

Old Dominion University
Respiratory Protection Program

Prepared by:
Environmental Health & Safety Office
(Revised July 2008)

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Responsibilities

The Administration shall:

- Support the requirements of this program
- Ensure funding is available for the administration, implementation, operation and maintenance of this program

The Environmental Health & Safety Office (EHSO) shall:

- Assign the duties of the Respiratory Protection Program Coordinator to an EHSO staff member
- Provide funding for medical evaluations

The Respiratory Protection Program Coordinator shall:

- Administer this program in accordance with the Virginia Occupational Safety and Health (VOSH) 1910.134 standard
- Develop training and instructional programs
- Provide training and fit testing for all users of respirators
- Providing technical assistance in determining the need for respirator use
- Provide technical assistance in the selection and implementation of control measures
- Providing technical assistance in the selection of respirators, filters, cartridges and canisters
- Monitor for the presence of respiratory hazards in the workplace
- Provide replacement parts for non-powered air purifying respirators
- Administer the medical questionnaire and arrange for medical examinations
- Maintain records in accordance with Section XI of this program
- Evaluate this program at least annually and revise this program as necessary to ensure the requirements of the VOSH standard 1910.134 are met

Supervisory personnel shall:

- Identify employees who perform tasks that require the use of respirators
- Notify the Respiratory Protection Program Coordinator when an employee who is authorized to wear a respirator leaves the University or changes jobs within the University and no longer is required to wear a respirator
- Notify the Respiratory Protection Program Coordinator when an employee is hired into a position requiring the use of a respirator
- Notify the Respiratory Protection Program Coordinator of any changes in workplace conditions that may result in the need for respirator use or the discontinuance of respirator use
- Ensure that employees wear respirators during conditions that require such use

- Purchase appropriate respiratory protective equipment as recommended by the Respiratory Protection Program Coordinator
- Ensure a supply of respiratory protective equipment is maintained and available when needed
- Ensure respirators maintained for emergency use and self contained breathing apparatuses (SCBAs) are inspected on a schedule as required in Section VI of this program
- Attend training in accordance with Section IX of this program

Employees shall:

- Use respirators in a manner that complies with their instruction and training
- Clean, disinfect, inspect and properly store their respirators
- Report respirator malfunctions to their supervisor
- Report to their supervisor, the occurrence of physiological changes that may affect the fit of their respirator or their ability to safely wear a respirator
- Inspect respirators on a schedule as required in Section VI of this program
- Attend training in accordance with Section IX of this program

I. Introduction

The purpose of this Respiratory Protection Program is to protect the health of employees who are exposed in the course of their work to airborne contaminants and are required to wear respirators. Implementation of this program is in accordance with the requirements of the Virginia Occupational Safety and Health (VOSH) program administered by the Virginia Department of Labor and Industry under standard 1910.134.

Respirators shall be used by employees only as a last line of defense in a contaminated atmosphere. The use of respirators shall be limited to the following conditions:

- For routine operations while engineering controls are being instituted or evaluated.
- When engineering controls are not technically feasible or cannot by themselves control a contaminant below an acceptable level.
- For non-routine operations that occur so infrequently that engineering controls would be entirely impractical.
- For emergency use or other unplanned events where the possibility of an overexposure to a worker exists.

Voluntary Respirator Use

Where respirator use is not required either by the University or by a VOSH standard, employees shall be permitted to wear respirators in situations where they wish to do so, provided that the Respiratory Protection Program Coordinator can determine that such use will not in itself create a hazard. Employees who voluntarily use respirators with tight-fitting facepieces shall do so in accordance with all provisions of this program. Employees who voluntarily use dust masks shall be provided with the information contained in **Appendix A** and shall attend a special dust mask training program.

Employees shall be provided with respiratory protective equipment, training and medical evaluations at no cost to them.

II. Respirator Selection

The Respiratory Protection Program Coordinator shall select the respirators to be worn by all employees covered under this program. Respirators shall be selected based on the respiratory hazard to which the employee is exposed and workplace and user factors that affect respirator performance and reliability. The factors that shall be taken into account when selecting a respirator include:

- The nature of the hazard (i.e. oxygen deficiency, contaminants and their concentrations)
- Physical properties of the hazard
- Chemical properties of the hazard
- Adverse health effects caused by the hazard
- Physiological effects on the wearer
- Results of workplace sampling

- Exposure limits (i.e. PEL and TLV)
- Warning properties of the hazard
- Nature of the hazardous operation
- Location of the hazardous area
- Time period of respirator wear
- Employee's health
- Respirator characteristics, capabilities and limitations
- Protection factors

Respirators shall be NIOSH-certified and shall be used in accordance with the conditions of the certification. A variety of respirator models and sizes shall be made available to employees so that a satisfactory fit and wearer acceptance can be achieved.

The Respiratory Protection Program Coordinator shall identify and evaluate respiratory hazards in the workplace. The evaluation shall include a reasonable estimate of employee exposures to respiratory hazards, including those likely to be encountered in reasonably foreseeable emergency situations, and an identification of the contaminant's physical state and chemical form. For employee exposures that cannot be identified or reasonably estimated, the atmosphere shall be considered immediately dangerous to life and health (IDLH).

Respirators for IDLH Atmospheres

The most protective and reliable respirators shall be used for IDLH atmospheres. Such respirators include either a full facepiece pressure demand self-contained breathing apparatus (SCBA) certified for a minimum service life of thirty minutes, or a combination full facepiece pressure demand supplied-air respirator with an auxiliary self-contained air supply. Respirators that are to be used exclusively for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

Respirators for Non-IDLH Atmospheres

Respirators shall be provided to adequately reduce the exposure of the respirator wearer under all conditions of use, including reasonably foreseeable emergencies. Additionally, the respirators shall ensure compliance with all other statutory and regulatory requirements. The respirators selected shall protect employees against the physical state and chemical form of contaminants in the workplace.

For atmospheres containing gases or vapors, either an atmosphere-supplying respirator or an air-purifying respirator with a canister/cartridge filter equipped with a NIOSH-certified end-of service life indicator (ESLI) shall be used. The Respiratory Protection Program Coordinator shall implement a canister/cartridge change schedule when no ESLI is available or when the ESLI is not appropriate for the conditions encountered in the workplace.

For atmospheres containing particulate matter, either an air-purifying respirator equipped with a high efficiency particulate air (HEPA) filter certified under 30 CFR part 11, or equipped with any N, R or P series particulate filter certified under 42 CFR part 84 shall be used. Only HEPA-filtered respirators or N100, R100 or P100 filtered respirators shall be used for workplace

conditions in which submicron-sized particulate hazards are present or where another OSHA standard requires the use of such filters.

III. Medical Evaluation

In order to prevent employee injuries and illnesses from the physiological burden imposed by respirator use, employees shall receive a medical evaluation prior to fit testing or respirator use. The medical evaluation shall be conducted by a licensed health care professional (PLHCP) through the University's contracted occupational health care provider, and shall be offered at no cost to the employee. The medical evaluation shall consist of the questionnaire in **Appendix B** of this program. A medical exam shall be provided to employees who give a positive response to questions 1 through 8 in Section 2, Part A of the questionnaire and to employees who are identified by the PLHCP as requiring a medical exam. The medical exam shall include any tests, consultations or diagnostic procedures that the PLHCP deems necessary to make a final determination on the employee's ability to wear a respirator. Employees shall be given the opportunity to discuss the questionnaire and exam results with the PLHCP.

The Respiratory Protection Program Coordinator shall administer the medical questionnaire in a confidential manner on campus during the employee's normal work hours and in a manner that ensures the employee understands its content. The Respiratory Protection Program Coordinator shall forward the questionnaires and the completed forms RESP-1 found in **Appendix C** of this program to the PLHCP for review. A copy of this program and 29CFR1910.134(e) shall also be forwarded to the PLHCP.

The Respiratory Protection Program Coordinator shall obtain a written recommendation from the PLHCP on whether or not the employee is medically able to wear a respirator. The recommendation shall include the following information:

- 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;
- The need, if any, for follow-up medical evaluations; and
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's recommendation.

Powered Air Purifying Respirators (PAPRs)

A PAPR shall be provided to an employee when information from the medical evaluation shows that the employee can use a PAPR but not a negative pressure respirator.

Medical Reevaluations

Medical reevaluations shall be provided to the employee under the following conditions:

- When the employee reports medical signs or symptoms that are relevant to the employee's ability to wear a respirator;

- When a PLHCP or supervisor informs the Respiratory Protection Program Coordinator that an employee needs to be reevaluated;
- When information from the respiratory protection program, including observation made during fit testing and program evaluation, indicates a need for employee reevaluation; or
- If a change in workplace conditions that may result in a substantial increase in the physiological burden placed on an employee.

IV. Fit Testing

Before an employee is required to wear a respirator with a negative or positive pressure tight-fitting facepiece, the employee shall be fit tested with the same make, model, style, and size of respirator that will be used in the workplace. Employees shall be fit tested at least annually thereafter or more frequently if they are assigned a different respirator or if they experience a physical condition that could affect respirator fit.

The fit test shall be administered by the Respiratory Protection Program Coordinator using the OSHA-accepted protocol for the Portacount quantitative fit tester. Minimum fit factors that must be achieved by the employee for a tight-fitting half facepiece and for a tight-fitting full facepiece are 250 and 750 respectively.

When the Portacount is used for fit testing PAPRs and atmosphere-supplying respirators with tight-fitting facepieces, the facepiece shall be under negative pressure and either a facepiece with a permanent sampling probe or a sampling probe adapter shall be used.

V. Use of Respirators

Employees shall use respirators in accordance with the training and instruction that they receive from the Respiratory Protection Program Coordinator. Employees shall not be permitted to wear respirators if conditions exist that may interfere with the facepiece seal or with the valve function (i.e. facial hair, missing dentures, facial scars). Employees who wear corrective glasses or goggles or other personal protective equipment shall ensure that such equipment is worn in a manner that does not interfere with the facepiece seal. Employees who wear corrective glasses that interfere with the seal of a full facepiece respirator shall be provided with eyeglass inserts.

Employees who wear tight-fitting respirators shall perform a user seal check to ensure that an adequate seal is achieved each time a respirator is put on. Either the positive and negative pressure seal checks described in **Appendix D**, or the respirator manufacturer's recommended user seal check method shall be used.

The Respiratory Protection Program Coordinator and department supervisors shall evaluate workplace conditions routinely to determine if the employees need additional respiratory protection or different respiratory protection. Adjustments shall be made to ensure employees continue to receive appropriate respiratory protection.

Employees are permitted to leave the respirator use area:

- To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or
- To replace the respirator or the filter, cartridge, or canister elements.

Procedures for IDLH Atmospheres

For non-confined space IDLH atmospheres, the following precautions shall be taken:

- The Respiratory Protection Program Coordinator shall be immediately notified of any entries into an IDLH atmosphere;
- One employee or, when needed, more than one employee shall be located outside the IDLH atmosphere. The employee(s) shall be equipped with pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied air respirator with auxiliary SCBA and appropriate retrieval equipment for removing the employee(s) who enter the hazardous atmosphere;
- Visual or voice communication shall be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
- The employee(s) located outside the IDLH atmosphere shall be trained and equipped to provide emergency rescue;
- The Public Safety Dispatcher shall be notified prior to the conduct of an emergency rescue;

NOTE: See the University's Confined Space Entry Program for procedures to follow for IDLH atmospheres in confined spaces

Procedures for Interior Structural Firefighting

University employees are prohibited from fighting structural fires.

VI. Maintenance and Care of Respirators

Cleaning and Disinfecting

Employees will be provided with respirators that are clean, sanitary and in good working order. Employees shall either follow the procedures in **Appendix E** for cleaning and disinfecting respirators or follow the procedures recommended by the respirator manufacturer, provided such procedures are of equivalent effectiveness. Respirators shall be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected by the employee as often as necessary to be maintained in a sanitary condition;
- Respirators issued to more than one employee shall be cleaned and disinfected by the employee before being worn by another employee;
- Respirators maintained for emergency use and respirators used for fit testing shall be cleaned and disinfected by the employee after each use.

Storage

Employees shall store their respirators in a manner that will prevent damage, contamination, and exposure to sunlight, extreme temperatures, excessive moisture, and damaging chemicals. Respirators shall be packed or stored in a position to prevent deformation of the facepiece and exhalation valve. Emergency respirators shall be kept accessible to the work area and shall either be stored in compartments or in covers that are clearly marked as containing emergency respirators or stored in accordance with the manufacturer's instructions.

Inspection

Employees shall inspect their respirators before each use and during cleaning. Supervisors shall ensure that respirators designated for use in an emergency situation are inspected at least monthly and in accordance with the manufacturer's recommendations. In addition, employees shall examine emergency respirators before and after each use to ensure that they are working properly. Emergency escape-only respirators shall be inspected by the employee before being carried into the workplace for use.

Respirator inspections shall include a check of respirator function, tightness of connections, and the condition of the various respirator components including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters. In addition, the elastomeric parts shall be examined for pliability and signs of deterioration.

Supervisors shall ensure that SCBAs are inspected monthly and that the air cylinders are maintained in a fully charged state and recharged if the pressure falls to 90% of the manufacturer's recommended pressure level and that the regulator and warning devices function properly.

For respirators maintained for emergency use (i.e. SCBAs), the information below shall be documented on a tag or label and affixed to the respirator or storage compartment. The tags/labels shall be maintained until replaced following a subsequent certification.

- Date of inspection
- Name of inspector
- Serial number or other means of identifying the respirator
- Findings and required remedial action

Repairs

Respirators that fail an inspection or are otherwise found to be defective shall be removed from service and either discarded or repaired. Repairing of respirators by employees is limited to changing the canisters, cartridges, filters and head straps. The Respiratory Protection Program Coordinator shall maintain a supply of replacement inhalation and exhalation valves and shall install them upon request from employees. All other replacements or repairs shall be performed by the respirator manufacturer or a technician trained by the manufacturer. No attempt shall be made by employees to replace valves, regulators and alarms, or make adjustments or modifications that are beyond the recommendations of the respirator manufacturer.

VII. Breathing Air Quality and Use

For atmosphere-supplying respirators that use compressed breathing air, the air shall meet at minimum the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7-1989. Supervisors shall ensure that only Grade D breathing air is used in atmosphere-supplying cylinders. Supervisors shall ensure that cylinders are tested and maintained as prescribed in 49 CFR 173 & 178 and that cylinders with breathing air have certificates of analysis from the supplier that the air meets the requirements for Grade D Breathing Air and the moisture content in the cylinder does not exceed a dew point of -50 °F at 1 atmosphere pressure. Breathing air couplings shall be incompatible with outlets for non-respirable gas systems.

Employees shall not use compressors to supply breathing air to respirators.

VIII. Identification of Filters, Cartridges, and Canisters

Employees shall use only filters cartridges and canisters that are labeled and color coded with the NIOSH approval label. The label shall not be removed or made illegible.

IX. Training

The Respiratory Protection Program Coordinator shall provide training to employees who wear respirators and to their supervisors upon employment and annually thereafter, or more frequently if needed. The training shall be comprehensive and understandable. The employee shall demonstrate understanding of the training by successfully completing a written test. The employee shall successfully complete the training prior to using a respirator. The training shall include the following:

- Responsibilities of persons covered by this program;
- Purpose of using a respirator and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- Limitation and capabilities of the respirator;
- Proper use of the respirator in emergency situations, including respirator malfunctions
- Inspecting, donning and doffing, using and checking the seals of the respirator;
- Procedures for maintenance and storage of the respirator;
- Recognizing medical signs and symptoms that may limit or prevent the effective use of respirators; and
- Overview of the general requirements of this section.

Dust Mask Training

Employees who voluntarily use dust masks in the workplace shall attend special training that is specifically designed to provide them with information for the safe use of dust masks. Additionally, they shall be provided with the information found in **Appendix A**.

Refresher Training

Employees shall attend refresher training annually, or more frequently if they show inadequacies in their knowledge or ability to properly use respirators, or if any other situation arises in which retraining appears necessary.

X. Program Evaluation

The Respiratory Protection Program Coordinator shall conduct evaluations of the workplace to ensure that this program is being properly implemented and employees are properly using respirators. The evaluations shall be conducted as necessary to ensure that this program is being effectively implemented. The Respiratory Protection Program Coordinator shall regularly consult with employees who wear respirators to assess their views on the overall effectiveness of the program and to identify any problems. Factors that shall be assessed include:

- 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.

XI. Recordkeeping

The Respiratory Protection Program Coordinator shall maintain written information regarding employee medical evaluations, fit testing, and this program. The records shall be made available in a reasonable time, place and manner upon request from an employee or an employee's designated representative or from the Assistant Secretary.

Medical Evaluations

Medical evaluation records shall be kept for each employee subject to medical evaluations under Section III of this program. The records shall include the result of the medical questionnaire and, if applicable, a copy of the PLHCP's written opinion and recommendations, including the results of relevant medical examinations and tests. The records shall be preserved and maintained for at least the duration of employment plus thirty years.

Fit Testing

Fit test records shall be maintained to show that fit testing was conducted and that the employee achieved a passing fit factor. The Portacount fit test printout shall be maintained until the next fit test is administered.

Respiratory Protection Program

A current copy of this program shall be maintained at the Environmental Health & Safety Office.

XII. Definitions

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.

Demand respirator means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee means any person hired by the University or the University's Research Foundation as full- or part-time personnel, including administrators, faculty, staff, students and work study students.

Employee exposure means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

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.

Escape-only respirator means a respirator intended to be used only for emergency exit.

Filter or air purifying element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are N100, R100 and P100 filters.

Hood means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life and 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.

Interior structural firefighting means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage.

Loose-fitting facepiece 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 facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere means an atmosphere with an oxygen content below 19.5% by volume.

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 Section III of this program.

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.

Pressure demand respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on an individual's response to the test agent.

Quantitative fit test means (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supervisor means an employee who oversees the work of another employee (e.g. Principal Investigator, lab manager, superintendent).

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 facepiece means a respiratory inlet covering that forms a complete seals with the face.

User seal check means an action conducted by the respirator user to determine if the respirator is properly seated to the face.

References

FR 63:1152-1300 Respiratory Protection; Final Rule

29 CFR 1910.134 OSHA Respirator Standard

29 CFR 1910.1020 OSHA Access to Employee Exposure and Medical Records

ANSI Z88.2-1992 ANSI Standard for Respiratory Protection

NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR 84

Appendix A

Information for Employees "Voluntary" Use of Respirators

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 substances does not exceed the limits set by the OSHA standards.

Since the University is supplying you with a dust mask style respirator, you need to take certain precautions to be sure the respirator itself does not present a hazard. You should do the following:

- Successfully complete respirator training.
- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding respirator limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute of 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, telling you what the respirator is designed for and how much it will protect you.
- 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.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Appendix B

OSHA Respirator Medical Evaluation Questionnaire

Can you read (circle one) YES / NO

Your employer must allow you to answer this questionnaire during normal work hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

PART A SECTION 1 (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (**PLEASE PRINT**)

1. Today's date: _____
2. Your name: _____
3. Your Age (to nearest year): _____
4. Sex (circle one): Male / Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the area code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): YES / NO
11. Check the type of respirator you will use. If you are not sure what type of respirator you will be using, ask the trainer (you can check more than one category):
 - a) _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only)
 - b) _____ Other type (for example half or full facepiece type, powered air purifying, supplied-air, self-contained breathing apparatus)
12. Have you worn a respirator (circle one): YES / NO
If "yes," what type(s): _____

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
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) Tuberculosis: YES / NO
 - f) Silicosis: YES / NO
 - g) Pneumothorax (collapsed lung): YES / NO
 - h) Lung cancer: YES / NO
 - i) Broken ribs: YES / NO
 - j) Any chest injuries or surgeries: YES / NO
 - k) Any other lung problem that you've been told about: YES / NO
4. Do you currently have any of the following symptoms of pulmonary lung illnesses?
 - 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 spetum): 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 and feet (not caused by walking): YES / NO
 - f) Heart arrhythmia: 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?
_____ Check here if you've never worn a respirator and then 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

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): YES / NO

11. Do you currently have any of the following vision problems?
 - a) Wear contact lenses: YES / NO
 - b) Wear glasses: YES / NO
 - c) Color blind: YES / NO
 - d) Any other eye or vision problem: YES / NO

12. Have you ever had an injury to your ears, including a broken ear drum: YES / NO

13. Do you currently have any of the following hearing problems?
 - a) Difficulty hearing: YES / NO
 - b) Wear a hearing aid: YES / NO
 - c) Any other hearing or ear problem: YES / NO

14. Have you ever had a back injury: YES / NO

15. Do you currently have any of the following musculoskeletal problems?
- a) Weakness in any of your arms, hands, legs, or feet: YES / NO
 - b) Back pain: YES / NO
 - c) Difficulty fully moving your arms and legs: YES / NO
 - d) Pain or stiffness when you lean forward or backward at the waist: YES / NO
 - e) Difficulty moving your head up or down: YES / NO
 - f) Difficulty fully moving your head side to side: YES / NO
 - g) Difficulty bending at your knees: YES / NO
 - h) Difficulty squatting to the ground: YES / NO
 - i) Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs.: YES / NO
 - j) Any other muscle or skeletal problem that interferes with using a respirator: YES / NO

The following questions, 16-24 must be answered by every employee who has been selected to use any type of respirator.

16. In your present job, are you working in a place that has lower than normal amounts of oxygen:
YES / NO

If "YES," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: YES / NO

17. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g. gases, fumes, or dusts), or have you come into skin contact with hazardous chemicals: YES / NO

If "YES," name the chemicals if you know them: _____

18. Have you ever worked with any of the materials, or under any of the conditions, listed below:

- a) Asbestos: YES / NO
- b) Silica (e.g., sandblasting) YES / NO
- c) Tungsten/cobalt (e.g., grinding or welding this material) YES / NO
- d) Beryllium: YES / NO
- e) Aluminum: YES / NO
- f) Coal: YES / NO
- g) Iron: YES / NO
- h) Tin: YES / NO
- i) Dusty Environments: YES / NO
- j) Any other hazardous exposures: YES / NO

If "YES," describe these exposures: _____

19. List any second jobs or side businesses you have: _____

20. List your previous occupations: _____

21. List your current and previous hobbies: _____

22. Have you been in the military services: YES / NO

If "YES, " were you exposed to biological or chemical agents (either in training or in combat):
YES / NO

23. Have you ever worked on a HAZMAT team: YES / NO

24. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures 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: _____

Appendix C

**Old Dominion University
Respirator Use and Workplace Conditions Form**

Employee Name: _____

Employee SSN: _____

Department: _____

Job Title and Number: _____

Description of work performed while wearing a respirator:

Type of respirator and filtering device:

Length of time expected to wear a respirator:

Level of work effort expected while wearing a respirator (i.e. light, moderate, strenuous):

Other protective clothing or equipment worn while wearing a respirator:

Environmental conditions encountered while wearing a respirator:

Toxic substances encountered while wearing a respirator and estimated exposure/duration of exposure:

Other information:

Appendix D

Respirator User Seal Check Procedures

Any employee who uses a tight-fitting respirator shall perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed below, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

Positive Pressure Seal Check

Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece 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.

Negative Pressure Seal 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 facepiece collapses slightly, and hold your breath for ten seconds. When the design of the inlet opening of the cartridge(s) cannot be effectively covered with the palm of the hand(s), the test can be performed by covering the inlet opening(s) with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

Appendix E

Respirator Cleaning and Disinfecting Procedures

You are responsible for ensuring that your respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause any harm to you as a user. You shall follow the cleaning and disinfecting procedures below, which are general in nature. As an alternative to the procedures below, you may follow the cleaning recommendations provided by the manufacturer of your respirator, provided such procedures are as effective as those listed below.

1. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
3. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
 - A. Hypochlorite solution made by adding approximately one milliliter of laundry bleach to one liter of warm water; or
 - B. Aqueous solution of iodine made by adding 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide per 100 milliliters of 45% alcohol) to one liter of warm water; or
 - C. Other commercially available cleaners of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
5. Rinse components thoroughly in clean, warm, preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
6. Components should be hand-dried with a clean lint-free cloth or air-dried.
7. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
8. Test the respirator to ensure that all components work properly.