0 References

- WAC 296-809, *Confined spaces*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-809
- WAC 296-24-69507, *Confined spaces (welding)*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-24-69507
- WAC 296-24-70007, *Work in confined spaces (welding)*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-24-70007
- WAC 296-24-71501 thru 71507, *Health protection and ventilation (welding)*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-24-71501, -71503, -71505, and -71507
- WAC 296-155-203, 280, 410, 655, and 657, *Construction confined space requirements*
  http://www.lni.wa.gov/wisha/rules/construction/HTML/296-155c.htm#WAC296-155-203, -280, -410, -655, and -657
- WAC 296-155-415, *Ventilation and protection in welding, cutting heating*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155-415
- WAC 296-155, *Part N, Excavation, trenching and shoring*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155
- WAC 296-155, *Part Q, Tunnels and shafts, caissons, cofferdams, and compressed air*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155

4.0 Definitions

Combustible Atmosphere: Any atmosphere which may explode or ignite if a source of ignition is present.

Confined Space: A space that is all of the following:

- Large enough and arranged so an employee could fully enter the space and work.
- Has limited or restricted entry or exit. Examples of spaces with limited or restricted entry are tanks, vessels, silos, storage bins, hoppers, vaults, excavations, and pits.
- Not primarily designed for human occupancy.

Contaminant: Any organic or inorganic substance, dust, fume, mist, vapor, or gas whose presence in the air may be harmful to human beings.

Entrant: An employee who is authorized by the employer to enter a permit-required confined space

Entry Supervisor: The person (such as the supervisor, lead, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

Flammable Atmosphere: Any atmosphere in excess of 10 percent of the Lower Explosive Limit (LEL) and below the Upper Explosive Limit (UEL).

Hazardous Atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation; and impairment of ability to self-rescue. That is, escape unaided from a permit-required confined space, injury, or acute illness caused by one or more of the following:

- Flammable gas, vapor, or mists in excess of 10 percent of its Lower Explosive Limit (LEL).
- Airborne combustible dust at a concentration that meets or exceeds its LEL. This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
- Atmospheric concentration of any substance which may exceed a permissible exposure limit. For additional information about atmospheric concentration, see Chapter 296-62 WAC, Parts F, G, and I, *General occupational health standards*, and Chapter 296-841 WAC, *Respiratory hazards*.

Hot Work: Any work involving burning, welding, riveting, cable socketing, or similar operation which can produce fire or toxic byproducts. Any work which produces a source of ignition.

Immediately Dangerous to Life and Health (IDLH): Any of the following conditions:

- An immediate or delayed threat to life.
- Anything that would cause irreversible adverse health effects.
- Anything that would interfere with an individual's ability to escape unaided from a permit-required confined space.

Inerted Space: A space that has had an inert gas (argon, CO_2, etc.) introduced to reduce the oxygen content to 6 percent by volume or less.

Isolation: The process by which a permit-required confined space is removed from service and completely protected against the release of energy and material into the space by such means as:

- Blanking or blinding.
- Misaligning or removing sections of lines, pipes, or ducts.
- A double block and bleed system.
- Lockout or tagout of all sources of energy.
- Blocking or disconnecting.

Lower Explosive Limit (LEL): The minimum vapor concentration of a combustible gas or vapor in air which will ignite if an ignition source is present. The term Minimum Explosive Concentration (MEC) is used for dusts.

Oxygen Deficient Atmosphere: An atmosphere which contains oxygen levels less than 19.5 percent by volume or which has a partial pressure of 135 millimeters of mercury or less. This may deviate at higher altitudes and should be determined for an individual location. Some of the more common causes of this problem are oxidation of metals (rust), bacterial action, combustion, and displacement by other gases.

Permissible Exposure Limits (PELs): Refer to airborne concentrations of substances without regard to the use of respiratory protection and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect.

Permit-Required Confined Space (PRCS): A confined space that has one or more of the following characteristics capable of causing death or serious physical harm:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material with the potential for engulfing someone who enters.

- Has an internal configuration that could allow someone entering to be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross section.
- Contains any physical hazard. This includes any recognized health or safety hazards including engulfment in solid or liquid material, electrical shock, or moving parts.
- Contains any other recognized serious safety or health hazard that could either:
  - Impair the ability to self-rescue, or
  - Result in a situation that presents an immediate danger to life or health.

Qualified Person: A confined space qualified person is an employee who has had confined space training and is familiar with:

- The recognition of hazards associated with entry into confined spaces.
- Procedures for use of entry permits.
- Atmospheric testing techniques and methods.
- Interpretation of atmospheric test results.
- Ventilation methods and equipment.
- Use of personal protective equipment.
- Safe work practices.
- use of respirators.

Standby Attendant: A person stationed outside one or more permit-required confined spaces to monitor the entrant(s).

Toxic Atmosphere: Any atmosphere having a concentration of airborne contaminants in excess of permissible exposure limits defined in Chapter 296-809 WAC.

Ventilation Equipment: Gasoline, diesel, electrical, propane, or hand-powered equipment used to ventilate confined spaces. Blower ventilators shall conform to National Fire Protection Association (NFPA) requirements. Ventilation equipment must not create an ignition hazard if flammable atmospheres are present or could develop nor create atmospheric hazards from engine exhausts (carbon monoxide, sulfur and nitrogen oxides, etc.).

5.0 General Responsibilities

In addition to the responsibilities outlined, it is the responsibility of employees at all levels to ensure implementation of WSDOT's confined space entry procedure. It is also the responsibility of each employee to immediately report any unsafe act or condition to his or her supervisor.

5.1 Organizational Responsibilities

Are as assigned in Chapter 1 of this *Safety Procedures and Guidelines Manual* M 75-01, as well as the items below, specific to confined space entry.

5.2 Executive Management and Senior Management

- Ensure that site managers, supervisors, and other site personnel have the required experience to perform assessments and identify all confined spaces at sites under their control.
- Ensure that adequate funds are available, budgeted for the purchase of confined space equipment and related supplies.
- Perform periodic audits of employee training.

5.3 Mid-Level Management

- Complete and maintain a survey of all confined spaces within their area to be included in the Confined Space Inventory Program.
- Assign an identification number to each confined space.
- Retain confined space entry permits for a minimum of one year.
- Ensure annual compliance with this safety procedure through their inspection process.

5.4 Supervisors

- Ensure that all confined space work is planned and implemented with safety as an integral part of the process.
- Participate in the development and implementation of Pre-Activity Safety Plans for the purpose of preventing injuries and accidents in confined spaces.
- Ensure that all employees involved are trained in confined space entry procedures and guidelines.
- Require active employee participation in each of the following involving confined space entry:
  - Pre-Activity Safety Plans.
  - Safety meetings.
  - Appropriate safety training.
  - Safety inspections of work activities, facilities, equipment, and vehicles.
  - Report any unsafe conditions to their supervisor immediately.
- Take immediate action when necessary to correct any reported hazards.
- Identify and monitor employee confined space entry training program needs.

- Monitor field and facility operations to ensure consistency with confined space entry procedures and guidelines.
- Use all appropriate personal protective equipment (PPE).
- Coach and mentor co-workers in confined space entry safety performance.
- Execute responsibility for the establishment and maintenance of a Confined Space Entry Program.

5.5 Entry Supervisor

- Ensure that only employees who are trained are allowed to enter confined spaces.
- Ensure proper permits and safety procedures are followed closely at the jobsite.
- Ensure all safety precautions are taken and safety equipment needed for the operation is on site.
- Ensure only trained employees perform any of the tasks or activities associated with a confined space entry.
- Communicate appropriate needs to managers and/or supervisors.
- Know where confined and permit-required confined spaces are located at their worksite/facility.
- Ensure permit-required confined spaces are posted with warning signs.
- Ensure employees are provided with PPE as necessary for their job.

5.6 Standby Attendant

- Shall remain outside of the permit-required confined space and be in communication with and assist those working inside.
- Maintain communication with the entrant at all times and initiate rescue plan when needed.
- Shall not enter confined space to perform rescue services.

5.7 Entrant

- Perform the assigned task.
- Review the permit before entry.

5.8 Safety Organization

Region Safety Office staff shall be responsible for the following confined space entry:

- Assist in developing or securing required training for all employees who have confined space responsibilities.

- Provide consulting services on regulatory interpretation and requirements of confined space classification or entry.

6.0 Policy

Each region will be responsible for protecting employees from the hazards of entry into confined spaces. These hazards include, but are not limited to, toxic, flammable, or oxygen deficient atmospheres and mechanical, electrical, chemical, or temperature hazards.

Concerned organizations will develop, distribute and enforce written procedures which include planning, general precautions and work practices, evaluation of hazards, ventilation requirements, personal protection, isolation, training, recordkeeping, and responsibilities.

Written procedures developed by each concerned organization will comply with WAC 296-809 and should address each project or location with a confined space in the organization. The identification of confined spaces and tasks and the hazards associated with them is required before procedures can be developed. The following are minimum requirements for confined space entry procedures:

- Personnel assigned to confined space work will be specifically trained for confined space entry.
- Ventilation must be provided for all alternate and permit-required confined spaces prior to and during entry and work. Spaces that are specifically inerted to eliminate fire or explosion hazards do not require ventilation.
- A standby attendant must be present for all permit-required confined space entries and work.
- The confined space atmosphere and other potential hazards must be evaluated and appropriate protective procedures developed and equipment used.
- Rescue procedures must be established. Rescue equipment and personnel will be available for confined space operations, as required.
- Prior to entry, the work crew will review the work to be done, potential hazards, and any required safety and emergency procedures.
- The entry supervisor will complete and sign the entry and, when required, hot work permit.

It is very important that the procedures developed are specific to the hazards and work common to the organization's confined spaces. The procedures that follow in Section 8, Procedures, are broad in scope and contain recommendations and requirements to maintain consistent confined space procedures throughout the department. There may be some recommendations that are not appropriate for all confined spaces.

For some WSDOT operations, a variance from WAC 296-809 requirements may be appropriate. Entry procedures for the protection of WSDOT personnel must be developed and implemented before a variance may be requested. Variance requests will be coordinated with and reviewed by the Region Safety Office.

If services are required for special circumstances to assist with the identification, procedural development or training of employees, these services shall be requested of the Region Safety Offices.

7.0 Confined Space Classifications

7.1 Permit-Required Confined Space

All confined spaces shall be considered permit-required confined spaces until designated otherwise by persons with an appropriate level of training and experience to make such a determination. Once an appropriate evaluation has been accomplished by a qualified person, and the space(s) meet conditions below, permit-required confined spaces may be reclassified as either an alternate entry confined space or a non-permit required space.

All hot work in confined spaces must be conducted using the permit entry procedures, including hot work permitting.

7.2 Alternate Entry Confined Space

Alternate entry procedures can be implemented instead of permit-entry procedures if the following conditions are met:

- The permit-required confined space is reclassified as an Alternate Entry Confined Space by a qualified person. The monitoring and inspection data justifying this reclassification shall be available at the work site.
- This documentation shall support that the only hazard in the confined space is an actual or potentially hazardous atmosphere.
- Continuous forced air ventilation is all that is required to maintain the atmosphere in a safe entry condition.

7.3 Non-Permit-Required Confined Space

Reclassify a confined space as a non-permit-required confined space:

- When a confined space is reclassified as a non-permit-required confined space, monitoring and inspection data shall be available at the work site to justify this action.
- This documentation shall support that the space does not contain any hazard that could cause serious physical harm or death to the entrant, including, but not necessarily limited to, atmospheric hazards, engulfment in a liquid or solid material, entrapment or any other serious safety or health hazard such as electrical shock or moving parts.

8.0 Procedures

8.1 Confined Space Identification

Survey all work locations, projects, and tasks within the organization to identify all confined spaces and the tasks and potential hazards associated with them.

Assign each identified confined space a Confined Space Identification Number. An existing building, bridge, or equipment number may be used. Mark the entrances to each confined space with a warning statement when feasible and practical. See Appendix 10-A for an example. Color coding of the entrance may be an appropriate alternative for some confined spaces.

Maintain a listing or record of confined spaces consisting of, as a minimum, the following:

- Confined Space Identification Number and classification.
- Location and/or project.
- Organization code.
- Known safety and health hazards.
- Frequency of entry.

Keep records for each confined space at your local facility and ensure that it is readily available to employees who must enter the confined space. These records will provide historical information on the hazards and procedures for the confined space. The records shall contain, as a minimum, the following:

- A copy or record of each entry permit issued for work in the confined space,
- Any incident or accident reports for work done in the confined space,
- Entry and work procedures developed for the confined space.
- An example of the entry and hot work permit can be found in Appendix 10-B of this document.

8.2 Personnel Requirements

For each project or job which requires entry into a confined space, specifically assign individuals for the entry who are competent in the evaluation of hazards, protective measures, first aid, and CPR.

All persons involved in confined space entry must posses the understanding, knowledge and skills necessary to safely perform assigned duties.

Employees with confined space responsibilities will be specifically trained for confined space entry (Course Code AZR). Training will include:

- Proper use and maintenance of personal protective equipment required for entry.
- Recognition and control/elimination of confined space hazards.
- Operation, maintenance, and calibration of atmospheric testing equipment.
- Powered ventilation equipment.
- Non-entry rescue procedures.
- Emergency and evacuation procedures.
- The communication systems to be used.
- Lockout/Tagout and isolation procedures.
- Assigned duties of entrants, attendants, and entry supervisors.

8.3 General Safety Requirements

Forced air ventilation will be maintained at all times for occupied alternate and permit-required confined spaces. If, for any reason, the ventilation fails or is otherwise interrupted, the confined space will be evacuated immediately. The ventilation provided will be of sufficient quantity to control the potential hazards of the confined space, or respiratory protection will be used and the space will be monitored regularly or continuously while occupied. Gas-powered ventilation will not be used unless it is positioned to prevent the exhaust gases from entering the confined space.

Note: When the space has been specifically inerted to eliminate the risk of fire or explosion, ventilation is not required. No personnel shall enter these spaces until the inert gas has been removed and the oxygen content has been restored to between 19.5 percent to 23.5 percent by volume.

A standby attendant will be positioned outside the confined space, appropriately equipped, and trained to obtain emergency assistance. This person will have the capability to communicate with workers in the space at all times. The standby attendant is not a rescuer. This person is responsible for communicating with and assisting confined space workers and obtaining emergency assistance. The standby attendant may assist emergency personnel after their arrival.

The confined space will be evacuated immediately when any of the following conditions exist:

- The ventilation fails for any reason.
- The oxygen concentration falls below 19.5 percent or exceeds 23.5 percent.

- The concentration of combustible gas or vapor equals or exceeds 10 percent LEL.
- The concentration of any toxic contaminant, including combustible gas, exceeds the permissible exposure limit in WAC 296-809 or the exposure limit specified on the Material Safety Data Sheet (MSDS) and suitable respiratory protection is not being used.
- There are any indications of ill effects, such as:
  - Euphoria
  - Dizziness
  - Disorientation
  - Profuse sweating
  - Visual difficulties
  - Irritation, odors, or tastes
  - Change in heart rate
  - Change in breathing rate
  - Loss of coordination or dexterity
  - Weakness in the knees
  - Chest pains
  - Signs and symptoms identified on the MSDS
- There is a failure of any equipment or instrument required to protect the safety and health of employees. The space may be reentered after a complete reevaluation of the confined space, to ensure the safety and health of workers. Suitable protective equipment and monitoring of the confined space will be used as required.

Personal protective equipment suitable for the potential hazards will be used when entering a confined space. Although the equipment can vary from job to job, it may include:

- Respiratory protection equipment
- Acid or caustic resistant apparel
- Hand protection
- Eye and face protection
- Head protection
- Hearing protection
- Coveralls

When employees may be required to wear respirators, all provisions of the Respiratory Protection Program (Chapter 8 of the *Safety Procedures and Guidelines Manual* M 75-01) will apply.

All tools, fire extinguishing, and other emergency equipment, as needed, will be present at the work site prior to entry into the confined space.

Anyone noting a malfunction of any gas detector, sampling device, ventilation equipment, or any other device required for safe work shall notify fellow employees and evacuate the confined space immediately. Replacement or repaired equipment will be obtained prior to entry or reentry. Persons noting the malfunction should personally report the malfunction to the entry supervisor.

If a hazardous atmosphere exists or can develop, workers will wear a safety harness with lifeline attached to a means of non-entry rescue equipment (tri-pods, booms, etc.). No employee will enter an IDLH atmosphere.

Compressed gas cylinders (except breathing air) shall not be allowed in any confined space. Compressed gas lines will be protected from rupture or damage.

Electrical circuits and mechanical hazards which may present a hazard in the confined area will be disconnected, locked out, and tagged in accordance with WAC 296-155-429 or WAC 296-803, as appropriate. Water standing in any confined area near electrical outlets or transformers will require that electrical outlets or transformers be disconnected and locked out before entry into such areas.

Electric supply circuits, lighting, portable tools, and other equipment used where potentially hazardous concentrations of flammable vapors, gases, or dusts are present (or may develop) will conform to the current National Electric Code requirements and will be used in accordance with WAC 296-24-95613.

8.4 Rescue Procedures

Prior to entry into a confined space, an action plan must be prepared which provides a means for rescue of persons from the space in the event of an emergency. An emergency includes heart attacks and injuries that would require assistance for safely removing the person from the space. Each situation requires specific instructions and may vary from space to space.

WSDOT does not employ trained entry rescue personnel. Non-entry retrieval systems are the preferred method of rescue and will be used whenever feasible. When such a system is not feasible, an emergency response organization will be used as the entry rescue team. Note that many local fire departments may not be trained or equipped to perform confined space rescue, which is why emergency arrangements must be prearranged. Each individual emergency rescue plan shall be coordinated with the designated rescue organization, prior to confined space entry, to ensure the availability and appropriateness of their services.

Consideration must be given to how the standby attendant will obtain emergency assistance. An additional means of communication such as emergency radios, loud speaker systems, bells or alarms, portable or fixed air horns, etc., may be required.

8.5 Pre-Entry Procedures and Planning

An Entry Supervisor will evaluate the confined space. A Confined Space Entry and Hot Work Permit (DOT Form 750-094) will be issued after the evaluation and planning are completed. See Appendix 10-B for sample forms.

A planning session by an entry supervisor and the work crew will address the following items:

- Time and date of entry.
- Work to be performed and procedures to use.
- Materials to be used.
- The hazards of the work and materials.
- The known hazards of the confined space.
- Emergency and safety procedures.
- Training required for safe work.

Evaluation of confined space atmospheres:

- The confined space atmosphere will be tested for oxygen deficiency, flammability and toxicity immediately before entry into the space is allowed. The monitoring equipment shall be calibrated in accordance with manufacturer's instructions. The entry crew should assist in or observe this evaluation. The evaluation will consider possible sources of contamination from the surrounding environment, the work to be performed, and the confined space itself. The following method will be used:
  - Test the atmosphere of the confined space with direct reading instruments and, if necessary, use colorimetric tubes for potential hazards. The testing procedure outlined in the following section should be used.
- When testing the confined space atmosphere, the following procedure should be used:
  - Smoking is prohibited in or near the entrance of a confined space. Care must be taken to eliminate any possibility of a spark or ignition source until the space has been tested and is determined to be free of combustible gas.

  - The initial test should be conducted by inserting a probe into the confined space atmosphere through a vent hole or some other opening. The purpose of the initial test is to determine if a hazardous atmosphere has accumulated in the vicinity of the entrance. Where no openings exist, the entrance cover should be opened on the downwind side just enough to allow insertion of the sampling device.
  - If the initial test indicates no flammable atmosphere (and has acceptable oxygen concentrations), remove the cover, and from outside the space, conduct tests for oxygen content, combustible gases, and toxic contaminants.
  - Ventilate the confined space prior to entering to complete the evaluation. The entire area to be entered shall be tested to evaluate the accumulation of contaminants that are lighter or heavier than air. Testing should start at the entrance and continue into and around the confined space until all areas, top to bottom, of the space have been evaluated.

- The Confined Space Entry Permit and the Hot Work Permit (if required) shall be completed by the entry supervisor and the work crew lead person. A permit is an authorization in writing, specifying the location and type of work to be done. It certifies that confined space hazards have been evaluated by the entry supervisor and that necessary protective measures have been taken to ensure the safety of each worker.
- After the space has been determined to be safe for entry, the entry supervisor will review the information on the permits for accuracy and completeness and assign the expiration time for the permit. The entry supervisor will then review the potential hazards, required equipment, and work practices and procedures to be followed with the entering crew and sign the permit, authorizing entry.
- The entry permit shall be available at the work site outside the confined space. It shall be dated and carry an expiration time that is valid for a maximum of one shift only. A permit with the same requirements is required for each shift. A sample entry permit is included in Appendix 10-B.

8.6 Permit-Space Entry Procedures

Entry is not permitted without a properly completed entry permit. Reentry after a lunch break may require reevaluation of the atmosphere, depending on the nature of the hazards.

Forced air ventilation will be provided and be of sufficient quantity to control any potential atmospheric hazards. The ventilation air intake shall be positioned to prevent toxic or flammable contaminants from entering the confined space atmosphere. If the hazards cannot be controlled by this

ventilation, the space shall be reevaluated to determine the source of the contamination. The source shall be secured to prevent the reintroduction of the contaminants into the space using WAC 296-803 Lockout/Tagout (Control of Hazardous Energy) for guidance.

No WSDOT employee will enter an IDLH atmosphere.

When tests for oxygen deficiency, flammability, or toxicity indicate that one or more atmospheric hazards may exist in the confined space, the space will be ventilated to obtain a safe atmosphere before entry. The presence of a safe atmosphere will be verified by testing. Continuous monitoring of the atmosphere may be necessary during the work operations to ensure the safety of the crew when a potentially hazardous atmosphere is present or could develop.

Provide entrants, or their authorized representatives, with an opportunity to observe the pre-entry and periodic testing.

Whenever a confined space is occupied, a standby attendant will be positioned outside the space, appropriately equipped and trained, to obtain emergency assistance. This person will have the capability to communicate with workers in the space at all times.

Entry into confined spaces where evaluation of the atmosphere indicates a hazard exists or could develop is prohibited until the entry supervisor has identified appropriate emergency and protective equipment and procedures and issued an entry permit.

The entry supervisor will take positive steps to prevent accidental introduction of hazards through interconnecting equipment such as piping, ducts, vents, drains, or other means. This may require:

- Isolating the tank or confined space from all potential sources of hazards by one of the following:
  - Remove a valve, spool piece, or expansion joint and cap the open ends. Tag the lines.
  - Insert a blank in the line and tag it.
- Safety Lockout/Tagout – If mechanical or electrical hazards exist that will pose a potential hazard to the employee entering the confined space, the mechanical or electrical hazard will be secured, locked out, and tagged prior to the entry.
- Secure or relieve components which are hazardous due to gravitational or stored energy forces.
- Position ventilation intakes to prevent the entry of contaminated air.

Appropriate protective equipment will be used by all employees entering confined spaces.

8.7 Alternate Entry Procedures

If the space has met all the conditions specified in Section 7.2, alternate entry procedures can be used instead of permit entry procedures. At a minimum, alternate entry procedures must include the following elements:

- Eliminate any unsafe conditions before removing an entrance cover.
- Guard the opening with a railing, temporary cover, or other temporary barrier to prevent accidental falls through the opening and protect entrants from objects falling into the space.
- Certify that pre-entry measures have been taken (such as safe removal of the cover and having protection needed to gather pre-entry data), with the date, location of the space, and signature of the person certifying.
- Make the pre-entry certification available before entry to each entrant.
- Test the internal atmosphere with a calibrated, direct-reading instrument for all of the following, in this order, before an employee enters the confined space:
  - Oxygen content
  - Flammable gases and vapors
  - Potential toxic air contaminants
- Provide entrants, or their authorized representatives, with an opportunity to observe the pre-entry and periodic testing.
- Make sure the atmosphere within the space isn't hazardous when entrants are present.
- Use continuous forced air ventilation, as follows:
  - Wait until the forced air ventilation has removed any hazardous atmosphere before allowing entrants into the space.
  - Direct forced air ventilation toward the immediate areas where employees are, or will be, and continue ventilation until all employees have left the space.
  - Provide the air supply from a clean source and make sure it doesn't increase hazards in the space.
- Test the atmosphere within the space as needed to make sure hazards don't accumulate.
- If a hazardous atmosphere is detected during entry, do all of the following:
  - Evacuate employees from the space immediately.
  - Evaluate the space to determine how the hazardous atmosphere developed.

- Implement measures to protect employees from the hazardous atmosphere before continuing the entry operation.
- Verify the space is safe for entry before continuing the entry operation.

9.0 Hot Work

In addition to the confined space entry safeguards, hot work shall not be started inside a confined space or on its exterior surface until tests for flammability have been made and a hot work permit has been issued by the entry supervisor.

Provisions shall be made to maintain conditions below 10 percent of the lower explosive limit and to prevent accumulation of toxic contaminants.

Fire extinguishing equipment will be readily available to employees involved in confined space hot work. Class A (water extinguishers) shall be used for confined space hot work. ABC or CO2 fire extinguishers shall be used in a confined space only by persons wearing self contained breathing apparatus.

Hot work in confined spaces shall only be conducted on clean, bare metal. All coating oils, cleaning/degreasing compounds, solvents, and any other substance that may create a toxic by product must be removed prior to conducting hot work.

Local or general dilution ventilation to reduce contaminants to the lowest feasible levels is required for hot work in confined spaces.

Respiratory protection is required if ventilation can not reduce contaminants to below permissible exposure limits.

10.0 Management Controls

The confined space entry program developed by concerned organizations must contain provisions for evaluating its effectiveness. This evaluation should include the following:

- Periodic audits of employee training.
- Review of entry procedures to ensure the proper permits, procedures, and equipment are used for each confined space entry.

11.0 Appendices

Appendix 10-A Sample Warning Sign

Appendix 10-B Confined Space Entry and Hot Work Permit

DANGER

Confined Space # 01
Entry Permit Required

Contact: John Smith
Phone: 123-4567
Safety Office: 234-5678

To download a current copy of WSDOT Form 750-094, go to the Forms Management website at wwwi.wsdot.wa.gov/fasc/adminservices/forms/formfiles/wsdot_forms.

Washington State Department of Transportation

Confined Space Entry Permit

Location, Description and Classification of Confined Space

Date	Purpose of Entry/Work to be done	Time Started
Division/Unit		Time Completed
Supervisor(s) in Charge of Crew	Type of Crew	Phone

Hazards in Confined Space
Check all that apply and ensure each hazard is eliminated or controlled before and during entry:

- ☐ (Potentially) Hazardous atmosphere
- ☐ Material with potential to engulf
- ☐ Electrical shock
- ☐ Moving parts
- ☐ Temperature extremes
- ☐ Trapping or asphyxiation hazard (inwardly coverging walls or floor which slopes downwards and tapers to a smaller section)
- ☐ Any Other hazard that is capable of impairing self rescue or presents immediate danger to life or health (describe):

Requirements Completed (All applicable must be completed before entry)	Completed	N/A
Lockout - De-energize	☐	☐
Line(s) Broken, Capped or Blanked	☐	☐
Purge, Flush, and Vent	☐	☐
Ventilation	☐	☐
Lighting (explosion proof as necessary)	☐	☐
Respirator (list type) _____	☐	☐
Protective Clothing	☐	☐
Standby Safety Personnel	☐	☐
Full Body Harness with "D" Ring	☐	☐
Emergency Escape/Retrieval/Rescue/ Equipment	☐	☐
Lifelines	☐	☐

Requirements Completed (All applicable must be completed before entry)	Completed	N/A
First Aid/CPR Equipment & Trained Personnel	☐	☐
Communication Equipment	☐	☐
Secure area (post, flag and protect from falling objects)	☐	☐
Hot Work Permit	☐	☐
Add any other requirements necessary for entry		

Atmospheric Checks	Acceptable Conditions	Initial Checks	Checks After Isolation and Ventilation	Periodic Checks							
				Hr 1	Hr 2	Hr 3	Hr 4	Hr 5	Hr 6	Hr 7	Hr 8
% of Oxygen	19.5% to 23%										
L.E.L. [1]	≤ 10%										
Carbon Monoxide	< 35 ppm										
Hydrogen Sulfide	< 10 ppm										

Atmospheric monitoring conducted by:

Note: continuous/periodic tests shall be performed throughout the job. Contact Region Safety Office with questions.

[1] L.E.L. Lower Explosive Limit, also referred to as lower flammable limit (LFL).

Records must be maintained for at least one year.

DOT Form 750-094 EF
Revised 08/2011

Distribution: Original to Division/Unit, Copy to Regional Safety Office

Sampling Equipment	Name	Model/Type	Date Calibrated	Identification Number

Communication procedures between entrants and attendants

Emergency Services

Emergency services must be arranged **prior** to **permit-required** confined space entry (**including 911 services**). Only persons who have been trained and equipped for entry rescue may enter the space to perform rescue services. Do **not** attempt an entry rescue if you are not trained and equipped to do so. If a person is down for no apparent cause, you must assume that toxic gases or an oxygen deficiency exist.

Emergency/Rescue Service Provided by

Phone Number/Contact Information

Describe Procedures (include necessary equipment):

Print Name	Initial	Authorized Role [2]
		☐ Entrant ☐ Attendant
		☐ Entrant ☐ Attendant
		☐ Entrant ☐ Attendant
		☐ Entrant ☐ Attendant
		☐ Entrant ☐ Attendant
		☐ Entrant ☐ Attendant
		☐ Entrant ☐ Attendant

2 Check the person's authorized role. Remember, a person cannot be both an attendant and entrant; they can only serve one role.

Entry Supervisor Authorization - All Entry Conditions Satisfied

Signature	Date

Permit expiration date and time (may not be longer than required to perform work)

Date Time

Post entry review of permit conducted by	Date

Post entry reviews must be done within one year of entry.

Distribution: Original to Division/Unit, Copy to Regional Safety Office

DOT Form 750-094 EF
Revised 08/2011

1.0 Purpose

To provide guidance for the establishment of a Fall Protection Program for the Washington State Department of Transportation (WSDOT) operations and facilities as required by Washington Administrative Code (WAC), Chapter 296-155, Part C-1.

2.0 Scope and Applicability

This program has been developed for fall protection compliance using the referenced WAC chapters as guidance. All fall protection issues shall comply with this document to ensure the safety of personnel working at height on all WSDOT work sites. Contractors or subcontractors working at height shall have their own fall protection program in place.

3.0 References

- WAC 296-155, *Part C-1, Fall restraint and fall arrest*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155
- WAC 296-24, *General safety and health standards*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-24
- WAC 296-62, *General occupational health standards*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-62
- WAC 296-155, *Safety standards for construction work*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155

4.0 Definitions

Aerial Device: Any piece of equipment utilizing a bucket or platform to place the worker at an elevated work position.

Anchorage: A secure means of attachment to which the fall protection system is connected. Anchorages must be easily accessible, capable of supporting 5,000 lbs. of force per worker, and they must be located high enough for a worker to avoid contact with a lower level should a fall occur.

Attachment: A device such as a tie, band, or fastening that joins one thing to another.

Carabineer: A connector component generally comprised of a trapezoidal or oval shaped body with a normally closed gate or similar arrangement which may be opened to permit the body to receive an object, and when released, automatically closes to retain the object. Only a self-closing, self-locking carabineer shall be used as part of a fall protection system.

Competent Person: Because of training, experience, and authority, a person who is capable of identifying and correcting hazardous or dangerous conditions in a personal fall arrest system or any component under consideration as well as its application and use with related equipment. This individual has the authority to shut down operations that are not in accordance with this program.

Deceleration Device: A component whose primary function is to dissipate energy and limit deceleration forces on the body during fall arrest. Such devices may employ various principles such as deformation, friction, tearing of materials, or breaking of stitches to accomplish energy absorption. An energy absorber causes an increase in the deceleration distance.

Deceleration Distance: The additional vertical distance a falling worker travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of a full body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the worker comes to a full stop (3 ft maximum).

Fall Arrest System: The assemblage of equipment such as a full body harness in conjunction with a deceleration device and anchorage to limit the forces a worker experiences during a fall from one elevation to another.

Fall Prevention System: A system intended to prevent a worker from falling from one elevation to another. Such systems include positioning device systems, guardrail, barriers, and restraint systems. These devices do not absolutely prevent a worker from falling; their function is to keep the worker at the same elevation.

Fall Protection System (Hardware): Consists of either a fall prevention system or a fall arrest system. The arrest system must have three integral parts: an anchorage, a harness and a means of connecting harness to the anchorage.

Free Fall Distance: The vertical displacement of a fall arrest attachment point on the climber's full body harness (6 ft maximum) between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, lifeline, and lanyards elongation but includes any deceleration device slide distance or self-retracting lifeline/ lanyard extension before they operate and fall arrest forces occur.

Full Body Harness: A component with a design of straps which is fastened about the worker in a manner so as to contain the torso and distribute the fall arrest forces over at least the upper thighs or buttocks, pelvis, chest and shoulders. It is capable of being attached to other subsystems.

Note: Wherever the word "harness" is used by itself in this document, it refers to a full body harness unless otherwise specified.

Hazard: Anything that can potentially endanger personnel, impairs safe working conditions, or conceivably causes injury, or loss of life.

Lanyard: A flexible line of rope, wire rope, or strap which has a connector at each end for connecting the harness to a deceleration device, lifeline, or anchorage.

Positioning Lanyard: A strap with snap hooks to connect to the hip or chest D-rings of a full body harness to position personnel for work. Also known as pole strap or safety strap.

Self-retracting Lanyard/Lifeline: A device which contains a drum-wound web lanyard or steel line which may be slowly extracted from or retracted onto the drum under slight tension during normal movement of the user. The line has means for attachment to the fall arrest attachment on the body support. After onset of a fall, the device automatically locks the drum and arrests the fall. The device may have integral means for energy absorption.

Snap Hook: A connector comprised of a hook-shaped member with a normally closed keeper or similar arrangement, which may be opened to permit the hook to receive an object and automatically closes to retain the object when released. Snap hooks are to be the locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection (two distinct operations are required to open a locking type snap hook). Non-locking snap hooks are prohibited.

Total Fall Distance: The maximum vertical distance between the person's position before a fall and after the fall is arrested. The total fall distance includes maximum free fall distance plus maximum deceleration distance. Total fall distance includes dynamic elongation.

Work Position: The elevated location on the structure or equipment where the worker is in position to perform the assigned work or task.

5.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to Fall Protection Policy. It is the responsibility of each manager, supervisor, and employee to ensure implementation of WSDOT's safety procedure and guideline on Fall Protection. It is the responsibility of WSDOT to provide and maintain equipment that is adequate and is safe in design and construction.

5.1 Executive, Senior, and Mid-Level Management

- Ensure that site managers, supervisors, and other site personnel have the required experience to perform assessments and identify all fall hazards at sites under their control.
- Provide or replace fall protection equipment as required to perform work in compliance with this program.
- Perform periodic audits of employee training.
- Review Fall Protection Work Plans to ensure the proper procedures and equipment are utilized.

5.2 Supervisors

- Use all appropriate personal protective equipment.
- Ensure that all personnel working at height have been properly trained in the use and limitations of the fall protection devices that they are utilizing.
- Assist in the development of site specific Fall Protection Plans and rescue requirements under their responsibility.
- Replace equipment that has arrested a fall or is damaged.

5.1.3 Competent Persons

- Identify and correct hazardous or dangerous conditions in the personal fall arrest system or any component thereof under consideration, as well as its application and use with related equipment.
- Shall have the responsibility and authority to shut down operations that are not in accordance with this program.
- Ensure that all fall arrest equipment in use at the work site has been inspected daily prior to use for defects that would render it unusable.
- Complete the Fall Protection Work Plan (DOT Form 750-001) prior to the commencement of work activities involving recognized fall hazards.

After completing the Fall Protection Work Plan and determining that a Personal Fall Arrest System (PFAS) will be required, the following steps must be followed for proper selection and application of the system.

- An anchor must be capable of supporting a 5,000 lb static load in the direction of the fall such as a beam, beam flange, or frame per person.
- Only properly trained employees may use a PFAS.
- Select an appropriate anchorage connector. The connector must be properly attached to the anchor above the head or as high as practicable. The connector must not be capable of coming off or sliding extending the fall.

- Select the proper size full body harness, don, and properly adjust to fit.
- A shock-absorbing or self-retracting lanyard must be attached to the anchorage connector and the back D-ring of the harness.
- Positioning lanyards should be used from the hip D-rings to an anchor. This will allow an employee to use both hands when in a work position.

5.4 Employees

Employees shall be responsible for the following Fall Protection Program activities:

- Ensure that fall protection in use at the work site has been inspected daily prior to use for defects that would render it unusable.
- Coach and mentor co-workers in fall protection performance.
- Notify supervisors/competent person of defective equipment and unsafe conditions immediately.
- Ensure that all work at height is performed in accordance with the Fall Protection Work Plan (DOT Form 750-001).

5.5 Safety Personnel

- Assist in developing or securing required competent person and fall protection/prevention training.
- Assist in assessment of fall hazards and the understanding of applicable safety standards.

6.0 Fall Prevention

Guardrails are the preferred method of fall prevention. When employees are working around openings with edges above 4 ft or other recognized hazard, the edge must be properly guarded. Where the use of such guardrails is made impracticable by the work actually in progress, a personal fall arrest system must be implemented.

If the working surface to be protected is above walking areas below, these elevated areas shall be equipped with toe boards or equivalent to prevent tools or material from falling to the walking area below. Toe boards shall be a minimum of 4 in high from the working surface.

7.0 Fall Protection

The Fall Protection Work Plan (DOT Form 750-001) shall be completed as a component of Pre-Activity Safety Plan (PASP) prior to the commencement of work activities involving recognized fall hazards. An example of a complete personal fall arrest system consists of an anchorage connector connecting to an anchor, such as a beam. Then a shock-absorbing lanyard connected to the anchorage connector. Finally a full body harness with the shock-absorbing lanyard connected to the D-ring positioned in the center back of the harness.

7.1 Anchorage Connectors

Anchorage connectors are designed to offer single user fall protection connection to a structure that will support a static load of 5,000 lbs. Anchorage connectors must be positioned above the head as to not allow a free fall to be greater than 6 ft or cause a swing fall. Anchorage connectors shall not be used for any other purpose.

7.2 Shock Absorbing Lanyards, Self-Retracting Lanyards and Positioning Lanyards

Shock-absorbing lanyards are designed to offer a single user connection to the user's harness from an anchorage connector. The lanyard must be connected with the shock absorber end attached to the back D-ring of the harness and the other end to the overhead anchorage connector. Shock-absorbing lanyards may extend an additional 42 in during fall arrest.

Self-retracting lanyards offer a single user connection between an anchorage connector and the back D-ring of the harness. This allows free movement up and down without disconnecting.

Lanyards without shock-absorbing devices or inertia breaks are for positioning and restraint use only and shall not be used between the anchorage connector and back D-ring. Restraint lanyards may be used to prevent an employee from reaching an unguarded edge.

Lanyards shall not allow the user to contact a lower level based on the total fall distance.

7.3 Full Body Harness

The full body harness is the primary part of the Personal Fall Arrest System (PFAS). The harness is designed to contain the torso and distribute the forces of a fall arrest. Select the proper size harness by height and body weight. The following parts of the harness are described as to their proper use.

- Back D-ring is the only attachment for connecting to a PFAS.
- The front D-ring is only for controlled lifting and lowering. The front D ring may be used for rescue or retrieval.
- Hip D-rings are only to be used for restraint or work positioning. When using hip D-rings for work positioning, both D-rings must be used.
- Shoulder D-rings are only used for rescue purposes.

7.4 PFAS Equipment Inspection

The PFAS must be inspected before each use. If, at any point during the inspection there is a doubt as to the integrity of any component of the equipment, do not utilize the equipment in question. Tag it out, remove it from service, and consult your direct supervisor for instructions.

PFAS inspection must contain the following:

- Labels shall be present and legible.
- Inspect fabric parts including rope, webbing, stitching, and shock absorber cover for cuts, tears, broken or loose stitching, and burns. Also inspect for knots, unbraiding of splices, and fuzziness of fibers.
- Inspect metallic and plastic parts for evidence of defects, damage, distortion, cracks, corrosion, burrs, sharp edges, loose or missing parts, alterations, and evidence of excessive heat.
- Perform annual inspection and record the date placed into service.

7.5 Selection and Application of a PFAS

- Limitations listed below must be taken into consideration when applying a PFAS.
- Physical limitations of a PFAS include the total weight of a person including clothing, tools, and other user-borne objects will not exceed 310 lbs. Pregnant women shall not use a PFAS. Increasing age and lowered physical fitness may reduce an employee's ability to withstand shock loads during fall arrest or prolonged suspension.
- Chemical hazards or environments may damage parts of a PFAS. If a work area is in a chemically aggressive environment, a more frequent inspection may be required.
- Heat or hot work will damage parts of a PFAS. Select the proper parts when in a work area involving welding, burning, or other heat producing activities.
- Electrical hazards shall be eliminated. Parts of a PFAS may conduct electric current.
- Corrosion, wear, and deterioration must be considered. Some work activities could be damaging to parts of a PFAS.
- Sharp and abrasive edges or surfaces shall be avoided. If unavoidable, protective barriers must be employed to prevent direct contact.
- Any part of a PFAS exposed to forces of arresting a fall shall be taken out of service and tagged—DO NOT USE.

7.6 Maintenance, Cleaning, and Storage

- There will be no maintenance or servicing of PFAS equipment by any one other than the manufacturer. Damaged equipment shall be marked—DO NOT USE and destroyed.

- Clean full body harness with a solution of water and laundry detergent. Dry with a clean cloth and hang to air dry. Do not speed up drying with heat. Excessive accumulation of paint, dirt, or other foreign matter may prevent proper functioning of equipment. Any concerns or questions with any part of a PFAS must be addressed.
- Store equipment in a cool, dry, and clean place out of direct sunlight. Avoid storing in areas where chemicals or oils or their vapors may be present.

8.0 Training

Managers, supervisors, or competent persons shall assess work areas with hazardous situations that are likely to expose an employee to a fall. After assessing the work area where a personal fall arrest system is required, affected employees shall be trained in proper selection, inspection, installation, and use of a PFAS. Region Safety Offices shall assist in developing or securing required training of effected employees.

Manufacturers written instructions will be used in all training. Samples must be present during training. Employees must demonstrate a complete understanding of proper use of equipment before being permitted to use a PFAS.

9.0 Management Controls

The Fall Protection Program shall contain provisions for evaluating its effectiveness. This evaluation should include the following:

- Periodic audits of employee training.
- Review of Fall Protection Work Plans to ensure the proper procedures and equipment are utilized.

10.0 Appendices

Appendix 11-A Fall Protection Plan

To download a current copy of DOT Form 750-001, go to the Forms Management Web site:
http://wwwi.wsdot.wa.gov/fasc/adminservices/forms/formfiles/WSDOT_Forms/

Washington State Department of Transportation

Fall Protection Plan

Date	Location	Supervisor

Description of Work

Recognized Fall Hazards

- ☐ Ladders
- ☐ Forming
- ☐ Catwalks
- ☐ Sloped Access
- ☐ Work over Water
- ☐ Scaffold
- ☐ Pouring
- ☐ Welding at Height
- ☐ Set Girders
- ☐ Leading Edge
- ☐ Bridge Decks
- ☐ Excavations
- ☐ Drilling Shafts
- ☐ Connect Girders
- ☐ Work Decks
- ☐ Walkways / Ramps
- ☐ Stressing
- ☐ Tieback Strands
- ☐ Perimeter Edge, Stairwell, Roof, Window Opening

Personnel Hoisting

☐ Crane ☐ Boom Truck ☐ Forklift ☐ Other _____

Method of Protection

Fall Restraint

Type of Harness _____

Type of Lanyard _____

Anchorage _____

Control Zones/Warning Lines and Monitors _____

Guardrail ☐ Yes ☐ No

Nets ☐ Yes ☐ No

Other _____

Fall Arrest

Type of Harness _____

Type of Lanyard _____

Type of Life Line _____

Anchorage _____

Deceleration Device ☐ Yes ☐ No

Other Type of Equipment Used _____

Overhead Protection

- ☐ Hard Hats
- ☐ 4 inch Toe Boards
- ☐ Warning Signs
- ☐ Debris Nets
- ☐ Other _____

Tool Handling, Storage, and Securing

- ☐ 4 inch Toe Boards
- ☐ Debris Nets
- ☐ Tool Buckets
- ☐ Tool Belts
- ☐ Other _____

Procedure for Assembly, Maintenance, Inspection, and Disassembly of System

Assembly, disassembly, and maintenance of all equipment will be done according to manufacturer's recommended procedures.
A visual inspection of all safety equipment will be done daily or before each use.
Any defective equipment will be tagged and removed from service immediately.

DOT Form 750-001 EF
Revised 06/08

A Copy of This Work Plan Must Be On Job Site

Emergency Action Plan

First Aid / CPR

Names of Trained Personnel on Site	

Location of First Aid Equipment

Initiate Emergency Services (call or radio 911 if available)

Location of Phone	Phone Number of Sheriff or Police	Phone No. of Emergency Resp. Team

Describe Procedure for Removal of Injured Employee
(Note: No removal will be attempted without supervision of qualified emergency rescue personnel)

Crane ☐ Yes ☐ No Location _____

Hoist ☐ Yes ☐ No Location _____

Winch ☐ Yes ☐ No Location _____

Block / Tackle ☐ Yes ☐ No Location _____

Other (Describe)

Plan Reviewed at Job Site ☐ Yes ☐ No

Employee Signature	Employee Signature
Employee Signature	Employee Signature

DOT Form 750-001 EF
Revised 06/08

1.0 Purpose

The purpose of the Washington State Department of Transportation's (WSDOT) Ergonomics Program is to prevent and control work-related musculoskeletal disorders while improving employee efficiency and comfort.

2.0 Scope and Applicability

The Ergonomics Program encompasses all department employees. Many job-tasks contain risk factors that may contribute to the development of ergonomics-related injuries, termed musculoskeletal disorders (MSDs). Through proper assessment and control of risk factors, potential disorders and injuries may be reduced, prevented, and even eliminated while also improving employee efficiency and comfort. The Ergonomics Program uses a combination of education, training, guidelines, job-task evaluations, and ergonomic interventions to reach its goals.

The table below provides a few examples that illustrate the relationship between work settings, job-tasks, risk factors, and body areas that may be affected.

Work Settings	Job-Tasks	Risk Factors	Affected Body Areas
Industrial			
	Guardrail Installation	Heavy Exertion, Repetitive Work, Awkward Postures	Low-Back, Shoulders, *DUE
	Vehicle Maintenance	Repetitive Work, Vibration (Tool Use), Awkward Postures	*DUE, Low-Back, Whole Body
Office & Computer			
	Data Entry and Computer Mouse Use	Repetitive Work, Contact Stress, Awkward Postures	Low-Back, Shoulders, *DUE
*Distal Upper-Extremities (see Definitions below)			

3.0 Definitions

Best Practices – The most efficient (least amount of effort) and effective (best results) way of accomplishing a task.

Complex Ergonomics – A term used to describe ergonomics related cases that involve multifaceted issues including the interaction of several risk factors and/or complex cognitive processes.

Distal Upper-Extremity (DUE) – The portion of the body that includes the elbow, forearm, wrist, and hands.

Ergonomic Interventions – A redesign of working methods, job-tasks, equipment, and/or workplace design to reduce and/or eliminate ergonomic risk factors.

Ergonomics-Related Injuries – Usually termed musculoskeletal disorders (MSDs). These are injuries that are caused by repeated exposure to ergonomic risk factors. Most MSDs are classified as occupational illnesses.

Ergonomic Risk Factors – Stressors to the musculoskeletal system that research has shown to be associated with an increased risk of developing musculoskeletal disorders. Major risk factors include, but are not limited to, the use of heavy exertion or force, awkward postures, repetitive movements, vibration, and contact stress.

Ergonomics – Per the Human Factors and Ergonomics Society, ergonomics is "the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance."

General Ergonomics – A term used to describe ergonomics related cases that involve general risk factors. Most cases involving "general ergonomics" can be addressed by reducing and eliminating risk factors.

Musculoskeletal Disorders (MSDs) – Illnesses of the soft tissues of the musculoskeletal system (i.e., muscles, tendons, nerves, ligaments, joints) that are primarily caused or exacerbated by repeated exposure to ergonomic risk factors. Examples include tendonitis, epicondylitis, low-back pain, and carpal tunnel syndrome. These types of injuries are usually classified as "occupational illnesses." Many times the term Work-Related Musculoskeletal Disorder (WMSD) is used to identify injuries caused at work vs. at home.

Musculoskeletal Disorders (MSDs) Signs and Symptoms – Signs and symptoms of MSDs can include numbness, tingling, pain, and/or loss of strength. If an MSD is left untreated it can become debilitating over time. Early reporting of MSD signs and symptoms is extremely important.

Occupational Illnesses – Illnesses that pertain to work-related injuries/disorders that develop over a period of time. See Musculoskeletal Injuries (MSDs) above.

Overexertion Injuries – A musculoskeletal injury caused when the human body is worked beyond its physical limits. These types of injuries are lumped into the MSDs category.

Participatory Program – A program in which employees at every level within a company are involved in and responsible for the program's success.

Sprains and Strains – An injury classification that describes injuries to muscles, tendons, and ligaments. Sprains and strains are usually caused by overexertion to muscles, tendons, ligaments, and/or joints. Risk factors that can cause MSDs can sometimes also cause sprains/strains. The reduction of ergonomic risk factors in a job-task will usually also reduce the risk of sprains/strains.

4.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to the Ergonomics Program.

- Assume responsibility and ensure compliance with the Ergonomics Program's policies.
- Seek assistance through the program's structure as applicable.
- Assist fellow employees as applicable.

4.1 Executive, Senior, and Mid-Level Management

- Ensure employees can feasibly adhere to the Ergonomics Program.
- Actively support, participate, and assist in the dissemination of the Ergonomics Program.
- Encourage all employees to perform the ergonomics self-assessment found on the Safety Web site.
- Encourage employees to perform simple exercises and stretches as recommended on the WSDOT Ergonomic Training and Education Web site under Stretch and Flex Programs.

4.2 Supervisors

- Ensure employees are aware of and are complying with the Ergonomics Program.
- Ensure ergonomics are addressed in task training of employees.
- Ensure ergonomic risk factors are applied to proper selection and use of equipment.
- Ensure personnel have been trained in ergonomic risk factors.
- Coach and mentor employees in ergonomics.
- Ensure ergonomics are included in PASP.

- Ensure department employees are performing their jobs with the least amount of strain on their musculoskeletal systems as possible.
  - Ensure employees receive the required training.
  - Ensure equipment/tools are available, as feasible, to help reduce ergonomic risk factors.
- Report successful ergonomic interventions (new methods/tools/equipment) that reduce ergonomic risk factors that other department employees could benefit from.
- Encourage employees to perform simple exercises and stretches as recommended on the WSDOT Ergonomic Training and Education Web site under Stretch and Flex Programs.

4.3 Employees

- Adhere to training requirements.
- Perform job-tasks using proper methods, equipment, and/or tools to help reduce or eliminate ergonomic risk factors. (Don't take shortcuts.)
- Inform supervisor of job-tasks that contain ergonomic risk factors if they cannot be successfully addressed.
- Inform supervisor of successful ergonomic interventions for further dissemination throughout the department.

4.4 Safety Organization

4.4.1 Ergonomics Program Manager

- Develop and administer the department's Ergonomics Program and strive for continuous improvement.
- Develop and manage an ergonomics related injury/illness database and provide relevant data as requested.
- Develop ergonomics content for the Safety and Health Services Office Web site.
- Ensure department Safety staff are adequately trained on general ergonomics.
- Assist Region Safety Offices with complex ergonomics issues and mitigation techniques.
- Develop, maintain, and share Best Practices.
- Serve as the ergonomics technical expert for the department.
- Work with other programs, as applicable, to help reduce ergonomics-related injuries throughout the department.

4.4.2 Region Safety Offices

- Provide or arrange for ergonomics related training and education as required by the program.
- Be proactive: identify and share Best Practices and other ergonomics related information through the program's structure.
- Assist employees with the development of Pre-Activity Safety Plans to address and manage ergonomic risk factors. See Section 5.3.
- Perform general ergonomics related work site and job-task evaluations, interventions, and follow-up as requested/needed in a timely manner.
- Request assistance from the Ergonomics Program Manager when technical expertise is required.

5.0 Policy

5.1 Education and Training

Education and training is intended to enhance the ability of employees to recognize work-related ergonomic risk factors and to understand and apply appropriate control strategies, i.e., interventions.

Training will be completed individually or in group settings and will be provided in one or in a combination of the following formats:

- Oral presentations.
- Videos and online presentations.
- Distribution of educational literature.
- Hands-on equipment and work practice demonstrations.

Training in the recognition and control of ergonomic risk factors will be provided according to the program's structure and employee responsibilities as follows:

- To all new employees.
- To all employees assuming a new job assignment.
- When new jobs, tasks, tools, equipment, machinery, workstations, or processes are introduced.
- When high exposure levels to ergonomic risk factors have been identified.
- When an employee reports a musculoskeletal disorder.
- Periodic refresher training shall be conducted at the discretion of line management and/or through the program's structure.

The minimum training will include the following elements:

- An explanation of the department's Ergonomics Program and individual employee responsibilities in the program.
- A list of the major ergonomic risk factors and how to mitigate them.
- A discussion of ergonomics-related injuries including their signs, symptoms, and consequences of injuries caused by ergonomic risk factors.
- An emphasis on the importance of early reporting of the signs, symptoms, and injuries related to sprains/strains and occupational illnesses.

The department's Ergonomics Web site will contain ergonomics related educational and training materials for use in individual and/or group training.

5.2 Reporting

Employees that experience signs or symptoms of an ergonomics-related injury shall immediately convey their concerns to their supervisor. Early reporting is stressed.

Ergonomics related injuries shall be reported on DOT Form 750-100 (Accident/Incident Report) according to established injury reporting guidelines.

5.3 Pre-Activity Safety Plans (PASPs)

- PASPs will include a listing of the major ergonomic risk factors (heavy exertion or force, awkward postures, vibration, contact stress, and repetitive movements) and controls that may be associated with job-tasks, as appropriate.
- Employees and supervisors will discuss the ergonomic risk factors and controls, as appropriate, prior to beginning work activities.
  - Discussions will include the risk factors that are or will likely be involved in work and how to avoid the risks.
  - Employees will report job tasks that pose a risk for the development of sprains/strains and occupational illnesses to their supervisor.
  - Consider stretching and flexing before work. Guidelines on safe stretching and flexing are available.

5.4 Work Site and Job-Task Evaluations and Interventions

Job-task evaluation and ergonomic interventions will be completed according to the program's structure (Section 4.0) and employees' responsibilities.

5.4.1 Triggers for Work Site Evaluations

- When an employee reports a ergonomics-related concern.
- Jobs, processes, or work activities where work-related ergonomic risk factors have been identified.
- Any major change of jobs, tasks, equipment, tools, processes, scheduling, or changes in work shift hours that involve ergonomic risk factors.

Work-related risk factors to be considered in the evaluation process include, but are not limited to:

- Physical risk factors including force, postures (awkward and static), static loading and sustained exertion, fatigue, repetition, contact stress, extreme temperatures, and vibration.
- Administrative issues including job rotation/enlargement, inadequate staffing, excessive overtime, inadequate or lack of rest breaks, stress from deadlines, lack of training, work pace, work methods, and psychosocial issues.
- Environmental risk factors including noise, lighting, glare, temperature, humidity, and personal protective equipment and clothing.
- Combinations of risk factors.

All ergonomics related issues will be evaluated and addressed in a timely manner, as appropriate. Work site and job-task evaluations will generally be scheduled based upon the following:

- Any job, process, operation, or workstation which has contributed to a worker's current ergonomics-related injury.
- A job, process, operation, or workstation that has historically contributed to ergonomics-related injuries.
- Specific jobs, processes, operations, equipment, or workstations that have the potential to cause ergonomics-related injuries or limit work efficiency and comfort.

5.4.2 Job-Task Interventions

- Engineering controls are the most desirable and reliable means to reduce workplace exposure to potential harmful effects. This is achieved by focusing on the physical modifications of jobs, workstations, tools, equipment, or processes.
- Administrative controls are means of controlling or preventing workplace exposure to potentially harmful effects by implementing administrative changes such as job rotation, job enlargement, rest breaks, adjustment of pace, redesign of methods, and worker education.

- Personal protective equipment (PPE) is not recognized as an effective means of controlling hazards and does not take the place of engineering or administrative controls. Acceptable forms of PPE include kneepads and various types of gloves including anti-vibration.

Management of ergonomic evaluations and interventions shall include:

- Respond promptly to ergonomics related issues, as appropriate.
- Ensure proper attention is being given to the employee(s) and incident.
- Ensure education and training have been given and interventions have been implemented, as applicable.
- Maintain communication with the appropriate employee(s) throughout the evaluation and intervention period.
- Perform follow-up evaluations to ensure intervention's effectiveness.
- Relay information including successful ergonomics interventions throughout the department using the program's structure, as appropriate.

1.0 Purpose

This chapter provides guidance for the establishment and maintenance of adequate first-aid capabilities within the the Washington State Department of Transportation (WSDOT).

2.0 Scope and Applicability

This chapter of the *Safety Procedures and Guidelines Manual* M 75-01 supersedes D 75-40, *First Aid*, dated May 24, 1989. This procedure has been developed for first-aid compliance using the referenced Washington Administrative Code (WAC) chapters as guidance.

This safety policy presents guidelines for the use of first aid to protect WSDOT employees from further injury. It includes provisions for training and discussion on the requirements for a written first-aid program. This document also details the areas of responsibility for managers, supervisors, employees and safety organizations within WSDOT. This safety policy affects any employee who is involved in first-aid activities.

3.0 References

- WAC 296-800-15005, *Make sure that first-aid trained personnel are available to provide quick and effective first aid*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-800-15005
- WAC 296-800-15020, *Make sure appropriate first-aid supplies are readily available*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-800-15020
- WAC 296-800-15030, *Make sure emergency washing facilities are functional and readily accessible*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-800-15030
- WAC 296-800-15035, *Inspect and activate your emergency washing facilities*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-800-15035
- WAC 296-800-15040, *Make sure supplemental flushing equipment provides sufficient water*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-800-15040
- WAC 296-155-120, *First-aid training and certification*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155-120
- WAC 296-155-125, *First-aid supplies*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-155-125

4.0 General Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to first aid.

It is the responsibility of each manager, supervisor, and employee to ensure implementation of WSDOT's safety policy and procedure on first aid.

4.1 Executive and Senior Management

- Ensure that adequate funds are available and budgeted for the purchase and/or replacement of first-aid supplies as required to perform first aid in compliance with this policy.
- Ensure a periodic audit of employee training is performed.

4.2 Supervisors

- Ensure appropriate employees receive first-aid training.
- Ensure that all employees have been properly trained in the use and limitations of the first-aid supplies and PPE that they are utilizing.
- Ensure supplies that have been opened, used, expired, or damaged are replaced immediately.
- Perform a periodic audit of employee training.

4.3 Employees

- Attend first-aid training if a requirement of the position.
- Coach and mentor co-workers in first-aid performance.
- Notify supervisor of defective, opened, expired, or damaged first-aid supplies and unsafe conditions immediately.

4.4 Safety Organization

Region Safety Office personnel shall:

- Assist in developing or securing required first-aid training.
- Identify and communicate requirements for compliance with applicable and statutorily required safety standards.
- Ensure all first-aid training rosters are entered into the appropriate training management system.

5.0 First-Aid Certification and Training Requirements

Every facility shall have several individuals trained in first-aid, cardio-pulmonary resuscitation (CPR), and automated external defibrillator (AED) use.

5.1 Who Needs First-Aid Certification

- All field crew leaders, supervisors, and persons in direct charge of one or more employees.
  - An employee appointed to a position as supervisor of a crew (two or more employees) who does not have first-aid certification will be permitted up to 30 days to obtain certification providing another crew member has the necessary certificate.
  - Although not required by the first-aid safety standards, offices and shops are encouraged to have several individuals trained in first-aid.
- Employees participating on any WSDOT emergency response team.

Please Note: *Participation on emergency response teams is strictly voluntary; it is not a condition of employment. Participants on Medical Emergency Response Teams may choose not to render assistance in any situation*.

5.2 Certification Training

- Initial First-Aid Certification
  - Initial first-aid certification may be obtained via successful completion of WSDOT Course Code APS (a minimum of four hours in length with 1 hour of hands-on practical demonstration of course competencies to include first-aid, CPR, and AED use) or comparable course of training.
  - For those employees having a valid first-aid certificate or a higher level of medical certification from an approved course other than that provided by WSDOT, the certificate will remain valid until the certification is due for renewal.
- Recertification
  - Every three years for WSDOT employees.
  - Recertification may be obtained via successful completion of WSDOT Course Code APS (a minimum of four hours in length with 1 hour of hands-on practical demonstration of course competencies to include first aid, CPR, and AED use) or comparable course of training or a higher level of certification.
  - This guidance document does not preclude any organizations, groups of employees, or offices from conducting or requesting more frequent first-aid training.

6.0 First-Aid Supplies and Facilities

- A first-aid kit shall be readily accessible to employees at all WSDOT work sites.
- At least one first-aid kit shall be available on WSDOT construction jobs, drill sites, and other transient or short duration jobs.
- All vehicles used for transporting field employees shall be equipped with first-aid supplies.
- When practical, a poster shall be fastened and maintained either on or in the cover of each first-aid kit and at or near all phones plainly stating the worksite address or location, and the phone numbers of emergency medical responders for the worksite.
- The size and quantity of first-aid kits required to be located at any one site, shall be determined by the number of personnel normally dependent upon each kit and is depicted in Appendix 13-A.
- The minimum components suggested for each size first-aid kit are specified in Appendix 13-A.
- First-aid kits shall be inventoried for completeness and serviceability monthly. Documentation of the inventory date may be accomplished by affixing a label to the first-aid kit as shown in Appendix 13-B.
- First-aid supplies are available through normal supply channels. (Check with your Purchasing Office to determine the current supply contract.)
- To protect first-aid kit components the following provisions apply:
  - First-aid kit containers used in field operations shall be stored in containers that protect them from damage, deterioration, or contamination.
  - A cabinet-type first-aid kit is permissible for use within a building.
  - Individually sealed packaging is required for those first-aid kit components which must be kept sterile.
- Emergency washing facilities shall be readily available in the immediate work area for employees who may be exposed to harmful concentrations of contact chemical agents. Employees shall require no more than 10 seconds to reach emergency washing facilities in order for the facilities to be considered readily available. These facilities should be within a travel distance of no greater than 50 feet (15.25 meters).

- Emergency washing facilities means either emergency showers, eyewashes, face washes, or other similar units and is defined as follows:
  - **Emergency Shower:** A unit that allows water to cascade over the user's entire body. It shall deliver a minimum of 20 gallons (75 liters) of water per minute or more.
  - **Eyewash:** A device to irrigate and flush both eyes simultaneously while the operator holds the eyes open.
  - The on-off valve shall be activated in 1 second or less and shall remain on without the use of the operator's hands until intentionally turned off.
  - The emergency eyewash equipment shall deliver at least 0.4 gallons (1.5 liters) of water per minute for 15 minutes or more.
- The department may issue small supplemental eyewash equipment used to augment the requirement for emergency washing facilities; however, in no event shall it be used as a substitute. Such units are usually 16 oz or 32 oz bottles and immediately deliver potable water or other medically approved eye flushing solution for less than 15 minutes.
- All plumbed emergency eyewash facilities shall be activated weekly and inspected annually to ensure that they function correctly and that the quality and quantity of water is satisfactory for emergency washing purposes.

6.1 First-Aid Station (Wall Mounted/Affixed)

- First-aid stations shall be located as close as practical to the highest concentration of personnel and requires unobstructed direct access.
- First-aid stations shall be well marked and available to personnel during all working hours.
- One person holding a valid first-aid certificate shall be responsible for the proper use and maintenance of the first-aid station.
- The station shall be equipped with at least one portable first-aid kit.
- First-aid station supplies shall be inventoried monthly when on a job site or immediately after any use.

7.0 Hazard Assessment

When you complete your Pre-Activity Safety Plan or its equivalent in WSF's Safety Management System (SMS) for your work sites, you should also assess the hazards for the types and quantities of supplies for your first-aid kits. The following information may provide you with some ideas for developing your kit contents.

Potential Hazard	First-Aid Kit Consideration
Amputation	Plastic garbage bags (small, medium, and large), bandaging materials, sterile padding and dressings.
Biting or stinging insects	Sting-kill wipes, bee and wasp spray, meat tenderizer.
Chemical burns	Dry, sterile dressing, bottled water (enough for 20 minutes flushing).
Cuts	Antiseptic swab, first-aid ointment, gauze compress, tape, scissors, towelettes, anti-bacterial wash, medical gloves, tweezers.
Dehydration & heat stroke	Bottled water, cold packs.
Electric shock	CPR kit, thermal space blanket (for shock).
Electrical burn	Dry, sterile dressing, burn dressings.
Fall hazard from working on ladders, uneven terrain, etc.	Triangular bandages, ammonia inhalants, thermal space blanket (for shock), arm or wire splint.
Fractures	Wooden, plastic (1/4 x 3 x 12-15 inches), air inflatable or SAM splints, padding material, roll of elastic wrap (to attach splint), tape.
Frostbite or hypothermia	Thermal space blanket, heat packs.
Poison ivy, poison oak, poison sumac	Calamine lotion.
Poisoning during pesticide spraying **Warning**: Always read the labels on poisons for first-aid requirements.	Emergency and/or poison control center number (1-800-222-1222), syrup of Ipecac (use only if advised by doctor or Poison Center), two 1-quart containers of clean water, tongue depressors (to stir with) two small, plastic empty jars with tight-fitting lids, can of evaporated milk (attach opener to can with rubber band), blanket (for treating shock), plastic bandages and tape (to cover contaminated areas), disposable medical gloves, and goggles.
Splinters	First-aid tweezers, needle.
Sprains	Elastic bandages, cold packs, splinting materials.
Sunburn	Sun block , burn cream.

8.0 Recordkeeping

Records shall be kept on each employee who receives training for a minimum of three years from the date of training. Employee training records shall be stored in Automated Training Management System (ATMS).

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

9.0 Appendices

Appendix 13-A First-Aid Kit and Supplies

Appendix 13-B First-Aid Kit Inventory Documentation

First-Aid Kit Supplies – Minimum Requirements

Number of Personnel Normally Assigned to Worksite	Minimum First-Aid Supplies Required at Work Site
1 to 50 Persons	**First-Aid Kit**
1 to 5	10-package kit
6 to 15	16-package kit
16 to 30	24-package kit
31 to 50	36-package kit
51 to 200 Persons	**First-Aid Station Wall Mounted/Affixed**
51 to 75	One 10- and one 36-package kit
76 to 100	One 16- and one 36-package kit
101 to 150	One 24-and one 36-package kit
151 to 200	Two 36-package kits

Please Note: You do not have to purchase pre-packaged first-aid kits. You can design a first-aid kit specifically for your work location and hazards you have identified utilizing Section 7.0, Hazard Assessment. This list below would be equivalent to the 36-package kit for up to 50 employees. If the work site has more than 50 employees, you would double the number of kits proportionately.

Treatment Supplies	Minimum Quantity
1″ adhesive band-aids	1 box 100p/box
3″ X 3″ gauze pads	10
4″ X 4″ gauze pads	15
Burn sheets	1
Eye cover gauze pads	2 pkg
Kling or roller gauze 2″	6
Kling or roller gauze 4″	6
Medical tape 1″	2 rolls
Medical tape 2″	2 rolls
Surgical pads 5″ X 9″	4
Trauma dressings	4
Triangular bandages	8
Water-gel burn dressing 8″ X 18″	1
Sting Swabs	2 pkg

Treatment Supplies	Minimum Quantity
General Medical Supplies	
Alcohol pads/wipes	10
Forceps (tweezers)	1 pair
Instant cold packs	4*
Instant hot packs	4*
Penlight	1
Rescue blanket (silver styled)	4
SAM splint	1*
Trauma shears	1 pair
CPR/Airway Management Supplies	
CPR barrier	2
Medical PPE & Administrative Supplies	
Anti-microbial hand wipes	40
Black or blue ball point pen	1
Medical exam gloves Medium	5 pair
Medical exam gloves X-Large	5 pair
Note Pad	1
Protective glasses / medical masks	2 pair
Red BIO-Bag 7-10 gallon size	1
* Quantity may increase based on work location and anticipated weather conditions.	

Appendix 13-B First-Aid Kit Inventory Documentation

Print and affix the label below on your first-aid kit to document your monthly inventory.

Inventory Record		
Year:		
Month	Date	Initials
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

Chapter 14 Chemical Hazard Communication

1.0 Purpose

The Washington State Department of Transportation (WSDOT) is committed to the prevention of exposures that result in injury and/or illness; and to comply with all applicable health and safety rules. To make sure that all affected employees know about information concerning the dangers of all hazardous chemicals used by WSDOT, the following Chemical Hazard Communication program has been established.

The purpose of this Chemical Hazard Communication program is to ensure that:

- Hazardous substances present in the work place are properly identified and labeled.
- Employees have access to information on the hazards of these substances.
- Employees are provided with information and training on how to prevent injuries or illnesses due to exposure to these substances.

2.0 Scope and Applicability

This chapter of the *Safety Procedures and Guidelines Manual* M 75-01, affects all WSDOT employees that use or may be exposed to hazardous chemicals in the course of their duties and have been developed using the referenced Washington Administrative Code (WAC) chapters as guidance.

This written program will be available through the agency intranet and through the Region Safety Offices for review by any interested employee. A copy may also be maintained with Material Safety Data Sheet (MSDS) binders.

3.0 References

- WAC 296-800-170 through 17055, *Hazard communication*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-800-170
- WAC 296-828-100 through 300, *Hazardous chemicals in laboratories*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-828-100

4.0 General Responsibilities

In addition to the responsibilities outlined in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01, there are responsibilities specific to hazard communication as detailed below.

It is the responsibility of employees at all levels to ensure implementation of WSDOT's procedure and guideline on hazard communication. It is also the responsibility of each WSDOT employee to report any new chemical hazard introduced into their workplace and immediately notify his or her supervisor of any unsafe act or condition.

4.1 Executive and Senior Management

- Provide resources necessary to furnish employees with MSDSs, proper labeling, as well as training and information regarding hazardous chemicals in their work areas.

4.2 Supervisors

Ensure that all affected employees:

- Receive hazard communication training (Course Code AEX).
- Develop and maintain a list of hazardous chemicals used during work operations.
- Have access to MSDSs and the hazardous chemical list.
- Maintain proper labeling for hazardous chemical containers.
- Understand proper hazardous chemical procedures as outlined on Pre-Activity Safety Plans (PASPs) and/or other safety policies.
- Ensure that employees follow established safety procedures.
- Adequately inform any non-WSDOT personnel sharing the same work area of the hazardous substances to which their employees may be exposed while performing their work.

4.3 Employees

- Know the hazards and precautionary procedures for the hazardous substances used in their work area.
- Attend required training.
- Plan and conduct operations in accordance with the PASP, MSDS, and good safety and health practices.
- Use personal protective equipment and clothing in accordance with prescribed training, PASPs, and the product MSDS.

4.4 Safety Organization

Region Safety Office staff are responsible for providing resources (i.e., reference materials) and technical support to assure employees are protected from hazardous substances. Specific responsibilities include:

- Assist supervisors in identifying hazardous substances present in the work area and evaluating potential hazards of operations.

- Periodically review operations to assure necessary elements of the hazard communication program and PASPs are being implemented.
- Provide or support employee training.
- Recommend appropriate engineering controls, administrative controls, and personal protective equipment.

5.0 Policy

5.1 Employee Information and Training

Supervisors of employees who work with hazardous chemicals will make sure that before starting work, each new employee will complete a course that includes information and training on the following:

- An overview of the requirements contained in the Hazard Communication Standard
- Hazardous chemicals present at his or her work places.
- Physical and health risks of the hazardous chemical.
  - The information and training may be designed to cover categories of hazards, such as flammability or cancer-causing potential, or it may address specific chemicals. Chemical-specific information must always be available through labels and MSDSs.
- The symptoms of overexposure.
- How to determine the presence or release of hazardous chemicals in his or her work area.
- How to reduce or prevent exposure to hazardous chemicals through use of the Priority of Hazard Controls.
- Steps the employer has taken to reduce or prevent exposure to hazardous chemicals.
- Procedures to follow if employees are overexposed to hazardous chemicals
- How to read labels and review MSDSs to obtain hazard information
- Where MSDSs and this written program can be accessed

5.2 Material Safety Data Sheets (MSDSs)

Material safety data sheets are readily available to all employees. Employees can review material safety data sheets for all hazardous chemicals used in their workplace. Material safety data sheets must be available immediately in the event of an emergency and within the work-shift for all other conditions.

WSDOT maintains an account with MSDS Online, which contains a large, though not comprehensive, database of MSDSs. Our MSDSOnline ®[1] account can be accessed through the agency intranet. If the MSDS for a product is not found in this database, you can submit a request to have it included (see the WSDOT MSDS intranet page to submit a request to our account administrator).

Other methods for attaining MSDSs are as follows:

- Obtain one at the time of purchase (vendors and/or the manufacturer are required by law to provide an MSDS if requested. Contact your Purchasing Office if the vendor will not supply an MSDS).
- Contact the manufacturer by phone or locate the MSDS on their Web site.
- MSDS internet databases such as:

  http://www.msdsxchange.com
  http://www.msdssearch.com/msdssearch.htm
  http://www2.siri.org/msds/index.php

5.3 Hazardous Chemical Container Labeling

All hazardous chemical containers used in the workplace will clearly identify the chemical on the label, and include an appropriate hazard warning as well as the manufacturer's name and address. If the label is removed or becomes illegible, the information must be replaced by some means. Chemical label examples are included as Appendix 14-A. Other acceptable systems of labeling include standardized formats developed by the National Fire Protection Association (NFPA) and the Hazardous Materials Information System (HMIS). Contact your Region Safety Office if you would like more information.

Before working in areas where hazardous chemicals are transferred through pipes or where pipes are insulated with asbestos-containing material, employees will contact personnel responsible for maintaining the system for the following information:

- The chemicals in the pipes.
- The physical or health effects of the chemicals or the asbestos insulation.
- The safe work practices to prevent exposure.

[1] http://hq.msdsonline.com/wsdot3777/Search/Default.aspx

5.4 Hazardous Chemical Inventory

Each facility or mobile unit must create and maintain an inventory of hazardous chemicals in their workplace. Detailed information about the physical and health effects of each chemical is included in a material safety data sheet; the identity of each chemical on the list matches the identity of the chemical on its material safety data sheet. Appendix 14-B contains a hazardous chemical inventory template form.

5.5 Non-Routine Tasks

Before employees perform special (non-routine) tasks that may expose them to hazardous chemicals, their supervisors will inform them about the chemicals' hazards. Their supervisors also will inform them about how to control exposure and what to do in an emergency.

Spill response guidance is included as Appendix 14-C.

5.6 Multi-Employer Work Places

On a work site with multiple employers, each employer must provide the work site with the following information:

- Copies of MSDSs (or make them available at a central location) for any hazardous chemicals that the other employer(s)' employee may be exposed to while working.
- Inform other employers of any precautionary measures that need to be taken to protect employees during normal operating conditions or in foreseeable emergencies.
- Provide other employers with an explanation of the labeling system that is used at the work site.

6.0 Appendices

Appendix 14-A Chemical Label Examples

Appendix 14-B Chemical Inventory Template

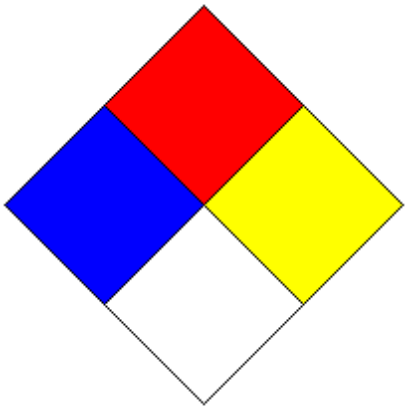
Appendix 14-C Chemical Spill Management

If a label becomes illegible or detached from a container, you can use a label like this to replace the necessary information.

Name of Chemical
Physical Hazards
Health Hazards, Target Organs, or Systems
Optional Information, such as Personal Protective Equipment or Safe Handling

Standardized labeling systems from the National Fire Protection Association (NFPA) or the Hazardous Materials Information System (HMIS) are also acceptable. Contact your Region Safety Office for more information.

Examples of these labels are presented below and are available from many safety vendors:

NFPA	HMIS
	

Appendix 14-B Chemical Inventory Template

Region:	Person Compiling List:
Org Code:	Contact No.:
Facility Name:	Facility Location:

Chemical Name*	Manufacturer	Location Used

Appendix 14-C Chemical Spills Response Guidance

Introduction

This appendix provides guidance for minor spills of small quantities in occupied facilities.

If your facility has quantities of regulated chemicals that require compliance with more substantial spill control programs such as Spill Prevention Control and Countermeasures (SPCC), Washington State Dangerous Waste Spill Response Plan, Stormwater Pollution Prevention Programs (SWPPP), or designated hazardous materials spill responders, follow procedures established under those programs.

Contact information is provided at the end of this appendix if you need additional guidance or assistance in determining appropriate response to a chemical spill.

Spill Response

The following are general guidelines to be followed for a chemical spill. The MSDS or other material specific information may provide more applicable guidance.

- Immediately alert area occupants and supervisor, and evacuate the area, if necessary. Prevent other persons from entering into an uncontrolled spill area by locking and/or placing a sign on entrances or other effective means.
- If there is a fire, medical attention is needed, or if the spill is beyond the facility's ability to safely control, contact 911.
- Attend to any people who may be contaminated where possible if it will not place you or others at risk. Contaminated clothing must be removed immediately and the skin flushed with water for no less than 15 minutes. Clothing must be laundered before reuse. See First Aid for Chemical Exposure below for more information.
- If a volatile, flammable material is spilled, immediately warn everyone, control sources of ignition and ventilate the area.
- Protect floor drains or other means for environmental release if this can be accomplished without risk to your safety and health. Spill socks and absorbents may be placed around drains, as needed.

- Report all hazardous chemical spills to your supervisor and the Region Safety Office.

First Aid Procedures for Chemical Exposure

WSDOT's first aid policy is contained in Chapter 13 of the *Safety Procedures and Guidelines Manual* M 75-01. The following is general guidance; more specific information may be obtained from the MSDS, poison control, or emergency medical services. In all cases, the incident should be reported to the supervisor and Region Safety Office regardless of severity and an Accident/Incident Report Form (750-100 EF) completed.

Chemicals on Skin or Clothing

- Immediately flush with water for no less than 15 minutes (unless otherwise directed by the MSDS). For larger spills, a safety shower should be used.
- While rinsing, quickly remove all contaminated clothing or jewelry. Seconds count. Do not waste time because of modesty.
- Use caution when removing pullover shirts or sweaters to prevent contamination of the eyes.
- Check the Material Safety Data Sheet (MSDS) to determine if any delayed effects should be expected.
- Discard contaminated clothing or launder them separately from other clothing. Leather garments or accessories cannot be decontaminated and should be discarded using appropriate waste bags.

Do not use solvents to wash skin. They remove the natural protective oils from the skin and can cause irritation and inflammation. In some cases, washing with a solvent may facilitate absorption of a toxic chemical.

For flammable solids on skin, first brush off as much of the solid as possible, then proceed as described above.

Chemicals in Eyes

- Immediately flush eye(s) with water for at least 15 minutes. The eyes must be forcibly held open to wash, and the eyeballs must be rotated so all surface area is rinsed. The use of an eye wash fountain is desirable so hands are free to hold the eyes open. If eyewash is not available, pour water on the eye, rinsing from the nose outward to avoid contamination of the unaffected eye.
- Remove contact lenses while rinsing. Do not lose time removing contact lenses before rinsing. Do not attempt to rinse and reinsert contact lenses.
- Seek medical attention regardless of the severity or apparent lack of severity. Explain carefully what chemicals were involved.

Chemical Inhalation

- Close containers, open windows or otherwise increase ventilation, and move to fresh air. Assure that contaminated air will not be discharged where it may negatively impact others. Maintenance staff may be able to make adjustments to the ventilation system that will increase air flow and provide the maximum amount of fresh outside air.
- If symptoms, such as headaches, nose or throat irritation, dizziness, or drowsiness persist, seek medical attention. Inform medical providers about what chemicals were involved.
- Review the MSDS to determine what health effects are expected, including delayed effects.

Accidental Ingestion of Chemicals

- Immediately go to a medical facility or contact the Poison Control Center at 1-800-222-1222 for instructions.
- Do not induce vomiting unless directed to do so by a health care provider.

Accidental Injection of Chemicals

Wash the area with soap and water and seek medical attention, if necessary.

Injury/Illness Reporting Procedures

Exposure to hazardous chemical must be reported in accordance with the WSDOT Accident Reporting and Recordkeeping policy.

Chemical Spill Contacts
Call 911 if there is a medical emergency

Poison Control	WA State Department of Health Poison Center	1-800-222-1222
Industrial Hygienist	Corey Lane	(360) 705-7793 (x7793)
HQ Safety Office	HQ Safety	(360) 705-7099 (x7099)
Eastern Region Safety	Mike Dubee	(509) 324-6070 (x6070)
NC Region Safety	Phil Rogers	(509) 667-3009 (x3009)
NW Region Safety	Rod Jones	(206) 440-4819
Olympic Region Safety	Anthony Riley	(360) 357-2615 (x2615)
SC Region Safety	Wayne Frudd	(509) 577-1610 (x1610)
SW Region Safety	Ralph Martinez	(360) 905-2010 (x2010)
Doug Pierce	Environmental Manager (Maintenance & Operations)	360-705-7812 (x7812)
Norm Payton	Water Quality Manager	360-705-7848 (x7848)
Mike Stephens	Environmental Manager (Construction)	360-570-6656 (x6656)

Chapter 15 Lead Exposure Control Program

1.0 Purpose

To provide guidance for the establishment of a lead program for Washington State Department of Transportation (WSDOT) operations and facilities as required by Washington Administrative Code (WAC) Chapters 296-155-176 and 296-62-07521.

2.0 Scope and Applicability

This program has been developed for lead work using the referenced WAC chapters as guidance. All lead work activities shall comply with this document to ensure the safety of personnel on all WSDOT work sites. Contractors or Subcontractors performing lead work shall have their own lead work program in place.

3.0 References

- WAC 296-155-176, *Lead (in Construction)*
  www.lni.wa.gov/wisha/rules/construction/html/296-155b-1_2.htm#wac296-155-176
- WAC 296-62-07521, *Lead (in General Industry)*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-62-07521
- WAC 296-802, *Employee medical and exposure records*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-802
- WAC 296-818, *Abrasive blasting*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-818
- WAC 296-841, *Airborne Contaminants*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-841
- WAC 296-842, *Respirators*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-842
- WAC 296-24-71501 through 71507, *Health protection and ventilation (welding)*
  http://apps.leg.wa.gov/wac/default.aspx?cite=296-24-715
- WAC 296-155-415, *Ventilation and protection in welding, cutting, and heating*
  www.lni.wa.gov/wisha/rules/generalsafety/html/24_i-2.htm#wac296-24-715

4.0 Definitions

Action Level – Thirty micrograms of lead per cubic meter of air (30 µg/m3) over an 8-hour time weighted average (TWA).

Exposure – That concentration of lead in the work place air, as measured in the employee's breathing zone, without regard to the use of respiratory protective equipment.

Lead – Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

Lead Change Area – An area immediately adjacent to the lead work area provided for the changing and short-term storage of protective clothing/ equipment and tools.

Lead Storage Area – An area designated for the storage and incidental handling of lead. Airborne concentrations of lead in lead storage areas shall not exceed 30 µg/m3.

Lead Work Area – Any area in which the airborne concentration of lead has been determined by monitoring to exceed 30 µg/m3 averaged over an 8-hour period.

Permissible Exposure Limit (PEL) – Fifty micrograms of lead per cubic meter of air (50 µg/m3) averaged over a 8-hour period. If an employee is exposed to lead for more than 8-hours in any work day, the permissible exposure limit shall be reduced according to the following formula:

Maximum permissible limit (in µg/m3) = 400 ÷ hours worked in the day.

Qualified Lead Worker – Any employee who has been trained to work in a designated lead work area.

Safety Organization – Headquarters Safety and Health Services Office staff and Region Safety Office staff.

5.0 Organizational Responsibilities

Are as assigned in Chapter 1 of the *Safety Procedures and Guidelines Manual* M 75-01 as well as the items below specific to lead exposure.

5.1 Executive, Senior, and Mid-Level Management

- Ensure the site manager, supervisor and other site personnel should have the required experience to perform these assessments and identify all lead exposure hazards at sites under their control.
- Provide or replace lead exposure control equipment as required to perform work in compliance with this program.

- Perform periodic audits of employee training.
- Review Lead Exposure Control Work Plans to ensure the proper procedures and equipment are utilized.
- Ensure the establishment and maintenance of a lead exposure control program.
- Designate, in writing, Qualified Person(s) for each lead work project. Notify the Region Safety Office of the name of each Qualified Person.
- Ensure that control measures are followed.

5.2 Supervisors

- Assess and identify all lead exposure hazards at sites under their control.
- Develop Lead Exposure Control Work Plans with assistance from Region Safety Office and/or Industrial Hygienist, as needed (see Appendix 15-A).
- Ensure that all employees entering or working in designated lead work areas wear appropriate protective clothing at all times.
- Ensure coveralls fit properly for employees who are required to wear coveralls for lead work. Coveralls must be worn in a way that affords maximum protection from lead contamination of personal clothing and body.
- Ensure that the appropriate label is properly affixed to each poly bag before leaving the lead change area.
- Ensure that lead workers obtain and use only appropriate gloves for lead work, except as provided elsewhere in this program.
- Ensure that lead workers obtain and use face shields when required by specific operations.
- Ensure that all employees wear and properly use respiratory protective equipment before entering or working in a designated lead work area.
- Ensure that work areas and job sites are cleaned thoroughly at the end of each shift, at the completion of each job, or prior to removing lead work area signs, whichever is sooner, to prevent the spreading of lead scrap or dust.
- Supervisors who perform lead work or who enters a designated lead work area will be qualified in lead work.
- Ensure that employees located immediately outside the lead work area are not exposed to lead.
- Ensure employees are reminded to clean hands and faces prior to eating, drinking, or consuming tobacco products.

- Ensure employees are instructed to obtain clean coveralls, gloves, and respirators whenever necessary to protect skin or clothing from contamination.
- Ensure that employees use appropriate containers for contaminated clothing and lead waste.
- Ensure the Region Safety Office is notified when there has been a production change that may result in new or additional exposure to lead so additional monitoring can be performed.

5.3 Employees

- Wear appropriate protective clothing at all times.
- Comply with lead exposure control measures.
- Wear and properly use respiratory protective equipment before entering or working in a designated lead work area.
- Use appropriate containers for contaminated clothing and lead waste.
- Clean hands and face prior to eating, drinking, or consuming tobacco products.
- Participate in medical surveillance.
- Participate in lead work practice reviews where elevated blood lead levels are discovered.

5.4 Safety Organization

- Assist in developing or securing required lead awareness training.
- Assist in assessment of lead exposure and the understanding of applicable safety standards.
- Ensure that Qualified Persons as identified by managers of major organizations are trained in proper lead work procedures and evaluating hazardous conditions.
- Assist in the development of Pre-activity Safety Plans (PASP) on specific lead work projects under his/her responsibility.
- Ensure all employee exposures to lead are within the appropriate guidelines set forth by this program and WAC 296-842.
- Maintain and calibrate test equipment.
- Approve respiratory equipment.
- Assist in developing or securing training for all employees exposed to lead at or above the action level and where the possibility of eye or skin irritation from lead or ingestion of lead exists.
- Perform or coordinate air monitoring in lead work areas to determine exposures to airborne lead in the employee's breathing zone.

- Inform employees of the airborne lead level in their breathing zone within one week of completion of lab work.
- Maintain a list of qualified persons.
- Coordinate lead work practice reviews when elevated blood lead levels are discovered.

6.0 Lead Activities and Health Hazards

6.1 Lead Activities at WSDOT

Lead emitting activities at WSDOT consist of bridge and road maintenance and inspection projects. Most of these projects are unscheduled maintenance but some are routine scheduled activities. Maintenance crews are usually composed of approximately five or fewer persons. Lead-containing coatings may be disturbed through grinding, welding, heat-straightening, rivet busting, torch cutting, and small scale painting. Freeway expansion joints and automobile exhaust deposits may involve lead impacted work. When feasible, needle guns equipped with high efficiency particulate air filters or similar removal methods are used to remove lead prior to conducting the maintenance work.

Many of the maintenance activities are small scale/short duration projects lasting minutes to hours.

Larger scale bridge painting, including preparatory work, is generally contracted to private companies.

6.2 General Health Hazard Information

Exposure to lead is a potential health hazard, potentially damaging the nervous, blood, and reproductive systems. Lead may cause cancer. Lead exposure may cause lassitude (weakness, exhaustion); insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation; abdominal pain; colic; anemia; gingival lead line; tremor; paralysis of wrist, ankles; decreased hand-grip strength; encephalopathy; kidney disease, gout; eye, skin irritation; decreased hearing acuity; elevated blood pressure; reduced sperm count, impaired sperm motility and abnormal morphology; headache; possible deficits in some neuropsychological performance measures (verbal memory, visuospacial abilities, executive functions); mood changes (irritability, depression); nausea, vomiting; and seizures, coma, death (at extremely high exposures).

Lead dust is introduced into the atmosphere through the grinding and cutting processes of fabrication, heating, or by burning or welding on lead-containing materials. By breathing lead dusts or fumes, employees may develop lead poisoning. Lead poisoning may also occur from eating contaminated foods or handling objects contaminated with lead.

Because lead work poses potential health problems, lead exposures as a minimum must be controlled to levels below the permissible exposure limit (PEL). Effective control requires an awareness of potential health hazards and continued utilization of effective control measures. This program describes these measures in detail. Management must ensure that they are followed.

7.0 Personal Protective Equipment

7.1 General

Coveralls (either disposable or appropriately laundered) are required to minimize contact and contamination of personal clothing by lead fumes and dust. Employees must wear coveralls when entering or working in designated lead work areas.

Coveralls will be stocked and issued as necessary for use by lead workers.

Donning and removal of coveralls shall be done in the lead change area that is located adjacent to the lead work area. The change area will be the only point of entry to or exit from the lead work area.

Coveralls must not be worn outside the lead work or change area. Coveralls shall be vacuumed thoroughly, removed and placed in poly bags and sealed prior to exiting the area.

At the end of the shift or lead work operation, lead-contaminated coveralls shall be placed in a poly bag, sealed and identified with a 3 in x 5 in tag stating the following and stored until properly disposed of or appropriately laundered.

CAUTION
CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

Gloves shall be worn by all employees entering or working in designated lead work and lead storage areas. Lead workers shall obtain and use only gloves for lead work (e.g., non-porous gloves, such as Nitrile) except as provided elsewhere in this program.

Employees shall not wear the gloves outside the designated lead work or lead storage areas. Store the gloves in a properly labeled poly bag when not in use.

All gloves used for lead work shall be disposed of as lead-contaminated waste or appropriately laundered.

Use leather gloves when in hot work operations. Use non-porous gloves, such as Nitrile, under the leather to prevent skin contact.

Use face shields whenever there is danger of facial contact with lead chips. When working overhead, face shields must be worn by employees. Lead workers shall obtain and use face shields when required by specific operations. If the visor becomes impregnated with lead chips, it shall be disposed of as lead-contaminated waste.

7.2 Respiratory Protection Requirements

During operations where engineering controls do not reduce exposures below the PEL, appropriate respirators shall be worn by all employees entering or working in the lead work area. All personnel shall be medically qualified and fit tested prior to utilizing respiratory protection.

Lead Concentration (ug/m3)	Appropriate Respirator
Up to 500	Half-face with P-100 particulate cartridge (color purple/pink – officially called “magenta”)
Up to 1,250	Powered air-purifying respirator with hood or helmet
Up to 2,500	Full-facepiece with P-100 particulate cartridge
Up to 50,000	Full-facepiece air-line respirator operated in continuous flow, pressure-demand, or other positive-pressure mode.

Powered air-purifying respirators (PAPR) will be provided at employee request where a PAPR provides sufficient protection. Contact the Region Safety Office with questions regarding other types of respiratory protection.

8.0 Housekeeping

Lead work supervisors must ensure that work areas and job sites are cleaned thoroughly at the end of each shift, at the completion of each job, or prior to removing lead work area signs, whichever is sooner, to prevent the spreading of lead scrap or dust.

Lead work areas will be cleaned during a shift when considerable amounts of lead scrap or dust have accumulated.

No equipment or material shall leave a lead work area unless it has been:

- Bagged, such as protective clothing.
- Disposed of as lead-contaminated waste.
- Vacuumed thoroughly, such as tools, tool bags, hard hats, and glasses, etc.

When vacuuming is not sufficient to remove lead dust, the surfaces shall be wiped with a wet rag. Dispose of the contaminated rag as lead-contaminated waste.

The cleanup in all lead work areas, change areas, and storage areas will be performed by qualified lead workers.

HEPA filtered-exhaust vacuum cleaners used for lead work will be the primary means for cleanup. Mark all vacuum cleaners used for lead work with "Lead Only." The type of vacuum cleaner and filter used will be approved by the supervisor prior to initial issue.

Cleaning any lead contaminated surface or material with compressed air or dry-sweeping is prohibited.

9.0 Training

Lead Awareness Training (Course Code BNK)

Lead Exposure Control (Course Code AZS)

Employees and supervisors who perform lead work or who enter a designated lead work area shall be qualified in lead work.

Each employee who works in a designated lead work area where airborne concentrations of lead exceed the action level (30 µg/m3), shall be a qualified lead worker. In order to obtain and maintain qualifications the following items are required:

- Compliance with Chapter 8, Respiratory Protection Policy, as it applies to assigned respiratory protection.
- Training will include:
  - Specific operations with potential for exposure to lead above the action level.
  - The purpose and description of the Medical Surveillance Program.
  - Engineering controls and work practices associated with lead work.
  - The contents of this chapter, PASPs, or other applicable compliance plans.

- The lead standard(s): WAC 296-62-07521 and/or 296-155-176 and appendices.
- Prohibition of chelating agents unless under the direction of a licensed physician.
- Employee right of access to medical and exposure records.

Employee training shall be documented in the Automated Training Management System (ATMS).

Documentation may be stored on a computer as long as it is available to safety and health personnel from the Department of Labor and Industries.

10.0 Lead Work Areas

Each lead work area will be identified by signs and barricade tape located immediately outside the lead work area.

Lead operations requiring ventilation shall use local exhaust equipment to capture the contaminant with the exhaust tube at the point of generation.

All ventilation equipment shall be marked as for lead use only.

Display in a conspicuous manner, signs and barriers that will be used prior to initiating operations involving lead work. Lead work areas in which airborne lead levels exceed the PEL and operations involving direct contact with lead as determined by personal monitoring shall be enclosed by rope and identified with signs as follows:

10 in x 14 in "Warning Lead Work Area" sign.

WARNING
LEAD WORK AREA **POISON** **NO SMOKING OR EATING**

Access shall be limited to lead work qualified employees whose job requires them to work in or pass through the lead work area. Unauthorized or unprotected employees are prohibited from crossing any barrier identified by the above signs.

11.0 Air Monitoring in Lead Work Areas

The Region Safety Office will perform or coordinate air monitoring in lead work areas to determine exposures to airborne lead in the employee's breathing zone.

Employees in work areas that meet or exceed the action level, but do not exceed the PEL, must be monitored for exposure semiannually.

Employees in work areas that exceed the PEL will be monitored for exposure on a quarterly basis.

Supervisors shall inform the Region Safety Office when there has been a production change that may result in new or additional exposure to lead so additional monitoring can be performed.

The Region Safety Office shall inform employees of the airborne lead level in their breathing zone within five business days of receiving results.

12.0 Medical Requirements

WSDOT shall maintain its Medical Surveillance Program for all employees who are or may be exposed above the action level for more than 30 days per year. The medical surveillance program shall comply with all WAC requirements. Regions may implement more protective medical monitoring and removal practices

WSDOT shall assure that lead medical monitoring is performed by or under the supervision of a licensed physician.

In addition to WAC requirements, the Region Safety Office will coordinate a review of lead work practices for any employee in their lead medical monitoring program with blood lead level exceeding 25 µg/dl to assure employees are properly protected from lead hazards.

13.0 Hygiene Facilities

WSDOT shall provide clean change rooms for employees who work in areas where their airborne exposure to lead is above the PEL without regard to the use of respirators. The employer shall assure that change rooms are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.

Employees who work in areas where their airborne exposure to lead is above the PEL shall shower at the end of the work shift, when feasible, and shall not leave the workplace wearing any clothing or equipment worn during the work shift.

WSDOT shall provide lunchroom facilities for employees who work in areas where their airborne exposure to lead is above the PEL. Lunchrooms shall be temperature controlled, positive pressure, filtered air supply, and are readily accessible to employees.

14.0 Required Contents of Lead Work Plans

- A description of each operation in which lead is emitted; e.g., machinery used, material processed, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices.
- A description of the specific means that will be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to lead.
- Air monitoring data which documents the source of lead emissions.
- A work practice program which includes a description of housekeeping practices, hygiene facilities, PPE, and exposure control equipment and its expected efficacy.
- If administrative controls (e.g., limiting exposure through employee rotation) are used, list all affected employees, duration, and exposure levels, as well as any other information demonstrating effectiveness of this control.
- Any other relevant information.

15.0 Appendices

Appendix 15-A Lead Exposure Control Work Plan

To download a current copy of DOT Form 750-060, go to the Forms Management website:
wwwi.wsdot.wa.gov/fasc/adminservices/forms/formfiles/wsdot_forms

Washington State Department of Transportation

Lead Exposure Control Work Plan

Date	Project Location	*Supervisor/Competent Person	No. of People on Crew

Description of Work (e.g. equipment used, materials involved, special procedures/practices, responsibilities)

*Supervisor/Competent Person means one who is capable of identifying existing and predictable lead hazards in the surrounding or working conditions and who has authorization to take prompt corrective measures to eliminate them.

When lead is present if doing these "trigger tasks" (check all that apply)	Treat as if exposed at this level[1]	Use appropriate respiratory protection[2] for exposure level (check protection used)	Methods to Reduce/Control Lead Exposure (check all that apply)[3].
☐ Torch burning ☐ Cutting ☐ Welding ☐ Abrasive blasting	≥2,500 µg/m3 (50 times the PEL or more)	☐ Full-face PAPR (tight fitting) ☐ Hood or helmet PAPR with manufacturer confirmed APF of 1000 ☐ Full-face airline respirator in continuous flow or positive pressure mode	☐ Prior removal with tool equipped with dust control ☐ Ventilation (mechanical)
☐ Rivet busting ☐ Lead burning ☐ Power tool cleaning without dust collection systems ☐ Using lead containing mortar ☐ Abrasive blasting enclosure movement and removal	≥500 µg/m3 (10 times the PEL or more)	☐ Any of the respirators listed above ☐ Full-face respirator ☐ Hood or helmet PAPR ☐ Half-face airline respirator in continuous flow or positive pressure mode	☐ Employee rotation to distribute lead exposed work ☐ Dust suppression/wet methods ☐ Prior removal with chemical stripper ☐ Encapsulation
☐ Manual demolition of structures ☐ Manual scraping ☐ Manual sanding ☐ Heat gun applications ☐ Power tools cleaning with dust collection systems	≥50 µg/m3 to 500 µg/m3	☐ Any of the respirators listed above ☐ Half-face respirator	☐ Other, describe:
☐ Spray painting with lead paint.	Contact your safety office for guidance prior to job	Contact the safety office prior to job	
☐ Inspections ☐ Any item not listed			

1 If you have recent air monitoring on a similar job (e.g. tasks, equipment, environmental conditions, paint lead content), you can use that to determine exposure.
2 Other appropriate options may be available. Contact your safety office for more information. APF = assigned protection factor (see WAC 296-842-13005)

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[3] All feasible control options must be implemented to reduce exposures below the PEL. If respirators are the only method used to reduce exposures, describe in detail why other controls are not feasible.

_____

_____

_____

Requirements for all lead work

- ☐ All employees trained in lead-safe work practices
- ☐ Soap, water (drinking water quality), and towels available and used before eating, drinking, smoking, or other "hand to face" activities
  - ☐ on site or ☐ at facility no futher than three minutes away
- ☐ Area for lunch and breaks that is free of lead contamination. List location: _____
- ☐ All employees have been offered/had access to initial blood testing
- ☐ Other PPE (as applicable) gloves, hardhat, welding gloves, work boots, eye protection/hearing protection
- ☐ No eating, drinking, smoking, or other hand to face activities conducted in lead work zone
- ☐ Equipment, tools, work surfaces where lead dust may accumulate are cleaned with HEPA vacuum and/or wet cleaning methods at end of
  - ☐ shift ☐ project
- ☐ Job will be routinely inspected by Supervisor/Competent person
- ☐ Air monitoring has been preformed in the last 12 months on similar job or will be treated as "trigger task" exposures levels listed on previous page

All items below are also required if exposures are at or above the PEL (50 micrograms per cubic meter of air) or doing trigger tasks with no monitoring within previous 12 months showing exposures are below the PEL

- ☐ Coveralls: worn during all lead work, removed or HEPA vaccumed before entering lunch/break area or leaving work site, and removed at end of shift and placed in sealed and labeled bag or other container that will prevent dispersion of dust. Coveralls or other exposed garments must never be taken home.
- ☐ Respiratory protection used selected based on either:
  1. _____ As required by trigger task level
  2. _____ Recent air monitoring: divide air monitoring results by assigned protection factor of respirator. (Results/APF=) Answer must be below 50
- ☐ Employees medically cleared for respirator use and fit tested

All employees on job site must sign the lead control plan

⇨	⇨	⇨	⇨
⇨	⇨	⇨	⇨
⇨	⇨	⇨	⇨
⇨	⇨	⇨	⇨

Supervisor/Competent Person Printed Name	Supervisor/Competent Person Signature	Date Signed

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