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# EAST TENNESSEE STATE UNIVERSITY

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**Policy Number:** 700.8

**Title:** Respiratory Protection Policy

**Implementation Date:** 2004

**Last Revised:** May 8, 2024

**Last Audited:** May 8, 2024

## **Introduction**

It is the policy of Facilities Management to provide employees with a safe and healthful work environment. This respiratory protection program is designed to help reduce employees' exposures against occupational dusts, fogs, fumes, mists, gases, smokes, sprays or vapors. The primary objective shall be to prevent atmospheric contamination and to prevent employee exposure to airborne contaminants. This is accomplished as far as feasible by accepted engineering and work practice control measures. When effective engineering controls are not feasible, or while they are being implemented or evaluated, respiratory protection may be required to achieve this goal. In these work situations, respiratory protection, training and medical evaluations are provided at no cost to the employees.

**Scope-This policy applies to ETSU employees who are required to wear a respirator.**

## **DEFINITIONS**

The following definitions are important terms used in the respiratory protection program.

- Air-purifying respirator means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- Atmosphere-supplying respirator means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.
- Canister or cartridge means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
- End-of-service-life indicator (ESLI) means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

- Filtering face piece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.
- Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)
- Immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.
- Loose-fitting face piece means a respiratory inlet covering that is designed to form a partial seal with the face.
- Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.
- Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by 29 CFR 1910.134
- Positive pressure respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.
- Powered air-purifying respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
- Qualitative fit test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.
- Quantitative fit test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
- Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
- Supplied-air respirator (SAR) or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.
- Tight-fitting face piece a respiratory inlet covering that forms a complete seal with the face.

## **Procedures**

### **Facilities Management**

Facilities Management is responsible for providing respiratory protection equipment that is applicable and suitable for the purpose of minimizing employees' exposures to airborne hazards. Facilities management shall ensure this program is fully implemented and maintained and will take appropriate actions to modify or revise the program as workplace conditions change or new respiratory hazards are introduced. Engineering and administrative controls are considered by management to minimize exposure to atmospheric hazards and respiratory protection is provided as a last resort.

The Facilities Management Health and Safety Specialist will administer this Respiratory Protection Program. This program is designed and organized to ensure respirators are properly selected, used, and maintained by Facilities Management personnel and to comply with OSHA's Respiratory Protection Standard.

The ETSU Health and Safety Office is responsible for evaluating those tasks for which respiratory protection is thought to be necessary, determine the degree of hazard posed by the potential exposure, determine whether engineering or administrative controls are feasible, and specify which respiratory protection device is best suited for each task. In addition, the Health and Safety Specialist will train personnel in the selection and use of respiratory protection devices; conduct respirator fit tests, instruct respirator wearers in proper cleaning and storage methods.

### **Supervisors**

Supervisors will ensure that each employee under his or her supervision that has been issued a respirator has received appropriate training and has completed an annual medical evaluation. Supervisors will ensure the availability of appropriate respirators and accessories, provide adequate storage facilities, and encourage proper respirator equipment maintenance. Supervisors must be aware of tasks requiring the use of respiratory protection, and ensure all employees engaged in such work use the appropriate respirators at all times.

Supervisors are responsible for observing work area conditions and report any atmospheric changes or work area conditions that have the potential to affect respirator effectiveness. Supervisors shall report their findings to the Health and Safety Office as soon as possible so that respirator selection can be re-evaluated.

### **Respirator Wearers**

It is the responsibility of each respirator wearer to wear his/her respirator when and where required and in the manner in which they were trained. Respirator wearers must report any malfunctions of the respirator to his/her supervisor immediately. The respirator wearer must also guard against mechanical damage to the respirator, clean the respirator as instructed, and store the respirator in a clean, sanitary location.

### **Contractors**

Contractors are required to have a respiratory protection program for their employees who must enter into or work in areas where exposure to hazardous materials cannot be controlled or avoided. Contractor's programs must meet OSHA regulations and include issuance of respirators, medical evaluations, fit testing and training.

### **Medical Evaluation**

Every employee who is considered for inclusion in Facility Management's Respiratory Protection Program shall participate in a medical evaluation. Medical evaluations will be performed by a physician or other licensed health care professional (PLHCP) initially upon implementation of this policy, new hires into a job classification requiring respiratory protection, or change into a job classification requiring respiratory protection. See *Attachment A*, Table-1 to view the list of respirator wearers at Facilities

Physical Plant crafts and specific employees listed as respirator wearers shall fill out the "Medical Questionnaire for Respirator Users" and receive a baseline spirometry to be performed by a PLHCP. A copy of the "Medical Questionnaire for Respirator Users" is included in *Attachment B*.

The medical questionnaire will be administered confidentially during the employee's normal working hours. **The questionnaire cannot be returned to a supervisor or any other Facilities Management employee.** The medical questionnaire must be returned to the PLHCP after it has been completed or handed to the PLHCP at the time of the scheduled spirometry. The employee may discuss the questionnaire and examination results with the PLHCP.

**MED WORKS** has been selected as our PLHCP to medically evaluate Facilities' staff and make a determination as to whether or not an employee can wear the required respirator without physical or psychological risk.

**MED WORKS** shall review the answers to the medical questionnaires and consider the results of the spirometry to reach a decision about the physical status of the employee and their ability to wear a respirator. The PLHCP will provide a written recommendation regarding each employee's ability to use a respirator. The written recommendation shall provide only the following information pursuant to 29 CFR 1910.134.

- 1) Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
- 2) The need, if any, for follow-up medical evaluations; and
- 3) A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

If a medical restriction is applied, the employee, his/her supervisor, Associate Vice President of the Physical Plant and the Health and Safety office will be formally notified of the restriction.

A follow-up medical examination may be necessary for the PLHCP to make a medical determination about the employee's ability to wear a respirator. **A follow-up medical examination will be provided for an employee who gives a positive response to any questions 1 through 8 in Section 2, Part A of the "Medical Questionnaire for Respirator Users"**. Follow-up medical examinations will include any medical tests, consultations or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Respirator wearers will be medically evaluated annually. Annual medical evaluations will be accomplished using the "Medical History Review" form in *Attachment C*.

## **SELECTION AND USE OF RESPIRATORY PROTECTION**

### **Respirator Selection**

The Health and Safety office will advise employees authorized to wear respirators in the selection of the appropriate respirator, filters and cartridges. A hazard assessment has been performed and identifies the certain tasks/hazards that require a specific respirator at Facilities Management. (See *Attachment A, TABLE-2*). The list is not entirely inclusive. For this reason, resources are available to the Health and Safety office for selecting the appropriate respirator to protect against airborne hazards. They include: ANSI Z88.2, NIOSH Certified Equipment List, NIOSH Respirator Decision Logic, respirator manufacturer's literature and *Attachment D (Respirator Selection Worksite Specific Procedure)*.

### **Issuance of Respirators**

Respiratory protection is authorized and issued for the shops and personnel listed in *Attachment A, TABLE-1*.

Examples of work which may require the use of respirators include, but are not limited to:

- Asbestos abatement activities
- Abrasive sandblasting
- Cutting, scraping or stripping lead-based paints from surfaces
- Welding
- Painting, especially with epoxy or organic solvent coatings
- Using solvents, thinners, or degreasers
- Any work which generates large amounts of dust
- Mold remediation

The types of respirators available to Facilities Management employees vary. Descriptions of the various respirator types are included in *Attachment E*.

Respiratory protection shall not be ordered, purchased, or issued to Facilities Management personnel unless the Health and Safety office has approved the respirator type. The Health and Safety office will verify that the respirator wearer is approved by the Associate Vice President of Facilities Management and that a medical evaluation is completed. New employees who require respiratory protection equipment shall be integrated into the program pursuant to the requirements of this respiratory protection policy.

### **COMPRESSED AIR SYSTEMS**

Facilities Management does not use compressors to supply breathing air to respirators.

## **RESPIRATOR TRAINING**

Respirator users and their supervisors will receive training on the contents of Facilities Management's Respiratory Protection Program and their responsibilities under it. They will be trained on the proper selection and use, as well as the limitations of the respirator. Training also covers how to ensure a proper fit before use and how to determine when a respirator is no longer providing the protection intended.

The Facilities Management's Health and Safety Specialist provides training for respirator wearers in the use, maintenance, capabilities, and limitations of respirators prior to tasks requiring the use of respirators. Retraining is given annually thereafter and only upon successful completion of the medical evaluation.

## **RESPIRATOR FIT TESTING AND FACEPIECE SEAL PROTECTION**

A respirator fit test shall determine the ability of each individual respirator wearer to obtain a satisfactory fit. Employees must successfully pass the respirator fit test before an air-purifying respirator is issued.

Facilities Management employees are not permitted to wear a respirator in a work situation until he or she has demonstrated that an acceptable fit can be obtained. Fit tests shall be conducted annually.

Fit testing will be conducted by the Health and Safety Specialist. Fit tests are achieved using PortaCount quantitative fit test kit, which complies with *OSHA-Accepted Fit Test Protocols*.

Respirator fit-tests shall be documented and shall include the type of respirator, brand name and model, method of test and test results, test date and the name of the instructor/tester (*See Attachment F*).

No attempt is made to fit a respirator on an employee who has facial hair which comes between the sealing periphery of the face piece and the face, or if facial hair interferes with normal functioning of the exhalation valve of the respirator.

### **Facial Hair**

Facilities Management shall not permit respirators with tight-fitting face pieces to be worn by employees who have facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function; or any condition that interferes with the face-to-face piece seal or valve function; and

### **Eyeglasses, Goggles, and other PPE**

Eyeglasses, goggles, and other personal protective equipment shall be worn by employees in a manner that does not interfere with the respirator sealing surface.

## **User Seal Checks**

Facilities Management employees are required to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. User seal checks are not substitutes for qualitative or quantitative fit tests.

- A. *Positive pressure check.* Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- B. *Negative pressure check.* Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

## **MAINTENANCE, CLEANING AND STORAGE**

### **Maintenance**

The maintenance of respirators involves a thorough visual inspection for cleanliness and defects (i.e., cracking rubber, deterioration of straps, defective exhalation and inhalation valves, broken or cracked lenses, etc.). Worn or deteriorated parts shall be replaced. Respirators reported to have defects are taken out of service and another respirator is reissued. No attempt is made to replace components, make adjustments or make repairs on any respirator beyond those recommended by the manufacturer. Repair to valves, regulators, or alarms will be conducted by either the manufacturer or a qualified trained technician.

### **Cleaning of Respirators**

All respirators in routine use shall be cleaned and sanitized on a periodic basis. Respirators used non-routinely shall be cleaned and sanitized after each use and filters and cartridges replaced. Routinely used respirators are maintained individually by the respirator wearer. Replacement cartridges and filters are provided as needed.

Facilities Management employees are advised in proper cleaning of their respirators in accordance with OSHA's recommended cleaning procedures. An alternative to OSHA's recommended cleaning procedures are the cleaning recommendations provided by the manufacturer of the respirators used by employees, provided such procedures are as effective as those that follow. Equivalent effectiveness simply means that the procedures used must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

#### *I. Procedures for Cleaning Respirators*

- A. Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- B. Wash components in warm (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.
- C. Rinse components thoroughly in clean, warm (110° F maximum), preferably running water. Drain.
- D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  - 1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110° F; or,
  - 2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 110° F; or,
  - 3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- E. Rinse components thoroughly in clean, warm (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.
- F. Components should be hand-dried with a clean lint-free cloth or air-dried.
- G. Reassemble face piece, replacing filters, cartridges, and canisters where necessary.
- H. Test the respirator to ensure that all components work properly.

## **Storage**

After inspection, cleaning, and any necessary minor repairs, store respirators to protect against sunlight, heat, extreme cold, excessive moisture, damaging chemicals or other contaminants. Routinely used respirators, such as half-mask or full-face air-purifying respirators, shall be placed in sealable plastic bags. Respirators may be stored in such places as lockers or tool boxes only if they are first placed in sealable plastic bags. Respirators shall be packed or stored so that the face piece and exhalation valves will rest in a normal position and not be crushed.

SCBAs for emergency use shall be stored in sealed compartments built for that purpose, shall be quickly accessible at all times and will be clearly marked.



## **PROGRAM EVALUATION**

To ensure that this written respiratory protection program is effectively implemented, Facilities Management requests that respirator wearers submit their complaints and/or recommendations to improve this respiratory protection in writing. To facilitate this request, a form has been developed and is included as *Attachment G*.

Facilities Management and Health and Safety will convene to review the matter and assess employee views on program effectiveness and seek to identify any problems that they may be encountering with the use of respirators. If it is determined, based on the facts presented, that employee complaints are valid and the recommendations presented on the form can improve the respiratory protection program, the respiratory protection policy will be revised and dated to reflect changes.

Employees will be notified of any policy changes and training, if necessary, will be provided.

## **RECORDKEEPING**

The following records shall be maintained to comply with OSHA regulations:

<b>Record</b>	<b>Location</b>
PLHCP Clearance Records	Health and Safety Office
Medical Records of a Confidential Nature	Human Resources Facilities Main Office (Employee File)
Training Records	Health and Safety Office
Written Respiratory Protection Program and SOPs	Facilities Website Health and Safety Office Health and Safety Website
Hazard Evaluations (Air sampling results, surveys, respirator selection records)	Health and Safety Office
Fit Test Records	Health and Safety Office
Program Evaluations	Health and Safety Office

## **VOLUNTARY USE OF RESPIRATORS BY EMPLOYEES**

Some employees may express a desire to voluntarily wear respirators during certain tasks/operations that do not require respiratory protection. The only respirator that is approved for voluntary use specifically for comfort purposes is the filtering face piece (dust mask). The Health and Safety Specialist must be consulted to determine that voluntary use of a dust mask will not in itself create a hazard. Only then will the Physical Plant provide dust masks for voluntary use.

The respirator user shall be provided with the information contained in *Appendix H* ("Information for Employees Using Respirators When Not Required Under the Standard").

### **Contact Persons**

Associate Vice President  
Director of Facilities Management Operations  
Director of Environmental Health & Safety  
Associate Director of Environmental Health & Safety

**Approved by:** \_\_\_\_\_  
Laura Bailey, Associate Vice President, Capital Planning and  
Facilities Services

**Date approved:** \_\_\_\_\_

Audited: May, 2015  
June 2<sup>nd</sup>, 2016  
August 13<sup>th</sup>, 2018  
February 19<sup>th</sup>, 2019  
July 20, 2023  
May 8, 2024

Revised: November, 2015  
August 30<sup>th</sup>, 2018  
February 19<sup>th</sup>, 2019  
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**TABLE-1 (Designated Department Issued NIOSH Approved Respirators)**

<b>HVAC</b>	N-95 voluntary
<b>Paint Shop</b>	Half-face air purifying with OV cartridge
<b>Powerhouse/PM</b>	N-95 voluntary
<b>Pest Control</b>	Half-face air purifying with OV cartridge
<b>Grounds</b>	N-95 voluntary
<b>COM Maintenance/HVAC</b>	N-95 voluntary during fume hood work
<b>Asbestos Workers/Inspectors</b>	Half-face air purifying with P100 filters
<b>EH&amp;S</b>	Half-face air purifying with OV cartridge, P100 and N-95

**TABLE-2 (Hazard As assessment and Respirator Selection)**

<b>HAZARD</b>	<b>RESPIRATOR TYPES</b>
Asbestos Abatement	<ul style="list-style-type: none"> <li>• Half-mask, air-purifying respirator with P100 filters</li> </ul>
Application of epoxy- or oil-based paints (Indoors)	<ul style="list-style-type: none"> <li>• Half-mask, air-purifying respirators with organic vapor filters</li> </ul>
Lead-based paint removal	<ul style="list-style-type: none"> <li>• Half-mask, air-purifying respirators with P100 filters</li> </ul>
Use of pesticides, herbicides, and rodenticides	<ul style="list-style-type: none"> <li>• Half-mask, air-purifying respirator with combination particulate and organic vapor cartridges</li> </ul>
Welding - Enclosed Space, Poor Ventilation	<ul style="list-style-type: none"> <li>• Filtering Face piece, N95 or N100</li> </ul>
Mold remediation	<ul style="list-style-type: none"> <li>• Half-mask, air-purifying respirator with N95 filters or P95 filters</li> <li>• Filtering Face piece, N95 &lt; 10 ft<sup>2</sup></li> </ul>



8. Have you worn a respirator?

Yes  No

If "yes," what type(s)?

- a. \_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
- b. \_\_\_\_\_ Half- or full-face piece air-purifying type
- c. \_\_\_\_\_ Powered-air purifying, supplied-air
- d. \_\_\_\_\_ Self-contained breathing apparatus (SCBA)

**Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator. (Please circle "Yes" or "No")**

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month:  
Yes No

- a. If yes, what quantity (how many cigarettes per day)? \_\_\_\_\_
- b. If you did smoke tobacco and quit, how long has it been since you last smoked? \_\_\_\_\_

2. Have you ever had any of the following conditions?

- |   |     |    |
|---|-----|----|
| a. Seizures (fits):                                       | Yes | No |
| b. Diabetes (sugar disease):                              | Yes | No |
| c. Allergic reactions that interfere with your breathing: | Yes | No |
| d. Claustrophobia (fear of closed-in places):             | Yes | No |
| e. Trouble smelling odors:                                | Yes | No |

3. Have you ever had any of the following pulmonary or lung problems?

- |  |     |    |
|--|-----|----|
| a. Asbestosis:   | Yes | No |
| b. Asthma:   | Yes | No |
| c. Chronic bronchitis:                                 | Yes | No |
| d. Emphysema:  | Yes | No |
| e. Pneumonia:  | Yes | No |
| f. Tuberculosis:                                       | Yes | No |
| g. Silicosis:  | Yes | No |
| h. Pneumothorax (collapsed lung):                      | Yes | No |
| i. Lung cancer:  | Yes | No |
| j. Broken ribs:  | Yes | No |
| k. Any chest injuries or surgeries:                    | Yes | No |
| l. Any other lung problem that you've been told about: | Yes | No |

4. Do you currently have any of the following symptoms of pulmonary or lung illness?

- |  |     |    |
|--|-----|----|
| a. Shortness of breath:  | Yes | No |
| b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: | Yes | No |
| c. Shortness of breath when walking with other people at an ordinary pace on level ground:       | Yes | No |

- |    |  |     |    |
|----|--|-----|----|
| d. | Have to stop for breath when walking at your own pace on level ground: | Yes | No |
| e. | Shortness of breath when washing or dressing yourself:                 | Yes | No |
| f. | Shortness of breath that interferes with your job:                     | Yes | No |
| g. | Coughing that produces phlegm (thick sputum):                          | Yes | No |
| h. | Coughing that wakes you early in the morning:                          | Yes | No |
| i. | Coughing that occurs mostly when you are lying down:                   | Yes | No |
| j. | Coughing up blood in the last month:                                   | Yes | No |
| k. | Wheezing:  | Yes | No |
| l. | Wheezing that interferes with your job:                                | Yes | No |
| m. | Chest pain when you breathe deeply:                                    | Yes | No |
| n. | Any other symptoms that you think may be related to lung problems:     | Yes | No |
5. Have you ever had any of the following cardiovascular or heart problems?
- |    |  |     |    |
|----|--|-----|----|
| a. | Heart attack:  | Yes | No |
| b. | Stroke:  | Yes | No |
| c. | Angina:  | Yes | No |
| d. | Heart failure:   | Yes | No |
| e. | Swelling in your legs or feet (not caused by walking): | Yes | No |
| f. | Heart arrhythmia (heart beating irregularly):          | Yes | No |
| g. | High blood pressure:                                   | Yes | No |
| h. | Any other heart problem that you've been told about:   | Yes | No |
6. Have you ever had any of the following cardiovascular or heart symptoms?
- |    |  |     |    |
|----|--|-----|----|
| a. | Frequent pain or tightness in your chest:  | Yes | No |
| b. | Pain or tightness in your chest during physical activity:                          | Yes | No |
| c. | Pain or tightness in your chest that interferes with your job:                     | Yes | No |
| d. | In the past two years, have you noticed your heart skipping or missing a beat?     | Yes | No |
| e. | Heartburn or indigestion that is not related to eating:                            | Yes | No |
| f. | Any other symptoms that you think may be related to heart or circulation problems: | Yes | No |
7. Do you currently take medication for any of the following problems?
- |    |                             |     |    |
|----|-----------------------------|-----|----|
| a. | Breathing or lung problems: | Yes | No |
| b. | Heart trouble:              | Yes | No |
| c. | Blood pressure:             | Yes | No |
| d. | Seizures (fits):            | Yes | No |
8. If you've used a respirator, have you ever had any of the following problems?  
(If you've never used a respirator, go to question 9:)
- |    |  |     |    |
|----|--|-----|----|
| a. | Eye irritation:  | Yes | No |
| b. | Skin allergies or rashes:  | Yes | No |
| c. | Anxiety:   | Yes | No |
| d. | General weakness or fatigue:                                     | Yes | No |
| e. | Any other problem that interferes with your use of a respirator: | Yes | No |

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire? Yes No

**Part B.**

1. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals, or have you come into skin contact with hazardous chemicals? Yes No

If "yes," circle or name them:

a. Asbestos: Yes No

b. Silica (e.g., in sandblasting): Yes No

c. Lead: Yes No

d. Pesticides: Yes No

e. Glues and Adhesives: Yes No

f. Clandestine Drug Labs: Yes No

g. Dusty Environments: Yes No

h. Other: \_\_\_\_\_

2. List any second jobs or side businesses you have: \_\_\_\_\_

\_\_\_\_\_

3. List your previous occupations: \_\_\_\_\_

\_\_\_\_\_

4. Have you ever worked on a HAZMAT team? Yes No

5. Other than medications mentioned earlier in this questionnaire, are you taking any other

medications for any reason (including over-the-counter medications): Yes No

If "yes," name the medications if you know them: \_\_\_\_\_

\_\_\_\_\_

6. How often are you expected to use the respirator(s) (circle "Yes" or "No" for all answers that apply to you)?

a. Escape only (no rescue): Yes No

b. Emergency rescue only: Yes No

c. Less than 5 hours per week: Yes No

d. Less than 2 hours per day: Yes No

e. 2 to 4 hours per day: Yes No

f. Over 4 hours per day: Yes No

7. During the period you are using the respirator(s), is your work effort:

a. *Light*:  
Yes No

If "yes," how long does this period last during the average shift:  
\_\_\_\_\_hrs.\_\_\_\_\_mins.

Examples of a *light work* effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

b. *Moderate:*

Yes No

If "yes," how long does this period last during the average shift:  
\_\_\_\_\_hrs.\_\_\_\_\_mins.

Examples of *moderate work* effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. *Heavy*

Yes No

If "yes," how long does this period last during the average shift:  
\_\_\_\_\_hrs.\_\_\_\_\_mins.

Examples of *heavy work* are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

8. Will you be working under hot conditions (temperature exceeding 77 deg. F):  
Yes No

9. Will you be working under humid conditions:  
Yes No

10. Describe the work you'll be doing while you're using your respirator(s):\_\_\_\_\_

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11. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

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**Medical History Review**

NAME: \_\_\_\_\_  
(Print)

DATE: \_\_\_\_\_

CRAFT: \_\_\_\_\_

- 1. Have you developed any medical problems or symptoms that may limit your ability to use a respirator? *(If YES, please describe the symptoms or problem.)* Yes \_\_\_ No \_\_\_
- 2. Have you been treated for a heart or lung condition in the past year? *(i.e., heart attack, pneumonia)* Yes \_\_\_ No \_\_\_
- 3. Have you been under treatment by a physician for any other condition in the past year? *(If YES, please describe the condition.)* Yes \_\_\_ No \_\_\_
- 4. Have you had any surgical operation or medical procedure in the past year? *(If YES, please describe the procedure.)* Yes \_\_\_ No \_\_\_
- 5. Has there been a change in workplace conditions, e.g., physical work effort, protective clothing, temperature, that has resulted in a substantial increase in the physical burden on you? *(If YES, please describe the condition.)* Yes \_\_\_ No \_\_\_

\_\_\_\_\_  
**Employee Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**PLHCP Signature**

\_\_\_\_\_  
**Date**

**RESPIRATOR SELECTION WORKSITE-SPECIFIC PROCEDURE**

Respirators will be selected according to the following procedure.

**1. SELECTION**

Respirator selection involves reviewing each operation to (a) determine what hazards may be present (hazard determination) and (b) select which type or class of respirators can offer adequate protection.

**2. HAZARD DETERMINATION STEPS**

The nature of the hazard shall be determined as follows:

- a) If the potential for an oxygen-deficient environment exists, measure the oxygen content;
- b) Determine what contaminant(s) may be present in the workplace;
- c) Determine whether there is a published Threshold Limit Value, Permissible Exposure Limit, or any other available exposure limit or estimate of toxicity for the contaminant(s). Determine if the IDLH concentration for the contaminant is available;
- d) Determine if there is a comprehensive health standard (e.g., lead, asbestos) for the contaminant(s). If so, there may be specific respirators required that would influence the selection process;
- e) Determine the physical state of the contaminant. Determine if vapor pressure of the aerosol is significant at the maximum expected temperature of the work environment;
- f) Measure or estimate the concentration of the contaminant(s);
- g) Determine whether the contaminant(s) present can be absorbed through the skin, produce skin sensitization, or be irritating or corrosive to the eyes or skin;
- h) Determine for a gas or vapor contaminant(s) if a known odor, taste, or irritation concentration exists.
- i) Determine for a gas or vapor contaminants: 1) if a chemical cartridge with an end-of-service-life indicator (ESLI) exists or 2) if service life data exists for chemical cartridges that might be used.

**3. SELECTION STEPS**

The proper respirator shall be selected as follows:

- a) If there is an oxygen-deficient atmosphere, the type of respirator selected depends on the partial pressure (altitude) and concentration of oxygen and the concentration of the other contaminant(s) that may be present; go to (f) and 3.1.1 through 3.1.2;

## **RESPIRATOR SELECTION WORKSITE-SPECIFIC PROCEDURE**

- b) If unable to determine what potentially hazardous contaminant may be present, the atmosphere shall be considered IDLH; go to 3.1;
  - c) If no exposure limit or guideline is available, and estimates of the toxicity cannot be made, the atmosphere shall be considered IDLH; go to 3.1;
  - d) If the exposure level cannot be identified or reasonably estimated, the atmosphere shall be considered IDLH; go to 3.1;
  - e) If a specific standard exists for the contaminant, consider those guidelines/requirements;
  - f) If the measured or estimated concentration of the contaminant(s) is considered IDLH; go to 3.1;
  - g) Divide the measured or estimated concentration of each contaminant by the exposure limit or guideline to obtain a hazard ratio. When two or more substances are present, consider if there is a synergistic or combined effect of exposure rather than considering each substance individually. Select a respirator from among those with an assigned protection factor greater than the value of the hazard ratio listed in TABLE-3. If an air-purifying respirator is under consideration, continue with (h);
  - h) If the contaminant(s) is a gas or vapor only, go to (m).
  - i) If the contaminant is an aerosol; and a specific regulation or regulatory policy does not require a Class 100 filter, select a Class 95 filter. Go to step (j);
  - j) If the contaminant is an oil or oil mist is present in the air, or if the presence of oil is unknown, go to (k). If no oil is present, go to (l);
  - k) If the filter will be used for more than 8 hours or for more than 200 mg of loading, select a respirator with a P filter. If not, a respirator with either an R or P filter is acceptable
  - l) If no oil mist is present, select a respirator with either N, R, or P filters;
- Note:** A powered air-purifying respirator with an appropriate APF and a high efficiency filter may be selected in lieu of particulate respirators selected using steps (i) through (l).
- m) If the contaminant is a gas or vapor, select an airline respirator unless:
    - 1) an air-purifying respirator with an end-of-service-life indicator for the contaminant is available or,
    - 2) a change schedule based on service life information or other objective data is implemented to ensure that canisters and cartridges are changed before the end of their service life.

### 3.1 SELECTION OF RESPIRATORS FOR ATMOSPHERES IMMEDIATELY DANGEROUS TO LIFE OR HEALTH, FOR USE IN CONFINED SPACES, OR REDUCED-PRESSURE ATMOSPHERES

#### 3.1.1 RESPIRATORS FOR USE UNDER IDLH CONDITIONS AT NORMAL ATMOSPHERIC CONDITIONS

The required respiratory protection for IDLH conditions caused by the presence of toxic materials or a reduced percentage of oxygen as described in conditions (a), (b), or (c) in 3.1.2 is a:

- positive-pressure SCBA (with a service of 30 min or more) or
- a combination of a supplied-air respirator with auxiliary SCBA. If the SCBA is 5, 10 or 15 min in service life, the airline mode must be used for entry into the atmosphere.

#### 3.1.2 ATMOSPHERES IMMEDIATELY DANGEROUS TO LIFE OR HEALTH

A location is considered IDLH when:

- a) it is an atmosphere known or suspected to have concentrations above the IDLH level, or
- b) it is a confined space that contains less than the normal 20.9% oxygen, unless the source of the oxygen reduction is understood and controlled, or
- c) oxygen content is below 19.5%. Exception: If the employer demonstrates that under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in the following table (i.e., for the altitudes set out in the table), then any atmosphere supplying respirator (airline or SCBA) may be used.

Oxygen deficient atmospheres for which the employer may rely on any atmosphere-supplying respirators

Altitude (ft.)	(%O <sub>2</sub> )
< 3,001	16.0 - 19.5
3,001 - 4,000	16.4 - 19.5
4,001 - 5,000	17.1 - 19.5
5,001 - 6,000	17.8 - 19.5
6,001 - 7,000	18.5 - 19.5
7,001 - 8,000*	19.3 - 19.5

\* Above 8,000 feet the exception does not apply. Oxygen enriched breathing air must be supplied above 14,000 feet.

**TABLE-3 -ASSIGNED PROTECTION FACTORS FOR RESPIRATOR SELECTION****RESPIRATORY INLET COVERING**

TYPE OF RESPIRATOR	Half Mask <sup>(1)</sup>	Full Facepiece
Air purifying	10	50
Atmosphere supplying		
SCBA (demand) <sup>(2)</sup>	10	50
Airline (demand)	10	50

**RESPIRATORY INLET COVERING**

TYPE OF RESPIRATOR	Half Mask	Full Face	Helmet/Hood	Loose-fitting Face piece
Powered air purifying	50	1000 <sup>(3)</sup>	1000 <sup>(3)</sup>	25
Atmosphere supplying				
• Airline-				
- pressure demand	50	1000	-	-
- continuous flow	50	1000	1000	25
• Self-contained				
- breathing apparatus				
- pressure demand open/closed circuit	-	(4)	-	-

- (1) Includes quarter-masks, disposable half-masks, and half-masks with elastomeric face pieces.
- (2) Demand SCBA shall not be used for emergency situations such as firefighting.
- (3) Protection factors listed are for high-efficiency filters and sorbents (cartridges and canisters). With dust filters, an assigned protection factor of 100 is to be used due to the limitations of the filter.
- (4) Although positive-pressure respirators are currently regarded as providing the highest level of respiratory protection, a limited number of recent simulated workplace studies concluded that all users may not achieve protection factors of 10,000. Based on this limited data, a definitive assigned protection factor could not be listed for positive-pressure SCBAs. For emergency planning purposes, where hazardous concentrations can be estimated, an assigned protection factor of no higher than 10,000 should be used.

NOTE: Assigned protection factors are not applicable for escape respirators. For combination respirators, e.g., airline respirators equipped with an air-purifying filter, the mode of operation in use will dictate the assigned protection factor to be applied.

\*See ANSI Z88.2 Standard for specific selection details.

**A. Air-Purifying Respirator**

These respirators remove air contaminants by filtering, absorbing, adsorbing, or chemical reaction with the contaminants as they pass through the respirator canister or cartridge. This respirator is to be used only where adequate oxygen (19.5 to 23.5 percent by volume) is available. Air-purifying respirators can be classified as follows:

1. Particulate removing respirators, which filter out dusts, fibers, fumes and mists. These respirators may be single-use disposable respirators or respirators with replaceable filters.

**NOTE: Surgical masks do not provide protection against air contaminants. They are never to be used in place of an air-purifying respirator. They are for medical use only.**

2. Gas- and vapor-removing respirators, which remove specific individual contaminants or a combination of contaminants by absorption, adsorption or by chemical reaction. Gas masks and chemical-cartridge respirators are examples of gas- and vapor-removing respirators.
3. Combination particulate/gas- and vapor-removing respirators, which combine the respirator characteristics of both kinds of air-purifying respirators.

**B. Supplied-Air Respirators**

These respirators provide breathing air independent of the environment. Such respirators are to be used when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air-purifying respirator is inadequate. Supplied-air respirators, also called air-line respirators, are classified as follows:

1. **Demand** - This respirator supplies air to the user on demand (inhalation) which creates a negative pressure within the face piece. Leakage into the face piece may occur if there is a poor seal between the respirator and the user's face.
2. **Pressure-Demand** - This respirator maintains a continuous positive pressure within the face piece, thus preventing leakage into the face piece.
3. **Continuous Flow** - This respirator maintains a continuous flow of air through the face piece and prevents leakage into the face piece.
4. ETSU Facilities Personnel does not use Supplied-Air Respirators.

### **C. Self-Contained Breathing Apparatus (SCBA)**

This type of respirator allows the user complete independence from a fixed source of air and offers the greatest degree of protection but is also the most complex. Training and practice in its use and maintenance is essential. This type of device will be used in emergency situations only and by outside emergency personnel only.



**RESPIRATOR ASSIGNMENT AND FIT TEST RECORD**

**EMPLOYEE NAME:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**DEPARTMENT/JOB DESCRIPTION:** \_\_\_\_\_

**CONTAMINANTS:**

- DUST**                       **FUMES**                       **MISTS**  
 **BIOAEROSOLS**             **VAPORS**                       **OTHER**

**RESPIRATOR TYPE:**     **N-95**                      **BRAND:** \_\_\_\_\_  
                                   **HALF-FACE**                **BRAND:** \_\_\_\_\_  
                                   **OTHER:** \_\_\_\_\_

**TYPE OF FIT TEST:**  **PORTA COUNT QUANTITATIVE** **FIT FACTOR:** \_\_\_\_\_  
                                   **QUALITATIVE**                 **PASS/FAIL**

**EXERCISES FOR 60 SECONDS:**

- 1. NORMAL BREATHING; 2. DEEP BREATHING; 3. HEAD SIDE TO SIDE;**  
**4. HEAD UP & DOWN; 5. TALKING; 6. BEND AT WAIST; 7. NORMAL BREATHING**

\_\_\_\_\_  
**PERSON CONDUCTING FIT TEST**

\_\_\_\_\_  
**EMPLOYEE'S NAME**

**Recommendation to Improve the Respiratory Protection Program**

*This form has been developed to comply with the program evaluation provisions in 1910.134(l) and establishes a systematic approach that documents employees' complaints and suggestions and the actions management takes to assess program effectiveness. The following factors are considered pursuant to 1910.134(l):*

- *Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);*
- *Appropriate respirator selection for the hazards to which the employee is exposed;*
- *Proper respirator use under the workplace conditions the employee encounters; and*
- *Proper respirator maintenance.*

**1. The following problems have been encountered while using the respirators issued:**

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**2. Suggestions to correct the problems described above and improve the overall effectiveness of the respiratory protection program:**

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Sign and submit this form to Physical Plant Health and Safety Specialist

Submitted By: \_\_\_\_\_  
*Employee* \_\_\_\_\_  
*Date*

Received: \_\_\_\_\_  
*Environmental Health and Safety* \_\_\_\_\_  
*Date*

**ACTIONS TAKEN:** \_\_\_\_\_

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## N95 VOLUNTARY USE OF RESPIRATORS

### Appendix D- Voluntary Use Respirators

Appendix D to Section 1910.134 Information for Employees using respirators when not required under the Standard.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

ETSU EH&S Name: \_\_\_\_\_ Date: \_\_\_\_\_