

# Personal Protective Equipment (PPE)

[Safety Home](#)>Personal Protective Equipment

Personal Protective Equipment, or PPE, is your last line of defense against various workplace injuries. Please know when to wear PPE, how to wear PPE, and how to

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## LEVELS OF PRETECTIVE CLOTHING (PPE)

The EPA designates four levels of protection in PPE:

**Level A:** Provides the highest level of skin and respiratory protection available. This level is gas-tight, vapor-tight and splash-resistant; it is used in conjunction with a self-contained breathing apparatus (SCBA) or airline respirator.

**Level B:** Same as Level A but not vapor- or gas- tight.

**Level C:** Features the some type of clothing as Level B, but has a lower level of respiratory protection. An air-purifying respirator is used in place of a SCBA.

**Level D:** Offers the lowest level of protection, typically consists of a normal work uniform.

## PERSONAL PROTECTIVE EQUIPMENT HAZARD ASSESSMENT FOR HPL

- [Auto Mechanic](#)
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## **Automobile Mechanic/ Automotive Shop**

**HAND & ARM PROTECTION:** Leather gloves and long sleeves and long pants when doing hot work.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles for protection from falling automotive, lawn equipment, and boat parts, battery handling, as well as rolling tires and moving vehicles. Long pants must be worn when doing hot work.

**TORSO PROTECTION:** Long sleeved non-dacron shirts when doing hot work.

**HEAD PROTECTION:** Hard hat required when possibility of head injury from low overhead clearance or workmen working overhead.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or solvents. Safety glasses or goggles must be worn when grinding, or performing hot work tasks. Welding helmet or shaded goggles must be worn when welding or using torch. Whenever the potential exists for flying chips, burrs, or debris to enter the eye from striking one object against another, eye protection must be worn.

**HEARING PROTECTION:** Ear plugs must be worn when grinding, running small engines or checking diesel generators.

**RESPIRATORY PROTECTION:** Half face respirator is needed when spray painting, grinding painted boat bottoms or galvanized products. Contact the ESCO for requirements to wear a respirator.

**FLOTATION DEVICES:** Must be on board vessels when operating in open waters.

## **Carpenter/carpenter shop**

**HAND & ARM PROTECTION:** Leather gloves should be worn to protect against splinters. Leather gloves and long sleeves and long pants should be donned when doing hot work.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling lumber, equipment, and pointed sharps protruding from lumber, etc. Long non-dacron pants should be worn when doing hot work.

**TORSO PROTECTION:** Long sleeved non-dacron shirts should be worn when doing hot work.

**HEAD PROTECTION:** Hard hat are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead Hard hats are also required when working around raised tow motor or tractor forklifts, with or without cargo. Working on or around scaffolding will also require the use of hard hats.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or

solvents. Safety glasses or goggles must be worn when sawing, grinding, or performing hot work tasks. Eye protection is also needed when performing tasks which may cause nails, loose debris, metal or plastic pieces to become dislodged and fly into the eye; some of these tasks are hammering, chiseling, scraping, etc. Welding helmet or shaded goggles must be worn when welding or using a torch.

**HEARING PROTECTION:** Ear plugs are required when sawing, grinding, or running small engines.

**RESPIRATORY PROTECTION:** Half face respirator is needed when spray painting, grinding painted boat bottoms or other toxic painted products and when performing hot work on galvanized products. All toxic products, waste products or excess toxic material must be treated as hazardous waste and containment must be addressed. Contact the ESCO for requirements to wear a respirator.

## **Management, Librarian and clerical staff**

**HAND & ARM PROTECTION:** Ergonomically correct chairs and workstations.

**FOOT & LEG PROTECTION:** Ergonomically correct chairs and workstations

**TORSO PROTECTION:** Ergonomically correct chairs and workstations

**EYE PROTECTION:** Anti-glare or shielded computer screens

## **Electrician or electrical work**

**HAND & ARM PROTECTION:** Leather gloves and long sleeves and long pants should be donned when doing hot work. Special electrician's gloves shall be worn when working with 600 volts or above. Workers must be trained in the appropriate use of these gloves. HPL personnel are not permitted to work with any voltage over 460.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles with electrical hazard protection shall be used for protection from falling motors, battery handling, and poor ground bonding. Long non-dacron pants are required when doing hot work.

**TORSO PROTECTION:** Long sleeved non-dacron shirts should be worn when doing hot work.

**HEAD PROTECTION:** Hard hats are required when the possibility of head injury from low overhead clearance or when workmen are working overhead. Hard hats are also required when working around raised tow motor or tractor forklifts, with or without cargo and when on or around scaffolding.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or solvents. Safety glasses or goggles must be worn when grinding, or performing hot work tasks. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic pieces to become dislodged and fly into the eye; such as hammering.

chiseling, scraping, etc. Welding helmet or shaded goggles must be worn when welding or using a torch.

**HEARING PROTECTION:** Ear plugs are required when grinding, running small engines or checking diesel generators.

**RESPIRATORY PROTECTION:** Half face respirator is needed when performing hot work on galvanized products. All toxic products, waste products or excess toxic material must be treated as hazardous waste and containment must be addressed. Contact the ESCO for requirements to wear a respirator.

## **Electronic Technicians**

**HAND & ARM PROTECTION:** Leather gloves and non-dacron long sleeves and long pants should be donned when doing hot-work.

**FOOT & LEG PROTECTION:** Steel-toed shoes shall be used for protection from falling equipment and computers. Long, non-dacron pants are required when doing hot-work.

**TORSO PROTECTION:** Long sleeved non-dacron shirts should be worn when doing hot-work.

**HEAD PROTECTION:** Hard hats are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or solvents. Safety glasses or goggles must be worn when grinding, or performing hot-work tasks. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc. Welding helmet or shaded goggles must be worn when welding, soldering, or using a torch.

**HEARING PROTECTION:** Ear plugs are required when grinding, running small engines or checking generators.

**RESPIRATORY PROTECTION:** Half face respirator is needed when spray painting, grinding toxic painted products and when performing hot- work on galvanized products or soldering. Contact the ESCO for requirements to wear a respirator.

## **Outdoor Education Personnel**

**HAND & ARM PROTECTION:** Disposable vinyl gloves are to be worn when handling caustic, toxic or hazardous materials. Leather gloves should be worn when working with weeds, trees, shrubs, trail work, etc. Sun block is encouraged when in the field. Long sleeves are encouraged to protect against ticks, insect bites and poison Ivy.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling equipment and caustic and hazardous materials. Long pants are encouraged to protect against ticks, insect bites and poison Ivy. Some type of water shoes or boots shall be worn when sampling or wading in the water or marsh.

**TORSO PROTECTION:** Long sleeved shirts should be worn to protect against the

sun's rays, ticks. Insect bites and poison Ivy. Sun block should be used when working outdoors.

**HEAD PROTECTION:** Hard hats are required when the possibility exist for head injury from low overhead clearance, tree limbs or trimming overhead tree branches, or when workmen are working overhead.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, solvents and other hazardous materials. Safety goggles must be worn when grinding or sanding. Eye protection is also needed when performing tasks which may cause loose debris, metal, glass or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc. Shaded glasses and hats with wide brims are recommend for outside work to protect against UV rays.

**HEARING PROTECTION:** Ear plugs are required when grinding, or running small engines.

**RESPIRATORY PROTECTION:** Half face respirators are needed when spray painting, grinding toxic painted products or when hazardous materials may become airborne. Contact the ESCO for requirements to wear a respirator.

**FLOTATION DEVICES:** Appropriate Personal Flotation Devices (PFD's) must be on board vessels when operating in open waters or instructing in the use of canoes.

## **Field Research Personnel**

**HAND & ARM PROTECTION:** Disposable gloves are to be worn when handling caustic, toxic or hazardous materials. Leather gloves or and non- dacron long sleeves and long pants should be donned if doing hot-work. Sun block is encouraged when in the field.

**FOOT & LEG PROTECTION:** Steel-toed shoes shall be used for protection from falling equipment and caustic and hazardous materials. Long, non- dacron pants are required when doing hot-work.

**TORSO PROTECTION:** Long sleeved, non-dacron shirts should be worn when doing hot-work. Sun block should be used when working outdoors.

**HEAD PROTECTION:** Hard hats are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, solvents and other hazardous materials. Safety goggles must be worn when grinding, or performing hot-work tasks. Eye protection is also needed when performing tasks which may cause loose debris, metal, glass or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc. Welding helmet or shaded goggles must be worn when welding or using a torch. Shaded glasses and hats with wide brims are recommend for outside work to protect against UV rays.

**HEARING PROTECTION:** Ear plugs are required when grinding, running small engines or checking generators.

**RESPIRATORY PROTECTION:** Half face respirators are needed when spray painting, grinding toxic painted products, working with chemicals, or when hazardous materials may become airborne. Contact the ESCO for requirements to wear a respirator.

**FLOTATION DEVICES:** Appropriate Personal Flotation Devices (PFD's) must be on

board vessels when operating in open waters.

## **Groundskeepers**

**HAND & ARM PROTECTION:** Leather gloves and long sleeves and long pants should be donned when working with poison Ivy, weed eaters or push lawn mowers.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling equipment, moving equipment and weed eaters. Long pants are required when using a weed eater or push lawn mowers.

**TORSO PROTECTION:** Long sleeved shirts should be worn when working around poison Ivy or using a weed eater. Sun block should be applied when working outside.

**HEAD PROTECTION:** Not applicable. A wide brimmed hat is recommended for outside work when the sun is bright.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or solvents. Safety goggles must be worn when using a weed eater. Appropriate sun glasses and sun block should be used to avoid harmful UV rays. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc.

**HEARING PROTECTION:** Ear plugs are required when running small engines or tractors with excessive noise; anything above 85 decibels (dB).

**RESPIRATORY PROTECTION:** Particulate respirators (dust masks) are needed when the operator suffers from allergies. If more respiratory protection is required contact the ESCO for requirements to wear a respirator.

## **Housekeeping**

**HAND & ARM PROTECTION:** Disposable gloves are required when working with harsh cleaning chemicals. Leather gloves are required when working with solid waste products and when moving equipment.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling equipment.

**TORSO PROTECTION:** Not applicable.

**HEAD PROTECTION:** Hard hat are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead. Hard hats are also required when working around raised tow motor or tractor forklifts, with or without cargo.

**EYE PROTECTION:** Goggles are required when working with cleaning agents or solvents.

**HEARING PROTECTION:** Ear plugs are required when running noisy power equipment. Hearing protection is also required wherever the noise level is above 85 decibels (dB).

**RESPIRATORY PROTECTION:** Half face respirators are needed when working with toxic or hazardous airborne chemicals. Contact the ESCO for requirements to wear a respirator.

## **HVAC Personnel**

**HAND & ARM PROTECTION:** Leather gloves and non-dacron long sleeves and long pants should be donned when doing hot work.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling pipes, equipment, and air conditioning units. Long, non-dacron pants are required when doing hot work.

**TORSO PROTECTION:** Long sleeved non-dacron shirts should be worn when doing hot work.

**HEAD PROTECTION:** Hard hat are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead Hard hats are also required when working around raised tow motor or tractor forklifts, with or without cargo. Working on and around scaffolding also requires hard hats.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or solvents. Safety glasses or goggles must be worn when grinding, or performing hot work tasks. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc. Welding helmet or shaded goggles must be worn when welding or using a torch.

**HEARING PROTECTION:** Ear plugs are required when grinding, running small engines or checking diesel generators.

**RESPIRATORY PROTECTION:** Half face respirators are needed when spray painting, grinding toxic painted products and when performing hot work on galvanized products. Contact the ESCO for requirements to wear a respirator.

## **Lab technicians or personnel working in laboratories**

**HAND & ARM PROTECTION:** Disposable gloves and/or insulated gloves, non-dacron long sleeved shirts and long pants should be donned when doing hot work or working with hazardous chemicals.

**FOOT & LEG PROTECTION:** Closed shoes shall be used for protection from falling equipment, and caustic materials. Long, non-dacron pants and aprons are required when doing hot work or working with caustic or hazardous chemicals.

**TORSO PROTECTION:** Long sleeved, non-dacron shirts, aprons and lab coats should be worn when doing hot work or working with hazardous chemicals. Sunblock should be applied when working outside.

**EYE PROTECTION:** Goggles are required when working with hazardous or toxic materials or solvents. Safety goggles must be worn when performing hot work tasks. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic or glass pieces to become dislodged and fly into the eye; such as hammering, scraping or cleaning. Shaded goggles must be worn when using a torch. Face shields should be used when the possibility for injury from caustic or hazardous materials splashing or flying into the face exist

**HEARING PROTECTION:** Ear plugs are required when running small motor where the sound level is above 85 decibels.

**RESPIRATORY PROTECTION:** Half face respirator are needed when spray painting, grinding toxic products, when performing hot work on products which may

become airborne, and when a fume hood is not available. Contact the ESCO for requirements to wear a respirator.

**FLOTATION DEVICES:** Appropriate Personal Flotation Devices (PFD's) must be on board vessels when operating in open waters.

## **Machine Shop.**

**HAND & ARM PROTECTION:** Leather gloves and non-dacron long sleeved shirts must be worn when performing hot work. Leather gloves should be worn when handling sharp shavings from cutting, drilling, lathing or milling.

**FOOT & LEG PROTECTION:** Steel-toed shoes, which cover the ankle, must be worn in this area to prevent heavy objects, such as iron pipes, angle iron, steel flotation balls, etc., from falling or rolling on the feet. Non- dacron, long pants must be worn when doing hot work.

**TORSO PROTECTION:** Shirts made of non-dacron must be worn when performing hot work.

**HEAD PROTECTION:** Hard hats shall be worn when overhead Clearance is insufficient to stand up without bumping your head or overhead work is performed in the area.

**EYE PROTECTION:** Safety glasses must be worn by all persons working or visiting this area. Goggles are required when working with batteries, gasoline, or solvents. Safety glasses or goggles must be worn when grinding, cutting, drilling, milling, using a lathe, or the possibility exist for flying objects to enter the eye. Such activities might include, hammering, using a chisel, using air wrenches or performing hot work tasks, etc. A welding helmet or shaded goggles must be worn when welding or using a torch.

**HEARING PROTECTION:** Ear plugs must be used when grinding, running small engines or checking diesel generators shall be used to protect from hearing loss.

**RESPIRATORY PROTECTION:** Half face respirators are needed when spray painting, grinding painted boat bottoms or other toxic painted areas. Half face respirators shall also be used when performing hot work on galvanized products. Contact the ESCO for requirements to wear a respirator.

## **Environmental Compliance Safety Officer (ESCO)**

**HAND & ARM PROTECTION:** Leather gloves should be worn when working with metal drums. Disposable vinyl gloves should be worn when working with hazardous chemicals as determined by the Material Safety Data Sheets (MSDS) for that chemical. Long sleeved shirts are encouraged when working with hazardous materials. As first aid responders, all universal precautions are to be followed; see HPL's Blood borne Pathogen Exposure Control Plan.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling equipment, and when working around drums and carboys. Disposable booties should be used when cleaning up a hazardous chemical spill. Knee-length boots may be worn when cleaning up a spill if, they are cleaned of all contaminants when finished.

**TORSO PROTECTION:** Lab coats, as specified by the MSDS, should be worn when working with hazardous materials. Tyvex suits or other appropriate PPE shall be worn when working with a hazardous spill that may splash or become airborne.

**HEAD PROTECTION:** Hard hats are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead Hard hats are also required when working around raised tow motor or tractor forklifts, with or without cargo

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, solvents or any other hazardous chemical that may become airborne by splashing, impact, or windblown. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc.

**HEARING PROTECTION:** Ear plugs are required where the sound level is above 85 decibels

**RESPIRATORY PROTECTION:** Half face respirator are needed when inspecting or collecting samples of asbestos containing materials. Clean-up of hazardous spills or rescue operations in confined spaces may require Self Contained Breathing apparatus (SCBA). Special PPE is required when entering Confined Spaces; please see [HPL's Confined Space and Rescue Policy](#).

**FLOTATION DEVICES:** Appropriate Personal Flotation Devices (PFD's) must be on board vessels when operating in open waters.

## **Maintenance Supervisor**

**HAND & ARM PROTECTION:** Leather gloves and non-dacron long sleeves and long pants should be donned when doing hot work.

**FOOT & LEG PROTECTION:** Steel-toed shoes extending above the ankles shall be used for protection from falling parts, equipment, and rolling stock. Long, non-dacron pants are required when doing hot work.

**TORSO PROTECTION:** Long sleeved non-dacron shirts should be worn when doing hot work.

**HEAD PROTECTION:** Hard hat are required when the possibility exist for head injury from low overhead clearance or when workmen are working overhead Hard hats are also required when working around raised tow motor or tractor forklifts, with or without cargo. Working on and around scaffolding also requires hard hats.

**EYE PROTECTION:** Goggles are required when working with batteries, gasoline, or solvents. Safety glasses or goggles must be worn when grinding, or performing hot work tasks. Eye protection is also needed when performing tasks which may cause loose debris, metal or plastic pieces to become dislodged and fly into the eye; such as hammering, chiseling, scraping, etc. Welding helmet or shaded goggles must be worn when welding or using a torch.

**HEARING PROTECTION:** Ear plugs are required when grinding, running small engines or checking diesel generators. Hearing protection is also required in mechanical rooms where the noise level is above 85 decibels (dB).

**RESPIRATORY PROTECTION:** Half face respirator are needed when spray painting, grinding toxic painted products and when performing hot work on galvanized products. Special PPE is required when entering Confined Spaces; please see [HPL's Confined Space and Rescue Policy](#). Contact the ESCO for requirements to wear a respirator.

**FLOTATION DEVICES:** Appropriate Personal Flotation Devices (PFD's) must be on board vessels when operating in open waters.

## HPL PERSONAL PROTECTIVE EQUIPMENT POLICY

This is a brief summary of the HPL Personal Protective Equipment (PPE) policy. The full text of the Horn Point Personal Protective Equipment Hazard Control Policy is maintained in our library and can be found below; you are encouraged to read the plan. Should you have any questions, please feel free to contact the Environmental Compliance Safety Officer (ESCO).

The Horn Point Lab recognizes that certain job activities increase the risk of injury. All personnel may be at risk during the course of their normal workday and thus are required to recognize the danger and to use the correct PPE to eliminate or reduce the risk of an accident. It is the intent of HPL to minimize or eliminate the exposure to potentially dangerous work conditions through safe work practices and the provision of PPE such as listed below.

Minimum precautions should be observed when exposures to potentially dangerous situations occur. Minimum Precautions include:

- \* **Gloves** are to be used to protect the hands; specific materials for specific jobs.
- \* **Eyewear and face shields** are to be used when there is potential exposure to flying objects, high light level, chemical splashes.
- \* **Clothing** will be worn appropriate for the job.
- \* **Respirators** can protect against contaminated gases, with appropriate filters. Annual respiratory fit tests and physicals are required to wear a respirator. Contact the Environmental Compliance Safety Officer (ESCO) for more information.
- \* **Aprons** offer protection against hazards that threaten the torso, such as; hot or cold metals or liquids, impacts, cuts, splashes from hazardous and/or radioactive materials.
- \* **Shoes** and leg protection can protect against falling or rolling objects, molten metals, hot surfaces and wet surfaces.
- \* **Helmets** and other head protection for electrical shocks, falling objects and overhead structures are required for certain jobs.
- \* **Ear plugs** or **muffs** are to be used when excessive noise is prevalent.
- \* **Life jackets** or ring buoys should be used/available whenever there is a danger of falling into deep water.

Training on the use of PPE will be provided by HPL. This training shall include recognition of the need for PPE, the proper type of PPE, the donning and fit testing of the PPE, maintenance, inspection, cleaning and proper storage of PPE.

## ***Personal Protective Equipment***

### ***Hazard Control Policy***

**HORN POINT LABORATORY Date of**

- **Statement of HPL Policy**
- **Responsibilities and Duties**
- **Affected HPL Personnel**
- **Hazard Assessment**
- **PPE Training**
- **Personal Protective Equipment**
- **Exposure Incident Evaluation**
- **Training**
- **Work Practice Controls**
- **Record Keeping**
- **Conclusion**
- **Guidance Literature - Appendix 1**

#### **UMCES-HPL POLICY**

The University of Maryland at the Horn Point Laboratory recognizes that certain job activities require employees to be at risk for injuries and fatalities and that personal protective equipment will reduce these risks.

Therefore, it is the intent of the HPL to minimize or eliminate the risk of occupational exposure to injuries and fatalities by utilizing a combination of employee education, personal protective equipment, administrative controls, engineering controls, and application of recommended work practices.

Minimum Personal Protective Equipment consists of hand protection, footwear, respirators, fume hoods, eyewear, face and body shields, head protection, hearing conservation, and protection against temperature extremes. A hazard assessment has been conducted and determines the minimum PPE for each job or task. These hazard assessments can be found in the HPL safety Office or ask your supervisor for a copy.

#### **RESPONSIBILITIES AND DUTIES**

##### **Environmental Compliance Safety Officer (ESCO):**

The ESCO, in cooperation with other campus agencies, is responsible for the development, review, revision and distribution of campus policy regarding implementation of the provisions of OSHA, MOSH and MDE regulations concerning occupational exposure to injuries and fatalities.

The ESCO is responsible for identification of employee job classifications and positions in which occupational exposure to injuries and fatalities may be expected to occur.

Training of employees subject to the provisions of the OSHA Personal Protective Equipment Standard shall be under the direction of the ESCO. Copies of training records will be maintained by the safety office and affected departments.

The ESCO shall be responsible for investigation of exposure incidents to attempt determination of cause of injuries and/or fatalities. Exposure investigations will also be used to identify program deficiencies.

### **AFFECTED HPL PERSONNEL**

The Personnel Office and all Principal Investigators at HPL employing individuals whose job activities place them at risk for exposure to injuries and fatalities have a responsibility to insure the provision of any necessary training, equipment and medical services as outlined in this *PPE Hazard Control Plan*. All costs for equipment and medical services will be the responsibility of the affected Principal Investigator(s) (PI) or The HPL Personnel Office. PI's are responsible for the selection, procurement and distribution of all supplies and materials which are necessary to assure compliance with this *PPE Hazard Control Plan*. Departments are also expected to provide specific work practices, training and to maintain copies of training records for insertion into personnel files.

The ESCO will assist the PI's and various departments in the training requirements and record retention for the Personal Protective Equipment program.

### **HAZARD ASSESSMENT**

Employers are required to assess the workplace to determine if hazards that require the use of personal protective equipment are present or are likely to be present. If hazards or the likelihood of hazards are found employers must select and have affected employees use properly fitted personal protective equipment suitable for protection from existing hazards.

Employers must certify in writing that a workplace hazard assessment has been performed. Periodic inspections for defective and/or damaged PPE will be conducted by supervisors and the Environmental Compliance Safety Officer (ESCO). All damaged and defective PPE shall not be used and shall be replaced immediately.

The following HPL job classifications and positions have been identified as "at risk" for potential injuries and fatalities:

**1. Maintenance Personnel** - All personnel who might have cause for exposure to potentially injurious or fatal work conditions. These employees will include plumbers, air conditioning mechanics, electricians, automotive workers, machinists, preventive or area maintenance mechanics, carpenters, groundskeepers and housekeepers. All assistants to the above groups are included in the requirements for the PPE program.

**2. Safety Personnel** - All personnel who might have cause for exposure to injuries or fatalities shall be under the PPE program. These employees will include CES radiation safety coordinator, industrial hygienists, fire protection specialists, occupational safety inspectors, health physicists, and hazardous waste management

personnel.

3. **Faculty** - All employees who are involved with experimentation or research must observe the PPE program. These employees shall include the principal investigator(s), laboratory technicians, undergraduate students, graduate students and assistants.

4. **Boat Operations** - All personnel working on research vessels, including researchers, volunteers, students, and visitors using equipment, must observe the HPL PPE program. Special instructions must be observed for life vests and night time activity.

## PPE TRAINING

Before doing work requiring use of personal protective equipment, employees must be trained to know when PPE is necessary; what type is necessary; how it is to be worn; and what its limitations are, as well as know the proper care, maintenance, useful life, and proper disposal of PPE.

Employers are required to certify in writing that training has been conducted and that the employees understand it. Each written certification shall contain the name of each employee trained, the date(s) of training, and identify the subject(s) certified.

## PERSONAL PROTECTIVE EQUIPMENT

- Gloves
- Eyewear
- Clothing
- Respirators
- Torso Protection
- Foot & Leg Protection
- Resuscitation Mask
- Head Protection
- Hearing Conservation
- Life Jacket/Vest
- Others

All employees who are at risk for accidents which could result in injuries or fatalities must wear or use the PPE suited for the task or activity. The following type(s) of protective clothing, depending upon the manner to which an employee may be exposed, are as follows:

**Gloves:** Arm and hand protection should be offered to prevent such injuries as burns, cuts, electrical shock, amputation, absorption of chemicals and infectious material. Gloves must be worn when there is a possibility for direct hand contact with blood or other potentially infectious body fluids. There are several types of protective gloves available, and selection should be based upon the task being performed:

- Thin latex or nitrile gloves should be used for operations involving delicate manipulations. These gloves are designed to fit tightly against the skin. The proper size should be selected to fit the worker's hands.

Latex and nitrile gloves are available either powdered or powder-free. If

an employee experiences a skin reaction due to glove use, a hypo-allergenic type must be provided. All such gloves are disposable and are not to be reused.

- Polyvinyl chloride (PVC) gloves are also disposable. They do not fit tightly against the skin and should not be used for activities requiring delicate manipulations. PVC gloves may be powdered or powder free, and are available in a variety of sizes. PVC gloves are not to be reused.

- Rubber, neoprene or other thicker reusable gloves are more durable and are generally used for tasks involving more strenuous activities. Reusable gloves may be re-used by employees if properly decontaminated following contact with potentially infectious materials or other hazardous substances. Reusable gloves should be periodically inspected to ensure there are no cracks, holes or breaks in the material.

- Leather gloves will provide some protection against abrasions, minor impact, burns, and small cuts. They may be used in conjunction with other hand protection.

- Stainless steel mesh gloves can be used for sharp-knife work and oyster shucking activities.

- Electricians gloves should be used only for electrical work. These gloves require special training for inspection and maintenance.

**Eyewear:** Eye and face protective equipment is required by OSHA where there is a reasonable probability of preventing injury when such equipment is used. Employers must provide a type of protector suitable for work to be performed and employees must use the protectors. These stipulations also apply to supervisors and management personnel, and should apply to visitors while they are in hazardous areas.

Suitable eye protectors must be provided where there is a potential for injury to the eyes or face from flying particles, molten metal, liquid chemicals, acids or caustic liquids or powders, chemical gases or vapors, potentially injurious light radiation, potentially infectious material, or any combination of these.

- splash-proof goggles with solid side shields - must be worn when there is a risk of splashing or aerosolizing of potentially-infectious materials or impact from flying objects or solutions.

This protective equipment reduces the risk of fluid entry into the mucous membranes around the eyes or solid objects from impacting the eye

- Face shields - will protect the face, eyes, and nose from direct splashes (not from all angles or dripping) and impact from flying objects.

- Safety glasses with side shields - will provide protection from direct impact of flying objects but does little for fluid splashes or air borne particles.

- Safety glasses without side shield - provide impact protection from frontal direction only.

- Welding hoods must protect the eyes from harmful rays and excessive bright light.

- UV glasses shall protect the eyes from ultraviolet rays both natural and artificial.

**Clothing:** There are various types of suits, gowns and aprons available for safety purposes. The type of protective clothing selected will depend upon the task and degree of exposure anticipated. Protective clothing should be resistant to fluids, and may be disposable or reusable. Reusable clothing must be properly laundered prior to reuse.

Protective clothing must be worn when there is a risk to the body from heat, cold, splashes from hot or cold metals and liquids, impacts, cuts, corrosives and radiation. Clothing, aprons or lab coats, should be worn when there is a danger of caustic, toxic, or carcinogenic chemical splashes.

It is important to refer to the manufacturers' selection guides for the effectiveness of specific materials against specific chemicals and characteristics for specific protection.

- Leather gloves will provide some protection against abrasions, minor impact, burns, and small cuts. They may be used in conjunction with other hand protection.

**Respirators:** Regulations concerning the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, vapors, or in oxygen-deficient environments can be found in Title 29, CFR Part 1910.134. You must be part of the **Respiratory Fit Program** to wear a respirator. This includes selecting an appropriate respirator and cartridges, completing a medical questionnaire, have a "respirator fit test" and physical exam prior to working with any material requiring a respirator (this is not a dust mask). Please contact the Environmental Compliance Safety Officer (ESCO) for the appropriate forms, information, and appointments you need.

**Torso Protection:** Many hazards can threaten the torso: heat, splashes from hot metals and liquids, impacts, cuts, acids, and radiation. A variety of protective clothing and shields are available: cooled, heated and regular vests, jackets, aprons, coveralls, and full body suits of tyvex or other plastic-like materials. Shields can consist of lead, wood, glass and plexiglas shields. Synthetic materials, such as dacron, should be avoided when hot material work is performed, heat can melt the dacron and cause it to stick fast to the skin; use fire retardant materials when working with hot materials or flammable substance.

**Foot & Leg Protection:** For protection of feet and legs from falling or rolling objects, sharp objects, molten metal, hot surfaces, and wet slippery surfaces, workers should use appropriate foot guards, safety shoes, or boots and leggings. Leggings protect the lower legs and feet from molten metal or welding sparks. Safety snaps permit their rapid removal.

Safety shoes should be sturdy and have an impact-resistant toe. In some shoes, metal insoles protect against puncture wounds. Additional protection, such as metatarsal guards, may be found in some types of footwear. Heat-resistant soled shoes protect against hot surfaces like those found in the roofing, paving, and hot metal industries.

Safety footwear is classified according to its ability to meet minimum requirements for both compression and impact tests. These requirements and testing procedures may be found in American National Standards Institute standards. Protective footwear must comply with ANSI Z41-1991, *American National Standard for Personal Protection-Protective Footwear*.

**Resuscitation Masks:** Personnel who are trained to perform Cardiopulmonary

Resuscitation (CPR) should have resuscitation masks on hand for use in such an emergency. Most resuscitation masks are disposable and should be handled as contaminated waste following use. The first-aid kits at HPL contain a resuscitation mask, if you prefer your own personal mask please see the Safety Officer.

**Head Protection:** Helmets or commonly called "hard hats" must be supplied and worn whenever a worker may be exposed to possible head injury from falling objects, low overhead structures and electrical shock.

Head protection, in the form of protective hats, must do two things--resist penetration and absorb the shock of a blow.

The standards recognized by OSHA for protective hats are contained in *ANSI Requirements for Industrial Head Protection, Z89.1-1969*, and *ANSI Requirements for Industrial Head Protective Helmets for Electrical Workers, Z89.2-1971*. Helmets purchased after July 5, 1994, are contained in *ANSI Personnel Protection--Protective Headwear for Industrial Workers-Requirements, Z89.1-1986*.

There are two Types of protective helmets and three classes; please see the Environmental Compliance Safety Officer (ESCO) for the correct type and class for your job duties. Each helmet should be accompanied by instructions explaining the proper method of adjusting and replacing the suspension and headband. Fit instructions, as well as inspection routines and maintenance will be given by the ESCO. All components, shells, suspensions, headbands, sweatbands, and any accessories should be visually inspected daily for signs of dents, cracks, penetration, or any other damage that might reduce the degree of safety originally provided.

Helmets should not be stored or carried on the rear shelf of an automobile, since sunlight and extreme heat may adversely affect the degree of protection. These helmets can also become a "missile" when stopping in an emergency or involved in a collision with another vehicle.

**Hearing Conservation:** Exposure to high levels of noise can cause hearing loss or impairment as well as create physical and psychological stress. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is the only way to avoid hearing damage. Specifically designed protection is required, depending on the type of noise encountered and the auditory condition of employee.

- Preformed or molded earplugs should be individually fitted by a professional.

Waxed cotton, foam, or fiberglass wool earplugs are self-forming. When properly inserted, they work as well as most molded earplugs.

- Some earplugs are disposable, to be used one time and then discarded. The non-disposable type should be cleaned after each use for proper protection. Plain cotton is ineffective as a protection against hazardous noise.

- Earmuffs need to make a perfect seal around the ear to be effective. Glasses, long sideburns, long hair, and facial movements, such as chewing, can reduce protection. Special equipment is available for use with glasses or beards.

**Life Jacket:** A Coast Guard-approved life jacket or buoyant work vest should be used if there is danger of falling into water while working. For emergency rescue operations, boats and ring buoys with at least 90 feet of line must be provided.

## EXPOSURE INCIDENT EVALUATION

An exposure incident is defined by OSHA as any injury, fatality or disease which could have been avoided if the proper personal protective equipment had been used. If any employee receives such an exposure, it should be reported IMMEDIATELY to the supervisor who shall be responsible for ensuring that an evaluation is made available promptly.

**The Environmental Compliance Safety Officer (ESCO) must be notified (ext. 8441) whenever there is ANY reported exposure incident.**

The ESCO will investigate all reported exposure incidents to attempt determination of the infectivity of exposure sources. The employee's supervisor is responsible for initiating the investigation by contacting the ESCO after the employee is offered medical assistance, if required.

## TRAINING

All employees who have been issued personal protective equipment must be trained to know when personal protective equipment is necessary; what type is necessary; how it is worn; and what its limitations are, as well as know its proper care, maintenance, useful life, and disposal. Training will be provided by the supervisor and the Environmental Compliance Safety Officer (ESCO). The employer is responsible for providing additional training to employees if there is a change in the manner of expected occupational exposure.

Training will be coordinated by the ESCO and training must be conducted in a manner appropriate to the educational level, literacy and language of those employees receiving training. At a minimum, training must include:

- An accessible copy of the regulatory text of the standard, found in the Environmental Safety Compliance Office, and an explanation of its content.
- An explanation of HPL's written *PPE Exposure Control Plan* and the means by which employees can obtain copies.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to potentially harmful or fatal injuries.
- An explanation of the use and limitations of personal protective equipment which will prevent or reduce exposure. Engineering controls, personal protective equipment and appropriate work practices will be discussed.
- Information about the types, use, location, removal, handling, decontamination and disposal of personal protective equipment.
- An explanation of the basis for selection of personal protective equipment.

- Information about the appropriate actions to take and persons to contact in case of emergency involving potentially harmful or fatal injuries.
- An explanation of the procedures to follow if an exposure incident occurs, including the method of reporting incidents, and any follow-up and counseling that will be made available to the affected employee(s).
- Information about post-exposure evaluations and the follow-up responses that the employer is required to provide.
- An explanation of the signs, labels and color-coding for designation of personal protective equipment.
- An opportunity for interactive questions and answers with the persons conducting the training.

## **WORK PRACTICE CONTROLS**

The employer must always insure that the training, equipment and protective clothing referenced in this policy are readily available for use, as needed. The supervisor is responsible for insuring that the equipment is available to the employees. The employees are responsible to wear the correct PPE for the task and to insure its proper fit and maintenance.

## **RECORD KEEPING**

All medical documents pertaining to an employee's work-related injury or fatality will be kept on file in their Worker's Compensation file for seven years. These files are located in the Worker's Compensation Office at the Horn Point Environmental Lab.

## **CONCLUSION**

Personal protective equipment can be effective only if the equipment is selected based on its intended use, employees are trained in its proper use, and the equipment is properly tested, maintained, and worn.

## **Appendix I Guidance**

### **Literature:**

1. *Personal Protective Equipment for General Industry*  
29 CFR Part 1900 -  
1999.

2. *Personal Protective*

*Equipment, U. S. Dept. of  
Labor, OSHA 3077, 1994  
(Revised).*

*3. Personal Protective  
Equipment for General  
Industry 29 CFR Part  
1910.132 & 138.*

This literature may be obtained from the HPL Safety Officer.

## **PROPER USE OF PPE**

The new Personal Protective Equipment (PPE) regulation concerning employee training for PPE requires all employers to train their employees in the proper use and maintenance of any PPE provided for them. If, you do not know how to use your; goggles, safety shoes. Hard hats, lab aprons, hearing protection, respirators, gloves, boots, etc., please contact the Environmental Compliance Safety Officer (ESCO) as soon as possible.

For more information and/or suggestions contact the Environmental Safety Compliance Officer (ESCO) at Ext. 8441 or Email [hpl-safety@hpl.umces.edu](mailto:hpl-safety@hpl.umces.edu)

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