

**UNIVERSITY OF WISCONSIN-STEVENSON POINT**

**RESPIRATORY PROTECTION PROGRAM**



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## 1.0 OBJECTIVE

The Respiratory Protection Program outlines how we will identify and evaluate hazards warranting respiratory protection, respiratory equipment needs, and provide training in the proper use, selection, and care of respiratory equipment. This program complies with [29CFR 1910.134](#).

## 2.0 OVERVIEW OF RESPIRATORY PROTECTION PROGRAM

The Respiratory Protection Program is coordinated by the Environmental Health and Safety Office (EHS). University departments, with EHS assistance, shall review work areas to identify hazards that may warrant the use of respiratory equipment. The purpose of the work area review is to identify the nature of potential hazards, employees that may be exposed, and control measures to protect employees.

As hazards are identified, efforts shall be focused on identifying and developing engineering control measures to reduce exposure so that respiratory equipment will not be necessary. Where this is not possible and in emergency situations, respiratory equipment may be required.

Equipment selection and purchase shall be conducted by the department in consultation with EHS. Selection shall be based on the specific nature and magnitude of the hazard. Employees shall be provided training in the proper selection, use, and care of the respiratory equipment that they may be required to wear. Before an employee is assigned equipment, a **qualitative fit test** must be performed by EHS or authorized personnel to assure that the equipment fits properly. **A respirator will be effective only if it fits properly.**

Employees are expected to care for equipment assigned to them and to inspect it before each use. The Respiratory Protection Program shall be periodically evaluated by EHS to assure that employees are provided necessary equipment and training, and that the program complies with federal regulations.

## 3.0 RESPONSIBILITIES

### 3.1 Employees

Employees shall:

- a) Know how to properly select, care for, and use respiratory equipment necessary for their work.
- b) Inspect and maintain the equipment they use.
- c) Successfully complete respiratory protection and other required training where necessary; and
- d) Inform their supervisor and EHS of personal changes potentially influencing the respirator fit.

### 3.2 Supervisors

Supervisors shall:

- a) Provide respirators when employees request.
- b) Ensure that employee know how to properly select, use, and care for respiratory equipment needed for their work;

- c) Provide access to medical evaluations for employees required to use respirators.
- d) Periodically survey work areas requiring respiratory equipment in conjunction with EHS no less than once per year.
- e) Procure necessary respiratory equipment.
- f) Coordinate attendance of employee training sessions.
- g) Maintain files of inspection results, training, fit test results, and other pertinent information; and
- h) Evaluate contractor work for respiratory protection needs and designate a departmental liaison if necessary.

### **3.3 Environmental Health and Safety**

EHS shall:

- a) Develop respiratory protection guidelines for routine and reasonably foreseeable emergency situations for the university.
- b) Know how to properly select, use and care for respiratory equipment.
- c) Advise workers and departments on equipment selection and purchase.
- d) Inspect work areas where respiratory equipment is used to assure proper selection and use.
- e) Ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators.
- f) Permit employees to use their own respirators if such respirator use will not in itself create a hazard.
- g) Provide the respirator users with the "Information for Employees Using Respirators When Not Required Under the Standard" ([29CFR 1910.134 - Appendix D](#));
- h) Ensure that any employee using a respirator voluntarily is medically able to use that respirator.
- i) Evaluate the respiratory protection program annually; and
- j) Assist in providing respiratory protection training and fit testing for tight-fitting respirators.

### **3.4 Contractors**

Contractors, when necessary, shall:

- a) Demonstrate an understanding of the university's respiratory protection requirements and university-controlled hazards associated with the project.
- b) Assume sole responsibility for all respiratory protection standard obligations for contractor employees.
- c) Coordinate work requiring respiratory equipment in areas under university control with the respective department; and
- d) Coordinate work activities with the department liaison.

#### **4.0 HAZARD IDENTIFICATION**

Identification of respiratory hazards shall be coordinated between the department responsible for particular work activity and EHS. The need for a Hazard Identification Survey is prompted whenever a new operation will be conducted, the work environment indicates the need for better protection, or it is requested by concerned employees.

#### **5.0 HAZARD EVALUATION**

Once a potential hazard has been recognized, its impact to employees should be determined. Air monitoring may be used to characterize contaminant concentration. All monitoring shall be conducted by or under the direction of EHS. Additional monitoring, if necessary, shall be paid for by the respective department.

Monitoring results shall be compared to permissible exposure levels when available, to determine the need for reducing exposure. Engineering and administrative controls will be reviewed as the primary means of exposure reduction. Respirators shall only be used as an intermediate step while other controls are being implemented, as a last resort, or as required by regulations.

#### **6.0 RESPIRATORY EQUIPMENT SELECTION**

The primary reason for a respiratory protection program is to maintain employee health. Therefore, using proper respiratory equipment for the task is imperative. The selection of a respirator shall be based on the specific hazard to which an individual is exposed.

Respiratory protection equipment shall be chosen and assigned for a specific project upon the assurance that:

- a) the respirator and cartridge are appropriate for the contaminant.
- b) the concentration of the contaminant can be safely handled by the respirator (the protection factor of the respirator is greater than the concentration present); and
- c) all the contaminants present are identified so that the proper respirator can be selected.

Other factors to be considered include warning properties of the contaminant (the level at which an odor can be detected), and eye or skin effects. EHS will review hazard evaluations for determining the proper respirator for the project. All respirators and their components must be approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH). Respirators shall be selected from those available for fit testing. The department shall be responsible for respiratory equipment purchases.

#### **7.0 MEDICAL EVALUATION**

The use of any type of respirator may impose some physiological stress on the user. Federal regulations require that all potential users are required to have a medical evaluation to determine the employee's ability to use a respirator; before the employee is fit tested or required to use the respirator in the workplace.

UW-Stevens Point employees will mail their questionnaires (provided by EHS) to a medical facility that will perform medical evaluations using the medical questionnaire similar to [1910.134](#) - [Appendix C](#).

The medical evaluation includes a questionnaire to establish the employee's baseline health status and to determine whether the employee is capable of wearing a respirator. Only

those individuals who are medically able to wear respiratory protective equipment will be issued a respirator. Medical tests to be considered by a physician or other licensed health-care professional (PLHCP) may include pulmonary function tests, chest x-rays, or other tests deemed appropriate by the PLHCP. Medical factors to be considered by the PLHCP may include emphysema, asthma, chronic bronchitis, heart disease, anemia, hemophilia, poor eyesight, poor hearing, hernia, lack of use of fingers or hands, epileptic seizures, and other factors that might inhibit the ability of an employee to wear respiratory equipment.

A follow-up medical examination shall be provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of 1910.134 - Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

### **7.1 Supplemental Information for the PLHCP**

A copy of the written respiratory protection program and the following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee.
- The duration and frequency of respirator use (including use for rescue and escape);
- The expected physical work effort.
- Additional protective clothing and equipment to be worn; and
- Temperature and humidity extremes that may be encountered.

### **7.2 Medical determination**

To determine the employee's ability to use a respirator, a written recommendation shall be obtained from the PLHCP. This recommendation shall provide.

- Any limitations on respirator use related to the medical condition of the employee,
- Any need for follow-up medical evaluations; and
- A statement.

## **8.0 FIT TESTING**

**Qualitative fit testing** shall be performed for each employee and for each respirator the employee may wear. The employee must be fit tested (prior to initial use of the respirator) with the same make, model, style, and size of the respirator that will be used and at least annually thereafter. Fit testing shall be performed by EHS or an authorized trainer and shall follow the procedures outlined later in this section. Testing shall occur before a respirator is assigned. Self-tests shall be performed by the employee in accordance with this section each time before a respirator is worn. Anything that may compromise the seal of the facepiece may render the respirator useless. For this reason, persons with facial characteristics that prevent a good seal must either be provided a positive pressure respirator with a hood or helmet or be prohibited from work requiring a respirator.

In cases where workers voluntarily maintain characteristics that interfere with the face seal, the department shall determine whether to provide suitable protection or to keep the employee out of the work site. Employees that wear eyeglasses or contact lenses shall be provided with eyeglass inserts designed to fit within a full-face mask when required. The department shall be responsible for providing both respirators and eyeglass inserts. All employees shall also obtain a physical in accordance with section 7.0 Medical Evaluation and a physician's written approval

to wear a respirator prior to the initial fit test. See [1910.134 App A](#) for OSHA fit testing procedure.

## **8.1 Self-Fit Test Procedures**

Workers shall check the fit of their respirators before each use according to the procedures outlined below. EHS or an EHS-authorized trainer shall train workers in these procedures during qualitative fit testing sessions. Authorized trainers shall be approved vendors, or those individuals selected by the department director to be responsible for training department employees who have completed an EHS training program.

### **8.1.1 Negative Pressure Test**

The user closes the inlet of the cartridge or filters by covering them with the hands or squeezing the breathing tube, so air is not allowed to pass. The user inhales gently so the facepiece collapses slightly, while breath is held for about 10 seconds. If the facepiece remains slightly collapsed and no inward leakage is detected, the respirator probably has a good fit. This test should only be used for snug-fitting respirators. It also has potential drawbacks such as hand pressure affecting the facepiece seal and causing false results.

### **8.1.2 Positive Pressure Test**

The user closes or covers the exhalation valve and gently exhales into the facepiece. The respirator fit is considered acceptable if slight positive pressure can be built up inside the facepiece without any evidence of outward leakage on the outside. For some respirators, this test requires that the wearer remove the exhalation valve cover. This removal often disturbs the respirator fit if not done before the respirator is put on. The test is simple for respirators that have a valve cover with a single small port that can be covered with the hand or a finger.

## **9.0 RESPIRATOR USE**

Employees are responsible for.

- Using their respirators under conditions specified by this program, and according to the training they receive on the use of each model.
- Not using the respirator in a manner for which it is not certified by NIOSH or by its manufacturer.
- Conducting user seal checks each time that they wear their respirator.
- Using either the positive or negative pressure check (depending on which test works best for them) specified in [Appendix B-1](#) of the Respiratory Protection standard.
- Leaving the work area to reevaluate the continued effectiveness of the respirator for the following reasons:
  - to wash their faces and respirator facepieces if necessary to prevent eye or skin irritation associated with respirator use.
  - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; (if this happens, the respirator must be replaced or repaired before allowing the employee to return to the work area);
  - to change filters or cartridges, or replacement parts; or
  - to inspect the respirator if it stops functioning as intended.
- Notifying their supervisor before leaving the area.
- Not wearing tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good



- Not wearing headphones, jewelry, or other articles that may interfere with the face piece-to-face seal.

## 10.0 MAINTENANCE AND CARE OF RESPIRATORS

### 10.1 Cleaning and Disinfecting

Respirators shall be regularly cleaned and disinfected. Also, respirators;

- issued to more than one employee shall be cleaned and disinfected before being worn by different individuals.
- maintained for emergency use shall be cleaned and disinfected after each use; and
- used in fit testing and training shall be cleaned and disinfected after each use.

Filters, cartridges, or canisters shall be removed, and face pieces shall be disassembled by removing speaking diaphragms, demand and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Any defective parts shall be discarded or repaired. Respiratory equipment shall be washed with detergent in warm water (max 110F) using a stiff bristle (not wire) brush. If possible, detergents containing a bactericide will be used. Organic solvents will not be used because they cause deterioration of the facepiece. If bactericide detergent is not available, the detergent wash shall be followed with a disinfecting rinse. A disinfectant may be made from readily available ingredients. A hypochlorite solution (50 ppm) can be made by adding one milliliter of laundry bleach to one liter of water at 110 F or two tablespoons of chlorine bleach to one gallon of water. A two-minute immersion of the respirator into the solution is sufficient for disinfection.

Respiratory equipment shall be thoroughly rinsed in clean warm water (110 ° F maximum) to remove all traces of detergent, cleaner and sanitizer, and disinfectant. Respiratory equipment shall be hand-dried with a clean lint-free cloth or allowed to air dry on a clean surface or hung from a horizontal wire. Reassemble and test the respirator. See [1910.134 App B-2](#) for more detailed information.

### 10.2 Storage

When not in use, respiratory equipment shall be sealed in plastic bags and stored with nothing lying on top of it. Respirators must be completely dry before being stored. The facepiece and exhalation valve must be in a non-distorted position. Each employee is responsible for their respirator. Respirators shall be stored in a location protected against dust, sunlight, extreme heat and cold, excessive moisture, or damaging chemicals, fumes, or vapors.

## 11.0 INSPECTION

Users shall inspect their respirators for defects and elasticity before and after each use. Head of Department shall ensure that respirators are inspected. **Emergency use of respiratory equipment shall be inspected no less than once per month.** Emergency equipment inspections shall be documented. Results shall be kept with the equipment and on file by the department.

Inspection for defects in respiratory equipment must be done before and after each use and during cleaning. The primary defects to look for during the inspection of component parts of the respirator and corrective actions where appropriate are itemized below.

## 11.1 Air Purifying Respirators

- a) Facepieces should be checked for:
  - excessive dirt (clean all dirt from facepiece);
  - cracks, tears, or holes (obtain new facepiece);
  - distortion (allow facepiece to "sit" free from any constraints and see if distortion disappears, if not, obtain new facepiece); and
  - cracked, scratched, or loose-fitting lenses (contact respirator manufacturer to see if the replacement is possible, otherwise obtain new respirator).
- b) Head straps should be checked for:
  - breaks or tears (replace head straps);
  - loss of elasticity (replace head straps).
  - broken or malfunctioning buckles or attachments (obtain new buckles); and
  - slippage of facepiece (replace head straps).
- c) Inhalation and exhalation valves should be checked for:
  - detergent residue, dust particles, or dirt on the valve or valve seat (clean residue with soap and water).
  - cracks, tears, or distortion in the valve material or valve seat (contact manufacturer for instructions); and
  - missing or defective valve cover (obtain valve cover from manufacturer).
- d) Filter element(s) should be checked for:
  - proper application.
  - approval designation.
  - missing or worn gaskets (contact manufacturer for replacement).
  - worn threads, both the filter threads and the facepiece, whichever is applicable.
  - cracks or dents in filter housing (replace filter); and
  - missing or loose hose clamps (obtain new clamps).

If a respirator component is found to be defective during the inspection, a new respirator shall be provided.

## 11.2 Atmosphere-Supplying Respirators

The facepiece, head straps, valves, and breathing tube, shall be checked for air-purifying respirators.

The hood, helmet, or full suit, if applicable, should be checked for:

- headgear suspension (adjust properly);
- cracks or breaks in face shield (replace face shield);
- protective screen to see that it is intact and fits correctly over the face shield, (obtain new screen).

The air supply system should be checked for:

- breathing air quality (Grade D breathing air – annually certified);
- breaks or kinks in air supply hoses and end fitting attachments (replace the hose and/or fitting);
- the tightness of connections.
- proper setting of regulators and valves (consult manufacturer's recommendations); and
- correct operation of air-purifying elements and carbon monoxide or high-temperature alarms.

## **12.0 Repairs**

Repair or replacement of component parts should be done by an authorized trainer or the manufacturer. Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer, or a technician trained by the manufacturer. Substitution of parts from a different brand or type of respirator will invalidate the approval of the respirator and is prohibited. Only the respirator manufacturer's NIOSH-approved parts designed for the respirator shall be used.

## **13.0 EMERGENCY USE EQUIPMENT**

Emergency response and work in dangerous environments requiring respiratory protection shall be continuously monitored by an attendant who shall monitor the welfare of the workers. A dangerous environment shall be any condition that may pose a threat of loss of life, serious irreversible injury, or may impair a worker's ability to escape or be rescued.

Workers engaged in emergency response or dangerous work that require self-contained breathing apparatus (SCBA) or an air-line respirator shall be monitored by an attendant and be outfitted with a D-ring harness, safety line, and retrieval system. If the harness and retrieval system is not appropriate for the work area, then an alternative method of emergency employee removal shall be developed between EHS and the department. Also, five-minute escape packs shall be worn by each employee using an air-line respirator.

Emergency respiratory equipment should be inspected before and after each use and not less than once per month. Inspection of equipment shall focus on items identified in Section 11.0.

## **14.0 IDENTIFICATION OF FILTERS, CARTRIDGES, AND CANISTERS**

All filters, cartridges, and canisters used in the workplace shall be labeled and color-coded with the NIOSH approval label and the label shall not be removed.

## **15.0 TRAINING AND INFORMATION**

All workers using respiratory equipment shall successfully complete the training identified in this section prior to using a respirator. Lack of the employee's knowledge or use of the respirator indicates that the employee has not retained the required understanding or skill. In addition, training must also be successfully completed as necessary for confined space work, emergency response, or other regulated activities.

Employee training should be conducted annually and more often if necessary.

The employee shall demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- What the procedures are for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators

All attendant personnel shall also be trained in first aid and cardiopulmonary resuscitation (CPR). Personnel who choose to wear respirators must be provided with a copy [1910.134 App D](#) - Information for Employees Using Respirators When Not Required Under Standard.

## **16.0 PROGRAM EVALUATION**

The respiratory protection program shall be reviewed annually. Corrections, additions, or deletions which will improve the program shall be made. If changes are realized or needed at any other time, they can be adopted then as well as during the review. Respirator fit, appropriate respirator selection, proper respirator use, and maintenance are some of the factors that shall be assessed during the evaluation.

## **17.0 RECORDKEEPING**

Written information regarding medical evaluations, fit testing, and the respirator program shall be kept on file. Results of emergency use equipment inspections shall be documented and kept on file in the department director's office. Department inspection results and equipment selection decisions shall also be filed in the department director's office.

Fit testing results, as discussed in Section 8.1, shall be kept on file for a minimum of 30 years. Originals shall be kept in EHS. Copies should be kept in the department director's office.

Reports of emergency incidents requiring respiratory equipment shall be developed by EHS and shall document the circumstances leading to the emergency and measures that can be taken to prevent recurrences. Reports involving unexpected employee exposures shall be kept on file for a minimum of 30 years. Likewise, any surveillance reports documenting work area air quality or exposures shall be kept on file in EHS for a minimum of 30 years.

## **18.0 DUTY TO OTHER EMPLOYERS**

Any contractor requiring access to an area under the university's control requiring respiratory protection shall first notify the University Project Manager or department director for which work is to be done, to direct them to hazard information. Contractors shall be responsible for meeting all obligations of the respiratory protection standard for their employees.