

## Personal Protective Equipment

### 1.0 Purpose

The purpose of this procedure is to establish the responsibilities and requirements for Battelle- Pacific Northwest Division (PNWD) contractor use of Personal Protective Equipment (PPE) so as to comply with Occupational Safety and Health Administration (OSHA) and Washington Industrial Safety and Health Act (WISHA) standards.

### 2.0 Definitions

ANSI	American National Standards Institute. An organization that writes consensus standards which incorporate input from a diverse group of subject matter experts.
Personal Protective Equipment (PPE)	Clothing or equipment that is intended to protect the worker's body (including eyes, face, feet, hands, head, and hearing) from hazards capable of causing injury, illness, or impairment of any bodily function

### 3.0 Requirements

#### 3.1 Responsibility

The contractor shall:

- perform an assessment identifying hazards or potential hazards and determine necessary PPE for activity(s) to be performed,
- adhere to prescribed PNNL postings and/or PNNL pre-job planning documentation requiring use of PPE,
- provide adequate PPE for all its employees ,
- properly maintain, use and store PPE
- remove damaged and/or defective equipment from service.

#### 3.2 General Requirements

The selection, use, and design of PPE shall comply with the following statutory requirements:

- 29 Code of Federal Regulations (CFR) 1926, Subpart E; Personal Protective and Life Saving Equipment
- 29 Code of Federal Regulations (CFR) 1926, Subpart I; Personal Protective Equipment
- 10 Code of Federal Regulations (CFR) 835, Occupational Radiation Protection
- Washington Administrative Code (WAC) 296-800, Personal Protective Equipment
- Applicable American Standards Institute (ANSI) Standards.

Personal protective equipment is not a substitute for engineering and administrative controls. These controls shall be implemented, to the extent feasible, to mitigate the hazard so that the need for PPE is reduced or eliminated.

Contractors shall provide PPE to its employees in accordance with OSHA/WISHA requirements. PPE will be specified in hazard assessment documentation (as appropriate) based on the activity and associated hazards:

- Job Safety Analysis
- Fall Protection Work Plan
- Confined Space Permit
- Welding, Cutting and Heating Permit
- Electrical Energized Work Permit
- Blind Penetration Permit
- Biological Work Permit
- Chemical Process Permit
- Radiological Work Permit.

### **3.3 Procedure**

Contractors shall provide training to each employee who is required to use PPE. Each affected employee must show understanding of training to their specific PPE. Retraining may be necessary if work activities change or the employee exhibits lack of understanding of the PPE.

#### Foot Protection

Occupations in which there is a danger of foot injuries due to falling and rolling objects, or objects piercing the sole, and/or where feet are exposed to thermal burns from open flames, welding, cutting or grinding, and electrical, employees shall wear protective footwear which comply with American Society for Testing and Materials (ASTM) F2413-05 Standard Requirements for Protective Footwear.

Substantial footwear made of leather or equally firm material shall be worn by all employees within construction areas or laboratory areas where chemical spills may occur. Open-toed sandals, slippers, or other similar shoes shall not be worn. Exceptions may be approved for special or unique situations.

#### Hand Protection

Employees exposed to hazards that could injure their hands shall use appropriate hand protection.

Examples of these hazards include:

- Absorbing harmful substances (see Table 1 - Suggested Gloves When Working With Chemicals)
- Severe cuts, lacerations or abrasions
- Punctures
- Chemical burns and/or thermal burns
- Harmful temperature extremes

Employees shall choose hand protection that performs relative to the:

- Task
- Conditions present
- Duration of use
- Potential hazards

Table 1 – Suggested Gloves When Working With Chemicals

The following table provides guidance for selecting the appropriate glove to be worn in situations involving chemical hazards. This table is not intended to be all-inclusive. If you have any questions about the appropriate type of glove required for your work activity, contact your supervisor or a PNWD Safety and Health Representative.

Chemical Hazard	Butyl	Neoprene	Nitrile	Polyvinyl-chloride	Polyvinyl-alcohol	Latex	Polyethylene	Vitan
Acids, dilute	X	X	X	X		X		X
Alcohol	X	X	X	X		X	X	X
Alkali bases), dilute	X	X	X	X		X		X
Aromatics					X			X
Chlorinated hydrocarbons	X		X		X			X
Epoxy resins	X	X	X	X				X
Esters	X							
Hydrocarbons	X	X	X		X			X
Ketones	X							
Lacquer thinners	X	X	X		X			X
Oils, grease	X	X	X	X	X			X
Petroleum distillates	X	X	X		X		X	X
PCBs								X

X indicates appropriate for use.

"Blank" indicates not appropriate for use.

**Note:** Very little data are available for protection against mixtures of chemicals. One permeating chemical may pull another with it through the material much faster than expected. PPE materials with the broadest range of chemical resistance test results should be used when chemical mixtures are involved.

### Respiratory Protection

Contractors will provide respiratory protection equipment when required by pre-job planning documentation. A written respiratory protection program shall be required in accordance with OSHA 1910.134, Respiratory Protection and/or WISHA 296-842, Respirators, as applicable. Further details regarding respiratory protection may be found in the Respiratory Protection procedure within the Contractor Environment Safety and Health manual.

### Head Protection

Head protection meeting the requirements of ANSI Z89.1, Protective Headwear for Industrial Workers, shall be worn by all personnel working in, visiting, or passing through construction areas and other locations where head protection requirements are posted or specified in pre-job planning documentation.

All persons exposed to overhead hazards shall wear nonmetallic hard hats.

Before using a hard hat inspect the:

- suspension system for firm fit of mounting points
- shell for cracks, dents, signs of wear and damage
- hard hat for excessive dirt, grease, and/or chemicals.

Hard hats that are defective shall be removed from service.

### Eye and Face Protection

Employees exposed to hazards that could injure their eyes and/or face must use appropriate protective equipment. Examples of these hazards include:

- Flying particles.
- Molten metal.
- Liquid chemicals.
- Acids or caustic liquids.
- Chemical gases or vapors.
- Any light that could injure the eyes such as lasers, ultraviolet, or infrared light.
- Objects that puncture.

Employees exposed to hazards from flying objects must use eye protection with side protection.

Additional eye and face protection (goggles, face shields, etc.) may be required for certain work activities, such as grinding, flying particles, handling chemicals, etc.

Safety glasses (or other appropriate safety eye protection) shall be worn under face shields and welding hoods/helmets.

Eye protection for employees who wear prescription lenses must:

- incorporate the prescription into the design of the eye protection; **or**
- be large enough to be worn over the prescription lenses without disturbing them.

PPE used to protect the eyes and face must meet the applicable ANSI (American National Standards Institute) standard. Most commercially available PPE is marked with ANSI standard Z87.1-1989 requirements.

All personnel working in, visiting, or passing through construction areas and other locations where safety glass requirements are posted or indicated in the pre-job planning documentation shall wear safety glasses meeting the requirements of ANSI Z87.1,

### Hearing Protection

The contractor will take steps to eliminate and minimize high levels of noise. When it is not feasible to reduce noise levels to less than 85 dBA, hearing protection shall be furnished and worn (see Table 2 – Suggested Types of Hearing Protection).

<b>Table 2- Suggested Types of Hearing Protection</b>		
Two main types of hearing protection devices are used to protect workers' hearing from noise in the workplace: 1) earplugs that are inserted into the ear canal and 2) earmuffs that are worn over the head to cover the outer ear. The ability of the hearing protection device to attenuate noise is expressed as a Noise Reduction Rating (NRR). The higher the NRR, the more protection the device provides. The following table lists suggested hearing protection to be used for work activities that involve physical hazards. If you have any questions about the appropriate type of hearing protection required for your work activity, contact your supervisor or a PNWD Safety and Health Representative.		
<b>Hazard Category</b>	<b>Product</b>	
	<b>Minimum Exposure</b>	<b>More Severe Exposure</b>
<b>Physical - Noise</b> Select hearing protection with an NRR adequate to reduce the wearer's exposure to below the 85-dB level	Earmuffs (use when frequent removal and replacement of hearing protection is necessary)  Earplugs (fit into and seal the ear canal; generally considered "disposable")  Earcaps (small, soft pods, pads, or flexible tips that seal at or near the entrances of the ear canal with a minimal degree of insertion)	Earplugs and earmuffs

## **4.0 References**

29 CFR 1910, Occupational Safety and Health Standards

29 CFR 1910.134, Respiratory Protection

29 CFR 1926, Safety and Health Regulations for Construction

29 CFR 1926, Subpart E; Personal Protective and Life Saving Equipment

29 CFR 1926, Subpart I; Personal Protective Equipment

10 Code of Federal Regulations (CFR) 835, Occupational Radiation Protection

ANSI Z87.1, Occupational and Educational Personal Eye and Face Protection Devices

ANSI Z89.1, Protective Headwear for Industrial Workers

ASTM F2413-05 Standard Requirements for Protective Footwear.

WAC 296-155, Safety Standards for Construction Work

WAC 296-155, Part C; Personal Protective and Life Saving Equipment

## **5.0 Records**

None

## **6.0 Forms**

None