Washington State
Department of Transportation

Safety Procedures and Guidelines Manual

M 75-01.60

February 2024

Human Resources Division
Safety and Health Services Office

Title VI Notice to Public

It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO's Title VI Coordinator at 360-705-7090.

Americans with Disabilities Act (ADA) Information

This material can be made available in an alternate format by emailing the Office of Equal Opportunity at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA(4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Foreword

Providing employees, a safe environment is the culture at Washington State Department of Transportation. The department adheres to the highest standards to ensure the safety and health of all our employees. To ensure this commitment is met, the department provides training and guidance about working in a safe and safety conscious manner.

WSDOT expects individual accountability to ensure the overall success of our Safety and Health Program. A culture of safety reflects the attitudes, beliefs, perceptions and values that employees share in relation to safety. It is the way safety is incorporated into our daily lives.

We encourage all employees to promote safe work practices and actively participate in and support the advancement of our safety and health culture. Safety is the responsibility of all employees, ensuring that we finish the day in the same condition as when we arrived.

Consistent with the Secretary's Executive Order E 1033, the *Safety Procedures and Guidelines Manual* M 75-01, is written with this commitment to safety in mind.

This publication outlines requirements to all employment levels outlining responsibilities and procedures to follow to ensure workplace safety.

Following and observing the procedures and responsibilities in this manual will reduce the number of injuries, vehicle incidents and unsafe conditions.

Everyone is responsible to:

- Be observant of your surroundings and report any unsafe conditions
- Follow the Take Two initiative
- Develop a pre-activity safety plan
- Stop work and correct any unsafe conditions
- Prevent and report all personal injury and vehicle incidents to your supervisor
- Wearing appropriate personal protective equipment
- Participate in the Leading Indicator Program

Regular updates to this manual will occur to emphasize the department's commitment to your safety and health.

/s/ Pasco Bakotich III P.E.	/s/ John Gancel
Pasco Bakotich III P.E.,	John Gancel
Director of Maintenance Operations	Safety and Health Program Manager

Washington State Department of Transportation

Secretary's Executive Order Number: E 1033.04

Signature on file
Roger Millar, PE, FASCE, FAICP
Secretary of Transportation

March 16, 2022
Date

Employee Safety

I. Introduction

A. Purpose

Employee safety at the Washington State Department of Transportation (WSDOT) is of utmost importance and is our key value.

This Secretary's Executive Order focuses on exceptional safety performance and embracing a proactive safety-first culture. It sets the expectations for all employees to achieve our workplace employee safety goals not only because they *have to* but because they *want to*. We envision the safety of our employees becoming an instinctive thought process.

B. Supersession

This Secretary's Executive Order supersedes and replaces the prior version with the same title, dated January 26, 2018. All references to the superseded E 1033.03 now reference E 1033.04.

C. What Has Changed

- In Subsection I.A, this revision modifies the purpose statement.
- This revision modifies and adds language throughout Sections II, III, and IV.
- In Section V, this revision updates the contact information.
- In Section VI, this revision updates and rearranges the list of references.
- In Section VII, this revision adds language about leadership review and replaces references to the Assistant Secretary of Finance and Administrative Services with references to the Director of Human Resources and Safety.

II. Secretary's Executive Order

The majority of workplace injuries are preventable. All WSDOT employees are responsible for their own workplace safety. All employees are directed to:

- Be aware of their surroundings and safety hazards to avoid personal injury or property damage.
- Take personal responsibility for their own safety and the safety of their co-workers and model safe behaviors to prevent injuries.
- Continue to develop a "want to" safety culture rather than a "have to" safety program.
- Understand and use standard, reliable safety processes.

- Commit to confronting and correcting unsafe acts, practices, methods, and conditions by using the Take Two initiative and having the courage to intervene.
- Complete required safety training, inspections, housekeeping, and execution of basic safety systems.
- Include workplace safety and health objectives in designing, planning, training for, and carrying out all work activities.
- Select equipment and processes that eliminate hazards rather than relying on personal protective equipment whenever feasible.
- Involve employees in reaching our goal of zero workplace preventable injuries and motor vehicle incidents.
- Help co-workers meet the expectation of working injury-free every day.
- Immediately report all workplace injuries, incidents, and near mishaps.
- Mitigate hazards as they are discovered to reduce risk.

III. Expectations for Performance

The Secretary of Transportation has established safety performance goals for the department:

- Working safely is a critical job expectation and all employees will be evaluated in this area on their performance evaluation.
- Employees are directed to follow the provisions of this Secretary's Executive Order and the department policies referenced within. Failure to do so may result in corrective and/or disciplinary action.

IV. Immediate Actions

Employees will do the following as basic safety provisions:

- Actively lead the safety process—visibly and actively model personal commitment to safety.
- Use data from workplace injuries, accidents, and illnesses to reduce unsafe conditions.
- Begin all in-person and hybrid meetings and gatherings with a safety briefing.
- Participate in work group safety plans, including the Washington State Ferries (WSF) *Safety Management System*.
- Use Leading Indicators (proactive and preventive measures) to address safety issues *before* they happen by participating in activities to decrease injuries and incidents through stretch and flex programs, the employee wellness program, training, positive recognition, safety meetings, workplace inspections, and the near miss program.
- Identify safety concerns, hazards, and safety controls prior to performing tasks.
  - This shall be accomplished during the Pre-Activity Safety Planning meetings (PASPs) that are performed *before* beginning a work activity.
  - PASPs identify hazards prior to the work beginning to mitigate risks associated with the activity.
  - **All employees** have the ability and responsibility to stop work when a safety hazard is identified to correct the behaviors in the operation to promote the safety of all employees.
- Mitigate identified hazards prior to performing tasks.

- Wear appropriate personal protective equipment (PPE).
- Promptly report all personal injury and automotive incidents to their supervisor and through our Safety Inspection and Incident Reporting System (SIIRS).
- Promptly report all near misses through our near miss program.

In addition:

- Managers, supervisors, and leads are responsible and accountable for their employees' workplace safety.
- All employees are responsible and accountable for their own safety.
- WSDOT employees will follow the policies and procedures in the *Safety Procedures and Guidelines Manual* M 75-01, except WSF employees.
- WSF employees will follow the policies and procedures in the WSF *Safety Management System.*

V. Contact for More Information

For more information about employee health and safety policies, please use the Safety and Health contacts list.

VI. References

A. Primary References

- *Safety Procedures and Guidelines Manual* M 75-01
- Safety & Health page on InsideDOT
- WSF *Safety Management System* manuals
- *Human Resources Desk Manual* M 3009
- *Maintenance Manual* M 51-01

B. Additional References

- Secretary's Executive Order E 1036 *Employee Wellness Program*
- *Enterprise Risk Management Manual* M 72-01
- *Work Zone Traffic Control Guidelines for Maintenance Operations* M 54-44

VII. Review and Update Requirements

When changes are necessary to update this document, inform the Director of Human Resources and Safety.

The Director of Human Resources and Safety reviews this document periodically and proposes updates for leadership review and approval by the Secretary of Transportation.

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Chapter 1 Accident Prevention Program

1-1 Purpose

To establish an Accident/Incident 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).

1-2 Scope and Applicability

This program has been developed for employee protection using the referenced WAC chapters and Title 30 CFR MSHA as guidance.

1-3 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
- WSDOT *Safety Procedures and Guidelines Manual* M 75-01

1-4 Definitions

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. PASPs 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

OSHA Recordable Accident/Incident – Any work-related injury or illness that results in loss of consciousness, days away from work, restricted work, or transfer to another job. Any work-related injury or illness requiring medical treatment beyond first aid.

1-5 Organizational Responsibilities

All employees must assure that all health and safety rules, regulations, policies, programs, and procedures are understood and abided by. To this end, employees are responsible for demonstrating and communicating their commitment to health and safety matters at every opportunity.

1-5.1 *Executive Management*

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

- Demonstrate their commitment to the safety of our employees.
- Abide by safety policies/procedures.
- Establish expectations for employees to conduct Pre-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/incident 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.
- Conduct periodic inspections of field and facility operations to ensure consistency with safety program policies and procedures.
- Safety performance will be evaluated for all personnel through the PMP process.
- Recognize agency safety achievements.
- Use all appropriate personal protective equipment.

1-5.2 *Senior Management*

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

- Demonstrate their commitment to the safety of our employees.
- Develop and implement injury and accident/incident reduction and prevention plans for their respective organizations consistent with the department's goals and evaluate them annually.
- Ensure employees conduct Pre-Activity Safety Plan 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/incident reduction goals and support the safety program.
- Ensure there is a safety-training plan for their area of responsibility.
- Ensure that accident/incident 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.
- Conduct periodic inspections of field and facility operations to ensure consistency with safety program policies and procedures.
- Use all appropriate personal protective equipment.
- Coach and mentor co-workers in safety performance.

1-5.3 *Mid-Level Management*

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

- Demonstrate their commitment to the safety of our employees.
- Develop, implement, and monitor injury and accident/incident reduction and prevention plans for their respective organizations consistent with the department's goals and evaluate them annually with their supervisors.
- Ensure employees conduct Pre-Activity Safety Plan 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/incident data and associated risk assessments.
- Ensure that the Accident/Incident Review Process is conducted promptly and completely in accordance with Chapter 6.
- Actively participate in accident/incident 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.

1-5.4 *Supervisors*

Supervisors shall be accountable for the following safety program activities:

- Develop, implement, and monitor injury and accident/incident reduction and prevention plans for their respective staff consistent with the department's goals and evaluate the plans annually with employees.
- Ensure that all work is planned and implemented with safety as an integral part of the process.
- Ensure employees conduct Pre-Activity Safety Plan before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.
- Actively participate in accident/incident 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 employees of any additional safety issues.
- Report accidents/incidents 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.
- Conduct periodic inspections of 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 regarding an accident/incident in compliance with Chapter 6.

1-5.5 *Employees*

Employees shall be accountable for the following safety program activities:

- Demonstrate their commitment to their own and their co-worker's safety.
- Conduct Pre-Activity Safety Plan before work begins, during the actual work as conditions change, shifting to other work, and when emergent work is encountered.
- 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.
- Immediately notify your supervisor of all reportable incidents and near misses.
- 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.

1-5.6 *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/incident 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/incidents 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/incident review process.
- Assist with the development of safety and health goals.
- Assist in the development of Pre-Activity Safety Plans.
- Assist in developing or securing required training and other educational 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.
- Conduct routine office and field visits to support their organizational safety plan.
- Conduct periodic inspections of field and facility operations to ensure consistency with safety program policies and procedures.
- Provide guidance/technical assistance to the senior and mid-level managers in the development and implementation of their organization's safety and training plans.
- Notify the mid-level manager of safety issues as soon as practical.

1-6 Pre-Activity Safety Plan

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 Pre-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. PASPs are the preferred method for pre-planned work activities as a group or as an individual. Documentation of PASPs is required.

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

Retention Schedule: The originator must retain for 5 years after end of calendar year as in accordance with the records retention schedule. See Appendix 1-B for additional information.

1-6.1 *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.

1-7 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 Revised Code of Washington (RCW) Chapter 51.32, or for maritime employees, the WSDOT Enterprise Risk Management Division has approved maintenance and cure benefits under USC Sec. 688 et seq.

1-7.1 *Assaults by Motorists on Department Employees*

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 Enterprise Risk Management Division has approved maintenance and cure benefits under USC Sec. 688 et seq.

1-8 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 an 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 be 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.

1-9 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 monthly. Document meeting attendance and topics covered using DOT Form 750-007 Supervisor's Report of Safety Meeting. Documentation of Safety Meetings is required.

- 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/incidents occurring within the work group and use the information to assist in the correction of identified unsafe conditions or practices.
- Receive and consider accident/incident 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/incidents.
- Demonstrate agency concern for reducing injury and property damage accidents/incidents.

Retention Schedule: The originator must retain for 5 years after end of calendar year as in accordance with the records retention schedule. See Appendix 1-B for additional information.

1-10 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 Law (F416-081-909).
- Your Rights as a Worker (F700-074-000).
- 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.

1-11 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/incident 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.

1-12 Appendices

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

Appendix 1-B Retention Schedule

Office of the Secretary of State
Washington State Archives

State Government General Records Retention Schedule (SGGRRS)
Version 6.1 (June 2020)

4.6 OCCUPATIONAL HEALTH AND SAFETY

The activity of creating and maintaining a safe and healthy work environment for employees. Includes industrial insurance claims.

DISPOSITION AUTHORITY NUMBER (DAN)	DESCRIPTION OF RECORDS	RETENTION AND DISPOSITION ACTION	DESIGNATION
GS 03050 Rev. 0	***Safety Records*** Records required by the federal Occupational Safety and Health Administration (OSHA) relating to maintaining a safe workplace/environment for employees. Includes, but is not limited to: • Required OSHA 300, 300A, and 301 forms; • Logs and supporting documentation; • Safety and incident reports not part of a Labor and Industries claim; • First aid treatments provided on-site by a non-physician where no injury claim is filed. *Reference: 29 CFR § 1904.33.*	**Retain** for 5 years after end of calendar year *then* **Destroy**.	NON-ARCHIVAL NON-ESSENTIAL OFM

Chapter 2 Homeless Encampment/Clean Up

2-1 Purpose

To provide guidance for the safe removal of unattended personal belongings, debris, waste, and/or hazardous items from unauthorized encampments on Washington State Department of Transportation (WSDOT) property.

2-2 Scope and Applicability

Occupying property without authorization presents hazards to employees and the public. These guidelines supplement WSDOT's 2008 Guidelines to Address Illegal Encampments within State Right of Way (Appendix 2-A). In addition, these guidelines identify hazards commonly found at encampments and provides direction to minimize employee occupational exposures to biological, chemical, and physical hazards during encampment cleanup.

2-3 References

- WSDOT *Safety Procedures and Guidelines Manual* M 75-01
- WAC 173-303-9904 Dangerous waste source list
- WAC 296-823 Occupational Exposure to Blood borne Pathogens
- WAC 296-843 Safety Standards for Hazardous Waste
- CFR 1910.120 Hazardous Waste Operations and Emergency Response
- FAS Encampment Removal Rule - City of Seattle

2-4 Definitions

Biomedical Waste: Includes but is not limited to human blood and blood products, pathological waste (e.g., human tissue), human excrement, and sharps waste.

Biological agents/infectious diseases: There are many agents/diseases including, but not limited to:

1. Group A Streptococcal (transmitted via body lice, and skin-to skin contact, these bacteria are spread by direct contact with nose and throat discharges of an infected individual or with infected skin lesions.)
2. Shigella infection (main symptom is diarrhea; transmitted through direct contact with bacteria in the stool)
3. Typhus (bacterial infections that is spread via body lice)
4. Hantavirus (transmitted to humans via dried mice/rat droppings, urine, and saliva)
5. Arbovirus infections (diseases spread by insect bites, such as West Nile, and Zika)

Blood borne pathogens (BBP): Pathogenic microorganisms that are present in human blood and can cause disease in humans. There are many pathogens including, but not limited to:

1. Human immunodeficiency virus (HIV)
2. Hepatitis B virus (HBV)
3. Hepatitis C virus

Buddy system: A system of organizing employees into workgroups so that each employee is assigned to observe another employee within the same workgroup.

Encampment: A tent, erected shelter, camping equipment, and/or personal property assembled on the property that, to a reasonable person, indicates that a person has remained or intends to remain on the property overnight. Camping equipment includes but is not limited to tarps, blankets, sleeping bags, cooking equipment, and other items commonly associated with remaining overnight.

Illegal waste disposal: The improper disposal of litter upon any public property in the state or upon private property in this state not owned by him or her or in the waters of this state whether from a vehicle or otherwise including but not limited to any public highway, public park, beach, campground, forestland, recreational area, trailer park, highway, road, or street.

Outreach and Advocacy Group(s): special interest groups whose intent is to provide assistance to the homeless, (Health Care Authority, Union Gospel Mission etc.)

Personal Protective Equipment (PPE): 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.

Pre-Activity Safety Plan (PASP): A written, site-specific plan, to identify hazards on the work site and describes in detail the steps undertaken to mitigate those hazards.

Regulated (biological) waste: Any of the following:

1. Liquid or semiliquid blood or other potentially infectious materials (OPIM).
2. Contaminated items that would release blood or OPIM in a liquid or semiliquid state, if compressed.
3. Items that are caked with dried blood or OPIM and are capable of releasing these materials during handling.
4. Contaminated sharps.
5. Pathological and microbiological wastes containing blood or OPIM.

Sharps waste: All hypodermic needles, syringes with needles attached, IV tubing with needles attached, scalpel blades, and lancets that have been removed from the original sterile package.

Sharps waste container: A leak-proof, rigid, puncture-resistant, red container that is taped closed or tightly lidded to prevent the loss of residential sharps waste.

Universal Precautions: An approach to infection control, in which all human blood and certain human bodily fluids are treated as if known to be infectious (e.g., HIV, HBV, and other blood borne pathogens).

2-5 Organizational Responsibilities

2-5.1 *Executive, Senior, and Mid-level Management*

- Ensure that adequate funds are available and budgeted for the purchase and/or replacement of materials associated with performing this work.
- Ensure WSDOT expectations and requirements are being met.

2-5.2 *Supervisors*

- Ensure employees receive training and apply these requirements when performing necessary work.
- Take immediate action when necessary to correct any reported deficiencies.
- Identify and monitor employee safety training program needs.
- Monitor field operations to ensure consistency with this document.

2-5.3 *Employees*

- Look out for hazards and know where their assigned buddy is. Communicate hazards to co-workers.
- Comply with the requirements of this document.
- Stop specific work activities if unanticipated hazardous/unsafe conditions are encountered and report those conditions to their supervisor.

2-5.4 *Safety Organization*

- Provide guidance/technical assistance to all levels of the department regarding this standard.
- Identify and communicate requirements for compliance with applicable and statutorily required safety standards.
- Conduct routine field visits and consultation with staff to ensure compliance.

2-6 Local Governments

Local governments may have requirements that WSDOT are to consider prior to and during encampment cleanup activities. WSDOT will consider jurisdictional regulations for all cleanup operations, as long as the policy or guidance does not limit WSDOT's ability to utilize law enforcement during all cleanup operations on state highway, state owned right-of-way (including limited access right-of-way); is state-owned land which WSDOT has statutory authority to operate and maintain. Washington State Patrol WSP has jurisdiction over that right-of-way, and whom WSDOT can permit entry onto the right-of-way without a city/town's prior authorization.

2-7 Encampment Removal Guidelines

The guidelines provide information on common hazards found in clean-up work activities, along with safe working procedures to prevent injury.

2-7.1 *Encampment Removal Hazard Assessment*

- WSDOT employees will not enter occupied encampments.
- WSDOT employees will not post in encampments but rather at entrances or areas near the encampment. Stakes can be used in proximity of the encampment for the postings. This will only be done with law enforcement present in very close proximity.
- WSDOT employees will have limited to no interaction or communication with occupants of these encampments.
- For an encampment to be removed WSDOT can request the aid of the applicable outreach and advocacy group.
- Notify and/or request law enforcement if needed.
- Follow posting requirements.
- Supervisor/Crew Lead will conduct an encampment assessment to identify potential hazards and/or safety concerns.
- Supervisor/Crew Lead will notify the local jurisdiction or Department of Ecology for removal and transport of suspected hazardous materials.
- Verify area is clear of occupants.
- Communicate site assessment results to the crew through a tail gate/safety briefing and/or a PASP.

2-7.2 *Encampment Removal and Clean Up*

- The local area outreach and advocacy group(s) may work with the occupants on the site to locate alternate housing situations.
- Outreach and advocacy groups may work with the occupants of the encampment to remove all personal belongings as they exit the encampment. Any items left will be addressed as outlined in 2-7.3 of this chapter.
- Supervisor, HMW4 and/or Crew Leader shall conduct site inspection/assessment with law enforcement in close proximity if they are entering an occupied encampment.
- Law enforcement shall be present during any entrance of an encampment to ensure that it is unoccupied.
- If the encampment is still occupied, notify the local area outreach and advocacy group(s) that made initial contact.
- If the encampment is still occupied WSDOT employees shall not enter or begin the removal process.
- Supervisor, HMW4 and/or Crew Leader will communicate hazards during tailgate meeting with crew and with law enforcement participating in meeting.
- Work duties shall stop if unauthorized persons enter or return to the encampment.
- Work crew will return to pre-determined safety area as communicated in the safety briefing.
- If occupants or unauthorized personnel refuse to leave the area WSDOT crews will stop work and leave the work area.

- Collapse unoccupied tents and shelters using mechanical means if possible.
- Never reach your hands into bags/clothing/blankets.
- Never open containers (including bags, boxes, totes, etc.) with your hands because they may contain contaminants or sharps that could cause injury.
- Never handle sharps/needles without proper PPE.
- Collect observable sharps/needles using mechanical methods.
- Place sharps/needles into an approved sharps container.
- Do not handle human waste. Let the waste air dry or use outside means for removal (pump truck for large quantities).
- Use hand tools (shovel/rake) to gather debris and materials.
- Use mechanical means to load debris into a dump truck.
- Dispose of sharps, general waste, and debris in accordance with local jurisdiction requirements.
- Small quantities of typical household chemicals such as batteries, paints, propane tanks, tires etc., should be disposed in accordance with local jurisdiction requirements.
- Use the buddy system to communicate work areas hazards and improve situational awareness.

2-7.2.1 Encampment Litter Removal and Clean Up

- The local area outreach and advocacy group(s) may work with the occupants on the site to locate alternate housing situations.
- Supervisor, HMW4 and/or Crew Leader shall conduct site inspection/assessment with law enforcement in close proximity if they are entering an occupied encampment.
- Law enforcement shall be present during any entrance of an encampment to ensure that it is unoccupied.
- If the encampment is still occupied notify the local area outreach group that made initial contact.
- Supervisor, HMW4 and/or Crew Leader will communicate hazards during tailgate meeting with crew and with law enforcement participating in meeting.
- Work duties shall stop if unauthorized persons enter or return to the encampment. Work crew will return to pre-determined safety area as communicated in the safety briefing.
- If occupants or unauthorized personnel refuse to leave the area WSDOT crews will leave the work area.
- It is strictly prohibited for employee(s) to store or possess illegal/prescription drugs that are collected during cleaning activities.
- Call 911, WSP or local advocacy groups to collect and discard of the items.
- Place all drug paraphernalia (foils, tins, pipes) into the proper container (Red Sharps Container) if available and discard according to local jurisdiction regulations.
- If you have questions contact your supervisor, WSP or the local advice group for guidance of disposal of illegal substances.

2-7.3 *Guidelines for addressing unattended personal belongings that are left on WSDOT property*

- WSDOT shall take reasonable steps to identify lost or personal property as defined in Section 5 of the 2008 Guidelines (Appendix 2-A), that are found during a cleanup, provided the identification does not pose a danger to the individual identifying the personal property and segregating it from other material that is not lost or personal property.
- Lost or personal property items that are not refuse, contaminated, illegal, or hazardous shall be stored in a manner consistent with Section 5 of the 2008 Guidelines. All other items found at an encampment may be discarded.
- Minimize handling of materials you observe may contain hazardous substances (including sharps or contaminants). If a pile of materials appears to be hazardous, dispose of it unless lost or personal property can be safely extracted and stored. Otherwise, discard the pile.
- If the container can safely be transported and stored, identify it for storage in accordance with Section 5 of the 2008 Guidelines. If not, discard the container.
- Do not enter tents or structures because they may contain atmospheric hazards. Unless the tent or structure is salvageable, discard with any of its contents that is refuse, contaminated, illegal, or hazardous.
- Any wet and soggy items must be thrown away. Wet items may become moldy and create health and/or contamination issues if stored.

2-7.4 *Encampment Removal PPE*

A PPE hazard assessment will be performed in the workplace as part of the PASP to identify all hazards that would necessitate control. Supervisors may require employees to wear additional PPE beyond the minimum requirements for safety considerations.

Encampment PPE	
Minimum Requirements	**Available**
Eye Protection/Safety Glasses	Hard Hat/Face Shield/Goggles
Safety Footwear*	Hearing Protection
ANSI Class 2 High Visibility Clothing	Respiratory Protection - N95 to P100 Disposable Dust Mask or above**
	Rubber Boots*
	Puncture Resistant Gloves
	Issued White Coveralls or Tyvek

*All safety footwear must meet WSDOT Requirements. Refer to Chapter 5, Personal Protection Equipment, in the *Safety Manual* M 75-01

**Refer to Chapter 8, Respiratory Protection Program, in the *Safety Manual* M 75-01

2-7.5 *Work Activities Near Encampments (Non-Removal)*

Employees not directly involved with encampment removal but who may encounter remnants or debris while performing WSDOT operations need to:

- Conduct an area assessment for occupants and a PASP to identify and control hazards.
- Contact law enforcement for occupant relocation if needed.
- Move debris or sharps with hand tools (shovel, rake, broom) from the work area.
- Use standard PPE while performing assigned tasks to minimize exposures.

2-7.6 *Disinfectant Guidelines*

Equipment and PPE that comes into contact with contaminates, will be disinfected at the end of the work operation and prior to returning to the facility. Tools and or non-disposable PPE that come into contact with contaminates shall be cleaned with a disinfectant or disinfectant wipes on site. Disinfecting on site reduces the likelihood that contaminants will be spread to vehicles, facilities, and residence.

- Decontaminate work area with a bleach mixture, Spartan Hepacide Quat II, or Clorox
- Broad Spectrum disinfectant or equivalent.
- Use spray bottle/hand pump with the recommended disinfectant for smaller items. To make a bleach disinfectant solution mix:
- 1½ cups bleach to 1 gallon of water or 8 cups bleach to 5 gallons of water
- Saturate the area with disinfectant. When using chlorine bleach, let the mixture sit for 5 minutes on the area. Make sure the area is well ventilated.
- Bleach solutions must be used within 24 hours of mixing.

2-7.7 *Personal Hygiene Guidelines*

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses is not allowed in work areas where there is a potential for exposure to blood borne pathogens.

2-8 Hepatitis B Vaccinations

Employees performing encampment clean-up 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 (Refer to Chapter 7 of the *Safety Manual*). 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 placed in the employee's safety and health file.

2-9 Encampment Training Guidelines

- Blood borne Pathogens
- Hazard Identification/Control
- PPE Hazard Assessment
- Decontamination of Equipment, Tools, and PPE
- Situational Awareness and De-Escalation Awareness Training

2-10 Appendices

Appendix 2-A	WSDOT's Guidelines to Address Illegal Encampments within State Right of Way
Appendix 2-B	WSDOT's Guidelines to Address Rest Area Clean Up Guidelines

Appendix 2-A WSDOT's Guidelines to Address Illegal Encampments within State Right of Way

(August 22, 2008)

Purpose

It is WSDOT's intent to preserve the health and safety of all WSDOT employees and members of the public who are involved with and affected by our work. Loitering or trespassing on WSDOT Right of Way is against the law. WSDOT works with law enforcement to make sure WSDOT right of way is used as it is intended.

Areas within WSDOT right of way that are frequented by illegal campers may contain biological and physical hazards in addition to the situations normally associated with construction and maintenance work.

To decrease these risks, we will:

- Identify areas of concern during project design and operations activities planning
- Develop site specific pre-activity safety plans for work in areas that WSDOT frequently encounters illegal campers.
- Provide guidelines or specifications in construction contracts and operations plans for the humane and respectful consideration of the illegal campers and their personal items
- Provide guidelines or specifications in contracts and operations plans for the safe removal and disposal of biohazards in identified areas

These Guidelines form the basis for WSDOT work on state-owned right of way and will be revised as necessary to meet the current situation and to reflect the available resources, including budget and staffing. Each Region may exercise its discretion to deviate from these Guidelines if the Region determines that coordination with a local jurisdiction on a specific clean-up activity is the best course of action under the circumstances. However, the activity shall be at least as effective as the provisions contained in these Guidelines.

1. **Planning**
   - Ensure construction contracts include contract specifications to address the known trespassing conditions.
   - Prior to starting work, require crews to review the appropriate pre-activity safety plan that deals with working in areas with illegal campers. Educate employees on proper methods of communication and interaction with the illegal campers.
   - Review the work schedule and determine work activities that fall within areas frequented by the illegal campers.
   - Determine dates when work will occur in those areas
   - When emerging issues, such as storms, accidents, or safety issues arise, advance notification is not required. Prepare, review, and follow the pre activity safety plan.
2. **Communication**
   - Establish who is responsible for contacting the local jurisdiction.
   - Coordinate internally with other WSDOT staff, working in the same vicinity, and region maintenance, who may already be communicating or meeting with social service providers.

- When creating public communication materials, such as construction alerts and clean-up notification signs, consider translation needs and reading levels. Keep the information simple, direct, and easy to understand. Use symbols and graphics if possible.
- Consider requesting social service organizations, including shelters and free health clinics, to post notices of upcoming work at their facilities and on their organization's Web sites.
- Document communications effort – who was notified, when they were notified, and a summary of the communication.
- Each maintenance area or project office shall appoint a contact responsible for encampment removal issues.

3. **Clearing Areas of Concern**

   a. **Maintenance Activities**

   WSDOT's maintenance operations activities differ from construction projects. Contractors may be unfamiliar with specific site conditions or areas that are not frequently cleared. Maintenance clean-up operations activities are often in response to complaints from the public and business owners.

   Several maintenance functions that place our crews in potential contact with illegal campers include:

   - routine mowing
   - removing noxious and nuisance vegetation
   - improving access to road maintenance features such as ditches, catch basins, drains, unstable slopes, fire hydrants, and ornamental and native vegetation
   - express lanes operations
   - bridge inspection
   - vacant building inspection
   - electrical systems maintenance
   - clearing incident scenes

   Pre-activity safety plans shall take into consideration the potential for interaction with the illegal campers.

   The 72-hour notification protocol as described in Section 3.B. below will be used whenever possible and practical. If immediate removal of an encampment becomes necessary, we will attempt to notify the local human service advocates prior to clean-up and starting our work.

   It may not be feasible to post all sites 72 hours before maintenance activities. Crew scheduling, emergency repairs and removal of nuisances are examples where the maintenance activity cannot wait or be predicted. Sites where maintenance occurs on a frequent but random basis will be posted "No Trespassing." To ensure the safety of WSDOT and all parties, law enforcement may be used to remove illegal campers or those loitering on State right of way.

b. **Construction Activities**

These activities usually allow for more planning and time for notification procedures to take place.

- At least 72 hours prior to activities, such as brush clearing, post signs in the work area. The signs will include dates and locations of the activity and state that trespassing is not authorized. Keep the signs posted throughout the activity. Notify the local jurisdiction by email that the activity is taking place.
- Conduct a visual reconnaissance of the area at least 72 hours in advance to determine type of clean up and removal effort needed.
- At the same time the signs are posted, provide notification to advocacy groups by email of WSDOT's intent to clear the encampment and enlist their help in the process of notification and relocation.
- Immediately before brush clearing or other activity, visually inspect the area. Crews should carefully look for signs of illegal encampments prior to performing any work. Trails into the brush, and signs of an encampment, such as tarps or other temporary structures, are indications that people may be present. Continue monitoring throughout each day – especially after long work breaks.
- Consider using detection aids such as infrared devices or other non-intrusive devices to conduct a sweep of the area before any physical work or machine activity is started.
- On a daily basis, inspect in and around heavy equipment and other concealed places before commencing work. Do not assume that the noise of equipment or machinery will alert an unauthorized person to the hazards of the work.
- Always check areas in pairs, never alone.
- When approaching an area, talk loudly to make people aware that workers are in the area.
- Identify yourself and state that you are with WSDOT or the construction team and not law enforcement.
- Never touch blankets or reach into a bag or clothing without proper protection. Wear proper safety equipment.
- Request law enforcement assistance if needed.
- Clear the area of all biohazards. All biohazard material and garbage collected from the site will be disposed of at an appropriate disposal site.
- If personal items remain on-site, WSDOT staff or contracted agents will remove the material in accordance with Section 5 below.
- After removal of encampments, WSDOT shall revisit the site at regular intervals. If encampments in the area persist, WSDOT will permanently post the site, with "no trespassing" signs, and removal efforts may proceed without 72-hour notification.

4. **Securing the Area**

- After clearing the area of all biohazards, secure the area with fencing if necessary and practical. An off-duty police officer or security patrol can also be used to secure the work area.
- Communicate with advocacy groups for their advice and assistance in getting the word out to the community about construction activities.
- Maintain security of area until work is complete. It may be necessary to conduct additional clearing of biohazards, visually survey the area, or use infrared detection equipment to clear the work zone.
- **Removal of Refuse and Personal Property from Active Encampments and WSDOT Right of Way**
- WSDOT maintenance offices or contracted agents will schedule the removal of material remaining at the site.
- Garbage and refuse will be removed and disposed of off-site.
- WSDOT intends to follow the applicable provisions of RCW 63.21.060 and RCW 63.32.010 with respect to the acquisition of lost property found within WSDOT right of way. The right of way includes encampment areas and public passageways, such as streets and sidewalks within WSDOT's jurisdiction.
- Lost personal property may include radios, audio, and video equipment, sleeping bags, tents, stoves and cooking utensils, lanterns, flashlights, bed rolls, tarps, foam, canvas, mats, blankets, pillows, medication, personal papers, photographs, books and other reading materials, luggage, backpacks or other storage containers, clothing, towels, shoes, toiletries and cosmetics, clocks and watches, and eyeglasses.
- At least 72 hours prior to clean-up activities, WSDOT shall post a notice at the encampment area that contains the following information:
- Identification of WSDOT as the agency responsible for the clean-up; Date the notice was given; Date or dates on which the clean-up will occur.
- Phone number for storage location. The storage location may be a local
- WSDOT facility or other local site as designated by WSDOT; That the items will be stored for a maximum of 70 days and if unclaimed within that time, will be disposed of by WSDOT.
- Personal property items that are not refuse, contaminated, illegal, or hazardous shall be placed in large transparent plastic bags. Reasonable efforts should be made to place all items from each camp or sleep site into a separate bag. The personal property will be inventoried to include the date, location and brief description of the item that was placed in the bag. WSDOT staff and its contracted agents shall not open closed items of personal property, unless in their determination it is necessary to do so to protect public safety.

5. **Storage and Return of Personal Property**
   - WSDOT maintenance offices or contracted agents will schedule the storage and return of personal property.
   - WSDOT shall use reasonable efforts to protect the personal property from adverse weather conditions.
   - When a person comes to retrieve the items of personal property, he or she must identify them. The employee may not require the person to show personal identification, but the person must be able to identify key items. A log shall be maintained that reflects that the person has reclaimed his or her property.
   - For a period of not less than ten (10) days after acquisition of the property, WSDOT shall attempt to notify the apparent owner of the property and make arrangements for the return of the item, regardless of the value of the item.
   - If the property is not returned to a person validly establishing ownership or right to possession of the property, WSDOT shall retain the property for an additional sixty (60) days. If the property shall remain unclaimed during the additional sixty (60) day period, and has no substantial commercial value, WSDOT may dispose of the property in a manner it deems appropriate.

Appendix 2-B WSDOT Rest Area Clean Up Guidelines

Purpose

WSDOT's mission is to provide safe, reliable, and cost-effective transportation options to improve communities and economic vitality for people and businesses. While the agency has been tasked with addressing some of the more visible consequences of our state's affordable housing crisis resulting in unauthorized person(s) on WSDOT Right of Way. WSDOT is not equipped to resolve the underlying causes of this societal issue.

Occupying property without authorization presents hazards to employees and the public. This appendix supplement WSDOT's Chapter 2 of the M 75-01 *Safety Manual* which addresses illegal encampments and rest area hazards within State Right of Way (Appendix 2-B). The guidelines identify hazards commonly found at illegal encampments and public rest areas. These methods are utilized to reduce employee and public exposures to biological, chemical, and physical hazards during WSDOT rest area cleanup operations.

Local Governments

Local governments may have requirements that WSDOT are to consider prior to and during homeless encampment cleanup activities. WSDOT will consider local jurisdictional regulations for all cleanup activities, as long as the policy or guidance does not limit WSDOT's ability to utilize law enforcement during all cleanup operations on state highway, state owned right-of-way (including limited access right-of-way); is state-owned land which WSDOT has statutory authority to operate and maintain. Washington State Patrol WSP has jurisdiction over that right-of-way, and whom WSDOT can permit entry onto the right-of-way without a city/town's prior authorization.

Rest Area Clean Up Guidelines

These guidelines provide information on how to safely protect WSDOT employees and the traveling public, while identifying hazards due to exposures created by illegal activity.

Rest Area Clean Up Hazard Assessment

- Supervisor/Crew Lead will conduct an PASP to identify, control and communicate work area hazards.
- WSDOT employees will have limited to no interaction or communication with occupants of these rest areas that are suspected mental health issues or drug activity.
- Verify the area is clear of occupants prior to entering the restroom and or beginning work activities.
- Attendant may request the aid of the applicable outreach and advocacy groups and notify 911 in the event of an emergency.
- Supervisor/Crew Lead will notify the local jurisdiction or Department of Ecology for removal and transport of suspected hazardous materials.

Rest Area Clean Up Activities

- If the restroom is occupied due to illegal activity, notify WSP for relocation of illegal occupant.
- The employee will not enter any structure if smoke or haze is observed in restrooms or any enclosed area.

- Let the room ventilate until all observable smoke and haze are gone.
- If you feel unsafe at any time, immediately leave the area, place "Out of Service" signs on the door to notify the public of the closure.
- Work duties shall stop if unauthorized persons enter, return, or refuse to relocate.
- Work crews will return to a pre-determined safety area as communicated in the PASP safety briefing, contact WSP or 911 for assistance.
- Never open containers (including bags, boxes, totes, etc.) with your hands because they may contain contaminants or sharps that could cause injury.
- Never handle sharps and or drug paraphernalia without proper PPE.
- Collect observable sharps and or drug paraphernalia with mechanical methods.
- Place sharps into an approved sharps container.
- Use hand tools (shovel or rake) or mechanical means to gather debris and refuse for disposal.
- Dispose of sharps, general waste, and debris in accordance with local jurisdiction requirements.
- Small quantities of typical household chemicals such as batteries, paints, propane tanks, tires, should be disposed in accordance with local jurisdiction requirements.
- Use the buddy system to communicate work areas hazards and improve situational awareness.
- It is strictly prohibited for employee(s) to store or poses illegal/prescription drugs that are collected during cleaning activities.
- Call 911, WSP or local advocacy groups to collect and discard of the illegal items.
- Place all drug paraphernalia (foils, tins, pipes) into the proper container (Bio-Hazard) if available and discard according to local jurisdiction regulations.
- If you have questions contact your supervisor and WSP for advice and guidance of disposal of illegal substances.

Rest Area Clean Up PPE

A PPE hazard assessment will be performed prior to starting the task to identify hazards that would necessitate control. Supervisors may require employees to wear additional PPE beyond the minimum requirements for safety considerations.

Encampment PPE	
Minimum Requirements	**Available**
Eye Protection/Safety Glasses	Hard Hat/Face Shield/Goggles
Safety Footwear*	Hearing Protection
ANSI Class 2 High Visibility Clothing	Respiratory Protection - P95 to P100 Disposable Dust Mask or above**
Gloves	Rubber Boots*
	Puncture Resistant Gloves
	Issued White Coveralls or Tyvek

*All safety footwear must meet WSDOT Requirements. Refer to Chapter 5, Personal Protection Equipment, in the *Safety Manual*.

**Refer to Chapter 8, Respiratory Protection Program, in the *Safety Manual*.

Disinfectant Guidelines

Equipment and PPE that comes into contact with contaminates, will be disinfected at the end of the work operation and prior to returning to the facility. Tools and or non-disposable PPE that come into contact with contaminates shall be cleaned with a disinfectant or disinfectant wipes on site. Disinfecting on site reduces the likelihood that contaminants will be spread to vehicles, facilities, and residence.

- Decontaminate work area with a bleach mixture, Spartan Hepacide Quat II, or Clorox
- Broad Spectrum disinfectant or equivalent.
- Use spray bottle/hand pump with the recommended disinfectant for smaller items. To make a bleach disinfectant solution mix:
- ½ cups bleach to 1 gallon of water or 8 cups bleach to 5 gallons of water
- Saturate the area with disinfectant. When using chlorine bleach, let the mixture sit for 5 minutes on the area. Make sure the area is well ventilated.
- Bleach solutions must be used within 24 hours of mixing

Personal Hygiene Guidelines

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses is not allowed in work areas where there is a potential for exposure to blood borne pathogens.

Hepatitis B Vaccinations

Employees performing encampment clean-up 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 (Refer to Chapter 7 of the *Safety Manual*). 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 placed in the employee's safety and health file.

Rest Area Training

- Blood borne Pathogens
- Hazard Identification/Control
- PPE Hazard Assessment
- Decontamination of Equipment, Tools, and PPE
- Situational Awareness and De-Escalation Awareness Training

Chapter 3 Vehicle Operation

3-1 Purpose

To establish Vehicle Operation guidance for the Washington State Department of Transportation (WSDOT) in accordance with state-level guidance by other agencies.

3-2 Scope and Applicability

This chapter has been developed for employee guidance on vehicle operation.

3-3 References

- WAC 296-155-610 *Motor Vehicles on Construction Sites*
- WAC 296-865-30005 *Truck Operation*
- *Use of State Provided Motor Vehicles* M 53-50
- *Enterprise Wide Transportation Policy*
- *Human Resources Desk Manual* Chapter 19 Drug and Alcohol-Free Workplace
- *Vehicle Operator's Handbook* M 3032

3-4 General Responsibilities

Are as assigned in Chapter 1 of the *Safety and Procedures Manual* as well as the items below specific to vehicle operation policy.

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

3-4.1 *Executive, Senior, and Mid-Level Management*

- Provide or replace vehicles as required to perform work in compliance with this policy.
- Perform periodic audits of employee use and training related to vehicle operation.
- Ensure that adequate funds are available and budgeted for the purchase of vehicles in their areas.
- Obtain and coordinate the required training for the affected employees.
- Ensure compliance with vehicle operation policies.

3-4.2 *Supervisors*

- 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 vehicle operation and care before using the vehicle.
- Ensure employees meet the minimum requirements of this policy prior to authorizing vehicle use.
- Provide appropriate vehicle operation training to employees.
- TEF provides an accident packet" on new equipment and replacement of lost or missing packets, which includes all the applicable info needed if there is an accident, Ensure, and keep up to date glove box accident packet.
- Ensure post-accident drug and alcohol policy requirements are met per *Human Resources Desk Manual* Chapter 19.

3-4.3 *Employees*

- Comply with all applicable vehicle operation policies.
- Shall be responsible for reading and become familiar with the manufacturer's vehicle operators guide or manual before operating vehicles or equipment.
- Refuse to operate any vehicle that they are not legally permitted or qualified to operate.
- Notify supervisor if driver's license or any required endorsements have been compromised or suspended.
- Submit to post-accident drug and alcohol testing per the requirement of the *Human Resources Desk Manual* Chapter 19.

3-4.4 *Safety Organization*

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

3-5 Motor Vehicle Operation

Each employee 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 *Enterprise Wide Transportation Policy* and the *Vehicle Operator's Handbook* M 3032.

3-5.1 *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.

3-5.2 *Policy Statement*

It is the policy of WSDOT to provide employees who may be a risk for vehicle backing incidents with safety information before work begins. The following guide provides minimum guidelines, incident reviews, and communications to carry out this policy.

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 for all drivers to follow the Vehicle Backing Policy.

3-5.3 *Vehicle Backing Policy*

According to the National Safety Council, one out of four vehicle accidents can be blamed on poor backing techniques. Typically, less than one percent of employee driving time is spent in vehicle backing operations, while approximately 25 percent of all incidents involving government vehicles or equipment are backing related. The number of backing accidents across the agency continues to be an issue of concern. Several recent fatal backing accidents on DOT projects have drawn our attention to this issue.

The vehicle driver/operator has the final responsibility for safe backing. If the operator is uncomfortable or unsure if the vehicle can be backed safely, he/she should seek assistance.

Pre-Activity Safety Plans or tailgate safety talks/briefings should include safe backing procedures and practices.

Backing motor vehicles with an obstructed view to the rear on construction sites is governed by WAC 296-155-610. Restrictions include audible backing alarms, camera and/or observer. Regarding dump trucks, if employees are physically present in the backing zone, or it is reasonable to expect employees may enter the backing zone, an observer is required unless the unit is equipped with a video camera. Back-up alarms are to remain operational all on vehicles equipped with them. When a backing accident occurs, the employee will notify the supervisor as soon as possible, but no later than the end of the current work shift. The organizational manager will notify the appropriate appointing authority of the accident within three (3) business days of the accident and discuss what needs to happen to prevent future occurrences.

The items below are common sense safety rules, which fit most situations. In situations where they do not completely meet the safety and operational needs, they will need to be supplemented by good planning and judgment.

- Employees are encouraged to back-in state vehicles at office parking stalls. "Back in-not out" has been shown to be the safest guidance. People are much more cautious of (and attentive to) hazards if they back into a parking spot upon their arrival. It is understood that there may be time when this would not be prudent, such as, reduced clearances, space limitation, etc.
- Park defensively! Think in advance. Carefully survey parking opportunities when you arrive at a location. Whenever possible, a vehicle being parked should be positioned to move forward and avoid backing altogether.
- Always conduct a pre-trip inspection on your vehicle. Mirrors never give you the whole picture while backing. Get to know the vehicle's blind spots. In a medium sized truck, blind spots can extend up to 16 feet in front and 160 feet behind a vehicle. The larger the vehicle, or load, the larger the blind spot. Blind spots hide poles, vehicles, or people.
- When vision to the rear is partially or completely obscured, the operator should:
  - Utilize a spotter to guide the operator in backing the vehicle; or,
  - If a spotter is not available, a pre-backing walk around inspection should be completed to identify potential hazards
- No driver will back a motor vehicle at any time without checking clearances completely around the vehicle immediately before backing. In no case will an operator back a vehicle before ensuring the areas behind and beside the vehicle are clear of obstructions and people. Always back slowly.
- On equipment larger than a passenger sedan, the operator shall sound their horn twice in warning before backing. Large vehicles and equipment should be equipped with audible backing alarms. If the equipment lacks a working backing alarm the operator should intermittently sound their horn while backing. If vision to the rear and/or side vision is reduced by inclement weather or darkness, the operator will either use a spotter or conduct a complete walk around inspection before backing.
- 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.

3-5.4 Motor Vehicle Accidents

Motor vehicle incidents must be reported promptly per Chapter 6 of the *Safety Procedures and Guideline Manual* M 75-01.

Refer to Chapter 19 Drug/Alcohol-Free Workplace of the *Human Resource Desk Manual* M 3009 to determine if incident requires post-accident drug and alcohol testing.

3-5.5 Vehicle Cleaning & Disinfecting

Guidance to Mitigate the Transmission of COVID-19 and Other Seasonal Diseases through Vehicle Cleaning & Disinfecting

The safety and wellbeing of our employees is a core value of WSDOT. This guidance is to mitigate the transmission for COVID-19 and other seasonal diseases through exposure from the daily operation of our fleet vehicles and equipment. By employing regular cleaning and disinfecting practices we can effectively minimize the transmission of these diseases while utilizing vehicles and equipment. During a pandemic these practices must be performed pre and post trip, normal times they should be done at least post trip.

See Appendix 3-A for complete guidance.

3-5.6 Carpooling of Employees

In times of pandemic or severe flu season carpooling restrictions may be implemented. For more guidance refer to Appendix 3-B.

3-5.7 Appendices

Appendix 3-A	Vehicle Cleaning and Disinfecting – Guidance to Mitigate the Transmission of COVID-19 and Other Seasonal Diseases
Appendix 3-B	Carpooling of Employees

Appendix 3-A Vehicle Cleaning and Disinfecting – Guidance to Mitigate the Transmission of COVID-19 and Other Seasonal Diseases

The safety and wellbeing of our employees is a core value of WSDOT. This guidance is to mitigate the transmission for COVID-19 and other seasonal diseases through exposure from the daily operation of our fleet vehicles and equipment. By employing regular cleaning and disinfecting practices we can effectively minimize the transmission of these diseases while utilizing vehicles and equipment. Recent studies indicate bacteria and viruses, including COVID-19 (coronavirus), can live on surfaces in excess of 72 hours. This resiliency provides a source of contamination for the next operator or occupants in our vehicles. Surfaces including metal, plastic, glass and other hard surfaces harbor bacteria and viruses, and by touching these surfaces, employees can transfer pathogens to their eyes and mouth; or, spread germs to other commonly touched surfaces outside the vehicle that can lead to an illness. Cleaning and disinfecting these surfaces with approved cleaners and disinfectants removes the vast majority of bacteria and viruses that cause flu, colds and other seasonal illnesses reducing the probability of transmission.

Definitions

- **Cleaning** – Refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection. Cleaning is typically performed using soap, detergents, cleansers and clean water before using a disinfecting method.
- **Disinfecting** – Refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection. Disinfecting is typically performed using approved commercial or household disinfecting solutions.

Availability of Approved Disinfectants

Due to high demand of commercially available disinfecting solutions many of the State's vendors and local sources may have limited supplies to complement the procedures outlined in this guidance. See WSDOT's Disinfection of Surfaces Pre-Activity Safety Plan (PASP) for preferred chemical disinfectants located on Safety's web page. As a last resort, when disinfectants are unavailable, employees shall use gloves (chemical gloves are recommended) if it is practical and does not hamper the safe operation of the vehicle's controls.

Note: Never use alcohol near ignition sources including pilot lights, running motors and welding/cutting torches.

Note: Never smoke while using alcohol. Note: Never mix bleach with ammonia or any other cleanser. Use one or the other. Use either an alcohol solution or use a bleach solution but never mix the two together.

Alcohol Solution

Alcohol is effective against many viruses. Isopropyl alcohol or ethyl alcohol (70%) is a powerful broad-spectrum germicide and can be used to disinfect plastic, glass and metal vehicle surfaces. Since alcohol is flammable, limit its use as a surface disinfectant to small surface-areas and use it in well-ventilated spaces only away from ignition sources. When mixing an alcohol solution, it is important to know that most isopropyl or ethyl alcohol is already diluted for household or consumer use. Therefore, ensure that what you purchase contains a minimum of 70% alcohol and use it directly from the container. No further dilution is required unless you purchase alcohol above the 70% content.

Use Gloves During Operation

If the above disinfecting solutions are unavailable or incompatible with vehicle surfaces, a final countermeasure recommended is for employees to use gloves (preferably chemical or nitrile gloves) during the operation of the vehicle or equipment. This recommendation is to be followed only if, when using gloves, it does not hamper the driver's ability to safely operate the vehicle controls. By reducing skin contact to vehicle surfaces, the probability of transmitting germs to a vehicle surface is severely reduced; thus, the need to clean and disinfectant commonly touched surfaces is also reduced or eliminated altogether.

Note: If leather or synthetic gloves are used instead of chemical (nitrile or rubber), it is important to know these gloves cannot be disinfected and may transmit germs across surfaces. The cleaning and disinfecting procedures above will need to be followed.

Note: Wearing gloves will not stop transmission if you touch a potentially contaminated surface and then touch your face or other surface with the gloves on.

For a list of CDC-approved disinfectants against viruses (including COVID-19 virus), check out the link below:
EPA list-n-disinfectants-use-against-sars-cov-2

Guidance for Maintenance Vehicles and Equipment

Routine cleaning methods should be employed with special attention in certain areas as specified below:

1. Employees should use appropriate personal protective equipment (PPE), such as disposable gloves and eye protection, such as a face shield or goggles when mixing concentrated materials into secondary containers for daily use.

   Note: Wearing gloves will not stop transmission if you touch a potentially contaminated surface and then touch your face or other surface with the gloves on.

2. The secondary containers must be properly labeled to prevent adverse reactions between chemicals (i.e., bleach, alcohol hydrogen-peroxide and other chemicals which are clear liquids and can cause hazardous vapors if mixed).

3. Many of the surfaces in the cab and associated compartments can be cleaned with soap and water using paper towels or disposable rags, according to the vehicle manufacturer's recommendations. Avoid using cleaning methods that cause splashing or generate aerosols. To avoid splashing, spray the cleaning agent into the rag/cloth instead of spraying directly onto the surface.

4. Avoid using excessive amounts of water only dampen the cloth or rag. Using excessive amounts of water inside the vehicle could damage the equipment.
5. It is always best practice to wear nitrile or rubber gloves while cleaning and when operating the same piece of equipment that other drivers operate. Especially during cold and flu season or when a general health alert is issued.
6. Dispose of gloves and soiled material in a sturdy, leak-proof bag that is tied shut and not reopened.
7. When cleaning has been completed and gloves have been disposed, immediately clean hands with soap and water. If soap and water are not readily available, use an alcohol-based (no less than 70% alcohol per CDC recommendations) hand gel and wash hands with soap and water as soon as feasible. Avoid touching the face with gloved or unwashed hands.
8. Do not use compressed air, water under pressure, or any other methods of cleaning that can cause splashing or which might re-aerosolize infectious material. If there is debris that needs vacuumed out of the cab, the vacuum cleaners should only be used after proper disinfection has taken place on frequently touched surfaces (see list below).

   Examples of frequently touched surfaces:

   - Cab door switches
   - Cab door grab handle and surface
   - Steering wheel
   - Ignition key
   - Gauges and switches on dash and in cab
   - HVAC louvers on dash
   - Exposed dash surfaces
   - Radio controls
   - Seat adjustment knobs
   - Two-way radio mike and knobs
   - Freedom or another spreader controller
   - Overhead console doors and locks
   - Cup holders
   - Steering column-mounted stalk controls (turn signals, cruise controls, windshield wiper)
   - Manual/automatic transmission shift lever
   - Seat covers (Vinyl, fabric, or leather)
   - Cabinet door handles
   - Fire extinguishers
   - Reflector kits
   - First aid kits
   - Air horn cable
   - Seat belt buckles
   - Hood latches
   - Dip sticks, lids/caps under the hood

Additional Precautions:

1. Thoroughly clean surfaces at the beginning and end of each shift. Items inside the cab such as the steering wheel and control switches shall be wiped down, whereas items outside the vehicle such as the door handle can just be sprayed.

   To verify this has been conducted note this in the vehicle walk around sheet in the comments section.

2. Some vehicles have a clipboard and pen, ensure clipboard and pen are also wiped down during the cleaning process.

3. The container that is used to keep the spray/disinfectant must not be kept in any vehicle and should be kept at the work location for other people to have access to the cleaning material.

4. Wash your hands with soap and water for at least 20 seconds or use hand sanitizer if soap and water are not available.

5. Cover any coughs or sneezes with your elbow, not your hands.

6. Clean surfaces frequently to prevent the spread of common viruses and diseases.

7. Avoid coming into close contact with co-workers.

8. Avoid touching your face, especially your eyes, nose, and mouth.

Appendix 3-B Carpooling of Employees

In times of pandemic, or severe flu season, carpooling restrictions may be implemented. If so, the WSDOT Beyond COVID-19, the Road Forward document will contain the most current guidance related to carpooling. These detailed instructions will be posted to the Safety & Health web page for access by all WSDOT employees.

WSDOT must be able to do this as safely as possible. The lowest transmission risk option(s) should always be used to reduce or eliminate the risk of exposure between employees in a vehicle.

The WSDOT Beyond COVID-19, the Road Forward document will provide the most up-to-date guidance on transmissible virus related carpooling requirements including:

- Documentation required to fulfill contact tracing requirements
- Disinfection and cleaning requirements for WSDOT vehicles, in accordance with *TEF Vehicle Operators Handbook* M 3032 page 36
- Physical distancing requirements for vehicle occupants
- PPE requirements for vehicle occupants
- Any other guidance currently recommended or required

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Chapter 4 Control of Hazardous Energy (Lockout/Tagout)

4-1 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.

4-2 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.

4-3 References

- WAC 296-803 *Control of hazardous energy (lockout/tagout)*

4-4 Definitions

Affected Employee – An employee whose who's required to operate, use, or be in the area where a machine or equipment could be locked or tagged out for service or maintenance.

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, manually operated switches that disconnect the conductors of a circuit from all ungrounded supply conductors if no pole of the switch can be operated independently, 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 key or combination type lock, to hold an energy-isolating device in a "safe" or off 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, inspecting, modifying, maintaining, and servicing machines or equipment. It also includes lubricating, cleaning, unjamming, and making tool changes.

Tagout – Placing a tagout device on an energy-isolating device using an established procedure to indicate that the energy-isolating device and the machine or 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 attachment. It can be securely fastened to an energy-isolating device and the machine or equipment being controlled may not be operated until the tagout device is removed.

See WAC 296-803 for additional definitions.

4-5 General Responsibilities

In addition to the responsibilities outlined in Chapter 1, 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.

4-5.1 *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.
- Ensure all affected employees/Supervisors have completed the necessary training.

4-5.2 *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.

4-5.3 *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.

4-5.4 *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.

4-5.5 *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.

4-6 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.

4-6.1 *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.

4-7 Training

4-7.1 *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

4-7.2 *Basic Lockout/Tagout Training*

Basic LOTO training (Course Code WSDOT SAFE LOCKOUT TAGOUT) 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.

4-7.2.1 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.

4-7.2.2 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.

4-7.3 *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.

4-7.4 *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.

4-8 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 Chapter 5 Personal Protective Equipment for additional details.

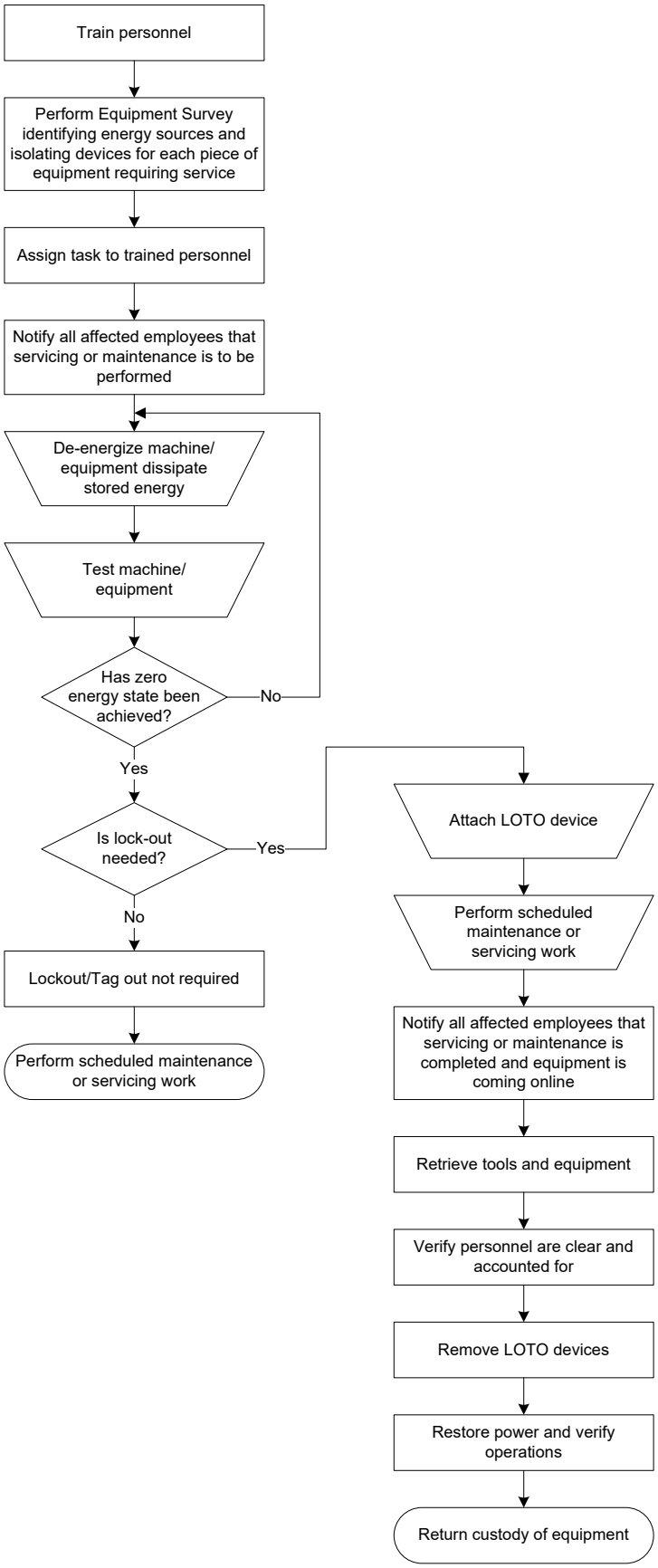
4-9 Recordkeeping

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

Employee training shall be documented in LMS. In addition to LMS 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.

4-10 Lockout/Tagout Flow Chart



4-11 Appendices

Appendix 4-A Lockout/Tagout Procedure

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, 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.

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

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 Form

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:**

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Chapter 5 Personal Protective Equipment

5-1 Purpose

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

5-2 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.

5-3 Reference

- WAC 296-800-160 *Personal protective equipment (PPE)*
- WAC 296-155 *Part C Personal protective and life saving equipment*
- WAC 296-155 *Part E Signaling and flaggers*
- WAC 296-45 *Electrical workers*

5-4 General Responsibilities

Are as assigned in Chapter 1 as well as the items below specific to the 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.

5-4.1 *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.

5-4.2 *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.

5-4.3 *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.

5-4.4 *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.

5-5 Policy

5-5.1 *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 Priority of Hazard Control Appendix 5-A. Proper training regarding PPE will also be conducted prior to its use. These measures will be implemented to minimize those hazards and to ensure the safety of employees.

5-5.2 *Hazard Assessment and Control*

A PPE 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. Some items to consider are:

- Environment condition
- Tools and equipment
- Associated hazards and their method of control
- Processes or equipment that could cause crushing hazards to the feet
- Specific controls shall be assigned to each identified hazard according to the

Priority of Hazard Control (Appendix 5-A).

Note: PPE alone should not be relied on to provide protection for our employees. PPE should be used after all other reasonable means of reducing or eliminating hazards have been carried out. Identifying hazards in your workplace should be built into your regular routines. You should take active steps to eliminate all identified hazards. For example, you can:

- Consider other ways to complete hazardous jobs.
- Reduce hazardous materials or processes.
- Apply engineering controls to reduce or eliminate hazards.

5-5.3 *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 shall meet the specifications contained in American National

Standards (ANSI Z89.1- 1997 –2003-2009), or later revisions.

Department hard hats are designated either as Class G (general) or Class E (electrical) hard hats. Class G hard hats provide protection against impact of falling objects and to lessen the risk of being exposed to low-voltage electrical conductors. Hardhats are tested at 2200 volts of electrical charge in order to be certified.

Class E hard hats are also intended to decrease the impact of falling objects, but these Hardhats reduce the risk of coming into contact with high-voltages electrical conductors. They are tested at 20,000 volts of electrical charge in order to receive certification.

All department hard hats should be disposed of whenever the hardhat 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.

All employees shall wear a hardhat on any construction site whenever there is a potential exposure to flying or falling objects to persons working or occupying the area. Examples include:

- 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.
- In the proximity of equipment operating arms, booms, buckets, etc.
- In the proximity of operating cranes, pile drivers, drilling.
- Working as a flagger.
- Brush cutting work, dangerous tree work, and other logging operations.
- Any designated hardhat area.

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.

Supervisors have the authority to require employees to wear hard hats for safety considerations.

Employees must have their hardhat 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 hardhat may wear other types of head wear. This headwear must not impair visibility or otherwise create a safety hazard.
- The regions may develop criteria or limitations on types of acceptable alternate headwear, or messages which may or may not be displayed on them.

5-5.4 *Eye and Face Protection*

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.

There are three basic types of eye and face protection used at WSDOT which meet the American National Standards Institute (ANSI) Z87.1, (Z87+) and/or CSA Z94.3.

They are:

- Safety glasses
- Goggles
- Face shields*

*When using face shields safety glasses must be worn to protect the eyes.

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.

As an addition to PPE, special eyewear 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.

5-5.4.1 Allowance Payable to Designated Permanent Employees for Prescription Safety Glasses

A permanent department employee that wears prescription glasses and is exposed to eye hazards in the work place 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 $200 per biennium to help offset the purchase cost of prescription safety glasses.

5-5.4.1.1 *Procedure*

Employee Provides Receipt – Employees must provide to their supervisor, proof of purchase (receipt) of prescription safety glasses that meets the specified standards to request reimbursement (i.e., must have ANSI Z87.1, (Z87+) and/or CSA Z94.3 standards.

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 safety glasses. Supervisors may grant exceptions for those times when the employee is not performing fieldwork, such as meetings, training sessions or office work.

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 (see Appendix 5-C 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.

5-5.5 *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
- Custom Molded hearing protection is available to employees. Refer to Chapter 9 Hearing Conservation for additional guidance.

There is a variety of hearing protection available from WSDOT. For information on the department's Hearing Conservation Program, see Chapter 9.

Hearing Protection Use Policy

This policy requires employees to use hearing protection anytime work environment noise is equal to or exceeds 85 dba at the position of the ear. This requirement applies regardless of exposure length, with the limited exception stipulated below. In the event that hearing protection is not readily available to an employee, the employee shall not work in areas with exposure at or above 85 dba until hearing protection is available and in use.

As a practical guide, noise may be above 85 dba if a person must raise his or her voice to speak with someone approximately three feet away (arm's distance).

Unless sound level monitoring indicates otherwise in such conditions, noise should be assumed to be at or above 85 dba and hearing protection should be worn.

This policy does not require hearing protection where employees are working in conditions that are predominantly below 85 dba but may be subject to occasional very brief noise level increases that exceed 85 dba (e.g., rural setting and an occasional loud truck drives by, or restroom air-hand dryers). Hearing protection must be worn if noise equals or exceeds 115 dba or 140 dbc for any length of time, without exception.

1. **Hearing Protection Devices (HPD) – Personal Protective Equipment (PPE) –** When a permanent department employee is exposed to noise at or above 85dB during the course of their duties, the employee may choose to wear custom molded hearing protectors. These employees are eligible for 1 (one) set of custom molded hearing protectors every 4 years. To arrange a fitting for these hearing protectors the employee must contact their supervisor and their supervisor will arrange a fitting through the Regional Safety Office.

   Any disputes concerning the eligibility of an employee to receive custom molded hearing protectors shall be referred to the Appointing Authority and the Regional Safety Manager.

Procedure – WSDOT shall provide two or more types of hearing protection devices at no cost to employees. Hearing protection devices are available in facilities and vehicles throughout WSDOT. Appendix 9-G summarizes advantages, disadvantages, and care for hearing protection devices.

Hearing protection selected must reduce noise (inside the ear) to below 85 dba TWA8. Ideally, the HPD should reduce noise inside the ear to between 75-80 dba, as this level will allow for communication, situational awareness, and perception of emergency signals. Improper or inconsistent use of protection by employees may indicate hearing protection selection is not ideal. Your Regional Safety Office can provide assistance in selecting proper hearing protection.

Employees with questions or concerns about the use, care or effectiveness of hearing protection devices shall immediately contact their supervisor or their Region Safety Office.

5-5.6 *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
- Impervious barrier/Bloodborne Pathogens

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

Appendix 5-B 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.

5-5.7 *Foot Protection*

Foot protection requirements are outlined in WAC 296-155-212. In addition, safety-toe requirements are outlined in WAC 296-800-16060.

Protective footwear must comply with any of the following consensus standards established by the Occupational Safety and Health Act (OSHA)

- American Society for Testing Materials (ASTM)
- Canadian Standards Association CAN/CSA

Employees are to use approved footwear protection, whose job duties present a risk of foot injury.

5-5.7.1 Definitions

5-5.7.1.1 *Approved Safety Footwear*

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

Footwear that has deteriorated to the point where it does not provide adequate protection is no longer approved and must be replaced.

5-5.7.1.2 *Approved Safety-Toe Footwear*

In addition to meeting the definition of a boot in Section 5.5-7.1.1, safety-toe boots have a built in steel or composite protection for the toe areas. A safety-toe boot must have a label attached indicating it meets the specifications of ASTM F2413, or CSA.

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

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

Approved safety-toe footwear must have a label attached indicating it meets the specifications of ASTM F2413, or CSA. Based on your PPE assessment, the following designations may also be required and should be considered when purchasing safety-toed boots.

- **CD** – Identifies protection against conductive hazards (5.4).
- **EH** – Identifies footwear with outsole and heel made of electrical insulation properties; one that is also shock resistant. (5.5).
- **SD** – Identifies footwear designed to reduce the accumulation of excess static electricity (5.6).
- **PR** – Identifies footwear designed to be puncture resistant (5.7).
- **Mt** – Identifies footwear designed to be impact resistant to the top of the foot (metatarsal) (5.3).
- **CS** – Identifies footwear which provides chain saw cut resistance (5.8).
- **DI** – Identifies footwear which provides dielectric insulation (5.9).
- **I** – Impact resistant footwear (class 50 or 75 – described previously).
- **C** – Compression resistant footwear (class 50 or 75 – described previously).

5-5.7.2 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 protective soles and heels, indicated on the footwear label with the code EH.

5-5.7.3 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 Employees are required to wear safety-toe footwear where there is danger of foot injury from falling objects, rolling objects, piercing/cutting injuries, or electrical hazards or as determined by PPE hazard assessment as outlined in Section 5-5.2 Hazard Assessment Control.

Visiting Work Sites with Foot Hazards – Employees will wear the footwear required for the work areas they are visiting.

5-5.7.3.1 *Allowance Payable to Designated Employees for Safety Toe Footwear*

When foot protection described in the WAC and in this policy is required and the safety-toe footwear meets the requirements of this policy, the wearer is eligible for a reimbursement allowance of up to $225 per biennium, to help offset the purchase or repair cost of approved safety-toe footwear. This shall include but not be limited to laces, toe-guards, insoles and waterproofing.

5-5.7.3.2 *Procedure*

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 ASTM F2413 or CSA.

Employees must provide their supervisor with a receipt for rebuilt safety-toe footwear and proof that footwear meets the ASTM 2413 or CSA. (i.e., written documentation or a new stamp in the rebuilt footwear) to request reimbursement.

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 (see Appendix 5-C 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.

5-5.7.3.3 *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.

5-5.8 *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 (or later revision) standards and must be worn as the outermost garment.

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 "High-Visibility" T-shirts and their use by WSDOT employees in their region.

Workers on foot within a highway right of way (fence line to fence line and landscaped areas) and other areas exposed to vehicular traffic or construction equipment 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. Class 2 T-shirts are not allowed for flagging operations.

  Non-flagger WSDOT workers shall wear either an ANSI Class 2 or 3 high visibility garment. The garment must be buttoned or zipped to ensure 360 degrees of background and retroreflective material encircling the torso.

- **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 and Class E lower garment. When rain gear is worn, it shall be ANSI Class 3 or have a required high-visibility garment worn as outermost layer. The garment must be buttoned or zipped to ensure 360 degrees of background and retroreflective material encircling the torso.

- **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 Poster to determine if the retro-reflectivity has been compromised. The supervisor or Region Safety Manager has final authority for replacement of high visibility garments.

- **Used (no longer serviceable) WSDOT Hardhats and Vests –** Hard hats and vests are consumable items that have been clearly identified with WSDOT markings for operational reasons. From a security point of view, there is potential for them to be misused if they fall into the wrong hands. If they are no longer serviceable, they should be rendered unusable before being discarded.

5-5.9 *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, personal 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.

5-5.9.1 Personal Flotation Devices (PFD's)

All employees that work over water or work in an area where there is a risk of drowning must wear a PFD.

Employees are not exposed to the danger of drowning when:

- Employees are working behind standard guardrail.
- Employees are wearing an approved full body harness with a lanyard attached that keeps the employee from falling into the water.

All PFD's must be used and inspected per the manufacturer's instructions.

The following are appropriate or allowable USCG approved commercial PFDs:

Type II: Near-Shore Buoyant Vest- intended for calm, inland water or where there is a good chance of quick rescue.

Type III: Flotation aid- good for calm, inland water, or where there is a good chance of rescue.

Users of PFD's must adhere to the following

- Their PFD must be rated by the USCG under 46 C.F.R. 160 for commercial use.
- They are used and maintained in accordance with the manufacturer's instructions.

5-5.10 *Respiratory Protection*

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

When engineering controls are not feasible, appropriate respiratory protection must be used.

No employee shall wear a respirator until he or she has completed the respiratory training. Respirator training is arranged through the Region or Headquarters Safety Offices.

Refer to the Respiratory Protection Program Chapter 8 for further details.

5-5.11 *Fall Protection*

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.

Refer to the Fall Protection Chapter 11 for further details.

5-5.12 *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.

5-6 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, doff, 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 a 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.

5-7 Record keeping

Records on PPE training will be maintained in the Learning Management System (LMS), Region databases, safety meeting reports, etc.

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 when requested.

5-8 Appendices

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
- Personal Flotation Devices (PFD's)

Appendix 5-B 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-C Vest Check Station

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

Appendix 5-D Invoice Voucher

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

Washington State Department of Transportation

Invoice Voucher

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 discrimination 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

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
Revised 01/2021

Appendix 5-E Vacant

Chapter 6 Accident/Incident Reporting and Review

6-1 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 or vessel incidents, property and equipment damage and incidents while driving a privately owned vehicle on state business.

6-2 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 incident are separate from this incident 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 incident reporting and review using the referenced Washington Administrative Code (WAC) chapter as guidance and apply to all department employees.

6-3 References

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

- WAC 296-27 *Recordkeeping and reporting*
- Health Insurance Portability and Accountability Act (HIPAA) www.hhs.gov/ocr/hipaa

6-4 Definitions

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

Incident Reviewer – The next-level manager or other manager to whom the incident investigator is a direct report. The reviewer is typically in the same organization as the involved employee and the investigator. 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, and typically treated 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. Use the Highway Activities Tracking System (HATS) to report a near miss report.

OSHA Recordable Accident/Incident –Any work-related injury or illness that results in loss of consciousness, days away from work, restricted work, or transfer to another job. Any work-related injury or illness requiring medical treatment beyond first aid.

Note: ALL incidents are reportable. OSHA recordable accidents/incidents are a subset of reportable incidents.

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 incident prevention purposes. The PAP includes the plan objective, the action steps to be taken, and who is responsible to take the steps. The PAP must include systemic issues that may have contributed to the incident 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 Incident – All work-related incidents that result in deaths, injuries, illnesses (see definition above for OSHA Recordable Accident/Incident); all damage to Transportation Equipment Fund (TEF) vehicles and equipment; incidents involving third party motor vehicle/or vessel, property and equipment; all incidents while driving a privately owned vehicle on state business. All reportable incidents will be documented using the Safety Inspection and Incident Reporting System (SIIRS).

Safety Inspection Incident Reporting System (SIIRS) – Computer based program where all incident reporting as well as inspections will be entered.

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

Serious Incidents 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.

6-5 General Responsibilities

As assigned in Chapter 1 as well as the items below specific to incident reporting and review policy.

6-5.1 *Executive, Senior, and Mid-Level Management*

- Notify other appropriate managers of incident information.
- Inform supervisors of their responsibility to report and investigate incident in accordance with this chapter.
- Appoint another supervisor to investigate the incident if the immediate supervisor is not available.
- Review the Employee's and Supervisor's Sections in SIIRS for completeness in accordance with Section 6.2 of this chapter.
- Interview the employee and supervisor about the report as necessary.
- Ensure that preventive actions are taken to prevent similar incidents.

  Note: Preventive action must consider systemic issues that may have contributed to the incident.
- Complete the Reviewer's Section in SIIRS. Reviewers section must be completed as soon as possible but no later than by the due date specified in the SIIRS.
- Manager will ensure that the supervisor of injured employee receives appropriate support as needed, i.e., job site coverage, and document completion.
- Review of incidents reported and subsequent review to ensure the proper procedures are followed.
- Appointing Authority is to be notified by the supervisor of the involved employee as soon as possible but no later than three days of a reportable incident.
- Determine if Preventative Action Plan (PAP) is appropriate, if proper controls were utilized, and if lessons learned should be communicated to others in the department.

6-5.2 *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 incidents, as described in Section 6.1, and complete the Investigator's Section of the incident report, including the Preventive Action Plan (PAP).
- Ensure Employee's Sections in SIIRS has been filled out completely and copy of Pre-Activity Safety Plan (PASP) is attached. The Investigators section should be completed as soon as possible but no later than by the due date specified in the SIIRS.
- Immediately notify the Region Safety Office of a work-related incident resulting in:
  - A death
  - A probable death
  - Any employee admitted to a hospital
  - An amputation
  - Loss of eye

- Secure scene of incident resulting in death, probable death, or hospitalization for purposes of investigation.

  Other occupational injury incidents will be reported within 24 hours after the incident.

  - Incidents are to be reported to the Region Safety Office.
  - Notify the Region Safety Office of reportable incidents involving state/third party motor vehicle/vessel, property, and equipment as soon as practical after the incident or during the next workday.
  - Advise the involved employee on how to report the incident. If the employee is unavailable to complete the Employee's Section in SIIRS, the immediate supervisor is responsible for obtaining the information from the involved employee and/or other witnesses and entering the information into SIIRS.
  - Ensure that injured employee obtains required documents from medical provider. See Section 6-5.3.
  - Take immediate short-term action steps to safeguard department staff and assets.
  - Notify the Appointing Authority as soon as possible but no later than three workdays of a reportable incident.
  - Notify the Safety Office of all Near Miss reports. Evaluate and address the issue as appropriate.

6-5.3 *Employee*

- **Immediately** seek first-aid or medical care in the event of an injury.
- **Immediately** call 911 for Fire/EMT/Police as required.
- **Immediately** notify the Traffic Management Center (TMC) concerning reportable vehicle incidents.
- **Immediately** notify your supervisor of all reportable incidents and near misses.
- Complete the Employee Section in SIIRS for all reportable incidents within 24 hours of the incident or the next scheduled workday.
- Secure from medical provider on initial visit for work related injury or illness;
  - WSDOT Activity Prescription Form (DOT Form 750-031) or Insurer Activity Prescription Form (APF) (L&I form number F242-385-000).
  - Labor and Industries Claim Number.
- Provide incident prevention information about the incident to the Investigator.
- Notify your immediate supervisor of non-occupational injury.
- Notify your supervisor of all near miss incidents and complete a report in HATS.

6-5.4 *Safety Organization*

6-5.4.1 Region Safety Office

- Assist in developing or securing training of supervisors on conducting incident investigations.
- Assist in developing or securing training for supervisors and employees on the incident reporting process.
- Contact the nearest office of the Department of Labor and Industries in person or by phone at 1-800-4BE-SAFE within eight hours of a work-related incident resulting in:
  - A death
  - A probable death
  - Any employee being admitted to a hospital
  - An amputation
  - Loss of an eye
- Notify management and the Headquarters Safety and Health Services Office of an incident 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 incident investigations as necessary.
- Review the completed incident reports for accuracy and completeness.
- Maintain region incident records.
- Review, store, and analyze region incident information for trends and causal factors.
- Prepare periodic region reports for managers.
- Disseminate region incident trend data and charts to executives.
- Communicate lessons learned.

6-5.4.2 Headquarters Safety and Health Services Office

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

6-6 Policy

- Work with the regions and Ferries Division to identify, develop, and execute actions for long-term incident prevention strategies with department-wide impact.

6-6.1 *Investigating Incidents*

Any equipment involved in an incident resulting in a fatality or hospitalization shall not be moved other than to prevent further incidents and injuries.

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

The incident investigation is conducted to:

- Determine the pertinent facts surrounding the incident.
- Determine the contributing factors to the incident.
- Develop controls to minimize or eliminate the cause.
- Define trends.
- Demonstrate agency concern for reducing injuries, MVA's and property damage incidents.

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

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

The Incident Investigator:

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

6-6.2 *Incident Review*

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

6-6.3 *Training*

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

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

6-6.4 *Recordkeeping*

SIIRS contains electronic incident records. Recordkeeping must comply with the privacy requirements of the Health Information Portability and Accountability Act (HIPAA).

6-7 Appendices

Appendix 6-A	Safety Inspection Incident Reporting System (SIIRS)
Appendix 6-B	Activity Prescription Form

Appendix 6-A Accident/Incident Report

To Access SIIRS go to the Safety Web site:
https://wwwi.wsdot.wa.gov/safety-health/incident-inspection-near-miss-reporting

Appendix 6-B Activity Prescription Form

To access the Activity Prescription Form, go to the Forms Catalog:
https://webapps.wsdot.loc/RecordsManagement/Forms/Catalog?SearchString=APF

Washington State Department of Transportation

WSDOT Activity Prescription (APF)

Medical Provider: WSDOT utilizes this form for both job related and non-job related conditions. Please complete thoroughly to inform WSDOT of employee's ability to work with or without restrictions.

Worker's Name	Visit Date:	Claim Number (if appropriate):
Health-Care Provider's Name (Printed)		Date of Injury

Released for Work (Check One)

☐ Worker is Released to the job of injury without restrictions on (date) _____ Skip to "Plans" section below.

☐ Worker may perform modified duty (altered duties or limited hours), if available, from date _____

to _____ for _____ hours/day

Will using any prescribed or non-prescribed drugs affect employee in performing safety-sensitive functions, or affect job performance? If yes, please attach a written explanation.

Estimate physical capacities below.

☐ Worker not released to any work from (date) _____ to _____

☐ Prognosis poor for return to work at the job of injury at any date

☐ May need assistance returning to work

Doctor's Estimate of Physical Capacities

◯ **Temporary Restrictions** ◯ **Permanent/Indefinite Restrictions**

Worker Can (Related to work injury) Blank space = Not restricted	Never	Seldom 1-10% 0 - 1 hr	Occasional 11 - 33% 1 - 3 hrs	Frequent 34 - 66% 3 - 5 hrs	Constant 67-100%Not Restricted
Sit					
Stand / Walk					
Climb (ladder / stairs)					
Twist					
Bend / Stoop					
Squat / Kneel					
Crawl					
Reach Left, Right, Both					
Work above shoulder L,R,B					
Keyboard					
Wrist (flex/extension) L,R,B					
Grasp (forceful) L,R,B					
Fine manipulation L, R, B					
Operate foot Controls L,R,B					

Lifting / Pushing	Never	Seldom	Occasional	Frequent	Constant
Example	50 Lbs	20 Lbs	10 Lbs	0 lbs	0 lbs
Carry L, R, B	Lbs	Lbs	Lbs	Lbs	Lbs
Lift L, R, B	Lbs	Lbs	Lbs	Lbs	Lbs
Push / Pull	Lbs	Lbs	Lbs	Lbs	Lbs

Other Restrictions / Instructions

Medically Approved Absence Dates

For WSDOT Use Only

Supervisor

Can you accommodate restrictions noted on form?

☐ Yes until date

☐ No, indicate reason

Supervisors Signature

For L&I claims, please send this form to HR Return to Work (fax: 360-705-6845 / MS: 47310). For non-claim related issues, please send to regional HR office. This form should not be retained in employee personnel file.

Plans

Worker progress ☐ As expected / better than expected. Circle one ☐ Slower than expected. For OJI address in chart notes

Current rehab ☐ PT ☐ OT ☐ Home exercise ☐ Rest ☐ Other _____

Surgery ◯ Indicated / planned ◯ Not Indicated

Comments (prognosis only)

_____

_____

☐ Next scheduled visit is _____

☐ None, Treatment concluded, Max. Medical Improvement (MMI)

Any permanent partial impairment? ◯ Yes ◯ No ◯ Possibly

Will you rate impairment? ◯ Yes, please attach ◯ No

If not, will you refer for a rating consultation? ◯ Yes ◯ No

☐ Care transferred to _____

☐ Study pending

☐ Consultation scheduled with _____

Physician's Signature	☐ Doctor ☐ ARNP ☐ PA-C	Phone Number	Date

If L & I claim please fax to 360-705-6845.

DOT Form 750-031
Revised 12/2015

WSDOT adheres to GINA (The Genetic Information Nondiscrimination Act of 2008).

Employee Release

I authorize my health care provider to complete and forward this medical questionnaire to the Washington State Department of Transportation.

Employee Signature _____ Date _____

Employee Print Name _____

The Genetic Information Nondiscrimination Act (GINA)

The Genetic Information Nondiscrimination Act of 2008 (GINA) prohibits employers and other entities covered by GINA Title II from requesting or requiring genetic information of an individual or family member of the individual. To comply with this law, we are asking that you not provide any genetic information when responding to this request for medical information. "Genetic information," as defined by GINA, includes an individual's family medical history, the results of an individual's or family member's genetic tests, the fact that an individual or an individual's family member sought or received genetic services, and genetic information of a fetus carried by an individual or an individual's family member or an embryo lawfully held by an individual or family member receiving assistive reproductive services. 29 CFR § 1635.8(b)(1)(i)(B).

DOT Form 750-031
Revised 12/2015

WSDOT adheres to GINA (The Genetic Information Nondiscrimination Act of 2008).

Chapter 7 Bloodborne Pathogen Exposure Control Plan

7-1 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.

7-2 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.

7-3 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*

7-4 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).

7-5 General Responsibilities

Are as assigned in Chapter 1 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.

7-5.1 *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.

7-5.2 *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.

7-5.3 *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.

7-5.4 *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.

7-6 Policy

7-6.1 *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.

7-6.2 *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:

7-6.2.1 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.

  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.

7-6.2.2 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.

7-6.3 *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.

7-6.4 *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.

7-6.5 *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.

7-6.6 *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.

7-6.7 *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.

7-6.8 *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 7-6.7.

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.

7-6.8.2 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*
- 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.

7-6.8.3 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.

7-6.8.4 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.

7-7 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

7-8 Personal Protective Equipment

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

7-9 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.

7-10 Appendices

Appendix 7-A Bloodborne Pathogens Exposure Control Plan

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.

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.
      - Contact your Region Safety Managers for the proper disposal of biohazard bags or other impervious containers.
      - 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 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.

Appendix 7-B Opinion for Post-Exposure Evaluation

Appendix 7-C Hepatitis B Vaccination Declination

Washington State Department of Transportation

Hepatitis B Vaccine Declination

Check which box best applies to the employee's situation.

☐ I understand that due to my potential 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 vaccine at this time. I understand that by declining this vaccine, I may 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 wishes to decline the Hepatitis B vaccination after an exposure incident.

_____

Employee Name (Please Print)

_____

Employee Signature

_____

Date

DOT Form 750-003
Revised 12/2019

Appendix 7-D Universal Precautions

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.

Appendix 7-E Biohazard Symbol

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.

Chapter 8 Respiratory Protection Program

8-1 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.

8-2 Scope and Applicability

This chapter of the *Safety Procedures and Guidelines Manual* M 75-01 affects any Employee using respirators as part of their work at WSDOT.

This program does not apply to underwater breathing devices.

- For Respiratory protection from *Wildfire Smoke* see Chapter 19 of this manual.

8-3 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*
  https://apps.leg.wa.gov/WAC/default.aspx?cite=296-842
- WAC 296-820, *Wildfire Smoke*
  https://lni.wa.gov/rulemaking-activity/AO20-29/2029Adoption.pdf

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).

8-4 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/ N95. 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 Mask – A name used to refer to filtering facepiece respirators. All dust masks used for WSDOT operations must be NIOSH certified. See filtering facepiece.

Exposure, or exposed – 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, 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 – Fibrous material that removes dust, spray, mist, fume, fog, smoke particles, or other aerosols from the air.

Filtering facepiece respirator – A tight-fitting, half-facepiece, negative-pressure, particulate air-purifying respirator with the facepiece mainly composed of filter material. These respirators do not use cartridges or canisters and may have sealing surfaces composed of rubber, silicone, or other plastic-like materials. They are sometimes referred to as "dust masks."

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.

Full-facepiece respirator – A tight-fitting respirator that covers the wearer's nose, mouth, and eyes.

Half-facepiece respirator – A tight-fitting respirator that only covers the wearer's nose and mouth.

High Efficiency Particulate Filter (HEPA) – An air purifying filter that removes at least 99.97 percent of particles with a diameter of 0.3 micrometers from contaminated air. Filters designated, in 42 CFR Part 84, as and "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 face piece 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) – Employee exposure level to toxic substances or harmful agents that must not be exceeded.

Qualified Person – Personnel who have training and experience in air monitoring, exposure assessment, and workplace evaluations.

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".

Quantitative Fit Test – A test that determines the adequacy of respirator's fit for an individual. The test relies on specialized equipment that preforms numerical measurements of leakage into the respiratory inlet covering.

SCBA – Self-contained breathing apparatus is worn to provide breathable air to user via tight-fitting full-face pressure demand or positive pressure respirator for use with an airline or tanks.

Safety Data Sheet (SDS) – The document provided by chemical or industrial manufacturers that contains information on hazardous chemicals. A SDS includes nature of the chemical, precautions to take in using the chemical, conditions of safe use, clean-up procedure during a spillage accident, and recommended disposal procedures. (Formerly referred to as Material Safety Data Sheets (MSDS).

Seal Check – A pressure/vacuum test conducted by the wearer each time the respirator is put on. To determine if the respirator is properly sealed to the face.

Vestmed – A private medical online company used for medical evaluation for respirator clearance and electronic record storage.

Voluntary use – Respirator use that is requested by the employee and permitted by the employer when no respiratory hazard exists.

8-5 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 their supervisor.

8-5.1 *Organizational Responsibilities*

Are as assigned in Chapter 1 as well as the items below specific to Respiratory Protection Program.

8-5.1.1 Executive, Senior, and Mid-Level Management

Ensure that adequate funds are available, budgeted for the purchase of respiratory protection equipment and related supplies.

8-5.1.2 Supervisors

- Ensure completion of respiratory protection training if supervising employees who use respirators.
- 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.
- Ensure that the tight-fitting face piece respirator wearer is clean-shaven and does not have any facial hair interfering with the ability to obtain a seal.
- Communicate appropriate needs to managers.
- Ensure that an adequate supply of respirators, cartridges, and replacement parts are available.

8-5.1.3 Qualified Persons

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

8-5.1.4 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.
- Ensure to participate in, and apply, respiratory protection training as applicable.
- Address any and all concerns regarding respirator usage with their supervisor.
- Assist the supervisor in the development and maintenance of specific respirator usage plans.
- Maintain and store respirators according to manufacturer's recommendations.
- Inform the supervisor if the respirator no longer fits (e.g., significant changes in weight, dental work, facial surgery, scars, etc.) and request a new one that fits properly.
- Understand the work task hazard requiring respirator protection.

8-5.1.5 Safety Organization

8-5.1.5.1 *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.

8-5.1.5.2 *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.

8-5.1.5.3 *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 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.

8-6 Training

- Employees shall be trained on the use and purpose of Safety Data Sheets for the chemicals that they could be exposed to will provide information on the health effects and hazards for those materials, or otherwise include information on respiratory hazards that require respirator use (e.g., silica, older bridge paint, etc.).
- Employees will be trained initially and prior to worksite respirator use begins. Annually thereafter, and additionally when employee has not retained knowledge or skills; or changes in worksite, or respirator type makes previous training incomplete or obsolete.

- Employees will be instructed on the use, capabilities, 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 (putting on), inspection, use, and doffing (taking off) of their respirators, and how improper fit, use, or maintenance can compromise the respirator effectiveness and reliability. Supervisors of employees who will be donning respirators shall be trained in the use of respirators.
- 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 The Learning Center, TLC, (Global Safety Principles: Respiratory Protection 2.0)
- 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. Replacement of cartridges is to follow the Cartridge Change out Schedule in Appendix 8-D or as indicated by the end service life indication (ESLI), if so equipped.

8-6.1 *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 real time monitoring 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.

For guidance on Wildfire Smoke (see Chapter 19 Wildfire Smoke)

8-6.2 *Respirator Selection*

Respirators are selected for use by the Region Safety Office, consulting the Respiratory Program Administrator, as needed. 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 (see Appendix 8-C). 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, SDS, or other appropriate and authoritative reference. All respirators shall be NIOSH approved.

All tight-fitting respirators (both negative and positive pressure) shall not be used with beards, other facial hair, and piercings that prevent 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.

8-6.3 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.

8-6.4 Assigned Protection Factors (APF)

- 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 up to 50*
- Powered air purifying respirator (PAPR tight-fitting/loose) – APF *up to 1000 with documentation from manufacture.
- Airline/SCBA full-face pressure demand- APF=50
- SCBA full-face positive pressure- APF=10000
- Assigned Protection Factors for respirators not listed above can be found in WAC 296-842-13005 Table 5.
- ***Note:*** You must use quantitative fit testing methods when a negative pressure respirator will be used in concentrations requiring a protection factor greater than 10. This includes full-face piece air purifying respirators.

8-6.5 Voluntarily Use Respirators

- Respirators protect against airborne hazards when properly selected and used. Respirator usage that is required by WSDOT is not voluntary use. With required use,
- WSDOT must provide additional training that meets the additional requirements in this chapter. DOSH recommends voluntary use of respirators when exposure to substances is below DOSH permissible exposure limits (PELs) due to respirators providing you an additional level of comfort and protection.
- Choosing to voluntarily use a respirator the employee (s) must be aware that **respirators can create hazards for the user**. You can avoid these hazards if you know how to use your respirator properly AND how to keep it cleaned and maintained.

- **Follow these important guidelines:**
  - Read and follow all instructions provided by the manufacturer about use, maintenance (cleaning and care), and any possible warnings regarding the respirator's limitations.
  - Choosing respirators that have been officially certified for use to protect against the substance of concern. The National Institute for Occupational Safety and Health (NIOSH) certifies respirators. If a respirator is not certified by NIOSH, there is no guarantee that it meets minimum design and performance standards for workplace use.
  - A NIOSH approval label will appear on or in the respirator packaging. It will tell you what protection the respirator provides.
  - Label your respirator so you do not mistakenly use someone else's. When labeling do so with an external tag that does not interfere with the wear and function of the mask.

  DO NOT wear your respirator into:
  - Required use situations when you are only allowed voluntary use.
  - Atmospheres containing hazards that your respirator is not designed to protect against.
  - Example: Respirators designed to filter dust particles will not protect you against solvent vapor, smoke, or oxygen deficiency.

8-6.6 *Chemical Protection and Color Coding For 3M & North Cartridges*

Air Contaminant	Cartridge Color Coding 3M	Cartridge Color Coding North
Acid Gases (AG)	White	White
Ammonia/methylamine (A/MA)	Green	Green
Acid Gases, organic Vapors and Ammonia (OV/AG)	Brown	Olive
Acid Gases and Organic Vapors (OV/AG)	Yellow	Yellow
Mercury/Chlorine gas (Hg/Cl)	Orange	Olive/Orange
Organic Vapors (OV)	Black	Black
Heavy Metal dusts/fumes/mist	Purple/Magenta	Purple/Magenta

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 a contaminant at five times above the permissible exposure limit (PEL). The employee should be able to use a half-face respirator, equipped with appropriate cartridge/filter 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.

8-6.7 *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.

8-6.8 *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. LMS 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.

8-6.9 *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 face pieces (N95), also called “dust masks,” are 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. WSDOT is using Vestmed in the regions as the qualified LHCP who will provide a written recommendation regarding respirator use and respirator clearance. 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 via Vestmed login. Once the employee has completed the questionnaire, it shall be submitted online to Vestmed WSDOT’s LHCP. Vestmed will provide respirator recommendations via online portal. Program Manager (Safety Officer or authorized user) will enter fit test results into the Vestmed database.

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.

8-6.10 *Fit Testing*

Employees who use tight-fitting respirators will be properly fitted and tested prior to required use of the respirator. Fit testing will be performed every 12 months for as long as the employees continues required use of a respirator.

If it is determined that an individual cannot obtain an adequate fit or face seal with an appropriate negative pressure respirator, another make/model will be tested. If the second make/model was also unable to adequate fit, 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 by someone knowledgeable of and in conformance with fit testing requirements of WAC 296-842-22010. One of the four qualitative methods will be used: Isoamyl acetate, which smells like bananas; Saccharin, which is sweet taste in your mouth; Bitrex, which leaves a bitter taste in your mouth or Irritant Smoke.

> ***Note:*** Irritant smoke (stannic chloride) and the hydrogen chloride could exceed the ceiling limit (5 ppm), IDLH (100 ppm) during the fit test. Putting the person conducting the fit testing at risk. All personnel conducting a fit test must wear proper respiratory protection during fit test procedures.

Quantitative fit-test procedures will follow Table 16 of WAC 296-842-22010. For half-facepiece respirators the overall minimum fit factor of 100, and full-facepiece respirators have a minimum fit factor of 500. For qualitative and quantitative (salt aerosol generator) fit testing methods, the aerosol/vapor will be continuously discharged around the respirator while the employee completes the following exercises to verify the seal of the respirator:

- Normal 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 (The Rainbow Passage below.)
- Bending over
- Normal breathing

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.

8-6.11 *Respirator Cleaning*

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

8-6.12 *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:

- Face piece
  - 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

If there are any problems with the respirator found while inspecting, pull out of service until the problem is fixed or a new one is purchased.

8-6.13 *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.

See Table 8-D-1 for further guidance. Regions should make efforts to change respiratory protection to manufactures that provide end of life service indicators on cartridges.

8-6.14 *Respirator Storage*

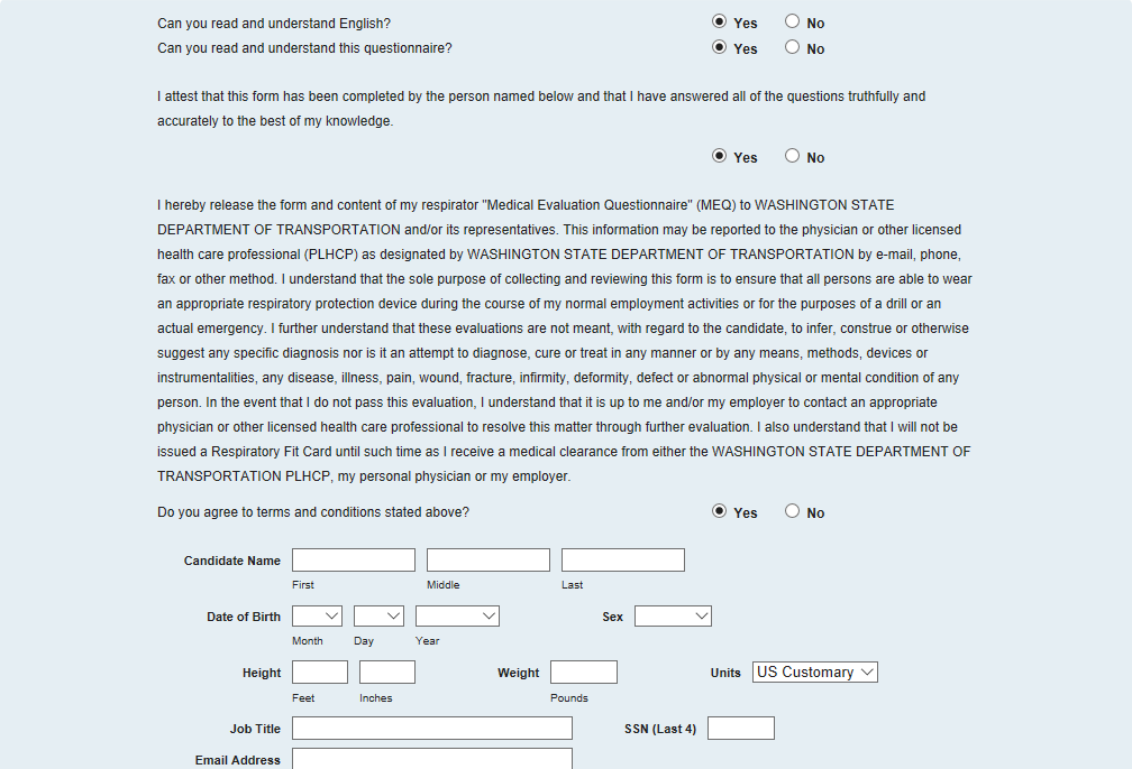
Respirators must be stored in a clean, dry, out of direct sunlight area and according to the manufacturer's recommendations. Each employee shall clean and inspect their respirator according to the provisions of this program. Respirators shall be stored in a clean, dry environment in a manner that will not cause the respirator to be deformed. Storage in air-tight container, such as a bag and/or rigid, plastic container is strongly recommended. Replacement 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.

8-7 Appendices

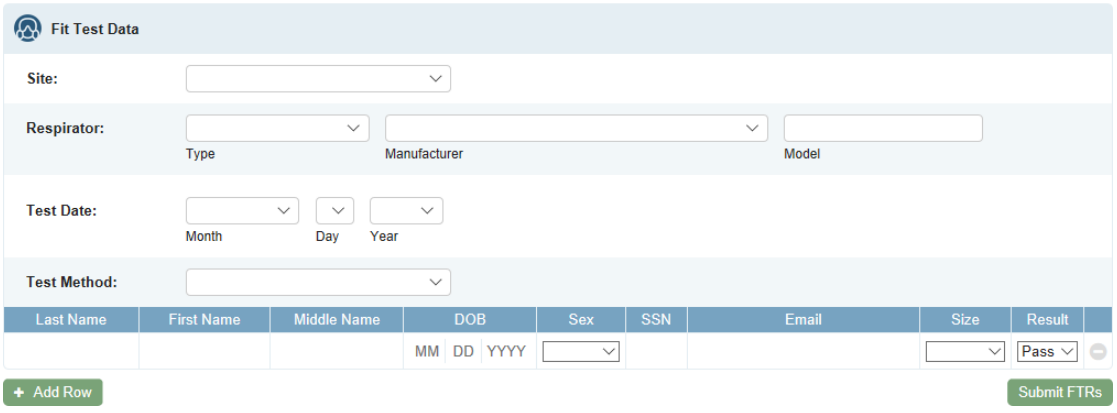
Appendix 8-A	Respirator Record
Appendix 8-B	Respirator Cleaning Procedures
Appendix 8-C	Respiratory Use at WSDOT
Appendix 8-D	Cartridge Change Schedule

Appendix 8-A Medical Evaluation Questionnaire (MEQ)

To access the MEQ a safety employee will set up an employee profile through the Vestmed website: www.vestmed.com below is how the interface will appear.



The Fit Test Record must also be filled out by a safety employee using the Vestmed website.



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 face pieces 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.

Appendix 8-C Respiratory Use at WSDOT

Table 8-C-1 Respiratory Use at WSDOT Sites and/or Work Activities Potentially Requiring Respirators

Work Activity	Containment's	Estimated Respirator	WAC, PEL-TWA8	Comments
Bridge/structure work containing lead paint, grinding, cutting, blasting, torching, etc.	Lead, and other heavy metal components	Grinding-half/full- face APR, torching/cutting – hooded or full face PAPR – with air exhaust	Lead – 0.05 mg/m^3 Zinc – 5.0 mg/m^3 Cadmium – 0.005 mg/m^3 Chromium – 0.5 mg/m^3	*Any type of torching/burning of lead paint can **quickly** expose employees/ contractors to levels of lead in excess of multiple times the PEL
Concrete hammering or saw cutting; Sweep or abrasive	Dust, respirable dust, Crystalline silica	Filtering HEPA face piece, half-face or full-face APR, equipped with P100, HEPA	Crystalline Silica - 50 µg/m^3 Dust – 10 mg/m^3 Respirable dust – 5 mg/m^3	Wet/engineering controls; Minimize dust. Any "dry" cutting can expose employees to levels higher than the PEL.
Blasting or welding operations	Metals, metal slag, etc.	equipped with P-100 HEPA	Lead – 0.05 mg/m^3 Cadmium – 0.005 mg/m^3 Chromium – 0.5 mg/m^3	Components of abrasive blast or substrate may contain hazardous components
Insecticide/Herbicide applications	Chlorinated compounds, organophosphates, etc.	Semi-volatile filters with half or full-face APR, equipped with P100 HEPA	Heptachlor – 0.5 mg/m^3 Paratthion – 0.1 mg/m^3 Furadon – 0.1 mg/m^3	Stay upward during application; follow manufacturer recommendations for filter cartridge. Potential skin exposure concerns
Asphalt Paving Operations	Asphalt Fumes	None required – P95 to P100 disposable dust mask is recommended	Asphalt Fumes – 5.0 mg/m^3 Xylenes – 100 ppm/435 mg/m^3 Napthalene – 10ppm/50 mg/	Stay upwind during application, follow manufacturer recommendations for filter cartridge
Environmental sampling or inspections	Asbestos, volatiles, and other unknown	Half or full-face APR, equipped with P100 and volatile cartridge (OV)	Asbestos – 0.1 fiber/cc Benzene – 0.1 ppm Toluene – 200 ppm	Manage organic vapors
Animal wastes	Pigeon, bat, mice droppings	None required – P95 to P100 recommended	NA	Avoid breathing dusts of animal wastes. Disinfect prior to commencing with cleaning procedures
Isocyanate/VOC paint	Painting/paint removal/Welding	Half or full-face APR, equipped with P100 and volatile cartridge (OV)	MDI-0.02 ppm ceiling Toluene-200ppm Xylene-100ppm	Manage organic vapors

Note 1: The above work activities and the potential airborne hazards – Must NOT be performed in confined spaces (Tanks, Vaults, Culverts, etc.)

Note 2: Employees exposed or potentially exposed to "other" non-regulate hazards, and desiring respirators use must follow the Voluntary Respirator use procedures as documented in this Program.

Note 3:* A site-specific safety and health plan is required to be prepared for any projects that require PAPR or supplied air respirators, and that deal with lead paint.

Appendix 8-D Cartridge Change Schedule

Table 8-D-1

Work Activity	Containments	Estimated Respirator	Cartridge Change out Frequency (When not using ESLI)	WAC, PEL-TWA8
Bridge/structure work containing lead paint, grinding, cutting, blasting, torching, etc.	Lead, and other heavy metal components	Grinding-half/full-face APR, torching/cutting – hooded or full face PAPR – with air exhaust	When an increase in resistance to draw air into the respirator is noticed	Lead – 0.05 mg/m^3 Zinc – 5.0 mg/m^3 Cadmium – 0.005 mg/m^3 Chromium – 0.5 mg/m^3
Concrete hammering or saw cutting	Dust, respirable dust, Crystalline silica	Filtering HEPA face piece, half-face or full-face APR, equipped with P100, HEPA	When an increase in resistance to draw air into the respirator is noticed	Crystalline Silica – 50 µg/m^3 Dust – 10 mg/m^3 Respirable dust – 5 mg/m^3
Sweep or abrasive blasting or welding operations	Dust, silica, heavy metals, metal slag, etc	Full/half-face APR equipped with P-100 HEPA	When an increase in resistance to draw air into the respirator is noticed	Lead – 0.05 mg/m^3 Cadmium – 0.005 mg/m^3 Chromium – 0.5 mg/m^3
Insecticide/Herbicide applications	Chlorinated compounds, organophosphates, etc.	Semi-volatile filters with half or full-face APR, equipped with P100 HEPA	NA-insecticide/ herbicide not included in manufacture software	Heptachlor – 0.5 mg/m^3 Paratthion – 0.1 mg/m^3 Furadon – 0.1 mg/m^3
Asphalt Paving Operations	Asphalt fumes	Dust mask is recommended N95/P100	When an increase in resistance to draw air into the respirator is noticed	Asphalt Fumes – 5.0 mg/m^3 Xylenes – 10 ppm/435 mg/m^3 Napthalene – 10ppm/50 mg/m^3
Inspecting recent bridge painting (containments vary on brand/type of paint used)	TDI (toluene-2-4-dllsocyanate; toluene-2-6-dllsocyante); MDI (4,4'-methylenedlphenyl Isocyanate; dlphenylmethane-4,4-dllsocyanate; methylenebls phenyl Isocyante); HDI (hexamethylene dllsocyante); Toluene; Xylenes; Ethylbenzene; Methyl ethyl ketone; Acetone	OV and P100 Cartridge	P100/OV Cartridge:*Estimated Service Life: 66 minutes (MEK is the limiter) and/or acetone	TDI - OSHA 140 celling; TLV - 0.005 ppm MDI - OSHA 200 celling; TLV - 0.005ppm HDI - OSHA-NA, TLV - 0.005ppm Toluene - OSHA-200 ppm; TLV - 20 ppm Xylenes - OSHA 100ppm; TLV - 100ppm Ethylbenzene – OSHA 100ppm; TLV - 20ppm Methyl ethyl ketoneOSHA - 200ppm; TLV-200ppm Acetone - OSSH - 1000 ppm

Table 8-D-1

Work Activity	Containments	Estimated Respirator	Cartridge Change out Frequency (When not using ESLI)	WAC, PEL-TWA8
Animal wastes Pigeon, bat droppings		None required – P95 to P100 disposable dust mask is recommended	When an increase in resistance to draw air into the respirator is noticed	Not applicable
Environmental sampling or inspections	Asbestos, volatiles, and other unknown	Half or full face APR, equipped with P100 and volatile cartridge (OV)	P100/OV Cartridge:*Estimated Service Life: 21 hours	Asbestos – 0.1 fiber/cc Benzene – 0.1 ppm Toluene – 200 ppm

*based on exposure to contaminate at PEL, high humidity (85%), temperature of 85°F and medium work rate. Once a cartridge is opened, the maximum use time is 6 months.

**For organic vapor contaminants having a boiling point of less than 65°C (149°F), the user must change cartridges no less frequently than at the end of each work shift, even if the esLife (North manufacture ESLI software) service time estimate would permit a less frequent cartridge changes. Organic vapors with this characteristic may desorb from the charcoal in the cartridge when not in use (overnight). This leaves high concentrations of contaminant in the cartridge housing free to move into the respirator mask when use is resumed, exposing the user to the contaminant and the risk of serious injury or illness

**North/Honeywell= http://207.20.33.136/CartridgeLifeMain.aspx

**3M= http://extra8.3m.com/SLSWeb/selectDisclaimer.html?reglId=20&langCode=EN&countryName=United States

Chapter 9 Hearing Conservation Program

9-1 Purpose

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

9-2 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) and/or extreme impulse/impact noise, though different elements of the program may apply depending on the nature of the noise exposure.

9-3 References

- WAC 296-817 *Hearing loss prevention (noise)*
- WAC 296-27-01113 *Recording criteria for cases involving occupational hearing loss*

9-4 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. Decibels measured using the A-weighted scale are abbreviated to "dBA".

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 a standard threshold shift (STS) is persistent or if the hearing threshold in the annual audiogram indicates significant improvement over the baseline audiogram.

HCP Enrolled Position – A position that has tasks or duties with noise exposure at or above 85 dBA over an 8-hour time-weighted average (TWA_8).

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.

TWA_8 – Eight-hour time-weighted average.

9-5 General Responsibilities

Are as assigned in Chapter 1 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.

9-5.1 *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.

9-5.2 *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, as applicable.
- 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 or other potential program deficiencies.
- Ensure that employees exposed to 85 dBA or greater (regardless of duration) wear hearing protection.
- Know how to properly fit, use, and care for hearing protection devices.
- Ensure employees properly and consistently use hearing protection as required.
- Ensure that employees in an HCP Enrolled Position obtain a baseline audiogram within one year of assignment to a position with such noise exposures.
- Ensure that employees who leave an HCP Enrolled Position obtain a termination audiogram. These may include employees who transfer from HCP enrolled positions to non-HCP enrolled positions or leave service with WSDOT.

9-5.3 *Employees*

9-5.3.1 Employees Enrolled in the HCP

- Comply with all provisions of the HCP.
- Undergo baseline, annual, and termination audiometric testing or auditing, 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 where high noise exposure occur.
- Cooperate and participate in noise monitoring and when investigations for hearing threshold shifts or other possible program deficiencies are conducted.
- Contact their supervisor and/or Safety staff with concerns regarding effectiveness, use, and/or care of hearing protection devices.

9-5.3.2 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 TWA_8, are not required to participate in the HCP, but are required to use hearing protection when in environments at or above 85 dBA (with limited exceptions noted in 6.1).

9-5.4 *Human Resource Staff*

- Ensure coordination of baseline audiometric testing and hearing conservation training (e.g. a check-off for audiometric testing and training in the in the New Employee Orientation) for employees who will be exposed to noise at or above 85 dBA TWA_8.
- 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 under this policy.

9-5.5 *Safety Organization*

9-5.5.1 Safety, Health and Employee Services Manager

- Implement the Hearing Conservation Program.
- Provide leadership and guidance on hearing loss prevention 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.

9-5.5.2 Region and HQ Safety Offices

- Develop and implement the HCP through region executives, managers, and supervisors.
- Identify job classifications, work activities and areas, processes, tasks, and/or equipment operations that require workers to be enrolled in the HCP.
- Coordinate employee baseline, annual, and termination audiometric testing (or audits, as applicable) and training with contracted vendors and/or affiliate clinics and ensure required communications are delivered to employees (e.g. notification of STS, medical referral, etc.).
- Ensure employees identified as experiencing a recordable threshold shift are entered into the safety database for inclusion on OSHA 300 log in accordance with WAC 296-27-01113.
- 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 to meet regulatory requirements and program needs.
- When potential deficiencies in the program are identified, coordinate evaluation and correction.
- Identify and support program needs regarding personnel, training, and equipment.
- Maintain records of region employees in HCP.

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

9-5.6 *Hearing Conservation Program (HCP) Elements*

The basic elements of the HCP are:

1. Minimizing noise through use of engineering and administrative controls when feasible (e.g. changes in equipment or processes to reduce noise). Eliminating hazardous exposure is the best method of preventing noise-induced hearing loss.
2. Use of hearing protection when noise exceeds 85 dBA for any amount of time (with limited exceptions noted under Section 9-5.6.1).
3. Participation in hearing loss prevention training.
4. Participation in audiometric testing (or audits, as applicable).

9-5.6.1 Hearing Protection Use Policy

This policy requires employees to use hearing protection anytime work environment noise at is equals or exceeds 85 dBA at the position of the ear. This requirement applies regardless of length of time, with the limited exception stipulated below. In the event that hearing protection is not readily available to an employee, the employee shall not work in areas with exposure at or above 85 dBA until hearing protection is available.

Field level supervisors have been provided with sound level meters to evaluate noise conditions. NIOSH has also developed an app for iOS devices that can be used to evaluate noise conditions (Information and instructions for the NIOSH app is available via the CDC website). Both methods of evaluation are for instantaneous background levels rather than the time weighted average exposure. To determine the time weighted average of exposure, contact your region safety office.

As a practical guide, noise may be above 85 dBA if a person must raise his or her voice to speak with someone approximately three feet away (arm's distance).

Unless sound level monitoring indicates otherwise in such conditions, noise should be assumed to be at or above 85 dBA and hearing protection should be worn.

This policy does not require hearing protection where employees are working in conditions that are predominantly below 85 dBA but may be subject to occasional very brief noise level increases that exceed 85 dBA (e.g., rural setting and an occasional loud truck drives by, or restroom air-hand dryers). Hearing protection must be worn if noise equals or exceeds 115 dBA or 140 dBC for any length of time, without exception.

Custom molded hearing protection is available. The eligibility criteria is outlined in Chapter 5.

9-5.6.2 Training

WSDOT will provide training when an employee is first assigned to a position involving noise exposure that equals or exceeds 85 dBA TWA_8. Employees who remain in HCP enrolled positions will have refresher training at least annually thereafter. At a minimum, the initial and refresher training will include:

- The effects of noise on hearing (including both occupational and non-occupational exposures).
- Noise controls used in relevant work operations.
- The purpose of hearing protectors: The advantages, disadvantages, and attenuation of various types.
- Instructions about selecting, fitting, using, and caring for hearing protection.
- Employee rights to access records.
- The purpose and procedures for program evaluation including audiometric testing and hearing protection auditing when and if auditing is used in lieu of audiometric testing (refer to WAC 296-817-500).

Employees with exposure less than 85 dBA TWA_8 are encouraged, though not required, to have training including the above topics. Employees with exposure at or above 85 dBA, though at levels less than 85 dBA TWA_8, should discuss noise hazards and hearing protection as a part of Pre-Activity Safety Planning.

An employee with an STS must be retrained, as necessary, to assure they have the knowledge and skills to adequately protect themselves from occupational noise hazards.

9-5.6.3 Audiometric Testing

All WSDOT employees determined or estimated to have noise exposure at or in excess of 85 dBA TWA_8 shall be provided audiometric testing. Audiometric testing shall include:

- Baseline testing within one year of being assigned to a HCP enrolled position.
- Annual audiograms.
- Termination audiograms when an HCP Enrolled employee leaves service with WSDOT or transfers to a position with exposure below 85 dBA TWA_8.
- Retesting as necessary or appropriate.
- All attempts should be made to conduct audiograms when employees have not been exposed to noise levels 85 dBA or higher for at least 14 hours before testing.

In lieu of baseline audiograms, employees with exposure at or above 85 dBA TWA_8 that are hired for less than one year may undergo an auditing program conforming to requirements in WAC 296-817-500.

Employees assigned to short-term projects with exposures at or above 85 dBA TWA_8, but otherwise do not have routine exposure at that level, (such as pile driving inspections), shall have audiograms both immediately before and after the short-term project.

9-5.6.4 Affiliate Clinics

WSDOT has two providers for audiometric testing Listen Audiology Services, Inc. and Washington Audiology. Listen Audiology Services accepts test results from any certified testing facility. Washington Audiology has a list of affiliate clinics in Appendix 9-F have been identified to conduct audiometric testing when it is not feasible to have audiometric testing done by either testing provider. Washington

Audiology Services, Inc. has provided the list of their affiliated 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. If an employee in the hearing conservation program requires testing from one of the clinics, they must provide the clinic a form (Appendix 9-A and 9-B) completed for the appropriate affiliated provider (Listen Audiology Services Inc. or Washington Audiology).

9-6 Appendices

Appendix 9-A Listen Audiology Services, Inc. Testing Form

Name:_____ _____ ____
Last **First** **M.**

Date of Birth:_____ **Employer:**_____

Gender: ☐ **Male** ☐ **Female** **Job/Dept:**_____

PLEASE ANSWER THESE QUESTIONS JUST BEFORE YOUR HEARING TEST.

Yes	No	
☐	☐	Do you wear hearing protection at work? Percentage of time worn while in noise:_____
☐	☐	Have you been exposed to **loud*** noise in the past 14 hours? **(*Loud – you would have to shout to be heard at arm's length away during noise.)**
☐	☐	If yes, did you wear hearing protection? Type:_____

Please describe any recent ear/hearing problems:_____

CHECK ALL THAT APPLY IN YOUR LIFETIME:

☐ Known hearing loss	☐ Persistent dizzy spells
If yes, have you seen a doctor?	☐ Chemotherapy
☐ Yes ☐ No	☐ Excessive Ear Wax
☐ Hearing aid(s)	☐ Ear pain (continuous or often)
☐ Ear surgery	☐ Ear drainage
☐ Military service	☐ Sudden or fluctuating hearing loss
☐ Family history of hearing loss	☐ High blood pressure
☐ Noisy hobbies/Power Tools	☐ Serious Head Injury
☐ Hunting/Gun fire	☐ Allergies or sinusitis
☐ Ringing/noise in ears	☐ Feeling of pressure/fullness in ears
☐ One ear hears better than the other	☐ Other_____
If yes, ☐ Right better or ☐ Left better	

☐ ***I have read all of the above and none apply.***

Employee Signature:_____ ***Date:*** _____

Date:_____ **Time:**_____ **Clinic:** _____
Phone:_____
Tech:_____ **Location:**_____

CAOHC #:_____

(Hz)	500	1000	2000	3000	4000	6000	8000	Otologic Exam	Notes:	Audiometer Type:
Left										Serial #:
Right										Calibration Date:

Please email to: listenaudiology@comcast.net or send to 7008 153rd Pl SE, Snohomish, WA 98296

(This form is provided by Listen Audiology Services, Inc. for employees to complete prior to audiogram testing.)

Appendix 9-B 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

(This form is provided by Listen Audiology Services, Inc. for employees to complete prior to audiogram testing.)

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

Transportation Building
310 Maple Park Avenue S.E.
P.O. Box 47300
Olympia, WA 98504-7300
360-705-7000
TTY: 1-800-833-6388
www.wsdot.wa.gov

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

Washington State Department of Transportation

Transportation Building
310 Maple Park Avenue S.E.
P.O. Box 47300
Olympia, WA 98504-7300
360-705-7000
TTY: 1-800-833-6388
www.wsdot.wa.gov

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.

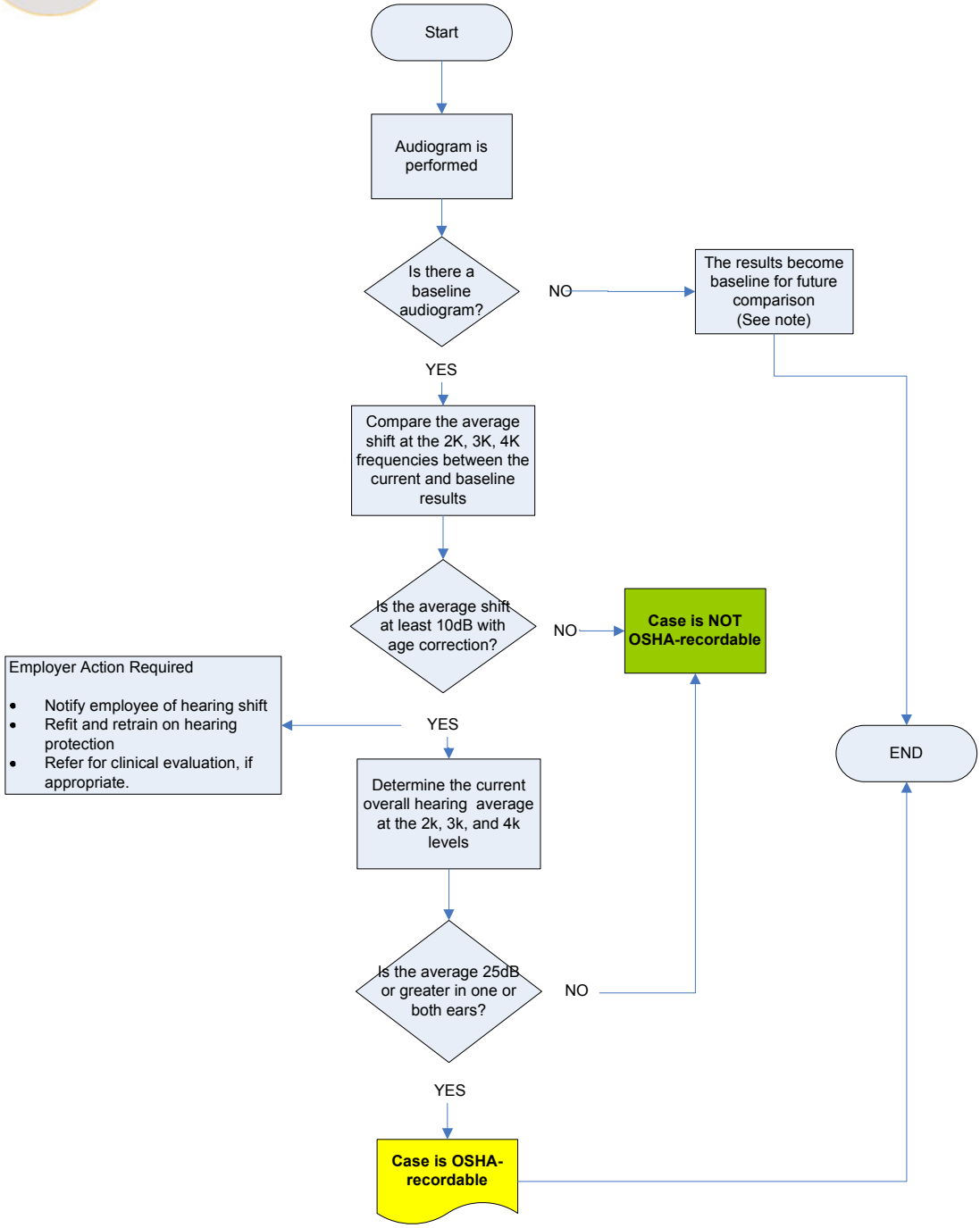
Please send all invoices to Regional Safety Office: (address)

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-D 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-E Supervisor and Safety Office Responsibilities – Questions and 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 dBA TWA_8 must participate in the HCP, including audiometric testing, training, and use of hearing protection.

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.

If employees want to participate in the HCP and don't have noise exposure at or above 85 dBA TWA_8 as part of their regular job duties, can they have their audiometric test 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. However, all the private health insurance options offered to WSDOT employees include coverage for annual hearing exams. Refer to your medical plan for further information.

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 and entering the information into the safety database. Headquarters will generate the OSHA 300 log. See Appendix 9-C, Flowchart 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 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. Regional Safety Offices should maintain records for their employees.

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 (RTS) 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 RTS?

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-F 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

Appendix 9-G Hearing Protection Devices Information

Hearing Protection Devices (HPDs)

HPD	Advantages	Disadvantages	How to Use	Care and Cleaning
Formable Type Plugs 	• Many varieties available • Usually provide highest level of protection and comfort. • Compatible with other PPE • Range of attenuation, including highest levels reduction available	• Requires proper insertion technique to obtain good fit and protection • Hygiene concerns with rolling/handling and insertion	"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.
Pre-molded Plugs 	• Reusable • Size options for good fit • Compatible with other PPE • Do not require rolling • Good for moderate level noise attenuation	• May require sizing to ensure proper fit • Some find this type uncomfortable for longer term use	Choose the size that has optimal ear canal fit.	Wash in warm soapy water and keep dry.
Custom Molded Plugs 	• Many options available, including filters to enhance communication or connection to radios or phones • Compatible with other PPE. • Do not require rolling • Range of noise reduction depending on model	• Higher initial cost • Maintenance and upkeep more difficult than disposable types • Requires exact fit; amount of protection may be affected by weight changes, and manufacturing flaws,	Simply slide into ear.	Follow manufacturer's instructions.
Ear Muffs 	• Easy to fit properly. • Can be used in combination with other devices • Some equipped with electronics to enhance communication	• May be uncomfortably warm in hot work conditions. • May not be compatible with some equipment/ PPE	Ear cups must fit snug around the entire ear. Nothing should interfere with seal around ear.	Keep equipment clean with warm soapy water and keep dry. Replace when damaged or band loses tension.
Semi-Insert 	• Convenient for intermittent noise • Do not require rolling • Good for low to moderate noise conditions	• Band pressure may be uncomfortable for longer term use	Insert into ear. Pulling upward and outward on the ear when inserting each side can improve fit and protection.	Follow manufacturer's instructions.

Appendix 9-H WSDOT Noise Monitoring Summary Table

Noise monitoring studies (noise "dosimetry") conducted by WSDOT to evaluate noise exposures are summarized in the table below. Full reports of noise and other exposure monitoring can be found on the WSDOT intranet site for Industrial Hygiene Monitoring Reports. If there are processes or tasks that may have exposure at or above 85 dBA TWA_8 and do not appear on the summary table below, coordinate noise monitoring with the Regional Safety Office. This table will be updated annually, so additional monitoring that is not yet listed in the table may be available.

Process	Above or Below 85 dBA TWA_8	Result TWA
Bridge Inspections	Below	75.1 - 77.5
Bridge Inspections	Below	75.2 - 75.4
Culvert Inspection (no vactor)	Below	77.8
Culvert Inspection (vactor assisted)	Below	73.0 - 73.3
Drilling	Above	83.9 - 90.4
Facilities Maintenance	Below	55.6 - 79.5
Facilities Maintenance - Landscaping	Below	75.7
Facilities - HVAC PM	Below	62.9 - 67.8
Facilities Maintenance - Parking Lot Snow Removal	Below	68.1
Materials Lab Bolt Testing	Below	66.3 - 67.2
Materials Lab Aggregate Testing	Below	80.3 - 83.2
TDO Electronic Counting	Below	59.7
TDO Manual Counting	Below	58.8
TDO Electronics Installation	Above	84.0 - 85.6
Engineering Inspections-Concrete Pouring and Ticket Taking	Below	79.2
Engineering Inspections I-90 Path	Below	71.3
Engineering Inspections - Demolition Project	Below	70.4 - 77.1
Engineering Inspections - Electrical	Below	67
Engineering Inspection - Dowell Bar Retrofit	Below	75.9 - 80.3
Engineering Inspections - Electrical	Below	<74

Process	Above or Below 85 dBA TWA_8	Result TWA
Survey & Engineering Inspections	Below	<74
Engineering Inspections - Dowel Bar Retrofit	Below	82.1
Engineering Inspections - Bridge Construction	Below	<74
Engineering Inspections - Asphalt Grinding	Below	80.9
Engineering Inspections - Vibrating Probe	Below	78.7
Engineering Inspections - Earth Moving	Below	68.2 - 77.5
Drainage Construction - Engineering Inspections	Below	68.5
Engineering Inspection I-5 construction site (exit construction)	Below	61.8 - 72.6
Engineering Inspection I-5 construction site (information technology system improvement project)	Below	75.2
Engineering Inspection - Paving Operation	Below	75.1 - 78.1
Concrete Demolition - Engineering Inspections	Below	71.4 - 74.9
Engineering Inspections - Pile Driving	Above and Below	63.1 - 92.9
Shaker Trailer (project aggregate testing trailer)	Below	72.6
Surveying	Below	74.5
Surveying	Below	61.8 - 72.6
Surveying	Below	72.2
Surveying	Below	66.8 - 75.2
Survey Hubbing	Below	78.2 - 79.4
IRT	Below	71.8 to 75.8

Process	Above or Below 85 dBA TWA_8	Result TWA
IRT	Below	76.7
Rest Area Landscaping Maintenance	Above	86.9
Traffic and Signal Monitoring (Manual)	Below	65.2
Sweeper	Below	76.6
TMA	Below	69.9
Brush Cutting/Tree Trimming	Above	84.3 - 86.6
Asphalt Inlay ("Dig Outs", or "Grind and Fills")	Above	84.7 - 85.2
Paint Removal - TNB	Below	<74 - 82.2
Dump Truck Driving	Below	73.4 - 79.7
Dump Truck Driving	Below	74.0
Brush Cutting/Tree Trimming	At	84.9
Snow Blowing	Below	76.0
Snow Blowing	Below	79.7
Snow Blowing	Below	75.7
Snow Plow/Control	Below	82.3
Custodial	Below	62.7
TEF	Below	64.9
TEF	Below	<74 - 74.4
TEF	Below	69.2 - 72.3
TEF Fabrication	Below	74.0
Signals	Below	73.9

Process	Above or Below 85 dBA TWA_8	Result TWA
Signals	Below	77.7
Sweeper	Below	73.5
Courier	Below	59.3
Section Patrol	Below	69.7
Section Patrol	Below	78.8
Section Patrol	Below	72.9
UBIT driving	Below	79.9
Grinding & Button Installation	Above	83.5 - 85.6
Hood Canal Bridge Routine Maintenance Activities	Below	73.9 to 80.3
Sign Installation	(slightly) Below	83.3
Mowing	Below	68
Mowing	Above	87.6
I-90 Tunnels	Below	78
Guardrail Repair	Below	79.1 - 81.2
Flagging	Below	56.9-66.8
Bridge Tending	Below	72.4
Vactor	Below	72.6 - 74.4
Vactor	Above	91-93
Vactor	Above	86.4
Vactor	(Slightly) below	78.7 - 84.1
Print Shop (HQ)	Below	73

Appendix 9-I Hearing Clinic List

	Clinic	Address	Contact	Phone
US Healthworks - Statewide				
Health Force Clinics - Statewide				
Group Health Clinics - Statewide				
Olympic Region				
Port Angeles	Federal Certified Hearing CTR	Sequim, WA *Call to schedule *Only test once a month - call to schedule		800-924-1577
	Certified Hearing Incorporated	819 Georgiana St. # B Port Angeles, WA 98362	Brenda Haltom	360-452-2228
Forks	Federal Certified Hearing CTR	800 Olympic Dr Forks, WA 98331* *Only test once a month - call to schedule		800-924-1577
	Certified Hearing Incorporated	51 N Spartan Ave, Unit D Only test on Tuesdays	Brenda Haltom	360-374-0774
Northwest Region				
Bellingham	Whatcom Occupational Health	3010 Squalicum Pkwy, Bellingham, WA 98225		360-676-1693
Sedro Woolley	Federal Certified Hearing CTR	209 Ferry St Sedro Woolley, WA 98284 (East End)	Debbie	360-855-1207
Arlington/ Everett	HeatlhForce Occupational Health	3726 Broadway #101 Everett, WA 98201		425-259-0300
South Puget Sound				
Enumclaw	Sonus Hearing Care Center	120 14th ave SE # D Puyallup, WA 98372		253-845-3190
Belfair/ Bremerton, WA	Audiologists Northwest	1411 Wheaton Way Bremerton, WA 98310	Receptionist	360-479-4065
Pacific Cascade				
Compound	Robertson Hearing Clinic	909 Trosper RD SW Tumwater, WA 98512	Receptioinist	360-866-2500
Webster's Nursery	Robertson Hearing Clinic	909 Trosper RD SW Tumwater, WA 98512	Receptioinist	360-866-2500
Tumwater	Robertson Hearing Clinic	909 Trosper RD SW Tumwater, WA 98512	Receptioinist	360-866-2500
Chehalis	Advanced Hearing and Speech	1570 N National Ave Chehalis, WA 98532		360-740-8992
Castlerock, Longview	Ear Nose Throat Clinic	1801 1st Ave #3A Longview, WA 98632	Cheryl	360-636-4469
Battleground/ Vancouver, WA	Columbia River Occupational Health	2105 NE 129th St Suite 107 Vancouver, WA 98686	Charise	360-891-4900
Aberdeen, WA	West Coast Hearing Clinic	1812 Summer Ave Aberdeen, WA 98520		360-533-0633
Hoquiam, WA	All Ears Hearing Clinic	1933 Riverside Ave Hoquiam, WA 98550		360-533-2778
Illwaco, WA	Ocean Beach Hosp. Avada Audio.	No address		360-532-2093
Longview	Lower Columbia Hearing Svcs.	820 11th Ave Ste A Longview, WA 98632		360-425-0044

	Clinic	Address	Contact	Phone
Olympia	Westcare Clinic	3000 Limited Lane NW Olympia, WA 98502		360-357-9392
Olympia	Hearing Healthcare Ctr Inc.	2421 Harrison Ave NW Olympia, WA 98502		360-754-0305
Olympia	Sound ENT Olympia	406 Yauger Way # B Olympia, WA 98502		360-754-6069
Shelton	Shelton Family Medicine	939 Mountain View Dr Suite 100 Shelton, WA 98584		360-426-2653
South Bend	All Ears Hearing Clinic	610 Robert Bush DR, South Bend, WA 98586		360-875-0577
Vancouver	Evergreen Audiology Clinic	16209 SE McGillivray Blvd #M Vancouver, WA 98683		360-892-3445
Vancouver	Earcare Hearing Aid Clinic	8317 E Mill Plain Blvd Vancouver, WA 98664		360-690-4388
Southeast				
Yakima	Yakima Hearing and Speech Center	303 S. 12th Ave Yakima, WA 98902	Sheri	509-453-8248
Husum, WA	Providence Occupational Health	811 13th St Hood River, OR 97031	Receptionist	541-387-6475
			Elke	541-387-6383
	Hears the Answer	608 E. 2nd The Dalles, OR 97058		541-296-6304
	Note: They have a clinic in Hood River that is open for appointments on Tues/Thurs. Please call their Dalles number for all scheduling.			
Wenatchee, WA	Kasper Ronda AUD MA	933 Red Apple Rd Wenatchee, WA 98801	509-662-7143	
Ellensburg, WA	NW Audiology and Hearing	603 N Main St 2 Elensburg, WA 98926	509-962-9575	509-962-5575
Northeast				
Omak, WA	Federal Certified Hearing CTR	Omak, WA *Call to schedule *Only test once a month - call to schedule		800-924-1577
Loomis, WA	Federal Certified Hearing CTR	Omak, WA *Call to schedule *Only test once a month - call to schedule		800-924-1577
Deer Park, Spokane	Spokane Ear Nose and Throat	217 W Cataldo Ave Spokane, WA 99201	Receptionist	509-624-2326
			Marguerite	509-789-5798
Colville	Spokane Ear Nose and Throat	217 W Cataldo Ave Spokane, WA 99201	Receptionist	509-624-2326
			Marguerite	509-789-5798

10-1 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.

10-2 Scope and Applicability

This chapter has been developed for confined space entry for WSDOT employees, and it meets or exceeds applicable rules set forth by References (10.3). 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.

10-3 References

- WAC 296-809 *Confined spaces*
- WAC 296-24-69507 *Confined spaces (welding)*
- WAC 296-24-70007 *Work in confined spaces (welding)*
- WAC 296-24-71501 thru 71507 *Health protection and ventilation (welding)*
- WAC 296-155-203, 280, 410, 655, and 657 *Construction confined space requirements*
- WAC 296-155-415 *Ventilation and protection in welding, cutting heating*
- WAC 296-155 Part N *Excavation, trenching and shoring*
- WAC 296-155 Part Q *Tunnels and shafts, caissons, cofferdams, and compressed air*

10-4 Definitions

Acceptable Entry Conditions – The conditions that must exist in a permit-required confined space to allow entry.

Alternate Entry – Procedures that can be used for permit-required confined spaces when the only hazard is an atmospheric hazard and certain conditions are met.

Attendant – An individual stationed at a permit-required confined spaces to monitor the entrants.

Blanking or Blinding – The absolute closure of a pipe, line, or duct by fastening a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore. It is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

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.

Double block and bleed – The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency – Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit-required confined space that could endanger authorized entrants.

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

Entry – The action by which a person passes through an opening into a permit-required confined space and includes work activities in that space. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Note: If the opening is large enough for the worker to fully enter the space, a permit is required even for partial body entry. Permits are not required for partial body entry where the opening is not large enough for full entry, although other rules such as Chapter 296-803 WAC, Lockout-Tagout (control of hazardous energy), and Chapter 296-841 WAC, Airborne Contaminants, may apply.

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.

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, 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 five feet or less.
- Atmospheric oxygen concentration below 19.5 percent (Deficient) or above 23.5 percent (Enriched).
- 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*.

  Note: An airborne concentration of a substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.
- Any other atmospheric condition that is immediately dangerous to life or health.

  Note: contaminants, which have no WISHA-determined doses or permissible exposure limits using other sources of information, such as:

  1. Safety data sheets required by WAC 296-901-14014, Safety data sheets.
  2. Published information.
  3. Internal documents.

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.

Hot work permit – A written authorization to perform operations, for example, riveting, welding, cutting, burning, and heating, that can provide a source of ignition, to include grinding.

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.

IAW – In Accordance With.

Inerting – The displacement of the atmosphere in a permit-required confined space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere. A space that has had an inert gas (argon, CO2, 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.

Line breaking – The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Lower Explosive Limit (LEL)/Lower Flammable Limit (LFL) – 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.

Nonpermit confined space – A confined space that does **not** contain actual or potential hazards capable of causing death or serious physical harm.

Oxygen enriched atmosphere – An atmosphere containing more than 23.5 percent oxygen by volume.

Note: An oxygen-enriched atmosphere, even a few percent, will increase the risk of fire considerably. Materials that are not flammable in air 21% and below can burn violently and even spontaneously combust in an enriched environment. This may include heavy/light oils and even fireproofing materials. It is important to ensure all oxygen saturate material and clothing are ventilated because saturated materials can ignite easily.

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) – 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:

- TWA_8. 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.

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.

Permit-required confined space program – An overall program for:

- Controlling and appropriately protecting employees from permit-required confined space hazards; and
- Regulating employee entry into permit-required confined spaces.

Prohibited condition – Any condition in a permit-required confined space that is not allowed by the permit during the authorized entry period.

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.

Rescue service – A resource or agency designated to rescue employees from permit-required confined spaces.

Retrieval system – The equipment used for nonentry rescue of persons from permit-required confined spaces, such as a retrieval line, full-body harness or wristlets, and a lifting device or anchor.

Testing – The process of identifying and evaluating the hazards that entrants may be exposed to in all confined spaces. Testing includes specifying the tests that are to be performed in the permit-required confined space.

Note: Testing allows employers to devise and implement adequate controls to protect entrants during entry, and determine is acceptable entry conditions are present.

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:

- TWA_8. 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.

10-5 General Responsibilities

It is the responsibility of WSDOT to develop a written confined space program before employees enter, that describes the means, procedures, and practices you use for the safe entry of confined spaces.

Employer's confined space program must conform to the requirements set forth by WAC 296-809, and all applicable references there in.

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.

10-5.1 *Organizational Responsibilities*

Are as assigned in Chapter 1 as well as the items below, specific to confined space entry.

10-5.2 *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.

10-5.3 *Mid-Level Management*

- Retain confined space entry permits for a minimum of one year.
- Ensure implementation of this policy.

10-5.4 *Supervisors*

- Ensure that all confined space work is planned and implemented with safety as an integral part of the process.
- Ensure all confined space work is coordinated with the Regional Safety Office at least two weeks prior for planned operations if coordination with an outside rescue resource is needed and 4 to 12 hours prior for emergencies if using an outside rescue resource is needed and 2 hours if not.
- Ensure that site personnel have the required experience to perform assessments and identify all confined spaces at sites under their control.
- Participate in the development and implementation of Pre-Activity Safety Plans for the purpose of preventing injuries and accidents in confined spaces.
- Ensure employees are adequately trained and demonstrate proficiency at the level appropriate for the duties performed.

- Require active employee participation in each of the following involving confined space entry:
  - Pre-Activity Safety Plans.
  - Safety meetings.
  - Appropriate safety training.
  - Procedures for contacting emergency services and coordinate rescue services.
  - 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.

10-5.5 *Entry Supervisor*

- Ensure that **all** duties prescribed for entry supervisors under applicable regulations, training, and this policy are met.
- Be trained to the level of Confined Space Supervisor.
- 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.
- Verifies and checks **all** of the following:
  - The appropriate entries have been made on the permit.
  - All tests specified by the permit have been conducted.
  - All procedures and equipment specified by the permit are in place before approving the permit and allowing entry to the space.
- Authorizes the entry into a permit-required confined space by ensuring entry condition have been met and signing the entry permit.
- Oversees entry operations.
- May perform the duties of the attendant or entrant if they are trained to perform those tasks.
- Knows about the hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of the exposure.
- Terminates the entry and cancels the permit when:
  - The assigned task or job has been completed.
  - A condition in the space that isn't covered by the entry permit is discovered

- Verifies that rescue services are available and that there is a way to contact them.
- Removes unauthorized individuals who enter or attempt to enter the permit-required confined space during entry operations.
- Determines that entry operations remain consistent with the terms of the entry permit and acceptable entry conditions are maintained:
  - Whenever responsibility for a permit-required space entry operation is transferred.
  - At regular intervals dictated by the hazards and operations performed within the space.
- Responsibilities of the entry supervisor may be passed form one supervisor to another during an entry operation, as long as it is denoted on the permit.

10-5.6 *Attendant*

- Ensure that **all** duties prescribed for Attendants under applicable regulations, training, and this policy are met.
- Be trained to a Confined Space Attendant or above.
- Understands the hazards that may be faced during entry, including the mode, signs or symptoms, and results of exposure to the hazards.
- Is aware of the behavioral effects of exposure to the hazard.
- Continuously maintains an accurate count of entrants in the confined space.
- Maintains an accurate record of who is in the permit-required confined space.
- Communicates with entrants as necessary to monitor their status or alert them of the need to evacuate the space.
- Monitors activities inside and outside the space to determine if it's safe for entrants to remain in the space.
- Orders entrants to evacuate the space immediately if **any** of the following conditions occur:
  - A prohibited condition.
  - The behavioral effects of hazardous exposure in an entrant.
  - A situation outside the space that could endanger entrants.
  - The attendant can't effectively and safely perform all required duties
- Takes the following actions when unauthorized persons approach or enter a space:
  - Warn unauthorized persons to stay away from the space.
  - Tells the unauthorized persons to exit immediately if they have entered the space.
  - Informs entrants and the entry supervisor if unauthorized persons have entered the space.
- Performs non-entry rescues as specified by rescue procedure.
- Has the means to respond to an emergency affecting one or more of the permit spaces being monitored without preventing performance of the attendants duties to the other spaces being monitored.
- Carries out no duties that might interfere with their primary duty to monitor and protect the entrants.
- Calls for rescue and other emergency services as soon as entrants may need assistance to escape from the space.
- Monitors entry operations until relieved by another attendant or all entrants are out of the space.
- **Shall not enter confined space to perform rescue services.**

10-5.7 *Entrant*

- Ensure that all duties prescribed for Entrants under applicable regulations, training, and this policy are met.
- Be trained as a Confined Space Entrant or above.
- Perform the assigned task.
- Review the permit before entry.
- Know the hazards they may face during entry, including the mode, signs or symptoms, and results of exposure to the hazards.
- Use equipment properly.
- Communicate with the attendant as necessary so the attendant can:
  - Monitor entrant status
  - Alert entrants of the need to evacuate
- Alert the attendant whenever either of these situations exist:
- A warning sign or symptom of exposure to a dangerous situation such as, behavioral changes, euphoria, giddiness potentially from lack of oxygen or exposure to solvents.
- A prohibited condition.
- Exit from the permit-required confined space as quickly as possible when one of the following occurs:
  - The attendant or entry supervisor gives an order to evacuate.
  - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
  - The entrant detects a prohibited condition.
  - An evacuation alarm is activated.

10-5.8 *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.
- Maintain confined space entry permits for a minimum of 1 year.

Keep records for each confined space at each 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. The hot-work permit (Form 750-061) can be found on the WSDOT intranet forms page.

The Regional Safety Office shall review all confined space entry permits annually to determine the effectiveness of the protections provided and determine if there are any improvements that can be made to make our program more effective for our personnel.

10-6 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, engulfment, mechanical, electrical, chemical, or temperature hazards.

Concerned organizations will develop and enforce procedures which include planning, general precautions and work practices, evaluation of hazards, ventilation requirements, personal protection, isolation, training, recordkeeping, and responsibilities.

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 or higher as appropriate.
- Ventilation must be provided for all alternate and permit-required confined spaces that have a known or potential atmospheric hazard, to ensure safe entry conditions prior to and during entry and work. Spaces that are specifically inerted to eliminate fire or explosion hazards do not require ventilation, though special procedures and respiratory protection are needed to safely conduct such work.
- 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 prior to entry into permit-required spaces. 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 establish necessary safety and emergency procedures.
- The entry supervisor will complete and sign the entry-permit 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.

10-7 Confined Space Classifications

10-7.1 *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. The Confined Space Evaluation form in Appendix 10-C may be used to assist with determination and classification.

To best ensure safety, all efforts shall be made to eliminate hazards before entry into a confined space creating non-permit required conditions. (Note that atmospheric hazards are generally considered to be controlled, but not eliminated, using forced air ventilation.

All hot work in confined spaces must be conducted using the permit entry procedures, including hot work permitting.

10-7.2 *Alternate Entry Confined Space*

Alternate entry procedures will be implemented instead of permit-entry procedures where the only hazard is a hazardous atmosphere. The following requirements need to be met:

- Continuous forced air ventilation is all that is required to maintain the atmosphere in a safe entry condition.

10-7.3 *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.

Reevaluate the non-permit required confined space as necessary.

10-8 Procedures

10-8.1 *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.

Keep records for each confined space at each 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. The hot-work permit (Form 750-061) can be found on the WSDOT intranet forms page.

10-8.2 *Training*

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.

Note: Training rosters and LMS training data will be used to track certification of employee proficiency.

All persons involved in confined space entry must posses the understanding, knowledge and skills necessary to safely perform assigned duties, and be trained at the level of tasking they are performing.

Employees with confined space responsibilities will be specifically trained for confined space entry (Course Code AZR). Training will include the following, as applicable to spaces entered and duties:

- 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.
- Any other information required to safely perform confined space related work.

10-8.3 *General Safety Requirements*

Forced air ventilation will be maintained at all times in confined spaces that have an actual or potential hazardous atmosphere. 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. If necessary, respiratory protection will be used in addition to ventilation 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.

Blinding and lock out tag out procedures (as needed) along with periodic reassessment and continuous monitoring must be performed in an area that has been inerted.

An attendant will be positioned outside the permit-required 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, the attendant shall not enter the confined space under any circumstances. This

person is responsible for communicating with and monitoring confined space workers and obtaining emergency assistance. 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 Safety Data Sheet (SDS) 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 SDS
- 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
- Chemical protective clothing
- Hand protection
- Eye and face protection
- Head protection
- Hearing protection
- Fall Protection

When employees may be required to wear respirators, all provisions of Chapter 8 Respiratory Protection Program 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.

Where fall hazards are present, employees must follow provisions of the

Fall Protection Program (and applicable regulations, In addition, appropriate controls shall be implemented to protect entrants from objects falling in the 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.

Equipment used for safe entry into confined spaces shall be maintained in accordance with manufacturer specifications, including air monitoring, rescue, emergency communication and other essential equipment.

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.

Note: Refer to Chapter 17 Hot Work.

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.

10-8.4 *Rescue Procedures*

Prior to entry into a permit-required 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 illnesses and injuries that would render an entrant unconscious and 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 however, confined space personnel will be trained on non-entry techniques. Non-entry retrieval systems are the preferred method of rescue and will be used whenever feasible. Employees providing non-entry rescue service will undergo practice sessions at least every twelve months, in representative conditions of permit-required confined spaces.

When non-entry rescue is not feasible, a third party rescue service 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. A plan to call 911 in the event of an emergency is not acceptable unless rescue has been coordinated with the public rescue service ahead of time.

Consideration must be given to how the attendant will obtain emergency assistance. Communication means with the rescue agency is addressed in the Pre-Activity Safety Plan (PASP). An additional means of communication such as emergency radios, loud speaker systems, bells or alarms, portable or fixed air horns, etc., may be required.

10-8.5 *Pre-Entry Procedures and Planning*

An Entry Supervisor will evaluate the confined space. A Confined Space Entry (Form 750-094) will be issued, as necessary, 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:

- Names of involved personnel and their duty (Supervisor, attendant, entrant).
- 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 other 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, where available. 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 hazardous atmosphere, 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 shall be completed by the entry supervisor. The Hot Work Permit (if required) should be completed by work crew lead person and/or entry supervisor. 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.

10-8.6 *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, an 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.

10-8.7 *Alternate Entry Procedures*

If the only hazard in a confined space is hazardous atmosphere, all requirements in Section 10-7.2 are met, alternate entry procedures should be used. 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
  - Combustible gases and vapors
  - Toxic vapors and gasses
- Provide each entrant or their authorized representative an opportunity to observe any of the following:
  - Subsequent testing
  - Monitoring of permit-required spaces
  - Reevaluate the permit-required space in the presence of any entrant, or their authorized representative, who requests this to be done because they have reason to believe that the evaluation of that space may not have been adequate.
  - Upon request, immediately provide each entrant or his or her authorized representative, with the results of any testing required by this rule.
  - Continuously monitor conditions in areas where entrants are working, when isolation of the space is not feasible.
  - Examples would be a large space or space that is part of a continuous system, such as a sewer.
- Make sure the atmosphere within the space is not 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 does not increase hazards in the space.
- Test the atmosphere within the space as needed to make sure hazards do not 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.

10-9 Coordination with WSDOT Contractors

Contractors performing work within agency-owned permit required confined spaces (PRCS) are required to follow the confined space requirements in WAC 296-809. WSDOT must inform a contractor with work in an agency-owned PRCS of the following:

- Confined spaces may only be entered if they meet the requirements of WAC 296-809.
- Any known hazards associated with agency-owned PRCSs. This should be based on any previous WSDOT experience entering the PRCS.
- Specific precautions and procedures that WSDOT requires for the protection of employees that work in or near the identified PRCS.

In addition to the above, WSDOT personnel must coordinate entry operations with the prime and any sub-contractors when working in or near identified PRCS. This coordination must include:

- Review of the contractor's confined space plan and any hazards that are associated with the contractor's work, and discussion of entry procedures prior to commencement of work activities.

10-10 Hot Work

Hot work in confined spaces shall be in accordance with Chapter 17 of this Safety Manual. A Hot Work Permit (Form 750-061) is required for any hot work conducted in a confined space.

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.

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, salts, and any other substance that may create a toxic by product must be removed prior to conducting hot work.

Local exhaust ventilation to reduce contaminants to the lowest feasible levels is required for hot work in confined spaces.

Respiratory protection is required if ventilation cannot reduce contaminants to below permissible exposure limits.

Gas cylinders and welding machines must not be brought into the confined space at any time.

10-11 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.

10-12 Appendices

Appendix 10-A Sample Warning Sign

Appendix 10-B Confined Space Entry Permit

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
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.

DOT Form 750-094
Revised 08/2011

Distribution: Original to Division/Unit, Copy to Regional Safety Office

Appendix 10-C Confined Space Evaluation Form

Washington State Department of Transportation

Appendix C
Confined Space Evaluation

Space Location / I.D.
Space Description

Complete this form for any space which may be considered a confined space.
A confined space is defined as having those **all** characteristics listed in **#1** through **#3** below.

☐ Yes ☐ No 1. Is the space large enough and shaped so an employee can enter and work?

☐ Yes ☐ No 2. Does the space have a limited or restricted means for entry or exit?

☐ Yes ☐ No 3. Is the space NOT designed for employee occupancy?

If the answers to **all** questions **#1** through **#3** above are **"YES"**, then the space is a **Confined Space**.
Continue with questions **A** through **E** below to determine if and what type of **permit** is required to enter.

☐ Yes ☐ No A. Does the space contain, or have the potential to contain, a hazardous atmosphere, i.e., oxygen deficiency, flammable vapors, toxic gases or dusts, etc., or pipes, ducts, vents or other entry points for potentially hazardous substances, or will volatile chemicals be used, or will painting or other work that could create a breathing hazard be performed?

Specify potential or known hazards: _____

☐ Yes ☐ No B. Does the space contain a material with the potential for engulfment of a worker, e.g., grain, sand or water?

Specify potential or known hazards: _____

☐ Yes ☐ No C. Does the space have an internal shape such that a worker could be trapped or suffocated by inwardly converging walls, floor or ceiling?

Specify potential or known hazards: _____

☐ Yes ☐ No D. Does the space contain other recognized safety or health hazards, such as: (check all that apply)

- ☐ mechanical hazards;
- ☐ exposed or vulnerable electrical wires or energized equipment;
- ☐ gas or chemical lines
- ☐ hydraulic or steam lines; or
- ☐ temperature extremes/heat stress

Specify potential or known hazards: _____

☐ Yes ☐ No E. Will welding, cutting, torch work, or other hot work be performed?

Specify potential or known hazards: _____

- If you answered **"NO"** to **all** questions **A** through **E**, then the space can be designated a **Non-Permit** Required Confined Space.
- If you answered **"YES"** to question **A** or **E**, and **"NO" to B, C, and D**, the space can be classified as an **Alternate Entry Space,** otherwise, it is a **Permit-Required Confined Space**.
- If you answered **"YES"** to question **B,C, or D**, then classify as a **Permit-Required Confined Space.**
- If you answered **"YES" to question E**, then a **Hot Work Permit** must also be completed and issued.

Name	Signature	Department

DOT Form 750-027
Revised 05/2012

Contact your Regional Safety Office if you have any questions.

11-1 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 296-880 Unified Safety Standards for Fall Protection).

11-2 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.

11-3 References

WAC 296-880 *Unified Safety Standards for Fall Protection* sets forth requirements for employees performing activities covered under this chapter.

Note: Additional standards requiring fall protection include:

- Chapter 296-876 WAC *Ladders, portable and fixed*
- And other chapters applicable WAC codes.

11-4 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 fall protection systems are required, all affected employees shall be trained in the proper selection, inspection, installation, and use of the appropriate fall protection system. Region Safety Offices shall assist in providing, 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 any fall protection system.

- If employees show that they have not retained the training as provided or, fall protection equipment in use has changed or changes in the workplace have made the previous training obsolete the employees shall be retrained.

11-4.1 *Definitions*

Affected Area – Means the distance away from the edge of an excavation equal to the depth of the excavation up to a maximum distance of fifteen feet. For example, an excavation ten feet deep has an affected area extending ten feet from the edge of any side of the excavation.

Anchorage – Means a secure point of attachment for lifelines, lanyards, or deceleration devices, which are capable of withstanding the forces, specified in this chapter.

Boom-supported elevating work platform - is a self-propelled, integral chassis, elevating work platform with a boom-supported platform that can be positioned completely beyond the base.

Catch platform – Means a type of fall arrest system that consists of a platform installed within four vertical feet of the fall hazard is at least forty-five inches wide and is equipped with a standard guardrail system on all exposed sides.

Competent person – Means an individual knowledgeable of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance. This employee is capable of identifying existing and potential fall hazards and has the authority to take prompt corrective action to eliminate those hazards. They are also knowledgeable of the rules contained in this chapter and the current WAC regulations regarding the installation, use, inspection, and maintenance of fall protection equipment and systems.

Connector – is a device which is used to connect parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system (such as a buckle or D-ring sewn into a harness, or a snap hook spliced or sewn to a lanyard or self-retracting lanyard.

Deceleration device – Means any mechanism, such as a rope grab, shock-absorbing lanyard, self-retracting lifelines etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest to below 1800 pounds.

Deceleration distance – Means the vertical distance a falling employee travels, from the point at which the deceleration device begins to operate until the fall is arrested.

Equivalent – Means alternative designs, materials, or methods to protect against a hazard, which the employer can demonstrate and will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the current WAC regulation.

Fall arrest system – is a fall protection system that will arrest a fall from elevation. Fall arrest systems include personal fall arrest systems that are worn by the user, catch platforms, and safety nets.

Fall Distance – Means the total distance from the beginning of a fall to the point where the fall would stop.

Floor hole – Means an opening measuring less than twelve inches but more than one inch in any floor, roof, platform, or surface through which materials but not persons may fall.

Floor opening – Means an opening measuring twelve inches or more in any floor, roof, platform, or surface through which persons may fall.

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.

Fall protection work plan – Means a written document that identifies all areas on the job site where a fall hazard exists. The plan describes the method or methods of fall protection to be used to protect employees, and includes the procedures governing the installation, use, inspection, rescue of fallen employees and removal of the fall protection method or methods selected.

Free Fall Distance – The vertical distance the dorsal D ring on the climber's full body harness travels between onset of the fall and just before the system begins to apply force to arrest the fall.

Full Body Harness – Means a configuration of connected straps that meets the requirements specified in the most current version of ANSI Z359.1, which may be adjustable to distribute a fall arresting force over at least the thighs, shoulders, and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.

Note: Wherever the term "harness" is used in this document, it refers to a full body harness unless otherwise specified.

Hazardous slope – Means a slope where normal footing cannot be achieved without the use of ropes or devices due to the pitch of the surface, weather conditions, or surface material.

Lanyard – A flexible line of webbing, rope, or cable used to secure a full body harness to a lifeline or an anchorage point, usually no more than six feet long.

Positioning device system – Means a positioning lanyard attached to a full body harness and is rigged to allow an employee to be supported on an elevated vertical or inclined surface and work with both hands free from the body support.

Lifeline – is a vertical line from a fixed anchorage or between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured. Lifeline as referred to in this text is one which is part of a fall protection system used as back-up safety for an elevated worker or as a restraint for workers on a flat or sloped surface.

Locking snap hook – Means a connecting snap hook that requires two separate forces to open the gate; one to deactivate the gate keeper and a second to depress and open the gate which automatically closes when released.

Warning: Non-locking snap hooks are prohibited. Snap hooks may not be connected to each other, (nothing with a gate can be connected to another device with a gate), or to loops in webbing.

Personal fall arrest system – Means all of the fall protection equipment in use by the employee to arrest a fall from elevation. It consists of an anchor point, connectors, a full body harness, and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Personal fall restraint system – Means a fall restraint system that is worn by the employee to keep the employee from reaching a fall point, such as the edge of a roof or elevated work surface. It consists of an anchor point, hardware assemblies, and a full body harness and may include a lanyard, restraint lines, or suitable combinations of these.

Qualified person – is one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

Safety watch system – Means a fall protection system in which a competent person monitors one worker who is engaged in repair work or servicing equipment on low pitch roofs only.

Self-retracting lifeline – Means a device which contains a wound line which may be slowly extracted from, or retracted onto, the device under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall.

Shock absorbing lanyard is a flexible line of webbing, cable, or rope used to secure a full body harness to a lifeline or anchorage point that has an integral shock absorber.

Unprotected sides and edges – Means any open side or edge of a floor, roof, balcony/deck, platform, ramp, runway, or walking/working surface where there is no standard guardrail system, or parapet wall of solid strength and construction that is 42 ± 3 inches in vertical height.

Walking or working surface – Means any area including, but not limited to, floors, a roof surface, bridge, the ground, and any other surface whose dimensions are forty-five inches or more in all directions, though which workers can pass or conduct work. A walking/working surface does not include vehicles or rolling stock on which employees must be located in order to perform their job duties.

Warning line system – Means a barrier erected on a walking and working surface or a low pitch roof 4:12, to warn employees that they are approaching an unprotected fall hazard(s).

11-5 General Responsibilities

Are as assigned in Chapter 1 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 guidelines on Fall Protection.

It is the responsibility of WSDOT to provide and maintain equipment that is adequate and is safe in design and construction.

11-5.1 *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.

11-5.2 *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 does not pass inspection requirements.

11-5.3 *Competent Persons*

- Capable of identifying existing and potential fall hazards; and who has the authority to take prompt corrective action to eliminate those hazards.
- Shall have the responsibility and authority to shut down operations that are not in accordance with this program.
- Knowledgeable of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance.
- Complete the Fall Protection Work Plan (Form 750-001 or 750-001A) prior to the commencement of work activities involving the use of a personal fall arrest system.

After completing the Fall Protection Work Plan, the following steps must be followed for proper selection and application of the system.

- An anchor for a full body harness system shall be capable of supporting (per person)
  1. 3,000 pounds when used in conjunction with;
     a. A self-retracting lifeline that limits the maximum free fall distances to two feet or less; or
     b. A shock absorbing lanyard that restricts the forces on the body to nine hundred pounds or less.
  2. 5,000 pounds for all other personal fall arrest system applications.
  3. 4 times the intended load for all fall restraint applications.
- Only properly trained employees may use fall protection equipment.
- 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 according to the manufactures recommendations.
- A shock-absorbing or self-retracting lanyard must be attached between the anchorage connector and the dorsal 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.

11-5.4 *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 proper selection and use in accordance with the Fall Protection Work Plan (Form 750-001 or 750-001A)

  Note: Any time that fall protection or restraint equipment is in use, a Fall Protection Work Plan, Form 750-001 or 750-001A shall be completed.

11-5.5 *Safety Personnel*

- Assist in administering required competent person and fall protection/ prevention training.
- Assist in assessment of fall hazards and the understanding of applicable safety standards.

11-6 Fall Prevention

- Guardrail systems are the preferred method for fall prevention regardless of height.
  - When employees are exposed to open sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, such as rock crushing equipment, material handling equipment, and similar hazards such as floor holes and floor openings, that cannot be covered, the hazard shall be guarded with a standard guardrail system.
  - A standard guardrail system must consist of top rail, intermediate rail, and posts, and must have a vertical height of 42 ± 3 inches from the upper surface of top rail to the walking working surface. The intermediate rail must be halfway between the top rail and the walking working surface.
  - If these railings are constructed of 2 × 4 wooden material the support posts shall not exceed 8 feet in length center to center.
  - For wire rope railings' post spacing, height and intermediate rail requirements are the same. The wire rope shall be tightened to the point that when a two hundred pound load is applied it does not deflect below the 39-inch measurement to the walking working surface.
  - Toe boards shall be used to protect employees walking or working below from objects being kicked off the walking working surface. These toe boards shall be at a minimum of 4 inches in height with no more than a ¼ inch clearance to the walking working surface.
  - Employees shall also be protected from falling into or onto impalement hazards, such as: conduit, rebar, or exposed steel or wood stakes to set forms. The use of rebar caps or wood products to prevent these impalement hazards is required.
- Fall Restraint Systems must be rigged to allow the employee to move to the unprotected edge but not fall from the edge. It must consist of the following:
  - A full body harness attached to securely rigged restraint lines.
  - All components must be compatible with each other.
  - The anchorage point, and all other components must be able to support 4 times the intended load on the line.
  - Employees exposed to a fall hazard of four (4) feet or more to the ground or lower level while on a walking working surface shall be protected by guardrail, a restraint system, a personal fall arrest system or by one of the fall protection systems listed below:
    1. Safety net system
    2. Catch platform
    3. Warning line system

11-7 Anchorage Connectors

Anchorage connectors are designed to offer a fall protection connection to a structure that will support a static load of 5,000 pounds per employee. Anchorage connectors should be positioned above the head as to not allow a free fall to be greater than 6 feet or cause a swing fall. Anchorage connectors shall not be used for any purpose other than part of a fall protection system.

Anchorage connectors for fall restraint systems shall be capable of supporting four (4) times the intended load on that anchorage. These anchorages shall be positioned in a way that when properly connected to, the employee cannot reach the edge of the fall hazard.

11-7.1 *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 dorsal D-ring of the harness and the other end to the overhead anchorage connector. Shock-absorbing lanyards may extend up to an additional 48 inches during fall arrest.
- Self-retracting lanyards offer a single user connection between an anchorage connector and the dorsal D-ring of the harness. This allows free movement up and down without disconnecting. Swing fall hazards must be considered when self-retracting lanyards are in use.
- 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 dorsal D-ring for fall protection. Restraint lanyards may be used to prevent an employee from reaching an unguarded edge. Employees exposed to falls of four feet or more while performing construction work on a hazardous slope must use personal fall restraint systems or positioning device systems.

  Note: Lanyards shall not allow the user to contact a lower level based on the total fall distance.

11-7.2 *Full Body Harness*

The full body harness is the primary part of the Personal Fall Arrest System, personal fall restraint system, and positioning device systems. The following parts of the harness are identified along with their proper use.

- Dorsal D-ring attachment is used for connecting a shock absorbing lanyard or SRL. The dorsal D ring may also be used for fall restraint.
- The chest or sternal D-ring is used for ladder climbing and rescue or retrieval.
- The ventral D ring is used for decent control device connection.
- Hip D-rings are 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.

11-7.3 *Inspection Criteria*

All components (including but not limited to, anchorage connectors, hardware, lanyards, and full body harnesses 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, tag it and remove it from service. Consult your direct supervisor for instructions.

The inspection process must consist of 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.
- Annual inspection of all fall protection equipment, by a trained competent person other than the end user shall be accomplished. These inspections shall be documented and retained at the site where the equipment is maintained. The documentation shall include a description of the equipment with serial number, inspection date, pass or fail, and signature of the inspector. This can be kept electronically as long as it is available for inspection by the regional safety office and/or regulatory personnel.

11-7.4 *Selection and Application of Fall Protection Equipment*

- Limitations listed below must be taken into consideration when utilizing a Full Body Harness.
- Physical limitations of a Full Body Harness include the total weight of a person including all user-borne objects will not exceed the manufacture recommendations. Working at height has inherent risks for workers who may have poor physical conditioning or other conditions and in event of a fall may reduce an employee's ability to withstand shock loads during fall arrest or prolonged suspension.
- Chemical hazards, including paints, or environments may damage parts of fall protection equipment. 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 fall protection equipment. Select the proper equipment when in a work area involving welding, burning, or other heat producing activities.
- Electrical hazards shall be eliminated. Metallic parts of fall protection equipment may conduct electric current. Non-conductive harness are available check with your supervisor for availability.
- Sharp and abrasive edges or surfaces shall be avoided. If unavoidable, protective barriers must be employed to prevent direct contact.
- All parts of personal fall arrest systems exposed to forces of arresting a fall shall be taken out of service and tagged-out of service. Contact your region safety office for proper methods of disposal.

11-7.5 *Maintenance, Cleaning, and Storage*

- There will be no maintenance or servicing of fall protection equipment by anyone other than the manufacturer or their authorized repair facility. All damaged equipment shall be tagged as, out of service and destroyed.
- Clean fall protection equipment 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 fall protection equipment must be addressed.
- Store equipment in a cool, dry, and clean place out of direct sunlight. Avoid storing in areas where chemicals, oils or their vapors may be present.

11-8 Tower Climbing and Rescue

- Tower climbing activities shall be accomplished under the guidance of this manual in conjunction with the most current revision of the FOSSC Radio Operations Standards and Practices Section 117-200-004.
- Highly trained, certified employees perform these activities.
- Retraining shall be accomplished every two years or when a tower climber exhibits the need for retraining by their climbing abilities and knowledge.
- Annual practicing of a rescue must be accomplished by each tower climber. This practice rescue must be observed and documented by a certified tower climbing and rescue instructor.

11-9 Road Warrior Operations

- The road warriors in use at WSDOT have very specific requirements in regards to fall restraint systems. Anchorages and specific types of equipment to connect the employee to the vehicle are discussed in *Work Zone Traffic Control Guidelines for Maintenance Operations* M 54-44.

11-10 Appendices

Appendix 11-A Fall Protection Work Plan

To download a current copy of Form 750-001 or 750-001A, go to the Safety Office website: wwwi.wsdot.wa.gov/Employee/Safety/Media/Forms.htm

12-1 Purpose

Ergonomics is the science and practice of designing jobs and workplaces to match the capabilities and limitations of the human body. The purpose of the program is to reduce work-related musculoskeletal disorders (WMSDs) by adapting the work to fit the person, instead of forcing the person to adapt to the work. In short, "fitting the job to the worker."

The purpose of the Washington State Department of Transportation's (WSDOT) Ergonomics Program is to prevent and control work-related musculoskeletal disorders and to utilize intervention techniques that focus on a method of achieving prevention while improving efficiency and comfort. Ergonomics not only helps to prevent injuries but it also improves the quality of work, the quality of the worker's life and reduces fatigue and pain.

12-2 Scope and Applicability

The Ergonomics Program encompasses all department employees. Many job-tasks contain risk factors that may contribute to the development of Work-related Musculoskeletal Disorders (WMSDs).

The Program considers the capabilities and limits of the worker as he/she interacts with tools, equipment, work methods, tasks, and the working environment.

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.

This 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)

12-3 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.

Cumulative Trauma Disorders (CTDs) – Any of a group of conditions characterized by repeated stress on muscles, bones, tendons, nerves, which have physical ramifications.

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.

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.

Repetitive Strain Injuries (RSIs) – A work-related injury caused by overuse of a particular musculoskeletal group to perform a task that is repeated hundreds to thousands of times in day-to-day work.

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.

Work-related Musculoskeletal Disorders (WMSDs) – 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.

Work-related 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.

12-4 General Responsibilities

Are as assigned in Chapter 1 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.

12-4.1 *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 website.
- Encourage employees to perform simple exercises and stretches as recommended on the WSDOT Ergonomic Training and Education website under Stretch and Flex Programs.

12-4.2 *Supervisors*

- Supervisors are often the best source for pointing out ergonomic issues with employees and they often have a solution to offer as well.
- Supervisors assist in assuring safety in the workplace as the person working most directly with the employee.
- Supervisors utilize knowledge about workplace hazards to reduce risks in the work environment in order to keep employees safe.
- Educating employees on ergonomics helps them to offer more meaningful suggestions and feel that they are a part of the solution.
- Supervisors should 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.
- Recognize and advise employees that WMSD's are caused by:
  - Heavy, frequent or awkward lifting
  - Pushing, pulling or carrying loads
  - Working in awkward postures
  - Hand-intensive work
- Recognize symptoms of WMSD's such as:
  - Pain
  - Numbness
  - Tingling
  - Burning
  - Swelling
- 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.
- Watch for signs of employee pain or discomfort, encourage early reporting of symptoms, and assist in obtaining an ergonomic evaluation.
- 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 website under Stretch and Flex Programs.

12-4.3 *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.
- Report symptoms to the supervisor if:
  - Pain is persistent, severe, or worsening;
  - Pain radiates;
  - Symptoms include numbness or tingling.

12-4.4 *Safety Organization*

12-4.4.1 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 website.
- 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.

12-4.4.2 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 12-5.3.
- 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.

12-5 Policy

12-5.1 *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 website will contain ergonomics related educational and training materials for use in individual and/or group training.

12-5.2 *Reporting*

Employees are called upon to report any symptoms of injury early on so that their supervisors have an opportunity to take care of the problem before it develops into a workers' compensation claim.

Characteristics of WMSDs include:

- Can occur from a single event or many small injuries.
- May take weeks, months or years to develop.
- May produce no symptoms in early stages, but show symptoms after injury has occurred.
- Contributing causes may occur at home and at work.
- The same WMSD may differ in severity from person to person doing a similar task.

Employees that experience signs or symptoms of an ergonomics-related injury shall immediately convey their concerns to their supervisor. Early reporting is stressed. The net result is less pain and suffering for the employee and considerable cost savings for the WSDOT.

Ergonomics related injuries shall be reported through the SIIR's reporting system (Accident/ Incident Report) and according to established injury reporting guidelines.

12-5.3 *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.
  - Employees will be reminded to change positions often and take stretch breaks. Guidelines on safe stretching and flexing are available.
  - Employees will maintain neutral posture whenever possible.
  - Employees will utilize material-handling aids when available.
  - Discussion of elimination of unnecessary tasks and movements by redesigning operating procedures.
- Discuss and identify risk factors and remind employees that risk of injury depends upon:
  - the duration of exposure;
  - the frequency of exposure;
  - the intensity of exposure;
  - a combinations of risk factors.
- Changing the way something is done (i.e., work practices) is often the most effective way to prevent injury.

12-5.4 *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.

12-5.4.1 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.

12-5.4.2 Job-Task Interventions

Control methods include:

- Engineering controls (such as workstation layout and proper tools).
  - These controls are the most desirable and reliable means to reduce workplace exposure to potential harmful effects.
  - Work practice controls including neutral postures for performing tasks.
  - 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
  - Administrative controls including rescheduling and job sharing to reduce frequency or duration of exposure to WMSDs. Such controls also include job rotation, job enlargement, alternating tasks and processes (to use different muscle groups) rest breaks, adjustment of pace, redesign of methods, and worker education.

- Personal protective equipment (PPE) can provide a protective barrier between a worker and WMSDs, but it is not recognized as a truly 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.

Ergonomic practices keep workers healthy and increase productivity, quality and employee morale. However, results may not be immediate. The important thing is to consider all the benefits when calculating the return, not just reduced claims costs for the WSDOT.

Chapter 13 First Aid

13-1 Purpose

This chapter provides guidance for the establishment and maintenance of adequate first-aid capabilities within the Washington State Department of Transportation (WSDOT).

13-2 Scope and Applicability

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.

13-3 References

- WAC 296-800-15005 *Make sure that first-aid trained personnel are available to provide quick and effective first aid*
- WAC 296-800-15020 *Make sure appropriate first-aid supplies are readily available*
- WAC 296-800-15030 *Make sure emergency washing facilities are functional and readily accessible*
- WAC 296-800-15035 *Inspect and activate your emergency washing facilities*
- WAC 296-800-15040 *Make sure supplemental flushing equipment provides sufficient water*
- WAC 296-155-120 *First-aid training and certification*
- WAC 296-155-125 *First-aid supplies*

13-4 General Responsibilities

Are as assigned in Chapter 1 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.

13-4.1 *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.

13-4.2 *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.

13-4.3 *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.

13-4.4 *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.

13-5 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.

13-5.1 *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.

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.

13-5.2 *Certification Training*

- Initial First-Aid Certification
  - Initial first-aid certification may be obtained via successful completion of WSDOT Course WSDOT SAFE: First Aid Training (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
  - Follow your vendor's requirements.
  - Recertification may be obtained via successful completion of WSDOT Course WSDOT SAFE: First Aid Training (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.

13-6 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 should be inventoried for completeness, serviceability, and expiration dates periodically.
- Over the counter medication will not be supplied in WSDOT First-aid kits or provided for personal use.
- 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 for 15 minutes 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.

13-6.1 *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 should be inventoried periodically when on a job site or immediately after any use.

13-7 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.

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 Learning Management System (LMS).

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.

13-8 Appendices

Appendix 13-A First-Aid Kit and Supplies

Appendix 13-A First-Aid Kit and Supplies

First-Aid Kit Supplies – Example

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

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
1“ adhesive band-aids
3” × 3” gauze pads
4” × 4” gauze pads
Burn sheets
Eye cover gauze pads
Kling or roller gauze 2”
Kling or roller gauze 4”
Medical tape 1”
Medical tape 2”
Surgical pads 5” × 9”
Trauma dressings
Triangular bandages
Water-gel burn dressing 8” × 18”
Sting Swabs
General Medical Supplies
Alcohol pads/wipes

*Quantity may increase based on work location and anticipated weather conditions.

*OTC medications shall not be included in WSDOT supplied First Aid Kits.

14-1 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.

14-2 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 Safety Data Sheets (SDS) binders.

14-3 References

- WAC 296-901-14002 through 14032 *Globally Harmonized System for Hazard Communication*
- WAC 296-828-100 through 300 *Hazardous chemicals in laboratories*

14-4 Definitions

Exposure or exposed – When an employee is subjected (includes any route of entry-inhalation, ingestion, skin contact or absorption) in the course of employment to a chemical that is a physical or health hazards (includes potential-accidental or possible exposure).

Hazard not otherwise classified (HNOC) – means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

Hazardous chemical – means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Hazard warning – Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of chemical(s) in the container(s).

Health hazard – means a chemical which is classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in WAC 296-901-14022, Appendix A Health hazard criteria.

Physical hazard – means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. WAC 296-901-14024, Appendix B Physical hazard criteria.

Immediate use – When the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Incidental spill or release – Any release or spill of a hazardous substance which does not pose a significant safety or health hazard to employees, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area.

Safety data sheet (SDS) – means written or printed material concerning a hazardous chemical and appropriate emergency procedures, if necessary.

Specific chemical identity – The chemical name, Chemical Abstracts Service (CAS) Registry Number or any other information that reveals the precise chemical designation of the substance.

Trade secret – Any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

14-5 General Responsibilities

In addition to the responsibilities outlined in Chapter 1, 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 request formal permission from their supervisor before any new chemical hazard is introduced into their workplace and immediately notify the supervisor of any unsafe act or condition.

14-5.1 *Executive and Senior Management*

- Provide resources necessary to furnish employees with SDS, proper labeling, as well as training and information regarding hazardous chemicals in their work areas.

14-5.2 *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 SDSs 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 employees have access to, and are using the correct Personal Protective Equipment (PPE) for the task.
- 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.
- Seek support from Safety Office as needed.

14-5.3 *Employees*

- Shall understand how this policy and procedures applies to them.
- Shall develop and maintain knowledge regarding how to identify a hazardous chemical and how to obtain information about it.
- Shall participate in Hazard Communication training to successfully recognize and control exposure to Hazardous Chemicals in their workplace.
- Shall attend specific training on new Hazardous Chemicals introduced into the workplace.
- Ensure labels on containers are legible and prominent – observe and follow hazard warnings.
- Utilize the protective measures specified.
- Plan and conduct operations in accordance with the PASP, SDS, and good safety and health practices.
- Use personal protective equipment and clothing in accordance with prescribed training, PASPs, and the product SDS.
- Shall not purchase/introduce or use a new Hazardous Chemical in the workplace without first submitting a request via the Chemical Addition Request form (Appendix 14-D) to their supervisor and receiving prior approval.
- Seek assistance from supervisor, management, and the Safety Organization, as needed to assure safe handling of all chemicals.

14-5.4 *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.
- Annually 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 upon request.

14-6 Policy

14-6.1 *Employee Information and Training*

Region Safety Office staff will provide employees with effective information and training on hazardous chemicals in their work area. Supervisors are responsible to ensure employees attend training at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Training documentation shall consist of the following:

- Employee names
- Date of the training
- Name of person(s) or program(s) conducting the training
- Content of training

A training course shall include information and training on the following:

- An overview of the requirements contained in the Hazard Communication Standard
- Hazardous chemicals present in the work place
- 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 the SDSs.
- The symptoms of overexposure
- How to determine the presence or release of hazardous chemicals in the 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 SDSs to obtain hazard information
- Where SDSs and this written program can be accessed
- How to determine appropriate PPE for chemical handling

14-6.2 *Safety Data Sheets (SDSs)*

Safety Data Sheets for all hazardous chemicals shall be readily available to employees in their workplace during their shift. Safety Data Sheets for employees who work in multiple locations may be kept in a central location, providing the employees can gain immediate access to the information in an emergency. Each respective work group shall be responsible to procure and maintain either electronic copies or hard paper copies of Safety Data Sheets and a list of hazardous chemicals, maintaining them in a manner which allows employees unrestricted access during their work shift and in an emergency. If electronic copies are relied upon as a primary means of providing an SDS, a back-up system must be in place in case of power outage, equipment failure, etc. For mobile employees, telephone or radio transmittal of SDS information is adequate, if reliable.

Retention: Safety Data Sheets shall be retained for 30 years after a hazardous chemical is taken out of service. (WAC 296-800-180)

SDS must be in English (although copies may be maintained in other languages) and requires these 16 specified sections:

1. Identification
2. Hazard identification
3. Composition
4. First aid measures
5. Firefighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical/chemical properties
10. Stability/reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

14-6.3 *Hazardous Chemical Container Labeling*

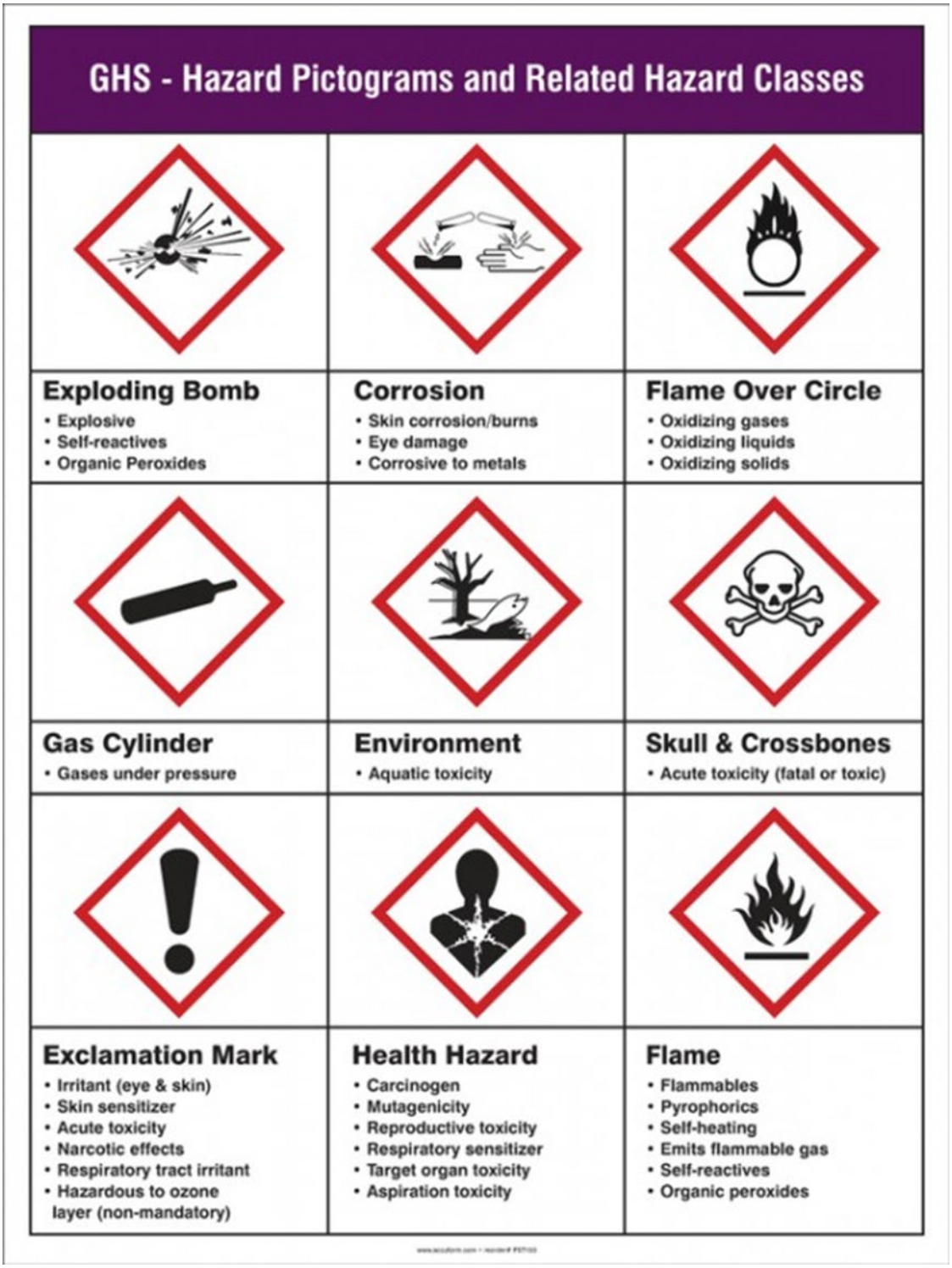
It is imperative that hazardous material containers be properly labeled. When purchasing or receiving a delivery of a hazardous chemical, the respective workgroup supervisor is responsible to ensure the chemical container is properly labeled prior to its acceptance into the workplace and its use in the workplace.

Label and placard guidelines are as follows:

- All chemicals available to employees must have a SDS readily available
- Employees must not deface or remove any existing labels affixed to incoming containers
- If a label becomes illegible or damaged, ensure it is re-labeled in accordance with rules and this policy.
- All primary chemical containers shall be labeled with the following information:
  - Product identifier
  - Signal Word (IE. DANGER)
  - Pictogram of the hazards represented (Appendix 14-A)
  - Precautionary Statements
  - Name and address of chemical manufacture, importer or other responsible party.

- Containers into which hazardous chemicals are transferred from labeled primary containers (secondary containers) that are for immediate use do not require labeling. Secondary containers with hazardous chemicals remaining in them must be labeled with a minimum of:
  - Product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals.

Chemical label examples are included as Appendix 14-A.



Storage areas where hazardous material and chemicals will be stored are to be placarded according to the National Fire Protection Association (NFAP) requirements in cooperation with local emergency response departments.

The following are label, warning, and placard details:

An NFPA diamond shaped label affixed to a container provide information in four categories:

Color	Hazard
1. Blue	Health Hazard
2. Red	Flammability Hazard
3. Yellow	Reactivity Hazard
4. White	Special Hazard

Numerical Designation – Each section of the NFPA diamond has a numeral from 0 to 4 indication the degree of hazard. A "0" would indicate minimal hazard, with a "4" being an extreme hazard. Below are the specifics of each numeral and category.

Health Hazard		
4	Extreme	Highly Toxic -May be fatal on short-term exposure. Special protective equipment required
3	Serious	Toxic -Avoid inhalation or skin contact
2	Moderate	Moderately Toxic - May be harmful if inhaled or absorbed
1	Slight	Slightly Toxic - May cause slight irritation
0	Minimal	No health Hazard

Flammability Hazard		
4	Extreme	Extremely flammable gas or liquid. Flash point below 73°F
3	Serious	Flammable gas or liquid. Flash point 73°F to 100°F
2	Moderate	Combustible-Required moderate heating to ignite. Flash point 100°F to 200°F
1	Slight	Slightly combustible - Requires strong heating to ignite
0	Minimal	Will not burn under normal conditions

Reactivity Hazard		
4	Extreme	Explosive at room temperature
3	Serious	May explode if shocked or heated under confinement, or mixed with water.
2	Moderate	Unstable, may react with water.
1	Slight	May react if heated or mixed with water.
0	Minimal	Normally stable, does not react with water

Piping Labels:

Chemical lines and steam/condensate lines shall be marked every 20 feet with BLACK characters on YELLOW labeling.

Other piping may be labeled using the following ANSI requirements:

RED label = Fire quenching materials

GREEN label= Non-hazardous liquid

BLUE label= Non-hazardous gas

Labels should be located near valves, branches, change in direction, and entry/reentry points through walls and floors.

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.

14-6.4 *Hazardous Chemical Inventory*

Each facility, workgroup or mobile unit must create and maintain an inventory list and applicable SDS of hazardous chemicals in their workplace. Detailed information about the physical and health effects of each chemical is included in the safety data sheet; the identity of each chemical on the list must match the identity of the chemical on its SDS. To determine if the chemical is a Hazardous Chemical requiring a listing in the Hazardous Chemical inventory, the chemical must be identified as or contain a Hazardous Chemical, Health Hazard, Physical Hazard or Hazard Not Otherwise Classified (HNOC.) Reference the chemical Safety Data Sheet and the list of definitions at the top of this policy. You may also seek the assistance of the region safety office for guidance. Appendix 14-B contains a hazardous chemical inventory list template form.

The hazardous chemical inventory list shall be updated, along with the applicable SDS each time a new hazardous chemical is introduced into the workplace. A date when the hazardous chemical was placed into service shall be placed in the list of hazardous chemicals, as well as a date when a hazardous chemical is taken out of service.

New Hazardous Chemicals may not be purchased and/or used in the workplace until a "Chemical Addition Request" form (Appendix 14-D) has been submitted and approved. The process is as follows:

- Employee identifies need for new chemical product and requests supervisor's approval via the chemical addition request form.
- Supervisor obtains an SDS for the requested chemical.
- Supervisor and Region Safety Office staff review the chemical for hazards and to make a determination on whether to add the new chemical to the inventory.
- If the new chemical is approved, supervisor works with Region Safety Office staff to inform affected employees a new hazardous chemical is to be introduced into the workplace, documents training of affected employees on new chemical use, associated hazards and personal protective equipment.

- Add new hazardous chemical to the Chemical Inventory form along with "in-service date. (Appendix 14-B)
- Add the completed and approved Chemical Addition Request form to the SDS book or store digitally.
- Use chemical as appropriate.

Buyers/Procurement department must follow the same procedure as above before purchasing or adding hazardous chemicals to their inventory.

The initial in-service date of the hazardous chemical shall be recorded on the chemical inventory form. When a chemical is taken out of service, the date shall be recorded and the SDS shall be kept for 30 years after the chemical has been taken out of service.

14-6.5 *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 will also inform them about how to control exposure and what to do in an emergency.

Spill response guidance is included as Appendix 14-C.

14-6.6 *Multi-Employer Work Places/Contractors*

On a work site with multiple employers, each employer must provide the work site with the following information:

- Copies of SDSs (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.
- Have their respective Hazard Communications Program available for review, upon request.

14-6.7 *Chemical Laboratories*

WSDOT Chemical Laboratories (Materials Lab) shall develop and maintain a Chemical Hygiene Plan (CHP) in accordance with WAC 296-828.

14-7 Appendices

Appendix 14-A	Chemical Label Example
Appendix 14-B	Chemical Inventory List
Appendix 14-C	Incidental Spill or Release Response Guidance
Appendix 14-D	Chemical Addition Request

Appendix 14-A Chemical Label Example

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:
Supplier:
Precautionary statement:
Hazard statement:
Signal word:
Select applicable pictogram(s):

Appendix 14-B Chemical Inventory List

Region:	Person Compiling List:
Org Code:	Contact No.:
Facility Name:	Facility Location:

Chemical Name*	Manufacturer	Location Used/Date in Service

*Use exact name and product number (when available). A manufacturer may have many different formulations using similar names. It is important to have the right SDS.

Appendix 14-C Incidental Spill or Release Response Guidance

Introduction

This appendix provides guidance for incidental spills or releases of chemicals 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, Storm water 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.

Incidental Spill or Release Response

The following are general guidelines to be followed for an incidental spill or release. The SDS or other material specific information may provide more applicable guidance.

14.7.1 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.

14.7.2 If there is a fire, medical attention is needed, or if the spill is beyond the facility's ability to safely control, contact 911.

14.7.3 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.

14.7.4 If a volatile, flammable material is spilled, immediately warn everyone, control sources of ignition and ventilate the area.

14.7.5 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.

14.7.6 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 . Please refer to the respective chemical SDS for first aid. Seek medical attention in an emergency situation. Incidents and injuries involving hazardous chemicals, regardless of severity shall be reported in the WSDOT Safety Inspection and Incident Reporting System (SIIRS).

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	1-800-222-1222
Industrial Hygienist	360-705-7793
HQ Safety Office	360-705-7099 (x7099)
Eastern Region Safety	509-324-6070 (x6070)
NC Region Safety	509-667-3010 (x3009)
NW Region Safety	206-440-4819
Olympic Region Safety	360-357-2690 (x2690)
SC Region Safety	509-577-1610 (x1610)
SW Region Safety	360-905-2010 (x2010)
Environmental Manager (Maintenance & Operations)	360-705-7812 (x7812)
Water Quality Manager	360-705-7848 (x7848)
Environmental Manager (Construction)	360-570-6656 (x6656)

Appendix 14-D Chemical Addition Request

Washington State Department of Transportation

Chemical Addition Request

Requested Product (SDS must be attached)	
Location / Area to be Used or Stored	Quantity to be Stored
Expected Product Use	
Is there a chemical in the current chemical inventory that is intended for the above use? ☐ Yes ☐ No	
Product Currently Used (if any)	
If there is a product currently used for this purpose, why should this one replace it? If there is not a chemical currently used for this purpose, why should it be added?	
Name of Requester	Date
Supervisor Approval	Date
Health & Safety Approval	Date
If not approved, state reason:	

DOT Form 750-002
Revised 03/2018

Chapter 15 Lead Exposure Control Program

15-1 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.

15-2 Scope and Applicability

This program applies to all WSDOT employees and operations (excluding WSF, which maintains its own safety and health program) where there may be occupational exposure to lead.

Contractors or subcontractors performing lead work shall develop and implement their own written lead compliance program that meets or exceeds requirements of WAC 296-155-176 and 296-62-07521.

15-3 References

- WAC 296-155-176 *Lead (in Construction)* https://app.leg.wa.gov/wac/default.aspx?cite=296-155
- WAC 296-155-17650 Appendix A to WAC 296-155-176—Substance data sheet for occupational exposure to lead https://app.leg.wa.gov/wac/default.aspx?cite=296-155-17650&pdf=true
- WAC 296-155-17652 Appendix B to WAC 296-155-176— Employee standard summary https://app.leg.wa.gov/wac/default.aspx?cite=296-155-17652&pdf=true
- 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* https://app.leg.wa.gov/wac/default.aspx?cite=296-155-415

15-4 Definitions

The definitions in this chapter are intended to be the same as in referenced WAC chapters where the same terms are used. If there is any difference, the more protective employee health shall apply.

Action Level – Thirty micrograms of lead per cubic meter of air (30 µg/m3) over an 8-hour time weighted average (TWA) at which the lead exposure program elements must be implemented.

Exposure – That concentration of lead in the workplace air, as measured in the employee's breathing zone, without regard to the use of respiratory protective equipment.

Exposure Control – Methods used to control employee's exposure to lead which consists of engineering and work practice controls, including administrative controls. Examples include: mechanical ventilation, proper housekeeping and hygiene, and job rotation.

Lead – Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

Negative Initial Determination Assessment – A determination that employee exposures to airborne concentrations of lead are below the action level.

Permissible Exposure Limit (PEL) – Fifty micrograms of lead per cubic meter of air (50 µg/m^3) averaged over an 8-hour period. If an employee is exposed to lead for more than 8-hours in any workday, the permissible exposure limit shall be reduced according to the following formula:

Maximum permissible limit (in µg/m^3) = 400 ÷ hours worked in the day.

Qualified Lead Worker – Any employee who has been appropriately trained and equipped to work in a designated lead work area.

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

Trigger Tasks – Are those tasks listed in WAC 296-155-17609 which requires that an employee be treated as though exposure exceeds the PEL unless an exposure assessment determines lower exposure levels. When lead is present, until an exposure assessment determines otherwise, the following tasks, are treated as though employee exposure is at the following levels:

- Manual demolition of structures (e.g. dry wall), manual scraping, manual sanding, heat gun applications, power tool cleaning with dust collection systems, spray painting with lead-paint, are treated as though employees are exposed between 50 and 500 µg/m^3.
- Using lead containing mortar; lead burning; rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal shall be treated as though employee exceeds 500 µg/m^3.
- Abrasive blasting, welding, cutting; and torch burning are treated as though employee exposure exceeds 2,500 µg/m^3.

15-5 Organizational Responsibilities

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.

15-5.1 *Executive, Senior, and Mid-Level Management*

- Ensure the site manager, supervisor and other site personnel have the required knowledge, abilities, and resources to identify existing and foreseeable lead exposure hazards and the authority to take prompt corrective measure to eliminate or minimize them.
- Ensure the establishment and maintenance of a lead exposure control program.
- Provide, replace, or rent equipment for effective lead exposure control to ensure work is performed in compliance with this program and regulatory standards.
- Perform periodic audits of employee lead training to ensure all personnel have completed required training in a timely manner.
- Ensure Lead Exposure Control Work Plans are properly developed and implemented by personnel who are exposed to lead hazards.
- 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 properly implemented. (See Appendix 15-A)
- Coordinate review to reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures to lead at or above the action level (AL), or when there is any reason to believe that new or additional exposures at or above the AL may occur.

15-5.2 *Supervisors*

- Identify, assess, and properly implement adequate controls for lead exposure hazards at sites under their control to maintain exposures within acceptable limits.
- Develop and implement effective written job specific Lead Exposure Control Work Plans. Obtain assistance from the Safety Organization, as needed, to maintain lead within acceptable limits (refer to the Lead Exposure Control Work Plan in the Forms Catalog).
- Supervisors who oversee or perform lead work or who enter a designated lead work area shall maintain all needed knowledge, skills, and abilities for proper lead hazard control.
- Ensure that all employees entering or working in designated lead work areas are properly trained and implement all required work practices and personal protective equipment (PPE) and clothing at all times.
- Ensure that employees located immediately outside the lead work area are not exposed to lead exceeding the action level.
- Ensure that employees use appropriate containers for contaminated clothing and lead waste, and appropriate label is properly affixed to each poly bag before leaving the lead change area.

- Ensure equipment and controls are functioning as designed to ensure exposures remain within acceptable limits.
- 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 cross-contamination of lead scrap or dust.
- Ensure that dry or wet sweeping, brushing, shoveling, and compressed air are not used for housekeeping practices. If prohibition of such practices is not feasible, ensure the Safety Organization is contacted to assist in development of acceptable alternatives, before implementing any use of housekeeping with sweeping, brushing, shoveling, or compressed air.
- Ensure employees are reminded to clean hands and faces prior to eating, drinking, consuming tobacco products, or applying cosmetics.
- Ensure the Safety Organization receives any or all biological monitoring results from employees.
- Ensure the Industrial Hygiene Program Manager and the Region Safety Office are notified when there has been a change in any process that may result in new or additional exposure to lead so additional evaluation and/or air monitoring can be performed.

15-5.3 *Employees*

- Consistently and effectively implement lead exposure control measures as indicated in training, this, and job specific written control programs (See Appendix 15-A), and regulatory standards and its appendices (See WAC 296-155-17652 Appendix B to WAC 296-155-176 – Employee standard summary).
- Wear and properly use required personal protective clothing and/or equipment (e.g. respiratory protective equipment) before entering or working lead work areas that require such uses.
- Use appropriate containers for contaminated clothing and lead waste.
- Wash hands and face prior to eating, drinking, consuming/smoking tobacco products, or applying cosmetics.
- Participate in exposure monitoring.
- Participate in medical surveillance.
- Ensure the Safety Organization receives any or all biological monitoring results per medical surveillance.
- Notify supervisor chain and/or Safety Organization if there are changes in operations that may result in new or additional exposures to lead above the AL.
- Identify and report to supervisory chain and/or Safety Organization if any equipment or controls are not working within design specifications or otherwise may not be adequately controlling lead exposure to or below the PEL.
- Participate in lead work practice reviews when elevated blood lead levels are discovered or if established controls may not have maintained exposures to or below the PEL.

15-5.4 *Safety Organization*

- Assist in identification, evaluation, and development of proper controls for lead exposure, and the understanding of applicable safety and health standards.
- Assist in developing or securing training for all employees potentially exposed to lead at any level and where the possibility of eye or skin irritation from lead exists, to assure exposed employees and their management have the knowledge, skills, and abilities to identify and properly control lead hazards.
- Assure employees and their management have the knowledge, skills, and abilities to identify and properly control lead hazards in compliance with this program, regulatory standards, and their appendices (including Appendix B to WAC 296-155-176 Employee standard summary).
- Upon notification of lead related work requiring sampling, coordinate air monitoring in lead work areas to determine exposures to airborne lead in the employee's breathing zone, as needed. Maintain and calibrate test equipment to assure exposure measurements meet required standards.
- Assist WSDOT organizations, as needed, in the development of effective Pre-activity Safety Plans (PASP)/written lead exposure control plans.
- Assist WSDOT to assure employee exposures to lead are within the requirements set forth by this program and regulatory standards (WAC 296-155-176 and WAC 296-62-07251).
- Assure respiratory protection use conforms to WSDOT Policy and WAC 296-842.
- Upon notification, coordinate review to assess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when there is any reason to believe that new or additional exposures at or above the action level have occurred.
- Coordinate lead work practice reviews when elevated blood lead levels are discovered or if established controls may not have maintained exposure to or below the PEL.
- Maintain a list of qualified persons.

15-6 Health Effects of Lead Exposure

Inhalation is the most significant occupational route of exposure to lead. When inhaled as a dust, fume, or mist, the lungs and upper respiratory tract absorb lead into the body. Some of this lead is filtered and excreted by the body, but some remains and is stored in various organs and body tissues. Lead can be toxic when absorbed into the body in high enough doses.

Lead can damage the central nervous system (CNS), cardiovascular system, hematological system, and kidneys. As a toxin to both male and female reproductive systems, lead can alter the structure of sperm cells and there is evidence of miscarriages and stillbirth in women exposed to lead or whose partners have been exposed. Children born to parents who were exposed to excess lead levels are more likely to have health effects such as birth defects, mental retardation, or behavioral disorders.

Short-term (acute) occupational overexposure to lead can cause acute encephalopathy, a condition affecting the brain that can result in cardiorespiratory arrest. Some of the common symptoms from long-term (chronic) overexposure to lead include loss of appetite, fine tremors, weakness, metallic taste in the mouth, and muscle and joint pain or soreness. Chronic overexposure can result in severe damage to the brain.

Exposed workers can take home lead dust on their clothes and in vehicles, inadvertently exposing their families. To prevent the serious illness associated with lead, exposures must be controlled to levels below the PEL and should be minimized to the lowest extent feasible. Awareness of potential health hazards and understanding use of control measures can result in effective lead exposure controls. Management and employees each have a responsibility to ensure that control measures are effectively implemented.

More information on occupational exposure to lead and health effects can be found in WAC 296-155-17650 Appendix A to WAC 296-155-176—Substance data sheet for occupational exposure to lead, a copy of which can be provided by the Safety Organization upon request.

15-7 Lead Activities at WSDOT

15-7.1 *Lead Activities at WSDOT*

Occupational exposure to lead occurs where lead or lead-containing materials are used or disturbed. Lead emitting activities at WSDOT are primarily bridge repair and/or maintenance, road maintenance and inspection projects. Industrial paints such as bridge paints shall be assumed to contain lead unless the absence of lead is demonstrated, whether by proper sampling of the areas of paint to be disturbed or conclusive review of painting records, regardless of the age of the paint. Restrictions on the use of lead in paint were for products for consumer use, and the restrictions excluded many coatings in other categories, such as marine and industrial paints.

Lead-containing coatings may be disturbed through grinding, welding, heat-straightening, rivet busting, cutting, and small-scale painting. Freeway expansion joints and automobile exhaust deposits may involve lead impacted work. Specific control methods used for each project will be identified on the Lead Exposure Control Work Plan.

Most of these projects vary in scope and are unscheduled maintenance activities, but some are routine scheduled activities. Many of the maintenance activities are small scale/short duration projects lasting minutes to hours. Crews are usually composed of approximately five or fewer persons. Larger scale bridge painting and construction is generally contracted to private companies. Employees, supervisors, and management shall immediately contact the Safety Organization if there are new or modified processes.

15-8 Exposure Controls

15-8.1 *General*

Substitution, engineering and work practice controls, including administrative controls, must be implemented wherever feasible, to reduce and maintain employee exposure to lead below the PEL, before relying upon respiratory protection to maintain employee exposure within the PEL (see Appendix 15-A). Management and employees must follow good work practices such as described in Appendix B, WAC 296-155-17652.

15-8.2 *Engineering Controls and Work Practices*

Engineering and work practice controls to reduce and maintain employee exposure to lead below the PEL must be used, unless the organization can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, these controls must nonetheless be used to reduce employee exposure to the lowest feasible level and must be supplemented with the use of respiratory protection that complies with the requirements of WAC 296-155-17613, WAC 62-07521, and WSDOT respiratory protection policy (Chapter 8). One or a combination of the following methods shall be used to reduce employee exposure including, but not limited to:

- Local exhaust ventilation – ventilation that captures airborne lead at the source of generation before it reaches the employee breathing zone. Ensure the ventilation system is provided with sufficient air flow to effectively contain and capture lead.
- Recirculation of air – if air from exhaust ventilation is recirculated, the ventilation system must have a HEPA filter with reliable back-up filter; controls to monitor the concentration of lead in the return air and to bypass the recirculation system automatically if it fails are installed, operating, and maintained.
- Power tools equipped with dust collection systems. Utilize tools equipped with shrouds or other attachments so that dust is exhausted through a high-efficiency particulate air (HEPA) vacuum system. For example, prior to conducting maintenance work, needle guns equipped with an attachment connected to a HEPA-filtered vacuum or similar removal methods will be used to remove lead.
- Vacuum lead dust with HEPA-filtered vacuums during cleanup operations. Vacuums must be used and emptied in a manner which minimizes the reentry of lead into the workplace.
- Encapsulate lead-containing materials to reduce the lead exposure hazards.
- Use chemical strippers in lieu of hand scraping or mechanical removal. Always review the safety data sheets (SDS) for these stripping agents to obtain information on their hazards.

15-8.3 *Administrative Controls*

Administrative controls include using time, distance/location, and/or training and implementation of work practice methods to reduce exposure. Administrative controls should not be used a means of avoiding use of substitution and engineering controls. One or a combination of the following should be implemented, wherever feasible, to further limit employee exposure to lead.

- Maximize distance from processes that generate airborne lead.
- Minimize duration in or near processes that generate airborne lead.
- Position upwind of lead generation.
- Scheduling the task when others will not be in the area.
- Employee rotation can be used to limit exposure; however, a job rotation schedule must be established and implemented.

15-9 Personal Protective Equipment

15-9.1 *General*

The last choice in exposure control is personal protective equipment (PPE). Wherever feasible, substitution, engineering, and administrative controls shall be implemented before relying on PPE as exposure control. This does not limit using PPE as an extra precaution or as a supplemental control to decrease exposures to the furthest extent possible. This is only intended to ensure PPE, such as respirators, are not used in lieu of other feasible controls.

15-9.2 *Respiratory Protection Requirements*

Wherever all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposures to below the PEL, the engineering and work practice controls nonetheless must be used to reduce exposures to the lowest feasible level and shall use respiratory protection to supplement those controls.

All personnel using respirators shall be enrolled in WSDOT's Respirator Protection Program (Refer to Chapter 8 of this Manual, Respiratory Protection Policy), including medical evaluation, training, and fit testing (as necessary) prior to using respiratory protection.

Appropriate respirators must be selected to ensure sufficient protection. Respirators must reduce employee exposure below the PEL. Appropriate respirators can be selected following the procedures on the Lead Exposure Control Work Plan. Contact the Region Safety Office with questions or concerns regarding appropriate respiratory protection, including provision of powered air-purifying respirators.

15-9.3 *Personal Protective Clothing and Equipment*

When performing work where employee exposures exceed the PEL or where exposure to lead compounds may cause skin or eye irritation, employees shall use appropriate protective clothing and equipment that prevents contamination of the employee and the employee's garments. The appropriate protective clothing and equipment must include, but are not limited to, the following:

- Coveralls or similar full-body work clothing; and
- Gloves, hats, and footwear or disposable footwear coverlets; and
- Face shields, vented goggles, or other appropriate protective equipment which complies with WAC 296-800-160; and
- Respiratory protection – Refer to Section 15.9-1 Respiratory Protection Requirements above.

Contact the Region Safety Office for further guidance on appropriate protective clothing and equipment.

Clean and dry protective clothing shall be provided daily for employees exposed at or above 200 µg/m^3 and at least weekly for exposures below 200 µg/m^3 for use by lead workers. Protective clothing will be repaired or replaced as necessary to maintain effectiveness. All protective clothing will be removed at the completion of a work shift in provided change areas; when removing personal protective clothing, employee shall follow procedures outlined in Section 11 of this chapter or procedures equivalent in effectiveness.

Contaminated protective clothing that is to be cleaned, laundered, or disposed of, shall be placed in a closed container in the change area which prevents dispersion of lead outside the container, and is labeled as follows:

If clothing will be cleaned or laundered by an outside service, the service shall be provided written notice of the potentially harmful effects of lead.

DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD.
MAY DAMAGE FERTILITY OR THE UNBORN CHILD.
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM.
DO NOT EAT, DRINK OR SMOKE WHEN HANDLING.
DO NOT REMOVE DUST BY BLOWING OR SHAKING.
DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

15-10 Housekeeping

All surfaces must be maintained as free as practicable of accumulations of lead. Floors and other surfaces where lead accumulates shall, wherever possible, be cleaned by vacuums equipped with HEPA filters or by other equally effective methods that minimize the likelihood of lead becoming airborne.

Establish a lead work area around the lead activities where exposure to lead is above the PEL. Barriers and/or enclosures will be erected to cordon off lead work activities. The lead work area shall be identified with warning signs posted at approaches to the area in a conspicuous manner. The signs shall read as follows:

DANGER LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA

No equipment or material shall leave a lead work area unless it has been:

- Bagged and labeled as lead-contaminated waste, and/or
- Decontaminated (e.g. tools and equipment HEPA-filtered vacuumed thoroughly, and/or wet wiped to ensure lead contamination has been removed).

Where HEPA-filtered vacuums are used:

- Vacuums must be emptied in a manner that minimizes the reentry of lead into the workplace;
- HEPA filters will be bagged or placed in a sealed container and labeled as lead-contaminated waste prior to disposal.

Cleaning lead contaminated floors or surfaces with compressed air, dry or wet sweeping, shoveling, or brushing is prohibited. Where HEPA-filtered vacuuming or equally effective methods have been demonstrated not to be feasible, supervisors must contact the Safety Organization for assistance and review prior to implementing cleaning methods other than HEPA-filtered vacuuming.

15-11 Hygiene Facilities and Practices

Following proper hygiene practices are essential to minimize additional sources of lead exposure. In areas where employee exposure to lead is above the PEL, food or beverage shall not be present or consumed, tobacco products are not present or used, and cosmetics are not applied.

15-11.1 *Change Areas*

Clean change areas will be provided for employees whose airborne exposure exceeds the PEL. The change areas will be equipped with separate storage facilities for protective work clothing and equipment and for street clothes to prevent cross-contamination.

On multi-employer work sites where a contractor is generating lead dust to which WSDOT employees may be exposed (e.g., bridge recoating projects), contractor written exposure control plans shall be made to allow WSDOT employees to use change areas and showers.

Employees must follow good work practices where exposures to lead may exceed the PEL. Where appropriate, employees must follow these or equally effective procedures, as outlined below.

Prior to beginning the work shift:

- Change into work clothing and shoe covers in the clean section of the designated change areas;
- Use appropriate protective work clothing and equipment, including respirators, before entering the work area;
- Store any clothing not worn under protective clothing in the designated changing area. Upon leaving the work area (e.g., breaks) and at the end of the work shift:
- Use HEPA-filtered vacuum to remove heavily contaminated protective work clothing while it is still worn. Do not remove lead from protective clothing by any means where such activity could contribute to employee exposure to lead;
- Carefully roll down protective coveralls to reduce exposure to dust;
- Place contaminated protective clothing in closed and labeled container (e.g. sealed bag, sealable tub, etc.);
- Always remove respirator last; follow proper cleaning and storage procedures;
- Wash hands and face (shower if available).
- Where contractors may create conditions that exceed the PEL (e.g. bridge repainting projects), WSDOT shall coordinate with the contractors to use existing shower facilities at that site.

15-11.2 *Hand Washing and Shower Facilities*

Hand washing facilities will be provided at work sites for employees exposed to lead. Where feasible, shower facilities will be provided for employees whose airborne exposure to lead is above the PEL. Contaminated work clothing or equipment required to be worn during the work shift may not be worn home. Where showers are feasible:

- Employees must shower at the end of the work shift;
- Employees shall be provided an adequate supply of cleansing agents and towels to use;

Where showers are not feasible at the work site, employees are required to wear a second set of coveralls in addition to the personal protective clothing and equipment required to perform lead activities. Employees must follow proper procedures upon leaving the lead work area or at the end of the work shift, including HEPA vacuuming heavily contaminated protective clothing and washing hands and face, prior to entering WSDOT vehicles, and must shower immediately at a WSDOT facility. Contact the Region Safety Office for additional guidance.

15-11.3 *Lunchroom and Eating Facilities*

Work sites will be provided with lunchroom facilities or eating areas for employees whose airborne exposure to lead is above the PEL and will be kept as free as practicable from lead contamination.

Employees exposed to lead above the PEL shall wash their hands and face prior to eating, drinking, smoking, or applying cosmetics, and at the end of the work shift. Wipes and cleaning products specially designed to remove lead can be used as a supplement to hand washing.

The following actions are **prohibited**:

- Bringing lead contaminated protective clothing or equipment into lunchroom facilities, eating areas, or outside of designated changing areas;
- Taking contaminated protective clothing or equipment home;
- Removal of lead from protective clothing or equipment by blowing, shaking or any other means that disperses lead into the air.

15-12 Training

Employees with potential exposure to lead at any level, must be informed of the contents of Appendices A and B of WAC 296-155-176 and WAC 296-6-07521. All employees must receive initial training before assignment to lead work where lead exposures are at or above the AL or where there exists the possibility of skin or eye irritation. Refresher training is required at least annually for employees who have exposures to lead at or above the AL. Employees will be required to complete refresher training if there are indications that they have not maintained the required knowledge and understanding of the above required training elements.

Each employee who is required to complete lead training must be able to demonstrate knowledge and understanding of at least the following:

- The contents of the regulatory standards, as applicable, including WAC 296-155-176 and WAC 296-62-07521 and its appendices;
- The health hazards associated with exposure to lead, with particular attention to the adverse health effects including reproductive effects on both males and females;
- Specific tasks in which they engage that could result in exposure to lead;
- Specific measures WSDOT implemented to protect employees from exposure to lead, including engineering controls, work practices, and respirators to be used;
- Compliance with Chapter 8, WSDOT respiratory protection policy;
- The purpose and description of the medical surveillance program required and the medical removal protection program;
- The contents of this chapter, PASPs, and other applicable compliance plans;
- 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 Washington State Learning Center. Course Code for lead-training is as follows: WSDOT_AZS is used for WSDOT Safe: Lead Exposure Control (Instructor-led). Contact your Region Safety Office for training.

15-13 Exposure Monitoring in Lead Work Areas

The Region Safety Office will coordinate exposure monitoring with the Industrial Hygiene Program Manager.

For employees working in lead work areas, the frequency of exposure monitoring will be determined based on the airborne concentrations of lead, as follows:

- Initial monitoring for any task where exposure may exceed the AL.
- Where employee exposure to lead is at or above the AL, but at or below the PEL, monitoring shall be continued at least every 6 months;
- Where employee exposure to lead exceeds the PEL, monitoring shall be repeated 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 notify, in writing, each affected employee of the monitoring results within five working days of receiving results. Where employee exposures exceed the PEL, the written notice will state the PEL was exceeded, and a description of the corrective action taken or to be taken to reduce exposure to or below the PEL. WSDOT shall maintain the monitoring records for at least 40 years or the duration of employment plus 20 years, whichever is longer.

15-14 Medical Surveillance and Removal

Any employee occupationally exposed on any day to lead at or above the action level shall participate in initial biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels. Initial biological monitoring must be completed before participating in lead work.

Employees shall participate in a medical surveillance program if they are or may be exposed to lead at or above the action level for more than 30 days per year or whose blood lead level (BLL) is at or above 25 micrograms per deciliter (µg/dL). The following shall be ensured:

- Medical surveillance program and medical removal complies with all WAC requirements;
- Lead medical surveillance is performed by or under the supervision of a licensed physician and that the physician is keeping the appropriate medical records;
- Biological monitoring will be provided at least every two months for the first 6 months and every 6 months thereafter;
- Any employee with an elevated BLL at or above 25 µg/dL will be retested within two weeks after WSDOT receives the results of the first blood sampling test. Refer to Appendix 15-B for assistance with implementing medical surveillance procedures.

Where an employee enrolled in the lead medical surveillance program has a BLL at or above 25 µg/dL, the Region Safety Office will coordinate a review of lead work practices with assistance from the Industrial Hygiene Program Manager to assure employees are properly protected from lead hazards. WSDOT will strive to conduct a review for any significantly elevated BLL for occupationally exposed employees.

15-15 Required Contents of Lead Work Plans

A written Lead Exposure Control Work Plan is required for activities where employee exposure to lead exceeds the PEL and must be updated at least every 6 months to reflect the current status of the program. Use the Lead Exposure Control Work Plan found in the Forms Catalog. The Plan will be developed before the start of the activity and must contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to lead (e.g. machinery used, crew size, etc.);
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to lead for each task;
- Exposure monitoring data documenting the source of lead emissions;
- A description of the protective work clothing and equipment, housekeeping measures, and hygiene facilities used to limit employee exposure to lead;
- A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;
- If employee rotation is used, document administrative control schedule;
- A description of procedures used to limit access to lead work areas, when necessary, to minimize the number of employees exposed to lead and their level of exposure, including exposures generated by other employers or contractors;
- A competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

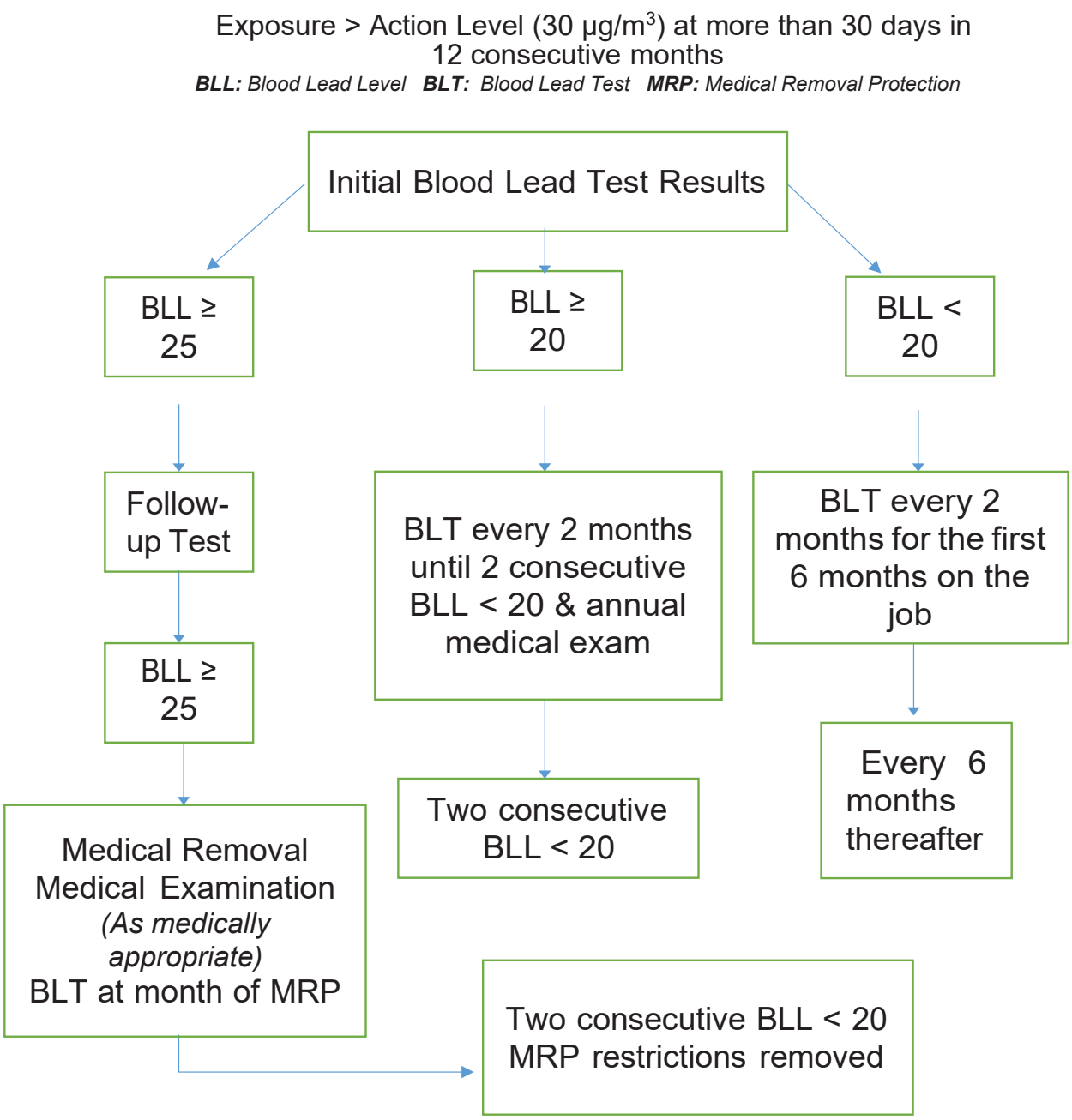
15-16 Appendices

Appendix 15-A	Lead Engineering Control
Appendix 15-B	Medical Surveillance Flowcharts

Appendix 15-A Lead Engineering Control

Control Method	Advantages	Disadvantages
Power Tools with HEPA filter equipped Vacuum Attachments	• Substantially reduces airborne lead exposures • Can reduce or eliminate emissions to environment	• Noise • May not be able to reach all surfaces due to size and shape restrictions
Chemical Paint Strippers	• Can eliminate all or nearly all airborne lead exposures • Can eliminate emissions to the environment • Little or no noise	• Can contain caustic or toxic chemicals • Normally requires application many hours in advance of removal • May require more than one application
Local Exhaust Ventilation	• Removes lead at source before reaching employee • Substantially reduces airborne lead exposure • Low noise	• Worksite configuration, weather, access to power, mobility of work may restrict feasibility
General Ventilation	• Redirects plume away from employee and/or dilutes airborne contaminates to reduce airborne exposure • Low noise	• Worksite configuration, weather, access to power, mobility of work may restrict feasibility
Job Rotation	• Reduces exposures by distribution among more employees • Individual employees receive less intense/lower amounts of exposure	• Exposes more employees

Appendix 15-B Medical Surveillance Flowcharts



Chapter 16 Outdoor Heat Exposure

16-1 Purpose

To establish an Outdoor Heat Exposure program for the Washington State Department of Transportation (WSDOT) operations and facilities as required by Washington Administrative Code (WAC) 296-62-095 through 296-62-09560.

16-2 Scope and Applicability

This chapter has been developed for employee protection using the referenced WAC chapter as guidance. The following requirements are in effect when employees are exposed to the outdoor heat at or above an applicable temperature listed in Section 16-6.

Note: Employees working outside for 15 minutes or less in 1 hour are exempt. This may be applied every hour during the work shift.

16-3 References

- WAC 296-62-095 *Outdoor Heat Exposure*
  http://apps.leg.wa.gov/WAC/default.aspx?cite=296-62&full=true#296-62-095

16-4 Definitions

Acclimatization – The body's gradual temporary adaptation to work in heat that occurs as a person is exposed to it over a period of seven to 14 days depending on the amount of recent work in the heat and the individual factors. Acclimatization can be lost after seven consecutive days away from working in the heat.

Buddy system – A system where individuals are paired or teamed up into work groups so each employee can be observed by at least one other member of the group to monitor and report signs and symptoms of heat-related illness.

Double-layer woven clothing – Clothing worn in two layers allowing air to reach the skin. For example, coveralls worn on top of regular work clothes.

Drinking water – Potable water that is suitable to drink and suitably cool in temperature (i.e., cool enough to encourage drinking). Drinking water packaged as a consumer item and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain high amounts of caffeine are acceptable. Keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year.

Engineering controls – The use of devices to reduce exposure and aid. Not including wearable items. Examples of engineering controls include fans, misting stations, air-conditioning, etc.

Heat-related illness – A medical condition resulting from the body's inability to cope with a particular heat load, and includes, but is not limited to, heat cramps, heat rash, heat exhaustion, fainting, and heat stroke.

Incidental exposure - An employee is not required to perform a work activity outdoors for more than 15 minutes in any 60-minute period. This exception may be applied every hour during the work shift.

Outdoor environment – An environment where work activities are conducted outside. Work environments such as inside vehicle cabs, sheds, and tents or other structures may be considered an outdoor environment if the environmental factors affecting temperature are not managed by engineering controls.

Risk factors for heat-related illness – Conditions that increase susceptibility for heat-related illness including: (a) Environmental factors such as air temperature, relative humidity, air movement, radiant heat from the sun and other sources, conductive heat sources such as the ground; (b) Workload (light, moderate, or heavy) and work duration; (c) Personal protective equipment and clothing worn by employees; and (d) Personal factors such as age, medications, physical fitness, or medical conditions.

Shade – A blockage of direct sunlight. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use.

Vapor barrier clothing – Clothing that significantly inhibits or completely prevents sweat produced by the body from evaporating into the outside air. Such clothing includes encapsulating suits, various forms of chemical resistant suits used for PPE, and other forms of nonbreathable clothing.

16-5 Organizational Responsibilities

16-5.1 *Executive, Senior, and Mid-level Management*

- Ensure that adequate funds are available and budgeted for the purchase and/or replacement of water supplies as required of this regulation.
- Encourage employees to frequently consume water or other acceptable beverages to ensure hydration (i.e., sports drinks) that do not contain caffeine are acceptable.
- Encourage employees to take a preventative cool-down rest when they feel the need to do so to protect themselves from overheating. Preventative cool-down rest time must be paid unless taken during a meal period.
- Mandatory cool-down rest periods are required when temperatures are at or above the 80°F. threshold and shade or other equally or more effective means is provided to reduce body temperature from overheating.
- Shade must accommodate all employees on meal or rest period. Be located close as practicable to employees' work area or other effective means (i.e., misting station, cooling vest, and air-conditioned areas etc.) that are equally or more effective to reduce body temperature as mentioned in the definition of shade in this chapter.

16-5.2 *Supervisors*

- Ensure appropriate employees receive initial training and annually thereafter and apply requirements when performing necessary work.
- Take immediate action when necessary to correct any reported deficiencies as it applies to this standard.
- Identify and monitor employee safety training program needs.
- Monitor field operations to ensure consistency with this standard.

- Must closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the close observation options under WAC 296-62-09547(2) For 14 days when employees:
  I. Are newly assigned to working at or above the applicable temperatures listed in Section 16-6.1.
  II. Return to work at the applicable temperatures listed in Table 1 of WAC 296-62-09530 after an absence seven days or more;
  III. During a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least the temperatures listed in Table 1 of WAC 296-62-09530 and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding five days.
- Encourage employees to frequently consume water or other acceptable beverages to ensure hydration (i.e., sports drinks) that do not contain caffeine are acceptable.
- Encourage employees to take a preventative cool-down rest when they feel the need to do so to protect themselves for overheating using sufficient means to reduce the body temperature such as shade or other equally or more effective means. Preventative cool-down rest time must be paid unless taken during a meal period.
- If an employee is showing signs or symptoms of heat related illness during the cool-down rest period, the supervisor must relieve the employee from duty and provided with a sufficient means to reduce the body temperature and monitor to determine whether medical attention is necessary.
- Mandatory cool-down rest periods are required when temperatures are at or above the 80°F threshold. Shade must accommodate all employees on meal or rest period. Be located close as practicable to employees' work area or other effective means (i.e., misting station, cooling vest, and air-conditioned areas etc.) that are equally or more effective to reduce body temperature as mentioned in the definition of shade in this chapter.
- Ensure employees exposed to temperatures at or above those listed in Section 16-6.1 must:
  I. Provide and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling, and not adjoining a radiant heat source such as machinery or a concrete structure. The shade must be located as close as practicable to the areas where employees are working.
  II. Ensure the amount of shade present is large enough to accommodate the number of employees on a meal or rest period, so they can sit in a normal posture fully in the shade.
  III. In lieu of shade, employers may use other means to reduce body temperature if they can demonstrate such means are equally or more effective than shade. Some alternatives to shade may include the provision of misting stations, cooling vests, or air-conditioned areas.

- Must ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the work site and their supervisor can contact each other to report signs and symptoms of heat-related illness and get medical attention when necessary.
  I. An electronic device, such as a cellular phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
- Employees showing signs or demonstrating symptoms of heat-related illness must be relieved from duty and provided with a sufficient means to reduce body temperature.
- Employees showing signs or demonstrating symptoms of heat-related illness must be monitored to determine whether medical attention is necessary.
  I. Employees showing signs or demonstrating symptoms of heat related illness must be relieved from duty and provided with a sufficient means to reduce body temperature.
- WSDOT must be prepared to supply at least one quart of drinking water per employee per hour. When employee exposure is at or above an applicable temperature listed in Table 1:
  I. WSDOT must ensure that a sufficient quantity of suitably cool drinking water is readily accessible to employees at all times; and
  II. WSDOT must ensure that all employees have the opportunity to drink at least one quart of drinking water per hour.
  III. WSDOT is not required to supply the entire quantity of drinking water needed to be supplied for all employees on a full shift at the beginning of the shift. WSDOT may begin the shift with smaller quantities of drinking water if effective procedures are established for replenishment during the shift.

16-5.3 *Employees*

- Comply with the requirements of this standard.
- Monitor their own personal factors for heat-related illness including consumption of water or other acceptable beverages to ensure hydration.
- Stop specific work activities if unanticipated hazardous/unsafe conditions are encountered and report those conditions to their supervisor.
- Report signs and symptoms of heat-related illness in either themselves or in coworkers to the person in charge.
- Take preventative cool-down rest periods when they feel the need to do so to prevent from overheating.

16-5.4 *Safety Organization*

- Provide guidance/technical assistance to all levels of the department regarding this standard.
- Identify and communicate requirements for compliance with applicable and statutorily required safety standards.

16-5.5 *Training*

All employees and supervisors must be trained initially prior to exposure to outdoor heat at or above the temperatures listed in the Temperature Thresholds 16-6, and annually to all supervisors and employees who may be exposed, in a language and manner which they can understand. Training requirements include:

- The environmental factors that contribute to the risk of heat-related illness.

- General awareness of personal factors that may increase susceptibility to heat- related illness including, but not limited to, an individual's age, physical fitness, degree of acclimatization, medical conditions, drinking water consumption, alcohol use, previous heat related illness, medical condition, and use of medications that affect the body's responses to heat. This information is for the employee's personal use.
- The importance of removing heat-retaining personal protective equipment and clothing such as nonbreathable chemical resistant clothing during all breaks.
- The importance of frequent consumption of small quantities of drinking water or other acceptable beverages and how much water is necessary.
- Acclimatization and close observation of newly assigned employees or employees prolonged absence from working in the heat addressed in the Temperature Thresholds 16-6.
- Requirements under WAC 296-62-09545, the concept of acclimatization, and the importance of the following considerations:
  I. Frequent cool-down rest periods.
  II. Gradual increase of work duration in the heat; and
  III. Employees are unable to build a tolerance to working in the heat during a heat wave.
  IV. The importance of taking preventative cool-down rest periods when employees feel the need to do so in order to protect themselves from overheating.
  V. The mandatory cool-down rest periods under WAC 296-62-09547 when the outdoor temperature reaches or exceeds 90 degrees Fahrenheit.
  VI. The employer's procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them.
  VII. The importance of taking preventative cool-down rest periods when employees feel the need to do so to protect themselves from overheating.
- The employer's procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employee can access them.
- The employer's procedures for close observation of employees for signs and symptoms of heat-related illness.
- Employees shall be allowed and encouraged to take a preventative cool-down rest when they feel the need to do so to protect themselves from overheating using the means to reduce body temperature and the preventive rest periods. Shade shall be available when temperatures are below the mandatory cool-down rest period.
- Employees are required to take a mandatory cool-down rest period 10 min/2 hrs when temperature is at or above 90°F. Shade shall be provided to reduce body temperature as defined in this chapter.
- The different types of heat-related illness, the common signs and symptoms of heat-related illness and responding to signs and symptoms of heat related illness.
- The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate first aid and emergency response procedures.
- Procedures for moving or transporting an employee(s) to a place where the employee(s) can be reached by an emergency medical service provider if necessary.

- Supervisor training. Prior to supervising employees working in outdoor environments with heat exposure at or above the temperature levels listed in WAC 296-62-09530(2) Table 1, supervisors must have training on the following topics:
  I. The information required to be provided to employees listed in subsection (1) of this section.
  II. The procedures the supervisor must follow to implement the applicable provisions of WAC 296-62-095 through 296-62-09560.
  III. The importance of considering the use of engineering or administrative controls such as air-conditioning and scheduling work during the cooler hours of the day in order to reduce employees' exposure to heat.
  IV. The procedures the supervisor must follow if an employee exhibits signs or symptoms consistent with possible heat-related illness, including appropriate first aid and emergency response procedures; and
  V. Procedures for moving or transporting an employee(s) to a place where the employee(s) can be reached by an emergency medical service provider, if necessary.

16-6 Temperature Thresholds

16-6.1 *Ambient Air Temperature Threshold Requirements*

On days where the temperature is at or above those listed below, keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year. Federal OSHA and research indicate that employers should be prepared to supply at least one quart of drinking water per employee per hour.

The employer is not required to supply the entire quantity of fluids at the beginning of the shift, but to ensure that there is adequate suitably cool water available and that effective procedures are established for replenishment during the shift for each employee to have the opportunity to drink at least a quart of water an hour.

Acclimatization is encouraged to closely observe new employees and employees returning to work in hot conditions after a prolonged absence for signs and symptoms of heat related illness for 14 days by implementing one or more of the monitoring options

- Regular communication by phone or radio, with employees working alone or
- Mandatory Buddy system, or
- Other effective means of observation.

Close observation or employees is also encouraged during a sudden temperature increase relative to temperatures on previous days.

Table 16-1

80°F All other clothing
52°F Nonbreathable clothing
e.g., vapor barrier clothing or PPE such as chemical resistant suits.

Note: There is no requirement to maintain temperature records. The temperatures in this section were developed based on Washington State data and are not applicable to other states.

16-6.2 *Extreme High Heat Threshold Requirements*

When temperatures are at or exceed 90° Fahrenheit:

- Employers must ensure that employees take mandatory cool-down rest periods of at least ten minutes every two hours unless engineering or administrative controls (such as air-conditioning or scheduling work at cooler times of the day) are used to lower employees' exposure below 90 degrees Fahrenheit. The mandatory cool-down rest period required may be provided concurrently with any meal or rest period required under WAC 296- 126-092 and must be paid unless taken during a meal period.

When temperatures are at or exceed 100° Fahrenheit:

- Employers must ensure that employees take mandatory cool-down rest periods of at least fifteen minutes every one hour unless engineering or administrative controls (such as air-conditioning or scheduling work at cooler times of the day) are used to lower employees' exposure below 90 degrees Fahrenheit. The mandatory cool-down rest period required may be provided concurrently with any meal or rest period required under WAC 296-126-092 and must be paid unless taken during a meal period.
- Ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the work site and their supervisor can contact each other when necessary.
- Effectively observe employees for signs and symptoms of heat related illness by implementing one or more of the following
  I. Regular communication with employees working alone such as by radio or cellular phone; or
  II. Mandatory buddy system; or
  III. Other effective means of observation
- Mandatory cool-down rest periods in Section 16-6.2 are not required during emergency response operations where rescue, evacuation, utilities, communications, transportation, law enforcement, and medical operations are directly aiding firefighting, protecting public health and safety, or actively protecting, restoring, or maintaining the safe and reliable operation of critical infrastructure at risk.

Appendix 16-A Outdoor Heat Exposure

On days where the temperature is at or above those listed below, keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year. Federal OSHA and research indicate that employers should be prepared to supply at least one quart of drinking water per employee per hour.

The employer is not required to supply the entire quantity of fluids at the beginning of the shift, but to ensure that there is adequate water available, and that each employee has the opportunity to drink at least a quart of water an hour.

Table 16-A-1

80° F All other clothing
52°F Non-breathing clothing
e.g., vapor barrier clothing or PPE such as chemical resistant suits

Note: There is no requirement to maintain temperature records. The temperatures in Table 16-A-1 were developed based on Washington state data and are not applicable to other states.

Chapter 17 Silica Exposure Control Program

17-1 Adverse Health Effects of Respirable Crystalline Silica (RCS)

Excessive respirable crystalline silica exposure can lead to a variety of serious adverse health effects including

Lung cancer – Exposure to RCS increases the risk of lung cancer. The National Toxicology Program and the International Agency for Research on Cancer classify respirable crystalline silica as a human carcinogen (causes cancer).

Silicosis – RCS can reach the deep portions of the lung and lead to scarring of lung tissues. Over time, generally between 10 to 30 years, lung capacity can decrease. For those with extreme scarring, the lungs can become stiffened, making it difficult to breath.

Chronic obstructive pulmonary disease (COPD) – Exposure to RCS increases the risk of COPD, which includes emphysema and chronic bronchitis. The main symptom of COPD is shortness of breath due to difficulty breathing air into the lungs.

Increased risk of infections – RCS exposed workers have increased the risk of tuberculosis (TB) and mycobacterial infections.

Kidney disease – Silica exposure has been associated with several types of kidney disease, including glomerulonephritis (inflammation of the tiny filters in kidneys that filter waste and fluids from the blood), nephrotic syndrome (disorder causing the kidney to pass too much protein), and end stage renal disease requiring dialysis.

Autoimmune disease – RCS exposure has been associated with autoimmune disease (the immune system mistakenly attacks your own body) including progressive systemic sclerosis/scleroderma (a rare disorder that can affect skin, joints, and internal organs) and rheumatoid arthritis.

To prevent the serious illness associated with RCS, exposures must be controlled to levels below the PEL and should be minimized to the extent possible. Effective control requires an awareness of potential health hazards and effective use of control measures. Management and employees each have responsibility to ensure that control measures are effectively implemented.

17-2 Purpose

The goal of the RCS program is to prevent the adverse health effects associated with RCS exposure and maintain compliance with Washington Administrative Code (WAC) Chapter 296-840.

17-3 Scope and Applicability

This program applies to all WSDOT employees and operations (excluding WSF, which maintains its own safety and health program) that have the potential to exceed the action level in any foreseeable conditions.

Contractors or subcontractors performing RCS work shall develop and implement their own written RCS program that meets or exceeds requirements of Chapter 296-840.

17-4 References

- WAC 296-840 *Respirable Crystalline Silica*
- WAC 296-842 *Respirators*
- WAC 296-818 *Abrasive Blasting*
- WAC 296-802 *Employee medical and exposure records*

17-5 Definitions

The definitions in this chapter are intended to be the same as in referenced WAC chapters where the same terms are used. If there is any difference, the more protective of employee health shall apply.

Acceptable limits – Concentrations of silica controlled to ensure employees are below the permissible exposure limit (PEL) in all circumstances, which can include the use of respiratory protection. Exposure to cancer causing agents, such as RCS, should be minimized to the lowest extent feasible and all reasonable control methods should be implemented to maintain exposure below the action level. Respiratory protection is used as the last choice, after all other feasible exposure reduction strategies are implemented.

Action level – Twenty-five micrograms of RCS per cubic meter of air (25 $\mu g/m^3$) over an 8-hour time-weighted average (TWA_8) at which many of the RCS exposure program elements must be implemented.

Competent person – An individual who is capable of identifying existing and foreseeable RCS hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them, and has the knowledge and ability necessary to fulfill the responsibilities set forth in WAC 296-840-140, written exposure control plans. The competent person will generally be the supervisor on each RCS task, with the Safety Organization providing supplemental support and assistance. All employees have authority to stop work if an unsafe condition exists.

Employee exposure – The exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

Respirable crystalline silica (RCS) – Quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air quality – Particle size fraction definitions for health-related sampling.

Permissible Exposure Limit (PEL) – Fifty micrograms of RCS per cubic meter of air (50 $\mu g/m^3$) averaged over an 8-hour period.

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

Table 1 – Are those tasks listed in WAC 296-840-110, Specified Exposure Control Methods, where work is conducted in a manner indistinguishable from Table 1 of that section, and not performed regularly in the same environment and conditions. Wherever feasible, WSDOT employees will conduct RCS work in strict conformance with or exceeding the requirements of Table 1 of WAC 296-840-110.

WSDOT Silica Controls Table – Assigns dust control methods and respirator requirements to WSDOT-specific tasks that work on materials containing crystalline silica. If tasks with RCS exposure that may exceed the action level cannot or do not meet the requirements of WSDOT Silica Controls Table, immediately contact the Safety Organization for assistance to assure a healthful work environment.

17-6 Organizational Responsibilities

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 RCS exposure.

17-6.1 *Executive, Senior, and Mid-Level Management*

- Ensure the site manager, supervisor and other site personnel have the required knowledge, abilities and resources to identify existing and foreseeable respirable crystalline RCS hazards and the authority to take prompt corrective measure to eliminate or minimize them.
- Ensure the establishment and maintenance of an RCS exposure control program.
- Provide, replace (at time equipment is at end of service life or as soon as feasible) or rent equipment for effective RCS exposure control to ensure work is performed in compliance with this program and regulatory standards. (e.g. equipment with integrated water systems, ventilation and/or enclosed cab systems designed to reduce silica exposure as in WAC 296-840-110 Table 1)
- Perform periodic audits of employee RCS training to ensure all personnel have completed required training in a timely manner.
- Ensure RCS Exposure Control Work Plans are properly developed and implemented by personnel who are exposed to RCS hazards.
- Ensure that control measures are properly implemented. (See Appendix 17-A)
- Coordinate review to reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when there is any reason to believe that new or additional exposures at or above the action level may occur.

17-6.2 *Supervisors*

- Identify, assess, and properly implement adequate controls for RCS exposure hazards at sites under their control to maintain exposures within acceptable limits.
- Develop and implement effective written job specific RCS exposure control work plans. Obtain assistance from the Safety Organization, as needed to maintain RCS within acceptable limits.
- Supervisors who oversee or perform RCS work or who enter a designated RCS work area shall maintain all needed knowledge, skills, and abilities for proper RCS hazard control.
- Ensure that all employees entering or working in designated RCS work areas are properly trained and implement all required work practices and PPE at all times.
- Ensure that employees located immediately outside the RCS work area are not exposed to RCS exceeding the action level.
- Conducts frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.
- Ensure equipment and controls are functioning as designed to ensure exposures remain within acceptable limits.
- Ensure dry sweeping, dry brushing, and/or compressed air are not used for housekeeping practices. If prohibition of such practices is not feasible, ensures the Safety Organization is contacted to assist in development of acceptable alternatives, before implementing any use of housekeeping with dry sweeping, dry brushing, or compressed air.
- Ensure the Industrial Hygiene Program Manager and the Region Safety Office are notified when there has been a change in any process that may result in new or additional exposure to RCS so additional evaluation and/or air monitoring can be performed.

17-6.3 *Employees*

- Consistently and effectively implement RCS exposure control measures as indicated in training, this and job specific written control programs, and WAC 296-840 to assure exposures remain within acceptable limits.
- Wear and properly use required respiratory protective equipment before entering or working RCS work areas that require use of respiratory protection.
- Enroll in the respiratory protection program if required to use a respirator. Refer to Chapter 8 of this manual.
- Participate in exposure monitoring.
- Participate in medical surveillance.
- Participate in RCS training.
- Notify supervisory chain and/or Safety Organization if there are changes in operations that may result in new or additional exposures to RCS above the action level.
- Identify and report to supervisory chain and/or Safety Organization if any equipment or controls are not working within design specifications or otherwise may not be adequately controlling RCS exposure within acceptable limits.
- Participate in RCS work practice reviews if established controls may not have maintained exposures within acceptable limits.

17-6.4 *Safety Organization*

- Assist in identification, evaluation, and development of proper controls for RCS exposure, and the understanding of applicable safety and health standards.
- Assist in developing or securing training for all employees potentially exposed to RCS at or above the action level to assure exposed employees and their management have the knowledge, skills, and abilities to identify and properly control RCS hazards.
- Coordinate air monitoring in RCS work areas to determine exposures to airborne RCS in the employee's breathing zone, as needed.
- Assist WSDOT organizations, as needed, in the development of effective Pre-activity Safety Plans (PASP)/written RCS exposure control plans.
- Assist WSDOT to assure employee exposures to RCS are within the requirements set forth by this program and WAC 296-840.
- Maintain and calibrate test equipment to assure exposure measurements meet required standards.
- Assure respiratory protection use conforms to WSDOT Policy and WAC 296-842.
- Upon notification, coordinate review to reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when there is any reason to believe that new or additional exposures at or above the action level have occurred.
- Coordinate review and update of the RCS Exposure Control Plan at least annually, and as needed to ensure effectiveness.

17-7 RCS Activities at WSDOT and Exposure Controls

17-7.1 *RCS Activities at WSDOT*

Recognized RCS activities at WSDOT, along with a description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to RCS to acceptable limits are included as Appendix 17-A, WSDOT Silica Controls Table.

Employees, supervisors, and management shall immediately contact the Safety Organization if there are new processes (or otherwise not referenced) or modifications to those in the WSDOT Silica Controls Table (Appendix 17-A) that may release RCS at levels exceeding the action level before engaging in such work. The Safety Organization will assist in developing and implementing a written exposure control plan to assure the health and safety of employees.

17-8 Exposure Controls

17-8.1 *General*

The best method to reduce risk of RCS disease is to eliminate its use if safe and feasible alternatives are available. Wherever feasible in purchasing new or replacement materials, try to identify and use safer alternatives in place of less safe RCS containing materials. For example, many substitutes for sand blasting are available that do not contain crystalline silica. Substitutes for silica may be available for materials used in other applications that do not create RCS exposure hazards throughout their life cycle.

Substitution, engineering, and work practice controls, including administrative controls, to reduce and maintain employee exposure to RCS below the PEL must be implemented whenever feasible before relying upon respiratory protection to maintain employee exposure within the PEL. Respiratory protection is the last choice in exposure controls; the intent is that respirators cannot be used in lieu of other feasible control measures where exposures may exceed the PEL. This does not limit respirator use as an extra-precaution or to limit exposure to the furthest extent possible.

17-8.2 *Engineering Controls and Work Practices*

Processes and tasks with recognized RCS exposure, as well as required controls are presented in WSDOT Silica Controls Table (Appendix 17-A). RCS related work will be conducted in strict conformance with this chapter, including Appendix A, and complying with or exceeding the requirements of Table 1 of WAC 296-840-110.

Engineering and work practice controls to reduce and maintain employee exposure to RCS below the PEL must be used, unless the organization can demonstrate that such controls are not feasible. Ventilation systems may require appropriate filtration. Contact the Safety Organization for assistance. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the organization must nonetheless use them to reduce employee exposure to the lowest feasible level and must supplement them with the use of respiratory protection that complies with the requirements of WAC 296-840-125 and WSDOT respiratory protection policy (Chapter 8). Respirators must be the last choice of protection for employee exposure that may exceed the PEL

- Wet methods/water application, used at a sufficient quantity and flow rate to suppress RCS to acceptable limits, and that visible airborne dust is not generated.

- Local exhaust ventilation – ventilation that captures airborne silica at the source of generation before it reaches the employee breathing zone. Examples may include tools with shrouds and equipped with a vacuum and filter to capture RCS, removing silica before it reaches the employee breathing zone. For example, materials labs can use ventilation with the duct opening or hood immediately in the location of generation such as at splitters and shakers to remove dust before entering the employee's breathing zone.
- General dilution ventilation – ventilation that introduces clean air to dilute concentration of contaminants (RCS) in the work area. While better than no ventilation, it is often less effective at exposure control than local exhaust, as contaminants are still released into the work environment. In addition, effective dilution ventilation usually requires large amounts of air to be exhausted from the work area, possibly creating demands and expenses for heating or cooling of the makeup air.
- Provide, replace, or rent equipment for effective RCS exposure control to ensure work is performed in compliance with this program and regulatory standards. (e.g. equipment with integrated water systems or ventilation systems designed to reduce silica exposure)

17-8.3 *Administrative Controls*

After substitution and engineering controls, administrative controls are the next line of defense. Administrative controls include using timing, distance/location, and/or training and implementation of work practice methods to reduce exposure. Administrative controls should not be used as a means of avoiding use of substitution and engineering controls. One or a combination of the following, as feasible, should be implemented to further limit employee exposure to RCS.

- Maximize distance from processes that generate airborne RCS.
- Minimize time near processes that generate airborne RCS.
- Position upwind of RCS generation
- Scheduling the task when others will not be in the area.
- Conduct RCS generating tasks or activities outdoors instead of indoors if feasible. An example may be using sample splitters for materials labs outdoors rather than indoors as weather and other conditions allow.
- Employee rotation can be used to limit exposure; however, it should not be used as a means of avoiding use of engineering controls. Distributing RCS exposure between two or more employees is not an overall reduction of risk. Employee rotation should only be implemented when it reduces overall risk of injury and illness.

17-9 Personal Protective Equipment

17-9.1 *General*

The last choice in exposure control is personal protective equipment (PPE). Wherever feasible, substitution, engineering, and administrative controls shall be implemented before relying on PPE as exposure control. This does not limit using PPE as an extra precaution or to decrease exposures to the furthest extent possible. This is only intended to ensure respirators are not used in lieu of other feasible controls.

17-9.2 *Respiratory Protection Requirements*

During operations where exposure controls do not reduce exposures below the PEL, or where respiratory protection is required by Appendix 17-A and/or WAC 296-840, appropriate respirators shall be worn by all employees performing such work. Appropriate respirators must be selected to ensure sufficient protection and can be selected in accordance with Appendix 17-A and WAC 296-840-110. Respirators must reduce employee exposure below the PEL and shall have an assigned protection factor sufficient to maintain exposure below the PEL.

All personnel using respirators shall be enrolled in WSDOT's Respiratory Protection Program (Refer to Chapter 8 of this manual, Respiratory Protection Policy), including medical evaluation, training, and fit testing (as necessary) prior to using respiratory protection.

Contact the Region Safety Office with questions or concerns regarding appropriate respiratory protection, including provision of powered air-purifying respirators.

17-10 Restricting Access to RCS Work Areas

All written exposure control plans must include procedures for restricting access to work areas, when necessary, to minimize the number of employees exposed to silica and their level of exposure, including exposures generated by other employers or contractors. Restricting access is necessary when exposures may exceed the PEL or where respiratory protection is required. The RCS standard provision was designed to provide employers flexibility to craft procedures appropriate for their worksites. WSDOT has a large variety of work site conditions. The PASP established for individual work sites shall include effective methods for restricting access to RCS work areas, as required.

Acceptable procedures for restricting access can include one or a combination of the following or other effective methods:

- Erecting permanent or temporary barriers around silica-generating tasks.
- Posting signs or other warnings around silica-generating tasks.
- Directing employees to stay a sufficient distance away from employees performing silica-generating tasks.
- Scheduling the work when others that are not directly involved with the silica task are not in the area.

The method(s) selected must be described in the written PASP/RCS exposure control plan.

17-11 Housekeeping

WSDOT does not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to RCS unless wet sweeping, high efficiency particulate air (HEPA)-filtered vacuuming, or other methods that minimize the likelihood of exposure have been demonstrated not to be feasible. Supervisors must contact the Safety Organization for assistance and review prior to implementing dry-sweeping or dry-brushing. **Use of compressed air to clean clothing is prohibited under all circumstances.**

WSDOT does not allow compressed air to be used to clean surfaces where such activity could contribute to employee exposure to RCS unless:

The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

No alternative method is feasible, as determined working with the Safety Organization prior to implementation use of compressed air for surfaces or clothing and other controls are implemented, as needed, to assure exposure remains within acceptable limits.

17-12 Training

Employees who perform, and supervisors who oversee RCS work that may exceed the action level or require controls to maintain RCS exposures to acceptable levels must complete RCS training. It is advisable that all employees with potential exposure to RCS, even if reliably below the action level, receive training in RCS hazards.

Each employee who is required to complete RCS training must be able to demonstrate knowledge and understanding of at least the following:

The health hazards associated with exposure to respirable crystalline silica;

- Specific tasks in which they engage that could result in exposure to respirable crystalline silica;
- Specific measures WSDOT implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;
- The contents of WAC 296-840
- The purpose and a description of the medical surveillance program required by WAC 296-840-145, and notice that the medical surveillance program under this chapter is not intended to reduce a worker's legal rights under Title 51 RCW;
- The supervisor is considered the competent person, with supplemental support and assistance from the Safety Organization.
- That WSDOT will make a copy of WAC 296-840 readily available without cost to each employee covered by the chapter.

Training shall be conducted before assignment to a silica task that may exceed the action level or those that require exposure controls. Refresher training is recommended every two years for employees who have exposure to RCS at or above the action level, or controls are required to maintain exposure at acceptable levels. Employees will be required to complete refresher training if there are indications that they have not maintained the required knowledge and understanding of:

- The above required training elements,
- Required procedures to maintain exposures within acceptable limits, and/or
- Requirements to comply with this program and/or WAC 296-840.

Employee training shall be documented in the Washington State Learning Center. Course Code for RCS-training is WSDOT Safe: Silica Competent Person Training.

Previously completed courses with different names may be acceptable if they met requirements for training.

17-13 Required Contents of RCS Work Plans

The RCS Exposure Control Plans must contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to respirable crystalline silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;
- A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.
- A competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

A template RCS Exposure Control Plan, provided in Appendix 17-B, and/or a PASP can be used if the requirements of WAC 296-840-140 and this chapter are met. The Center for Construction Research and Training (CPWR) has provided a tool to help develop exposure control plans, which is available at www.silica-safe.org. This and other reliable sources can be used to develop a written exposure control plan, provided the plan meets the requirements.

17-14 Appendices

Appendix 17-A	WSDOT Silica Controls Table
Appendix 17-B	RCS Written Exposure Control Plan Template

Appendix 17-A WSDOT Silica Controls Table

1. If engaging in a task that can generate respirable crystalline silica and is not identified in this table, contact your Safety Organization to develop and implement proper exposure controls.
2. When renting or purchasing new equipment, acquire equipment that is equipped with an integrated water delivery, dust collection system, or other controls to eliminate or reduce employee exposure in conformance with WAC 296-840.
3. Operate and maintain equipment and tools in accordance with manufacturer's instructions to minimize dust emissions.
4. If controls do not appear to be functioning properly and/or significant amounts of dust are in the employee breathing area, immediately contact the Safety Organization and have equipment evaluated and repaired to ensure dust controls are functioning as designed.
5. Click on attached link for more information on exposure controls via OSHA Fact Sheets.

Work Task Examples	Engineering and Work Practice Controls		When Controls Used, Required Respiratory Protection	
			≤ 4 Hours/shift	> 4 Hours/shift
Jackhammers and Handheld Powered Chipping Tools				
Jackhammering and handheld powered chipping tools on concrete roads/decks (Fact Sheet) (OSHA Video)	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. **OR** • Use tool equipped with commercially available shroud and dust collection system. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	When used outdoors	None	Elastomeric half-face air purifying respirator or greater
		When used indoors in an enclosed area	Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
All efforts shall be made to conduct the above tasks in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Where integrated water delivery system or HEPA-filtered dust collection system (with shroud) is not feasible, apply water at sufficient rate so there is no visible emission of dust. Contact your Safety Organization for exposure evaluation.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Grinding/Sanding				
Concrete scabbing, scarifying, or grinding	• Use water delivery system that supplies a continuous stream or spray of water at the point of impact. **OR** • Commercially available shroud and dust collection system with filter that is 99% or greater efficient and filter-cleaning mechanism	Performed outdoors only	None	None
Sanding drywall mud		When performed in an enclosed area	None	None
Handheld grinders for uses other than mortar removal (Fact Sheet) (OSHA Video)	Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. **OR** • Use grinder equipped with commercially available shroud and dust collection system. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	Performed outdoors only	None	None
		When used outdoors	None	None
		When used indoors or in an enclosed area	None	Elastomeric half-face air purifying respirator or greater

Work Task Examples	Engineering and Work Practice Controls		When Controls Used, Required Respiratory Protection	
			≤ 4 Hours/shift	> 4 Hours/shift
All efforts shall be made to conduct the above tasks in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Where integrated water delivery system or HEPA-filtered dust collection system (with shroud) is not feasible, apply water at sufficient rate so there is no visible emission of dust. Contact your Safety Organization for exposure evaluation.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Milling				
Asphalt Milling Operations (includes pavement repair) Concrete Milling	Use machine equipped with integrated water delivery system. Water must be combined with a surfactant.	Performed outdoors only	None	None
Walk-behind milling machines and floor grinders (Fact Sheet)	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. **OR** • Use machine equipped with dust collection system recommended by the manufacturer. Dust collector must provide airflow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.		None	None
Small drivable milling machines (less than half-lanes) (Fact Sheet)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant.		None	None
All efforts shall be made to conduct the above tasks in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Where integrated water delivery system or HEPA-filtered dust collection system (with shroud) is not feasible, apply water at sufficient rate so there is no visible emission of dust. Contact your Safety Organization for exposure evaluation.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater

Work Task Examples	Engineering and Work Practice Controls		When Controls Used, Required Respiratory Protection	
			≤ 4 Hours/shift	> 4 Hours/shift
Sweeping				
Sweeping (roadway)	• Apply water and/or dust suppressants to minimize emissions **OR** operate from an enclosed cab. • Keep windows closed to furthest extent possible. • Ensure vehicles operate as designed. • If unusual amounts of airborne dust in cab, discontinue use and have cab evaluated and repaired to ensure functioning as designed.		None	
Sweeping (associated with chip seal)	Use of water is not compatible with chip seal, must use respiratory protection.		Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Cutting/Sawing				
Hand-held concrete/ asphalt cutting	• Use equipment with commercially available shroud or cowling with dust collection system. **OR** • Use equipment with integrated water delivery system that continuously feeds water to the blade.	When used outdoors	None	Elastomeric half-face air purifying respirator or greater
		When used in an enclosed area	Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Hand-held power saws (any blade diameter) (Fact Sheet)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.	When used outdoors	None	Elastomeric half-face air purifying respirator or greater
		When used indoors or in an enclosed area	Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Walk-behind saw (concrete cutting) (Fact Sheet)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.	When used outdoors	None	None
		When used in an enclosed area	Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Hand-held power saws for cutting fiber-cement board (blade diameter 8” or less)	• Use saw equipped with commercially available dust collection system. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	Performed outdoors only	None	None

Work Task Examples	Engineering and Work Practice Controls		When Controls Used, Required Respiratory Protection	
			≤ 4 Hours/shift	> 4 Hours/shift
All efforts shall be made to conduct the above work in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Apply water at sufficient rate so there is no visible emission of dust. If indoors or in an enclosed area, use extra means of mechanical ventilation to keep dust levels down. Contact your Safety Organization for exposure evaluation.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Rig-Mounted Core Saws or Drills (Fact Sheet)				
Use tool equipped with integrated water delivery system that supplies water to cutting surface.			None	None
All efforts shall be made to conduct the above work in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Use a vacuum dust collection system or apply water at sufficient rate, whichever is more effective so there is no visible emission of dust. Contact your Safety Organization for exposure evaluation. • Remain upwind to furthest extent possible.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Stationary Masonry Saws (Fact Sheet)				
Use saw equipped with integrated water delivery system that continuously feeds water to the blade.			None	None
All efforts shall be made to conduct the above work in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Use a vacuum dust collection system or apply water at sufficient rate, whichever is more effective so there is no visible emission of dust. Contact your Safety Organization for exposure evaluation.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Crack Sealing (Debris Removal)				
Blowing debris from crack in asphalt	• Remain upwind. • Blow in direction that prevailing wind will carry away from operator. • Do not blow dust toward nearby unprotected personnel.	Performed outdoors only	None	Elastomeric half-face air purifying respirator or greater
Abrasive Blasting (Sand, Silica, or Other Media Blast) (Fact Sheet)				
Abrasive blasting of concrete roads/decks in preparation of patch work	At any time, an abrasive blasting respirator must be used.	Any location	• Abrasive blasting respirator (NIOSH certified type CE) for operator and others in blast area with impact and rebound hazards. • Powered air purifying respirator (PAPR) is suitable for support operations where there is no risk of impact and rebound hazards.	

Work Task Examples	Engineering and Work Practice Controls		When Controls Used, Required Respiratory Protection	
			≤ 4 Hours/shift	> 4 Hours/shift
Hauling/Dumping/Moving Materials				
Road clearing (i.e. landslide) (Fact Sheet)	• Operate equipment from within an enclosed cab. • When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.		None	None
Grading shoulder/Ditch digging (Fact Sheet)	• Apply water and/or dust suppressants as necessary to minimize dust emissions. **OR** • When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.		None	None
Drill Crew Operations				
Geotechnical services	Use machine equipped with integrated water delivery system.	Performed outdoors only	None	None
Vehicle-mounted drilling rigs for rock and concrete (Fact Sheet)	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. **OR** • Operate from within an enclosed cab and use water for dust suppression on drill bit.		None	None
All efforts shall be made to conduct the above work in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Where integrated water delivery system or HEPA-filtered dust collection system (with shroud) is not feasible, apply water at sufficient rate so there is no visible emission of dust. Contact your Safety Organization for exposure evaluation. • Remain upwind to extent possible.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater

Work Task Examples	Engineering and Work Practice Controls		When Controls Used, Required Respiratory Protection	
			≤ 4 Hours/shift	> 4 Hours/shift
Drilling				
Boulder busting/ drilling/cutting/ coring	• Use machine equipped with integrated water delivery system. **OR** • Use drill equipped with commercially available shroud or cowling with dust collection system. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use HEPA-filtered vacuum when cleaning holes.	Performed outdoors only	Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
Handheld and stand-mounted drills (including impact and rotary hammer drills) (Fact Sheet)	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	When used in an enclosed area or outdoors	None	None
Dowel drilling rigs for concrete (Fact Sheet)	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	Performed outdoors only	Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater
All efforts shall be made to conduct the tasks above in strict accordance with WAC 296-840 Table 1. Only in circumstances where that is not feasible, use the following controls:				
• Where integrated water delivery system or HEPA-filtered dust collection system (with shroud) is not feasible, apply water at sufficient rate so there is no visible emission of dust. If indoors or in an enclosed area, use extra means of mechanical ventilation to keep dust levels down. Contact your Safety Office for exposure evaluation. • Remain upwind to extent possible.			Elastomeric half-face air purifying respirator or greater	Elastomeric half-face air purifying respirator or greater

Work Task Examples	Engineering and Work Practice Controls	When Controls Used, Required Respiratory Protection	
		≤ 4 Hours/shift	> 4 Hours/shift
Excavation/Tunneling			
Hard rock excavation/ tunneling	• Use drill equipped with commercially available shroud or cowling with dust collection system that is 99% efficient or greater. **OR** • Operate from an enclosed cab and use water on drill bit. • Apply water at sufficient rate so there is no visible emission of dust.	None	None
Materials Lab Testing			
Materials Laboratory	Use the following, as feasible, for exposure controls: • Local exhaust ventilation systems. • Water in sink basin for rinsing to prevent dust release. • Isolate dust emitting equipment (e.g. shakers, mixers, sample splitters). • Place sample splitters outdoors. • Limit samples to two or less processed per shift.	None	None
Chip Seal			
Rock "chip" disbursement	• Use rock chips that are wet enough to decrease visible dust during rock disbursement. • Apply water at sufficient rate so there is no visible emission of dust. Performed outdoors only	None	Elastomeric half-face air purifying respirator or greater

1. Work operations may include multiple work tasks; follow all tasks and utilize the recommended respiratory protection as outlined.

2. Respiratory protection requirements as listed are required for those in the **immediate work area**. Respiratory protection is optional for those outside the immediate work area as long as you can avoid the dust cloud/dusty operations.

3. Hours of exposure is the total of accumulative hours in the employees work shift that they are exposed for the assigned task.

4. Where more than one task on the table is performed during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

5. An 'enclosed cab' only meets the requirements if it is under positive pressure maintained under a delivery of fresh air, a MERV-16 filtration system and all seals and gaskets are in good condition.

****The respiratory protection requirements are subject to change as data sampling is completed and/or per regulatory guidance.**

Appendix 17-B Respirable Crystalline Silica Exposure Control Plan Form 510-007

Washington State Department of Transportation

Respirable Crystalline Silica Exposure Control Plan

Attach to Site Specific PASP

Must be in strict compliance with WAC 296-840, and WSDOT Chapter 17, WSDOT Silica Controls Table.

Operation Date

Location Competent Person (Must always include)

☐ Competent person must conduct frequent and regular inspections to ensure employee health and safety.

1. Work Task(s) and Equipment that Disturb Silica-Containing Material

- ☐ Abrasive blasting
- ☐ Boulder busting
- ☐ Breaker excavator
- ☐ Crack sealing
- ☐ Digging/hauling/dumping
- ☐ Grading shoulder/ditch digging
- ☐ Handheld/stand-mounted drill/vehicle-mounted drilling rig
- ☐ Handheld cutting
- ☐ Handheld grinder (other than mortar removal)
- ☐ Handheld power saw
- ☐ Hard rock excavation/tunneling
- ☐ Jackhammer and handheld powered chipping tools
- ☐ Milling
- ☐ Needle scaling
- ☐ Sanding
- ☐ Sieving/shaking
- ☐ Small drivable milling machine
- ☐ Sweeping
- ☐ Walk-behind milling machine/floor grinder
- ☐ Walk-behind saw
- ☐ Other (list) _____

2. Identify Sources that Could Generate Dust

- ☐ Asphalt
- ☐ Cement
- ☐ Concrete
- ☐ Rock
- ☐ Sand/Soil
- ☐ Other (list) _____

3. Exposure Controls, Work Practices, Restricted Access

- ☐ Tool equipped with HEPA dust collection system
- ☐ Integrated water delivery system
- ☐ Applying water (sufficient flow rate so no visible emission of dust)
- ☐ Local exhaust ventilation system
- ☐ Enclosed cab or booth (MERV-16 filter)
- ☐ HEPA vacuum cleaner
- ☐ Dust suppression compounds
- ☐ Outdoors, remain upwind/crosswind
- ☐ Maximize distance from dust source
- ☐ Rotation of duties
- ☐ Restrict access to work area
- ☐ Signage ☐ Barriers ☐ Tape
- ☐ Other (specify)

4. Personal Protective Equipment (PPE)

- ☐ Elastomeric air purifying respirator w/P100 or HEPA filter
  - ☐ Half-face
  - ☐ Full-face
- ☐ Powered air purifying respirator
- ☐ Supplied air respirator (abrasive blasting only)
- ☐ Other (list)

5. Housekeeping

- ☐ Wet cleaning
- ☐ HEPA vacuum
- ☐ Other (specify):

Dry sweeping or compressed air to clean surfaces/clothing is NOT allowed unless all personnel are protected with respiratory protection as listed above.

6. Industrial Hygiene Exposure Monitoring

- ☐ Applying controls from WAC Table 1 and WSDOT Silica Controls Table (no monitoring needed)
- ☐ Arranged with Region Safety Office/IH Program (Need exposure assessment)
- ☐ Previous air monitoring has shown that employee exposures are below the AL and PEL for this task.

7. Training and Medical Surveillance

All employees in restricted area completed required silica training? ☐ Yes

All employees in restricted area understand the medical surveillance requirements for silica work? ☐ Yes

This plan is part of the PASP. All employees must sign attached PASP to acknowledge work safety requirements.

DOT Form 510-007
Revised 02/2023

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Chapter 18 Temporary Traffic Control Flagging Program

18-1 Purpose

The purpose of the Temporary Traffic Control Flagging Program is to establish guidelines for Washington State Department of Transportation (WSDOT) employees to be certified as Temporary Traffic Control Flaggers as well as Trainers and Master Trainers for the WSDOT Temporary Traffic Control Flagging Program.

18-2 Scope and Applicability

This chapter of the *Safety Procedures and Guidelines Manual* M 75-01 affects any Employee requiring certification to perform Temporary Traffic Control Flagging. Additionally, establishes a process to establish employees with instructor privileges within the Temporary Traffic Control Flagging Program as part of their work at WSDOT.

18-3 References

The WSDOT Temporary Traffic Control Flagging Training is administered in accordance with:

- WAC 296-155-305, *Signaling and Flaggers*
- *Manual on Uniform traffic Control Devices* (MUTCD) Chapter 6
- WSDOT *Temporary Traffic Control Flagging Operations Manual*

18-4 Definitions

TTC – Temporary Traffic Control the use of temporary traffic control devices, flaggers, police officers, and other safety devices and features to guide traffic through an area of a highway where road user conditions are changed by road work or an incident.

TCS – Traffic Control Supervisor: A certified worker that has knowledge, skills, abilities and training to meet the minimum qualifications to set up a Temporary Traffic Control Zone from approved drawings or by modifying a temporary traffic control plan.

TCT – Traffic Control Technician is a skilled worker who specializes in the technical aspects of studying and controlling vehicle traffic. They sometimes work on newly constructed roads, but typically perform more duties that are related to the maintenance of roads.

Flagger - A Flagger controls traffic flow under special conditions, such as when work vehicles are entering or departing the work area. The Flagger directs road users through a workzone.

Flagging Trainer – An employee who has been certified to train another to become a Flagger.

Flagging Master Trainer – An employee who is certified to train another to become a Flagging Trainer.

18-5 General Responsibilities

It is the responsibility of employees at all levels to ensure implementation of WSDOT's Temporary Traffic Control Flagging Program.

18-5.1 *Organizational Responsibilities*

Are as assigned in Chapter 1 as well as the items below specific to WSDOT Temporary Traffic Control Flagging Program.

18-5.1.1 Executive, Senior, and Mid-Level Management

Ensure that adequate funds are available, budgeted for the purchase of Temporary Traffic Control Flagging equipment and related supplies.

18-5.1.2 Supervisors

- Ensure completion of WSDOT Temporary Traffic Control Flagging Program training if supervising employees who are expected to perform work duties involving flagging operations.
- Ensure employees have received required training and retraining as outlined in this chapter.
- Communicate appropriate needs to managers.
- Ensure that an adequate supply of Temporary Traffic Control devices are available.

18-5.1.3 Qualified Persons (Flagger)

- Qualified persons with specific traffic control responsibilities must be trained in traffic control techniques, device usage, placement.
- WSDOT Temporary Traffic Control Flaggers must be retrained every three years.

18-5.1.4 Flagger Qualifications

- As a flagger you will need good hearing as well as vision (with or without the help of glasses or electronic hearing aids).
- Flaggers need the ability to be mobile enough to maneuver around the flagging station and to escape an errant vehicle if needed during emergency situations.
- Flagging requires the ability to stand in a full and upright position while controlling the signaling devices providing clear and concise directions to road users.

18-5.1.5 Safety Organization

18-5.1.5.1 *Flagging Program Administrator*

The Flagging Protection Program Administrator is the WSDOT employee assigned to administrate the policy elements of the flagging program.

- Provide leadership and guidance to Regional Safety Managers and maintenance training group as it pertains to the Flagging program.
- Develop Flagging Program policy statements, goals, and strategies.
- Identify Flagging Program needs regarding personnel, training, and equipment.
- Provide guidance, technical expertise, training, and support.
- Consult with and assist managers, supervisors, and Flaggers.
- Recognize and interpret Flagging regulations.

18-5.1.5.2 *Regional Flagging Program Manager*

- Executes the development and implementation of the Flagging Protection Program through region safety managers and region maintenance trainers.
- Identify work areas, processes, or tasks that require workers to perform duties of a flagger and evaluate hazards.
- Understand and apply regulative guidelines and laws regarding flagging.
- Review new technologies that will enhance flagging operations and safety.
- Ensure that qualified flagging trainers concurrent training is completed and up to date.
- Arrange for and/or conduct training.
- Maintain records required by the program and regions.
- Evaluate the program.

18-5.1.5.3 *Region Safety Office*

- Assist in developing or securing the required training.
- Provide assistance to managers and supervisors on needed flagger training.
- Maintain a quality assurance program for flagging through field evaluations.
- Provide consultative and audit assistance to ensure effective implementation of this Safety policy and procedure.

18-6 Training

- **TTC Flagger Program Training:** WSDOT's program requires an initial six-hour instructor lead flagger training course. Upon successful completion of this course, with a passing grade of 80% or higher, the employee will receive a wallet sized certification card valid for three years. Recertification classes shall be a minimum of four hours
- **TTC Flagging Program Trainer:** WSDOT Temporary Traffic Control Flagging Program Trainers must have a valid WSDOT Temporary Traffic Control Flagging card, and a valid TCS or TCT certification card to be approved as a WSDOT Temporary Traffic Control Flagging Trainer. Upon successful completion of the WSDOT TTC Flagging Trainer Program, with a passing grade of 80% or higher, the employee will receive a wallet sized certification card valid for three years. The initial certification class shall consist of twenty-one (21) hours in duration and shall include a 30-minute training demonstration by each student. Recertification classes shall be a minimum of four (4) hours in duration. These Instructor certification classes shall be in conformance with the memorandum of understanding between WSDOT and the Traffic Control Oversite Committee, (TCOC).
- **TTC Flagging Program Master Trainer:** WSDOT TTC Flagging Program Master Trainer's must be a currently certified as a WSDOT TTC Flagging Program Trainer with an accumulated 7,000 hours as a TTC Flagging Program Trainer with a combination of both field and classroom time. Upon successful completion of two audited classes observed by two certified Master Trainers, the Master Trainer candidate will receive a wallet sized certification card.

18-6.1 *Recordkeeping*

Records shall be kept on each employee who receives training. These records will be kept in a digital Flagger Card Data Base that is updated and maintained by headquarters safety. In addition, training records will be maintained in The Learning Center (TLC) for review and recordkeeping.

Chapter 19 Wildfire Smoke

19-1 Purpose

This policy has been created to protect WSDOT employees from the harmful effects of wildfire smoke. The smoke produced from wildfires, although 'natural,' can create significant health concerns for employees. Wildfire smoke can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. It can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

Wildfire smoke contains many hazardous chemicals, but the main harmful pollutant are the tiny particles suspended in the air. The particulate matter measuring $_{2.5}$ microns ($PM_{2.5}$) or less in size is of the most concern.

19-2 Scope and Applicability

This policy applies to all workplaces with the following exemptions.

- Enclosed buildings or structures in which the employer ensures that windows, doors, bays, and other exterior openings are kept closed, except when it is necessary to briefly open doors to enter and exit.
- Enclosed vehicles in which the air is filtered by a properly maintained cabin air filter and the employer ensures that windows, doors, and other openings are kept closed except when it is necessary to briefly open doors to enter or exit. Buses, light rail, and other enclosed vehicles used for transit systems where doors are frequently opened to board and deboard passengers are not included under this exemption.
- Work within the scope of chapter 296-305 WAC, Safety standards for firefighters.
- Workers performing prescribed burns.

19-3 References

WAC 296-820 Wildfire Smoke

WAC 296-842 Respirators

Chapter 8 Respiratory Protection Program, *Safety Procedures and Guidelines Manual* M 75.01

19-4 Definitions

Adverse symptoms requiring medical attention. Adverse symptoms to wildfire smoke exposure requiring medical attention include but are not limited to: Difficulty breathing or shortness of breath, particularly when accompanied by greater use of accessory muscles; chest pain; nausea; or dizziness.

Air Quality Index (AQI). A unit-less index used by the U.S. Environmental Protection Agency (EPA) to communicate air quality for several pollutants, including $PM_{2.5}$. References to the AQI used throughout this chapter means "AQI for $PM_{2.5}$ ".

Current $PM_{2.5}$. The concentration of $PM_{2.5}$ for the most current hour available, calculated using an hourly average of $PM_{2.5}$ data.

Note: The NowCast as provided by the Washington state department of Ecology, local clean air agency, or U.S. EPA is also acceptable to approximate current $PM_{2.5}$.

Emergency Response. Rescue, evacuation, utilities, communications, transportation, and medical operations; when such operations are directly aiding firefighting; protecting public health and safety; or actively protecting, restoring, or maintaining the safe and reliable operation of critical infrastructure at risk.

NIOSH. The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

NowCast. The method used by the U.S. Environmental Protection Agency (EPA), and the Washington state department of ecology to approximate the air quality for the most current hour available by using a calculation that involves multiple hours of past data updated every hour.

$PM_{2.5}$. Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter ($\mu g/m^3$).

Wildfire smoke. Emissions from fires in wildlands or in adjacent developed areas. Wildfire smoke contains a complex mixture of gasses and particulates. Fine particulates such as $PM_{2.5}$ are the primary pollutant in wildfire smoke.

Wildlands. Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

19-5 Responsibilities

19-5.1 *Executive, Senior, and Mid-Level Management*

- Ensure that site managers, supervisors, and other site personnel have the required experience to perform assessments and identify the hazards associated with wildfire smoke.
- Provide or replace PPE as required to perform work in compliance with this policy.
- Perform periodic audits of employee compliance with the program.
- Ensure that adequate funds are available and budgeted for the purchase of PPE in their areas.
- RA, ARA or Executive Management shall approve any emergency operations where exposures to wildfire smoke are at or above 500 AQI.

19-5.2 *Supervisors*

- Identify the employees that have the potential to be exposed wildfire smoke.
- Obtain and coordinate the required wildfire smoke and respirator training for the employees.
- Ensure compliance with PPE policies and the requirements in Appendix 19-A.
- Assess the smoke hazards for employee worksites before each shift and periodically throughout the day and communicate the hazards and control methods to employees.
- Communicate compliance expectations to employees and address noncompliance.

19-5.3 *Employees*

- Comply with the wildfire smoke policy and all applicable PPE policies and the requirements in Appendix 19-A.
- Keep all assigned PPE readily available, in good working order, wear them when appropriate, and have them replaced when they become worn or unsafe.
- Report any changes in wildfire smoke or any other hazards in the workplace to your supervisor.

19-5.4 *Safety Organization*

- Provide prompt assistance to managers, supervisors, or others as applicable on any matter concerning this safety procedure.
- Provide assistance with hazard assessments.
- Work with Purchasing and Supply Officers to ensure that all newly purchased PPE comply with current regulations and meet workplace needs.
- Help to ensure respiratory protection requirements are met including medical evaluations and fit checks.

19-6 Identification of harmful exposures

Supervisors or designated employees must determine employee exposure to $PM_{2.5}$ for worksites before each shift and periodically thereafter, as needed, by any of the following methods:

19-6.1 *Check $PM_{2.5}$ forecasts and the current $PM_{2.5}$ from any of the following*

- Washington department of ecology website;
- Air Quality WA mobile app;
- Washington Smoke Information website;
- U.S. EPA AirNow website;
- U.S. EPA AirNow mobile app;

Supervisors or designated employees must check the current $PM_{2.5}$ in a manner that they are able to comply with the requirements in WAC 296-820-805 through 296-820-860. The current $PM_{2.5}$ is updated hourly.

If an index such as the AQI is relied upon, use the following table to find the equivalent $PM_{2.5}$.

$PM_{2.5}$ in micrograms per cubic meter ($\mu g/m^3$)	Air Quality Index for $PM_{2.5}$ (AQI)
20.5 $\mu g/m^3$	69
35.5 $\mu g/m^3$	101
250.5 $\mu g/m^3$	301
500.4 $\mu g/m^3$	500 - Beyond the AQI

19-7 Hazard Communication

Supervisors, managers, or designated employees must communicate wildfire smoke hazards to all employees that may be exposed to wildfire smoke and encourage employees to report any wildfire smoke hazards at the worksite without fear of reprisal.

You must accomplish the following when communicating to employees:

1. Informing employees:
   - When at least two consecutive $PM_{2.5}$ readings are 20.5 µg/m^3 (AQI 69) or more and
   - When the current $PM_{2.5}$ is 35.5 µg/m^3 (AQI 101) or more; and
   - When the current $PM_{2.5}$ is 250.5 µg/m^3 (AQI 301) or more; and
   - When the current $PM_{2.5}$ is 500.4 µg/m^3 (AQI 500) or more; and
   - Protective measures available to reduce employee's wildfire smoke exposures.
2. Enabling and encouraging employees to inform their supervisor of:
   - Worsening air quality; and
   - Availability issues of appropriate exposure control measures and respiratory protection; and
   - Any adverse symptoms listed in (Appendix 19-A) that may be the result of wildfire smoke.

**** The wildfire smoke response plan is attached as Appendix 19-B.***

**** The two-way communication system that supervisors shall use will be radio and cell phone.***

19-8 Information and Training

1. WSDOT provides ALL employees effective information and training by ensuring that they have completed the Wildfire Smoke Training in The Learning Center before engaging in any work that exposes the worker to a $PM_{2.5}$ concentration of 20.5 µg/m^3 (AQI 69) or more. This training is rolled out to all employees annually.
2. Supervisors and managers with employees performing work that exposes the worker to $PM_{2.5}$ levels that are 20.5 µg/m^3 (AQI 69) or more must understand the information in Appendix 19-A, and the following topics:
   - The procedures of the Chapter 19 – Wildfire Smoke.
   - The procedures if an employee exhibits adverse symptoms of wildfire smoke exposure, including appropriate emergency response procedures.
   - Procedures for moving or transporting employees to an emergency medical service provider, if necessary.

19-9 Exposure Controls

1. Where the current $PM_{2.5}$ is 20.5 µg/m^3 (AQI 69) or more, the employer is encouraged to implement exposure controls.
2. Where the current $PM_{2.5}$ is 35.5 µg/m^3 (AQI 101) or more, the employer must implement effective exposure controls whenever feasible.

   Such controls include, but are not limited to:
   - Providing enclosed buildings, structures, or vehicles where the air is adequately filtered.
   - Providing portable HEPA filters in enclosed areas.
   - Relocating work to a location with a lower ambient air concentration of $PM_{2.5}$;
   - Changing work schedules to a time with a lower ambient air concentration of $PM_{2.5}$;
   - Avoiding, or reducing work that creates additional dust fumes or smoke.
   - Reducing work intensity.
   - Providing additional rest periods.
3. Exposure controls are not required during Emergency Response

19-10 Exposure Symptom Response

1. Supervisors and managers must allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment and may not retaliate against employees for seeking such treatment.
2. Supervisors and managers must monitor employees displaying symptoms of wildfire smoke exposure to determine whether medical attention is necessary.

   a. Symptoms requiring immediate medical attention include, but are not limited to:
      - Wheezing, difficulty breathing, or shortness of breath, particularly when accompanied by greater use of accessory muscles.
      - Asthma attacks.
      - Chest pain or symptoms concerning for heart attack.
      - Nausea or vomiting.
      - Sudden numbness or weakness in the face, arm, or leg, especially on one side of the body.
      - Sudden confusion, trouble speaking, or difficulty understanding speech.
      - Sudden trouble seeing in one or both eyes.
      - Sudden trouble walking, dizziness, loss of balance, or lack of coordination; or
      - Sudden severe headache with no known cause.
3. Except as required under the previous section, while medical attention is being arranged or where medical attention is not necessary, supervisors must take steps to reduce or eliminate continued exposure to wildfire smoke as appropriate to employee symptoms; intensity of exposure; and exposure controls in place, including respiratory protections in place.

4. Where the current $PM_{2.5}$ is 250.5 µg/m^3 (AQI 301) or more, supervisors must ensure workers experiencing symptoms requiring immediate medical attention, including those described under subsection (2) of this section, be moved to a location that ensures sufficient clean air such as:
    a. A location where the current $PM_{2.5}$ is less than 20.5 µg/m^3 (AQI 69); or
    b. An enclosed building, structure, or vehicle with HEPA filtration sufficient for the volume of the space.
5. Supervisors, managers, and leads must have effective provisions made in advance for prompt medical attention of employees who display symptoms of wildfire smoke exposure.

19-11 Respiratory Protection

There are both required use and voluntary use of respiratory protection addressed in this policy which is dependent on the level of wildfire smoke present at our worksites. If respiratory protection is required, employees must be enrolled in the respiratory protection program and meet all of the requirements outlined in Chapter 8.

19-11.1 *Voluntary respirator use:*

1. Where the current $PM_{2.5}$ is 20.5 µg/m^3 (AQI 69) or more, supervisors and managers are encouraged to provide N95 (KN95s are not acceptable) respirators at no cost to employees and encourage their use. Employees may provide and wear their own respiratory protection if voluntary use of these protective devices and equipment does not introduce hazards to the work environment.
2. Where the current $PM_{2.5}$ is 35.5 µg/m^3 (AQI 101) or more, supervisors and managers must provide respirators at no cost to all exposed employees and must encourage employees to use respirators.
    a. Employers must provide respirators by either of the following methods:
        i. Distribute directly to each exposed employee; or
        ii. Maintain a sufficient supply for all exposed employees at each work location where exposure occurs. Such respirator supply availability and locations must be made known, and be readily accessible, to all exposed employees in a manner that does not restrict or hinder employee access to obtain and replace respirators when needed.
3. Employees who voluntarily choose to use a respirator to protect themselves against environmental smoke are not required to have a medical evaluation or a fit test. It is important to note that a respirator that has not been fit tested may not provide the maximum level of protection and does not protect against gases or vapors.
4. Where the current $PM_{2.5}$ is 250.5 (AQI 301) or more, the employer must distribute N95 filtering-facepiece respirators directly to each exposed employee and must encourage respirator use.

Employees that have health problems such as respiratory or heart conditions should consult their medical provider about potential exposures to smoke and respirator use. Employees should contact their supervisor if their health care provider recommends health related restrictions to work activities.

Employees at any time may request a N95 respirator at no cost when working where the AirNow $PM_{2.5}$ is at or above a level of AQI 69.

Employees may request to provide their own respirator for voluntary use at any AirNow $PM_{2.5}$ level below AQI 101. Mask must be NIOSH approved N95.

Note: A cloth mask, procedural mask, neck gator, damp bandana and similar are not protective against smoke.

19-11.2 *Advisory Information for Employees Who Voluntarily Use Respirators*

Respirators protect against airborne hazards when properly selected and used.

Respirator usage that is required by WSDOT is not voluntary use. With required use, WSDOT must provide additional training that meets the additional requirements in this chapter. DOSH recommends voluntary use of respirators when exposure to substances is below DOSH permissible exposure limits (PELs) due to respirators providing you an additional level of comfort and protection.

Choosing to voluntarily use a respirator, the employee(s) must be aware that respirators can create hazards for the user. You can avoid these hazards if they know how to use their respirator properly AND how to keep it cleaned and maintained.

19-11.3 *Required Respiratory Use*

1. Where the current $PM_{2.5}$ is 500.4 µg/m^3 (AQI 500) or more, employees must be enrolled in a complete respiratory protection program in accordance with the WSDOT Respiratory Protection Program in Chapter 8. The employer must provide and require to be worn one of the following respirators with an Assigned Protection Factor 25 or greater equipped with p100 filters:
   - Loose-fitting powered air purifying respirator (PAPR); or
   - Full-facepiece air purifying respirator; or
   - Full-facepiece powered air purifying respirator (PAPR)
2. Respirators must be NIOSH-approved devices that effectively protect the wearers from inhalation of $PM_{2.5}$.
3. Respirators must be cleaned, stored, maintained, and replaced so that they are in good working order, and do not present a health hazard to users. Replace or repair any respirator that is not functioning properly, and do not permit their use. Filtering facepiece respirators must not be cleaned, repaired, or shared. Dispose, and replace any filtering facepiece respirator that is dirty, damaged, or difficult to breathe through. Elastomeric respirators must be properly cleaned and disinfected before being worn by another employee.

19-12 Measuring $PM_{2.5}$ levels at the worksite.

1. WSDOT can purchase direct-reading particulate monitors to identify harmful exposures at your workplace. The direct reading instrument must be pre-approved by the safety office, comply with WAC 296-820-815, and accomplish the following:
   a. Does not underestimate employee exposures to wildfire smoke; or
   b. May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the sensor from the manufacturer or other published literature and has accounted for the error of the sensor when determining exposures to $PM_{2.5}$ to ensure that employee exposure levels not be underestimated.
2. The sensor must be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.3 micrometers or less, up to and including 2.5 micrometers (≤0.3 µm to $_{2.5}$ µm). The employer may use a sensor that measures a particle size range beyond these limits, if the employer treats the results as the $PM_{2.5}$ levels.
3. The employer must:
   a. Select a sensor with a field R-squared (R2) value greater than 0.7 when measuring one-hour average $PM_{2.5}$; or
   b. If the selected sensor's field R2 is unknown or is 0.7 or less, the employer may use the sensor alongside other data sources listed in WAC 296-820-815, relying upon whichever value is higher.
4. The sensor must be calibrated, maintained, and used, including the use of necessary accessories, in accordance with the manufacturer's instructions for accurately measuring one-hour average $PM_{2.5}$ concentrations.
5. The person supervising, directing, evaluating, or operating direct-reading particulate sensors must have the training or experience necessary to apply this section and to ensure the correct use of the sensor and the interpretation of the results, so that exposures are not underestimated.

*__Note:__ If you are wanting to purchase a direct reading instrument, please contact your local safety office to get the makes and models of approved devices.

19-13 Appendices

Appendix 19-A	Protection From Wildfire Smoke Information and Training (Mandatory)
Appendix 19-B	WFS Response Plan (Attach to your PASP)

Appendix 19-A Protection From Wildfire Smoke Information and Training (Mandatory)

1. **The health effects and symptoms of wildfire smoke:**

   a. Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is "particulate matter," the tiny particles suspended in the air. Particulate matter is a health risk whether you are exposed over a short period of time or a long period of time. The EPA has determined that particulate matter does cause, or likely causes cardiovascular disease, respiratory disease, cancer, and harm to the nervous system. In addition, particulate matter can irritate the eyes and lungs, causing eye irritation, phlegm, and persistent coughing. It can also cause difficulty breathing, reduced lung function, wheezing, bronchitis, worsening of asthma, heart failure, and early death.

   b. Wildfire smoke can harm your health even if you cannot see or smell the smoke or do not feel any symptoms. Even healthy people can be harmed by wildfire smoke. The wildfire smoke rule is designed to limit the harm from wildfire smoke, and it is important to consider taking action to reduce your exposure to smoke whenever the rule's protections are in effect, whether or not you have symptoms. Watch for symptoms as an additional indication to reduce exposure to smoke and reduce work intensity.

      This appendix reviews many wildfire smoke symptoms, but not every possible symptom may be mentioned, and it is a good idea to talk to your doctor or other health care provider before being exposed to wildfire smoke to have a plan for protecting yourself, including what symptoms to watch out for and how to reduce your exposure. This is especially important if you have any medical conditions; are pregnant; or have questions about the health effects or symptoms of wildfire smoke exposure.

   c. The wildfire smoke rule has additional requirements in WAC 296-820-830 when workers experience symptoms requiring immediate medical attention. When the current $PM_{2.5}$ is 250.5 $\mu g/m^3$ or more, your employer must ensure workers experiencing such symptoms be moved to a location that ensures sufficient clean air as described in WAC 296-820-830(3). Symptoms requiring immediate medical attention include, but are not limited to:

      Symptoms concerning for a heart attack, such as:

      - Chest pain or discomfort.
      - Feeling weak, light-headed, faint, or dizzy
      - Pain or discomfort in the jaw, neck, or back.
      - Pain or discomfort in one or both arms or shoulders.
      - Shortness of breath, especially if accompanied by chest discomfort.

      Symptoms concerning for a stroke, such as:

      - Sudden numbness or weakness in the face, arm, or leg, especially on one side of the body.
      - Sudden confusion, trouble speaking, or difficulty understanding speech.
      - Sudden trouble seeing in one or both eyes.
      - Sudden trouble walking, dizziness, loss of balance, or lack of coordination.
      - Sudden severe headache with no known cause.

Wheezing, difficulty breathing, or shortness of breath, particularly when accompanied by greater use of accessory muscles.

Asthma attacks; or

Nausea or vomiting.

d. In addition to symptoms that under this rule require immediate medical attention, wildfire smoke can also cause other symptoms, many of which are described below. Even if a symptom is not mentioned here, you have the right under the wildfire smoke rule to seek medical attention or follow medical advice if you develop any symptoms you think may potentially be related to wildfire smoke exposure, regardless of their severity. Regardless of whether a symptom is serious enough to require immediate medical attention, employers covered by the wildfire smoke rule are required by WAC 296-820-830(4) to have effective provisions made in advance for prompt medical attention of employees displaying symptoms of wildfire smoke exposure. If you develop a symptom, you should follow the advice of your doctor or health care provider and seek medical attention if necessary. Your employer must not retaliate against you for seeking medical attention or following medical advice you have been given. In addition to the symptoms requiring immediate medical attention according to WAC 296-820-830, all the following symptoms are also potentially related to wildfire smoke exposure. They may also require medical attention:
   - Respiratory:
     - Cough
     - Runny or irritated nose
     - Sore throat; – Sinus pain or pressure
     - Phlegm
   - Fast or irregular heartbeat
   - Headache
   - Scratchy or irritated eyes; or
   - Fatigue or tiredness

e. Developing wildfire smoke symptoms, even mild ones, indicates you are being overexposed to the smoke and should report your symptoms to your employer. In response, according to WAC 296-820-830 your employer must permit you to follow medical advice you have been given, seek medical attention if necessary, and must take appropriate steps to reduce your exposure. This may include providing you with access to clean air according to WAC 296-820-830(3) (your employer must ensure access to clean air when the current $PM_{2.5}$ is greater than 250.5 µg/ m 3); helping you use respiratory protection; or taking other steps to control your exposure.

f. Sensitive groups: L&I and the Washington state department of health consider all outdoor workers as a sensitive group at higher risk of experiencing adverse health effects from wildfire smoke exposure1. Sensitive groups include people who are at higher risk of experiencing adverse health effects as a result of exposure to wildfire smoke, including those with preexisting health conditions; those with increased duration of exposure; and those whose work results in an increased breathing rate, including outdoor workers1. Although everyone is impacted by wildfire smoke exposure, sensitive groups are among those most likely to experience health problems from exposure to wildfire smoke.

Examples of sensitive groups include:

- Outdoor workers.
- People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke.
- People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, or flu; or those with, or recovering from COVID-19.
- People with existing heart or circulatory problems, such as irregular heartbeat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke.
- Children under 18 years old, and adults over age 65.
- People who are pregnant
- People with diabetes.
- People with other medical or health conditions that can be worsened by exposure to wildfire smoke as determined by a physician.
- Tribal and indigenous people.
- People with low income.

2. **The importance of informing the employer when the employee is experiencing symptoms of wildfire smoke exposure:**

   Watch for symptoms of wildfire smoke exposure as a sign to reduce exposure. The particulate matter in wildfire smoke can harm your health, even at lower levels of exposure.

   It is important to notify your employer when you are experiencing symptoms of wildfire smoke exposure so your employer can respond appropriately.

   Your employer will have provisions made in advance for prompt medical attention for employees who are experiencing symptoms of wildfire smoke exposure.

   Do not ignore your symptoms. Wildfire smoke can be hazardous even when you cannot see it or smell it. Your employer cannot retaliate against you for reporting symptoms, for seeking medical attention, or for following medical advice you have been given. This is true whenever the wildfire smoke rule's protections are in effect.

   Wildfire smoke is a serious work-related hazard for outdoor workers, and you have the right to file a workers' compensation claim to have your symptoms evaluated. You may file a workers' compensation claim whether or not you have personal health insurance. Your employer cannot prevent you from or retaliate against you for filing a workers' compensation claim.

   In most cases, L&I will pay for your initial medical evaluation, even if your claim is denied. If your claim is allowed, the workers' compensation system will cover medical bills directly related to your condition and partial wage replacement benefits if you cannot work.

   When the current $PM_{2.5}$ is 250.5 $\mu g/m^3$ or more, your employer must ensure workers experiencing symptoms requiring immediate medical attention be moved to a location that ensures sufficient clean air as described in WAC 296-820-830(3).

3. **The right to obtain medical attention without fear of reprisal:**

   Employers must allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical attention or follow medical advice they have been given and must not retaliate against employees for seeking such medical attention or following medical advice.

   Employers must also have effective provisions made in advance for prompt medical attention of employees in the event of serious injury or illness caused by wildfire smoke exposure.

   Additionally, when the current $PM_{2.5}$ is 250.5 µg/m^3 or more, employers must ensure workers experiencing symptoms requiring immediate medical attention be moved to a location that ensures sufficient clean air as described in WAC 296-820-830(3).

   For more information on your workplace safety and health rights, discrimination protections, and filing a discrimination complaint, visit www.Lni.wa.gov/WorkplaceDiscrimination.

4. **The requirements of WAC 296-820-805 through 296-820-860:**

   The following table summarizes the key requirements of the rule. This is not an exhaustive list, and additional details are found in WAC 296-820-805 through 296-820-860.

Current $PM_{2.5}$	AQI	Requirements at Current $PM_{2.5}$ Level
0.0-20.4 µg/m^3	0-68	Prepare a written wildfire smoke response plan. • Provide wildfire smoke training to employees. • Watch the $PM_{2.5}$ conditions and forecasts. • Prepare a two-way communication system. • Make provisions for prompt medical attention, and permit such medical attention without retaliation.
20.5-35.4 µg/m^3	69-100	All of the above and: • Notify employees of $PM_{2.5}$ conditions. • Ensure only trained employees work outdoors. • Consider implementing exposure controls. • Consider providing voluntary use respirators.
35.5-250.4 µg/m^3	101-300	All of the above and: • Implement exposure controls. • Make N95 respirators available for voluntary use.
250.5-500.3 µg/m^3	301-499	All of the above and: • Ensure workers experiencing symptoms requiring immediate medical attention be moved to a location that ensures sufficient clean air. • Directly distribute N95 respirators to employees for voluntary use.
500.4-554.9 µg/m^3	500-beyond the AQI	All of the above and: • Implement a complete required use respiratory protection program, including fit-testing, medical evaluations, requiring employees to be clean-shaven, and requiring the use of particulate respirators.
555 µg/m^3	Beyond the AQI	All of the above and: • Require respirators with an assigned protection factor (APF) of 25 or more.

5. **The employer's methods of determining the current $PM_{2.5}$ under WAC 296-820-815:**

   The employer's methods of determining the current $PM_{2.5}$: *AirNow*

6. **How employees can obtain the current $PM_{2.5}$, and the employer's methods to communicate the current $PM_{2.5}$:** *Employees can also use the AirNow website, or then can contact their supervisor*

   Various government agencies monitor the air quality at locations throughout Washington and provide information to the public on the current air quality. These monitoring sites measure several harmful pollutants, but the pollutant of particular concern for wildfire smoke is the current $PM_{2.5}$ which is reported as the hourly average of $PM_{2.5}$ in $\mu g/m^3$. Some of these sites also report the NowCast Air Quality Index (AQI). The NowCast AQI uses the air quality data of all the pollutants from these regulatory monitors and the NowCast averaging time to attempt to provide a general index of the overall air quality.

   Although these monitoring stations may measure several pollutants, this chapter only uses the hourly average of $PM_{2.5}$. The NowCast AQI for $PM_{2.5}$ may also be used as an alternative.

   One way to find the current and forecasted $PM_{2.5}$ is to go to enviwa.ecology.wa.gov and find the nearest monitor on the map, or fire.airnow.gov and enter the zip code of the location where you will be working. The current $PM_{2.5}$ is also available from the Air Quality WA mobile app, or the AirNow mobile app.

   Employees who do not have access to the internet can contact their employer for the current $PM_{2.5}$. The U.S. EPA website www.enviroflash.info can transmit daily and forecasted air quality by email for your city or zip code.

   While the requirements in this rule are based on the current $PM_{2.5}$, employers may choose to use the NowCast Air Quality Index (AQI) for $PM_{2.5}$ to comply with this rule. Because the current $PM_{2.5}$ is based on a one-hour average, and the NowCast AQI averages data over a longer time, it is normal for the two values to differ over short periods of time. Your employer will tell you whether they use the current onehour average $PM_{2.5}$, or the NowCast AQI for $PM_{2.5}$. The following table indicates the NowCast AQI values that may be used from the Washington state department of ecology, local clean air agency, or EPA to approximate the current $PM_{2.5}$

CURRENT $PM_{2.5}$	NOWCAST AIR QUALITY INDEX FOR $PM_{2.5}$ (AQI)
20.5 $\mu g/m^3$	69
35.5 $\mu g/m^3$	101
250.5 $\mu g/m^3$	301
500.4 $\mu g/m^3$	500
555 $\mu g/m^3$	Beyond the AQI

   Your employer will establish a two-way communication system to communicate changing wildfire smoke conditions to you and allowing you to communicate information to your employer such as: Worsening air quality; availability issues of exposure control measures and respirators; and any symptoms of wildfire smoke exposure. Your employer cannot retaliate or discriminate against you for raising safety concerns or reporting symptoms. The employer's communication system is: Cell phones and radios.

7. **The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures:**

   Your employer will provide training on the specific methods they will implement to protect you as part of their wildfire smoke response plan, and their procedures to respond when employees experience symptoms of wildfire smoke exposure.

   The employer's methods to protect employees and the employer's exposure symptom response procedures are both listed in the Wildfire Smoke Work Plan

8. **The importance, limitations, and benefits of using a properly fitted respirator when exposed to wildfire smoke:**

   Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke, when they are properly selected and worn. Respirator use can be beneficial even when the current $PM_{2.5}$ is less than 35.5 µg/m^3.

   Respirator use is not voluntary, and a complete respiratory protection program in accordance with chapter 296-842 WAC, Respirators, is required in any of the following situations:

   - The employer chooses to require respirator use.
   - A respiratory hazard, such as exposure to a substance over the permissible exposure limit (PEL) or hazardous exposure to an airborne biological hazard, is present.
   - Work under the scope of this rule where the current $PM_{2.5}$ is 500.4 µg/m^3 (AQI 500) or higher.

   If respirator use is required, you will be enrolled in a complete respiratory protection program which includes additional training, fit-testing, and medical evaluations.

   To evaluate respiratory hazards in your workplace, see chapter 296-841 WAC, Airborne contaminants.

   Take the following precautions to ensure the best possible protection when using N95 respirators voluntarily for protection from wildfire smoke:

   a. Employers must select respirators certified for protection against the specific air contaminants at the workplace. For $PM_{2.5}$, a National Institute for Occupational Safety and Health (NIOSH) certified respirator with at least an N95 particulate filter is required. A label or statement of certification should appear on the respirator or respirator packaging.

      KN95 masks, surgical masks, or other items worn over the nose and mouth such as scarves, t-shirts, and bandannas will not provide protection against wildfire smoke. A NIOSH-approved N95 filtering-facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.

   b. Read and follow the manufacturer's instructions on the respirator's use, maintenance, cleaning and care, along with any warnings regarding the respirator's limitations.

      For the best protection, follow the manufacturer's instructions for medical evaluations, fit-testing, and shaving. Fit testing is done to ensure that you have the correct size respirator, and that it seals properly. Without fit-testing, wildfire smoke can leak around the seal of the respirator and increase your risk of experiencing adverse health effects. Because of this, you should not rely on voluntary use respirators alone to protect you from wildfire smoke. Take action to reduce your exposure to wildfire smoke in the other ways described in the wildfire smoke rule and in subsection (10) of this appendix, ask your employer to voluntarily arrange for respirator fit testing, or both.

c. Tight-fitting respirators such as N95s cannot form a seal over facial hair. Small particles such as those in wildfire smoke will leak around the respirator if you are not clean-shaven. Be sure you are clean-shaven to ensure the respirator can seal to your face.

d. Do not wear respirators in areas where the air contains contaminants for which the respirator is not designed. A respirator designed to filter particles will not protect you against gases or vapors, and it will not supply oxygen. Some filtering-facepiece respirators are equipped with a sorbent layer for absorbing "nuisance" organic vapors. These can be used for voluntary use but are not NIOSH certified for protection against hazardous concentrations of organic vapor.

e. Keep track of your respirator, so you do not mistakenly use someone else's respirator.

f. If you have questions about whether it is safe for you to wear a respirator, you should talk to your doctor or other medical provider, particularly if you have a heart, lung, or other medical conditions.

9. **The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation:**

Respirators such as N95s must form a tight seal to the face to work properly. This is especially important for people at increased risk for severe disease, as exposure to wildfire smoke can worsen symptoms. A fit test is conducted to verify that a respirator properly seals to your face, so smoke does not leak around the seal. It also ensures that the respirator be comfortable so you can wear it as long as you need. Your employer is not required to provide a fit test for voluntary use of N95 respirators for wildfire smoke below a current $PM_{2.5}$ of 500.4 $\mu g/m^3$ (AQI 500) unless your employer chooses to require respirator use. Even without a fit test, you can take steps to improve the respirator seal, and to reduce your exposure to wildfire smoke by following the steps in subsection (10) of this appendix.

While wearing a respirator provides protection from wildfire smoke, it increases breathing resistance, causing you to work harder to breathe. If you have heart or lung problems, talk to your doctor or other medical provider before using a respirator. A medical evaluation is conducted as part of evaluating respirator selection and use to ensure that the wearer is healthy enough to perform work while wearing a respirator. Your employer is not required to provide a medical evaluation for voluntary use of N95 respirators for wildfire smoke below a current $PM_{2.5}$ of 500.4 $\mu g/m^3$ (AQI 500) unless your employer chooses to require respirator use. If you have questions about whether it is safe for you to wear a respirator, you should talk to your doctor or other medical provider. This is particularly important if you have a heart or lung condition (including asthma), or if you have other medical conditions of concern. Follow your health care provider's advice if you have medical conditions that can be worsened by wildfire smoke exposure.

If, while wearing a respirator, you experience:

- Any symptoms your doctor, other health care provider, or employer has told you may limit or prevent the effective use of respirators; or
- Any respiratory (lung, breathing), cardiac (heart, circulation), or other symptoms (including, but not limited to, those listed under subsection (1) of this appendix) that may limit or prevent the effective use of respirators.

Then go to an area with clean air as described in WAC 296-820-830(3), take off the respirator, and get help. You should also do this if you are unsure whether a symptom you are experiencing may limit or prevent the effective use of respirators.

10. **How to properly put on, use, and maintain the respirators provided by the employer:**

    A tight-fitting respirator such as an N95 will not be able to seal to your face if facial hair interferes with the seal. Make sure you are clean-shaven to allow a better seal and more reliable protection. Loose-fitting powered air-purifying respirators do not rely on a tight seal to provide protection, so they may be worn by people with facial hair.

    Always inspect your respirator for damage or defects before use and follow the manufacturer's instructions. Replace respirators that are damaged, dirty, or wet.

    The proper way to put on a respirator depends on the type and model of the respirator. For those who use a filtering-facepiece respirator such as an N95 follow these steps to put on the respirator:

    a. With clean, dry hands, inspect the respirator and straps for any damage or defect.

    b. Hold the respirator with the straps facing you, and the metal or foam nose bridge facing up.

    c. Place the mask with the top over your nose and the bottom under your chin. Hold the mask in place with one hand.

    d. While holding the mask to your face with one hand, grab the top strap with the other hand.

    e. Pull the top strap over your head and place it so the strap goes above your ears.

    f. While continuing to hold the mask to your face, pull the bottom strap over your head and place it so the strap goes below your ears.

    g. Bend the nosepiece of the respirator over the top of the nose, so it fits securely.

    h. Perform a seal check:

        i. The mask should sit snug on your face, with the top strap above your ears, the bottom strap below.

        ii. Cover the respirator with both hands and exhale. If you feel air leaking where the respirator seals against your face, adjust the respirator and nose piece, and try again. The respirator should bulge from the face and not leak around the seal.

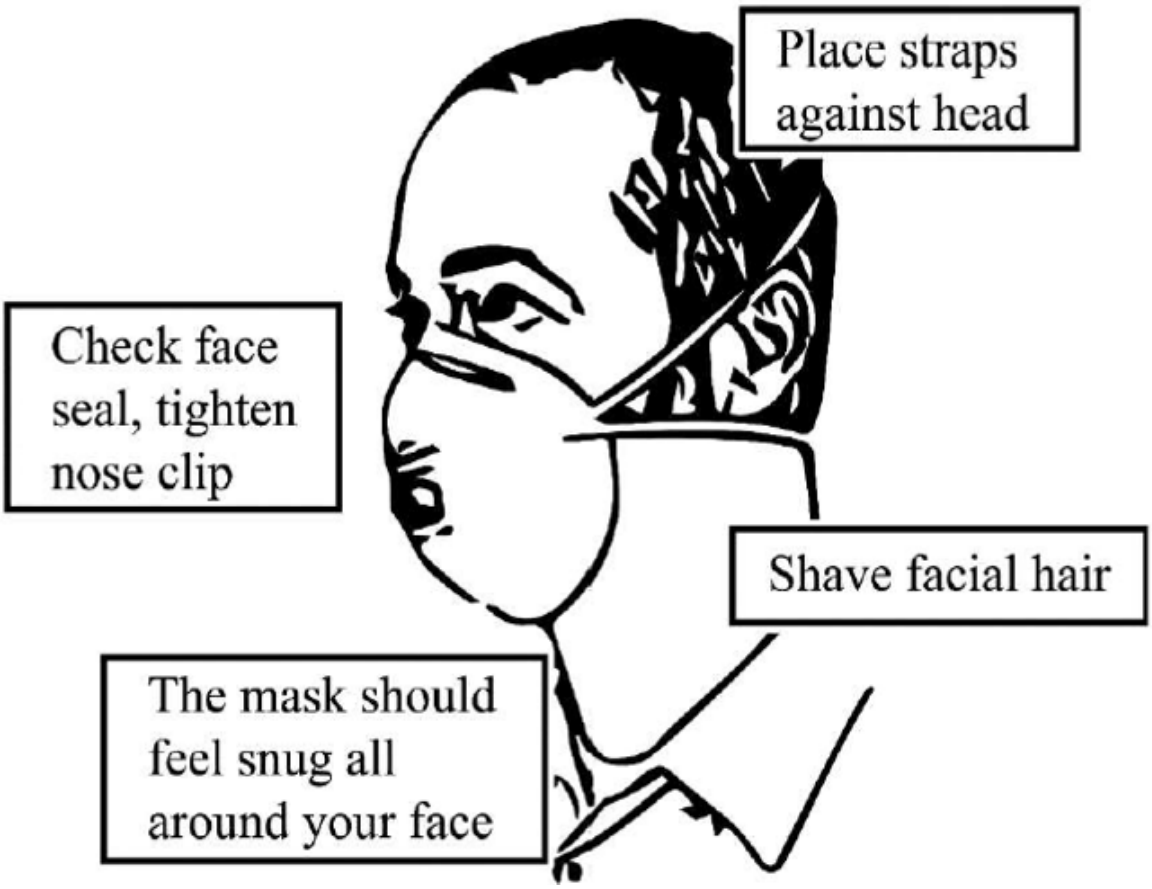
        iii. Next, cover the respirator with both hands and inhale. If you feel air leaking where the respirator seals against the face, adjust the respirator and nosepiece and try again. The respirator should collapse slightly and not leak around the seal.

    Filtering-facepiece respirators are disposable respirators that cannot be cleaned or disinfected. Best practice is to replace filtering-facepiece respirators at the beginning of each shift.

    Respirator filters need to be replaced if they get damaged, deformed, dirty, or difficult to breathe through. If, while wearing a respirator, you experience:

    - Any symptoms your doctor, other health care provider, or employer has told you may limit or prevent the effective use of respirators; or
    - Any respiratory (lung, breathing), cardiac (heart, circulation), or other symptoms (including, but not limited to, those listed under subsection (1) of this appendix) that may limit or prevent the effective use of respirators.

Then go to an area with clean air as described in WAC 296-820-830(3), take off the respirator, and get help. You should also do this if you are unsure whether a symptom you are experiencing may limit or prevent the effective use of respirators.



Appendix 19-B WFS Response Plan (Attach to your PASP)

Location of Work: _____ Work Start Time: _____ End Time: _____

Initial Baseline AQI: _____ Time Taken: _____

Use the table below to record periodic AQI readings:

Time:											
AQI:											

*RA/ARA, or Executive Management approval required at AQI of 500 or more

Communication System in place (select one): ☐ State Radio ☐ Cell phone

Exposure controls implemented (select all that apply):

- ☐ Providing enclosed buildings, structures, or vehicles where the air is adequately filtered
- ☐ Providing portable HEPA filters in enclosed areas
- ☐ Relocating work to a location with a lower ambient air concentration of $PM_{2.5}$
- ☐ Changing work schedules to a time with a lower ambient air concentration of $PM_{2.5}$
- ☐ Avoiding, or reducing work that creates additional dust fumes, or smoke
- ☐ Reducing work intensity
- ☐ Providing additional rest periods in areas with filtered air
- ☐ Other (define): _____

Exposure Controls must be implemented if you are experiencing any of the following symptoms: Difficulty breathing; Shortness of breath, particularly when accompanied by greater use of accessory muscles; Chest pain; Nausea; or Dizziness.

Requirements based on AQI level:

$PM_{2.5}$ Breakpoints	AQI Equivalent	Requirements At Current $PM_{2.5}$ Level
0.0-20.4	0-68	• Prepare response plan. • Provide training to employees. • Watch the $PM_{2.5}$ conditions and forecasts. • Implement a two-way communication system. • Make provisions for prompt medical treatment and permit without retaliation.
20.5-35.4	69-100	All the above and: • Notify employees of $PM_{2.5}$ conditions. • Ensure only trained employees work outdoors. • Consider implementing exposure controls. • Consider providing voluntary use respirators.
35.5-250.4	101-300	All the above and: • Implement exposure controls. • Make N95 respirators available for voluntary use.

$PM_{2.5}$ Breakpoints	AQI Equivalent	Requirements At Current $PM_{2.5}$ Level
250.5-500.3	301-499	All the above and: • Ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air. • Directly distribute N95 respirators to employees for voluntary use.
500.4-554.9	500-beyond the AQI	All the above and: • Outside work operations that are not emergent shall be shut down. • Employees are required to follow Chapter 8 Respiratory Protection if they are required to wear elastomeric particulate respirators. • Require respirators with an assigned protection factor (APF) of 25 or more • RA /ARA, or Executive Management approval required

How employees can obtain the current $PM_{2.5}$, and WSDOT's methods to communicate the current $PM_{2.5}$:

Employees with state cell phones shall download the EPA Air Now or the Air Quality WA mobile apps listed below: Washington department of ecology website; Air Quality WA mobile app; Washington Smoke Information website; U.S. EPA AirNow website; U.S. EPA AirNow mobile app

Employees who do not have access to the internet shall contact their supervisor for the current $PM_{2.5}$.

The importance, limitations, and benefits of using a properly fitted respirator when exposed to wildfire smoke:

- Respiratory protection from wildfire smoke is beneficial at all AQI levels even when less than AQI 101 or 35.5 µg/m^3.
- NIOSH approved Filtering facepiece respirators (N-95's), are encouraged to be worn voluntarily at any level of wildfire smoke up to 500 AQI.
  - When worn voluntarily no medical evaluation questionnaire or fit test is required for these N95 respirators.
- **Voluntarily Use Respirators**
  - Respirators protect against airborne hazards when properly selected and used. DOSH recommends voluntary use of respirators when exposure to substances is below DOSH permissible exposure limits (PELs) due to respirators providing you an additional level of comfort and protection.
  - Choosing to voluntarily use a respirator the employee (s) must be aware that respirators can create hazards for the user. You can avoid these hazards if you know how to use your respirator properly AND how to keep it cleaned and maintained.
  - Follow these important guidelines:
    - Read and follow all instructions provided by the manufacturer about use, maintenance (cleaning and care), and any possible warnings regarding the respirator's limitations.
    - Choosing respirators that have been officially certified for use to protect against the substance of concern. The National Institute for Occupational Safety and Health (NIOSH) certifies respirators. If a respirator is not certified by NIOSH, there is no guarantee that it meets minimum design and performance standards for workplace use.
    - A NIOSH approval label will appear on or in the respirator packaging. It will tell you what protection the respirator provides.
    - Label your respirator so you do not mistakenly use someone else's. When labeling do so with an external tag that does not interfere with the wear and function of the mask. DO NOT wear your respirator into:
    - Required use situations when you are only allowed voluntary use.
    - Atmospheres containing hazards that your respirator is not designed to protect against.
    - Example: Respirators designed to filter dust particles will not protect you against solvent vapor, smoke, or oxygen deficiency.

- **Required use of Respirators**
  - All aspects of Chapter 8 shall be adhered to for required use of respirators to protect employees from WFS in excess of 500 AQI.
  - This includes but is not limited to medical evaluations, Fit testing (Must be clean shaven).
  - Respirators with an APF of 25 must be quantitatively fit tested to the employee.

Respirator filters need to be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or disinfected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.

Table A: Wildfire Requirements Based Upon AQI

$PM_{2.5}$	AQI	AQI Level	Requirements
≥ 20.5 µg/m^3	≥ 69	**Moderate**	All employees must have completed the WSDOT SAFE: Wildfire Smoke Safety (Annual) Training. Encourage voluntary use of N95 respirators. Determine smoke levels before work begins and periodically throughout the shift. When feasible, supervisors are encouraged to implement exposure controls to limit employee exposures to wildfire smoke. Supervisors apply training to recognize and respond to health issues caused by wildfire smoke. Inform employees of available protective measures against wildfire smoke.
≥ 35.5 µg/m^3	≥ 101	**Unhealthy**	Provide N95 filtering facepiece respirator for voluntary use and encourage use. When feasible, supervisors are required to implement exposure controls to limit employee exposures to wildfire smoke.
≥ 250.5 µg/m^3	≥ 301	**Hazardous**	Provide and distribute N95 and encourage use, no fit-test or medical eval. When feasible, supervisors are required to implement exposure controls to limit employee exposures to wildfire smoke.
≥ 500.4 µg/m^3	≥ 500	**Beyond AQI**	Require APF 25+ respirator. Quantitative Fit test and medical eval. **RA/ARA or Executive Management authorization is required.**