

RESPIRATOR POLICY Department Guideline Details

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RESPIRATOR POLICY

I. INTRODUCTION

As part of a continuing effort to provide a safe and healthful workplace for University employees, this policy has been developed to ensure that employees are adequately protected from air contaminants and other respiratory hazards including:

- Gas and vapor contaminants;
- Airborne particulate matter;
- Oxygen deficiency; or
- Any combination of the above.

While the proper respirator may offer suitable protection against the above hazards, a respirator must not be considered the first choice for offering protection. The primary method for controlling exposure to respiratory hazards in the workplace must be through engineering controls such as ventilation, enclosure of an operation, or substitution with less toxic materials. However, when workers may be exposed above recognized exposure limits, respirators must be used if:

- Engineering controls are not feasible;
- Engineering controls alone cannot reduce exposures to acceptable levels; or
- Respirators are used as an interim measure while engineering controls are in the process of being implemented.

This policy incorporates the requirements of the Occupational Safety and Health Administration's (OSHA's) Respiratory Protection Standard (29 CFR 1910.134) and serves as the University's written respiratory protection program, as required by the standard. The Occupational Health and Safety Specialist in the Department of Environmental Health and Safety is the designated Program Administrator for the University.

II. SCOPE

This policy covers respirator use where respirators are being worn to protect employees from exposure to air contaminants above an exposure limit, or are otherwise necessary to protect employee health. This program also applies to voluntary use of respirators by employees for comfort or other reasons.

III. RESPIRATOR SELECTION

A. Only respirators certified by the National Institute for Occupational Safety and Health (NIOSH) may be used.

B. Respirators must be selected on the basis of the potential hazard to which the worker is exposed. The following factors must be considered in making this selection.

1. The identity of the substance(s) and environment for which protection is needed;
2. The physical state of the contaminant (dust, mist, vapor, etc., or a combination thereof);
3. The permissible exposure limit or toxicity of the substance;
4. Exposure assessments indicating the concentration likely to be encountered;
5. The protection factor listed for the respirator type;
6. The possibility of oxygen deficiency or other environments that are immediately dangerous to life or health (IDLH); and
7. Any limitations or restrictions applicable to the types of respirators being considered which could make them unsafe in the environment involved.

C. Assessments to determine or predict the potential exposure concentrations should be made in consultation with the Department of Environmental Health and Safety.

D. Respirator Types and Acceptable Use Criteria

1. Air-Purifying Respirators (APRs) cleanse contaminated air as it passes through an air-purifying device (such as a filter, cartridge, or canister). The respirator will not offer protection unless the proper air-purifying device made for specific air contaminants (such as gases, vapors, dusts, mists and fumes) is used. Contact the Department of Environmental Health and Safety for assistance in selecting the proper air-purifying device.

APRs provide no protection against oxygen deficiency or other atmospheres that are immediately dangerous to life or health (IDLH)--in other words, atmospheres that would not allow the wearer to escape if the respirator were to fail. Air-purifying devices used for protection against gases and vapors must be equipped with end-of-service-life indicators (ESLIs). Otherwise, a change schedule must be implemented to ensure continued effectiveness of the respirator.

a. Dust Masks are APRs with the facepiece serving as the filtering medium. These may or may not contain exhalation valves built into the facepiece.

b. Full-facepiece and half-mask negative pressure respirators use a variety of air-purifying devices to absorb, adsorb, or filter contaminants from the air. A full-facepiece respirator provides protection from eye irritants and offers more protection from air

contaminants than a half-mask respirator.

c. Powered Air-Purifying Respirators (PAPR) are positive pressure devices that use a blower to force ambient air through an air-purifying device, and then to the wearer's respirator facepiece, hood, or helmet. A PAPR is the most protective of the APRs because the positively pressurized respirator prevents inward leakage of contaminants into the facepiece, hood, or helmet.

2. Atmosphere-Supplying Respirators provide a supply of breathable air to the wearer from an uncontaminated source, independent of the ambient air. The OSHA Respiratory Protection standard requires employers to provide workers who are wearing atmosphere-supplying respirators with breathing air of high purity. The checklist in Appendix D should be used for this purpose. Two types of atmosphere-supplying respirators are:

a. Air-line Respirators supply the wearer with breathable air through a hose from a compressor or compressed air cylinder. These respirators are equipped with half- or full- facepieces, hoods, helmets, or loose-fitting facepieces. Air-line respirators use one of three airflow control devices to regulate the airflow: 1) continuous-flow; 2) pressure-demand; or 3) demand. In a continuous-flow respirator, a constant but adjustable flow of air is delivered to the respirator that maintains a slight positive pressure inside the respirator and thus prevents inward leakage. This type of equipment is best suited for use with an air compressor. When compressed air cylinders are used as the air source and air must be conserved, the pressure-demand type respirator is preferred. Pressure-demand maintains a slight positive pressure while supplying air at the demand of the wearer. A demand type respirator is not recommended since it does not maintain a positive pressure within the facepiece. Air-line respirators may not be used in IDLH atmospheres.

b. Self-contained Breathing Apparatus (SCBA) provides a breathing air source that is carried by the user, offering greater mobility to the wearer than air-line respirators. SCBAs may be used in IDLH atmospheres provided that they offer a minimum service life of 30 minutes. This is the equipment of choice for emergency situations. SCBA respirators with less than 30 minutes of service life may be used to escape from IDLH atmospheres provided that they are NIOSH-certified for escape from the atmosphere in which they will be used. An SCBA's advantage over an air-line respirator is that it can be used at greater distances from an air source. Disadvantages are their weight, bulk, and the time limit associated with each air supply unit. Additionally, higher levels of operator training are required to ensure safe use.

3. Combination Respirators

a. SCBA/Air-line combination units provide SCBA back-up if the primary air-line supply fails. These respirators may be used in IDLH atmospheres and are good for situations that require extended work periods beyond the time provided by an SCBA alone.

b. Air-Purifying/Air-line combination units provide an APR back-up if the air supply fails. These respirators may not be used in IDLH atmospheres. Furthermore, they may only be used in atmospheres for which the air-purifying device is approved.

IV. VOLUNTARY USE OF RESPIRATORS

Employees who voluntarily choose to wear a respirator when a respirator is not required may do so. The training and fit-testing requirements will not apply in this case. However, supervisors must ensure that:

1. Employees are given a copy of Appendix A of this policy;
2. The respirator maintenance and care provisions of this policy are followed.; and
3. Employees who wear a respirator other than a dust mask, are medically evaluated

V. MEDICAL EVALUATIONS

An initial medical evaluation must be conducted by a physician or other licensed health care professional (PLHCP) at the University's Student Health Services (SHS) before an employee is assigned tasks requiring the use of a respirator. The PLHCP will make a written determination of whether the employee is able to use a respirator. The medical evaluation may be conducted by means of a physical examination or by a PLHCP's review of the Medical Evaluation Questionnaire (Appendix C), completed by the employee. Upon review of the questionnaire, the PLHCP may request to conduct a follow-up physical examination of the employee at his/her discretion.

Supervisors are responsible for ensuring that their employees receive medical evaluations prior to assigning them a respirator. Departments are responsible for making arrangements with Student Health Services by contacting Jan Copeland at (860) 486-0748. Medical questionnaires must be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire must be administered in a manner that ensures that the employee understands its content. Employees must be given the opportunity to discuss the questionnaire or physical examination results with the PLHCP.

Medical evaluations must be conducted annually AND whenever any of the following occurs:

1. An employee reports medical signs or symptoms that are related to his/her ability to use a respirator.
2. A PLCHP, supervisor, or the Department of Environmental Health and Safety informs the employee that the employee needs to be reevaluated.
3. Information from the respiratory protection program, including observations made during fit-testing and program evaluation, indicates a need for employee reevaluation.
4. A change occurs in the workplace that places a greater physiological burden on an employee.

The PHCLP will incorporate the requirements of Appendix B of this policy in conducting a medical evaluation or examination of an employee.

Student Health Services will submit the PLHCP's written recommendation to the Department of Environmental Health and Safety. The written recommendation will include the following:

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

VI. MEDICAL RECORDS

An accurate record for each employee subject to medical surveillance must be established and maintained. The record must include at least the following information:

1. The name of the employee;
2. The PLHCP's written recommendation;
3. A copy of the employee's medical evaluation results, including the Medical Evaluation Questionnaire, and results of any tests or follow-up physical examinations; and
4. Any employee medical complaints related to exposure to any respiratory hazards.

The University is responsible for ensuring that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020. The Department of Environmental Health and Safety will maintain items 1 and 2; Student Health Services will maintain items 1 through 4. In addition, Student Health Services and Environmental Health and Safety will maintain a current copy of the University's Respirator Policy.

VII. TRAINING

Employees who are required to wear a respirator must receive training prior to engaging in work requiring its use. For users of air purifying respirators (APRs) training will be conducted by the Program Administrator in Environmental Health and Safety or his/her authorized designee. Departments must make special arrangements for SCBA and Air-line Respirator users to receive training from a qualified instructor. Departments may contact EH&S for referrals.

Supervisors should arrange for training with EH&S after employees have been medically evaluated and written approval to wear a respirator has been received from a PLHCP.

Supervisors must ensure that employees receive training as follows:

1. Initially—prior to being assigned a respirator.

2. Annually.
3. Whenever retraining appears necessary because:
 - a. Changes in the workplace or the type of respirator render the previous training obsolete.
 - b. Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the necessary understanding or skill.
 - c. Any other situation arises in which retraining appears necessary to ensure safe respirator use.

VIII. RESPIRATOR FIT

A properly fitting respirator is essential if employees are to receive adequate protection. Supervisors must ensure that each employee is Fit Tested to his/her assigned respirator prior to its first use. In addition, User Seal Checks must be performed by the employee prior to each use of the respirator. Procedures for Fit Tests and User Seal Checks and other considerations to ensure fit are as follow:

A. Fit Tests --This section applies to all tight-fitting respirators, including dust masks (does not apply to helmets, or hoods, or for escape-only respirators).

1. Employees must pass a respirator fit test prior to using a respirator and annually thereafter.
2. The Program Administrator in the Department of Environmental Health and Safety or his/her authorized designee will perform these tests using the Qualitative Fit Test method.
(Note: For SCBA and Air-Line respirators used in demand mode, or Full-face negative pressure respirators used in atmospheres more than ten times the OSHA Permissible Exposure Limit, Departments must make special arrangements for fit testing using the Quantitative Fit Test method with the manufacturer or other qualified fit testing agency.)
3. Additional fit testing is required whenever an employee:
 - incurs a weight change of 20 lbs or more;
 - has significant dental changes; or
 - has any other change in facial conditions that may interfere with facepiece sealing (i.e., broken facial bone, scarring, surgery, etc.).
4. Fit tests will be conducted with the same make, model, and size respirator that the employee will use on the job.
5. Employees with beards or other facial hair that interfere with a tight facepiece seal will not be allowed to use tight-fitting respirators, and will not be fit tested. Respiratory protection for employees with beards may be attained by using a powered air-purifying hood.

B. User Seal Checks

Prior to each use, a User Seal Check must be performed by the employee to ensure an adequate seal is achieved each time the respirator is worn. User Seal Checks are not substitutes for Fit Tests. User Seal Checks must be conducted as follows:

1. The respirator facepiece, straps, and headband must be adjusted and secured properly.
2. Positive pressure check—Close off the exhalation valve and exhale gently into the facepiece. If a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the facepiece seal, the seal is satisfactory.
3. Negative pressure check—Close off the inlet opening of the cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s)—a thin latex or nitrile glove will help to close off the openings. Inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. If the facepiece remains collapsed with no inward leakage of air, the seal is satisfactory.
4. If leakage is detected, steps 1 through 3 must be repeated until a proper seal is attained.

C. Other Considerations for Proper Fit

1. Employees who must wear corrective glasses, goggles, or other protective equipment must do so in a manner that does not interfere with the face-to-facepiece seal or valve function of the respirator.
2. Employees using tight-fitting respirators must have no condition, such as facial hair, that would interfere with the face-to-facepiece seal or valve function of the respirator.

IX. RESPIRATOR MAINTENANCE AND CARE

A. Cleaning and Disinfecting

1. Each employee must be provided with a respirator that is clean, sanitary, and in good operating condition.
2. Respirators (except dust masks) must be cleaned and disinfected as follows:
 - a. As often as necessary when issued for the exclusive use of one employee.
 - b. Before being worn by different individuals.
 - c. After each use for emergency use respirators.
 - d. After each use for respirators used for fit testing and training.
3. Respirators (except dust masks) must be cleaned using the following procedures, or as recommended by the manufacturer:
 - a. Remove filters or cartridges. Disassemble facepieces by removing components as recommended by the manufacturer. Discard or repair any defective parts.
 - b. Wash components in warm (110oF max.) water with a disinfecting cleaner recommended by the manufacturer. Use a nylon brush, if needed, to help remove dirt.
 - c. Rinse components thoroughly in clean, warm, preferably running water. Drain.
 - d. Hand dry components with a clean lint-free cloth or air dry.
 - e. Reassemble facepiece, replacing filters and cartridges where necessary.
 - f. Test the respirator to ensure that all components work properly.

B. Storage

1. Respirators must be stored to protect them from damage from the elements and from becoming deformed.
2. Emergency respirators must be stored as follows:
 - a. To be accessible to the work area.
 - b. In compartments marked as such.
 - c. In accordance with manufacturer's recommendations.

C. Inspections

All respirator inspections will include checking respirator function, tightness of connections, and condition of the parts.

1. Routine-use respirators must be inspected before each use and during routine cleaning by the user.
2. SCBAs and emergency respirators must be inspected monthly and checked for proper function before and after each use. SCBA inspections will also include checking that cylinders are fully charged and that regulators and warning devices function properly. SCBA inspections must be certified and documented by tagging the respirator or by maintaining inspection reports.
3. Emergency escape-only respirators must be inspected before being carried into the workplace for use.
4. Supervisors must periodically inspect respirators to ensure that they are kept clean, stored properly, and in good working condition.
5. Employees must report any malfunction of a respirator or damaged respirator parts to his/her supervisor.

6. Supervisors must take any worn or damaged respirator or respirator parts out of service immediately and have them replaced with NIOSH-approved parts or repaired by trained personnel. NOTE: Any reducing and admission valves, regulators, and alarms must be adjusted or repaired by the manufacturer or a technician trained by the manufacturer.

X. RESPIRATOR USE IN IDLH ATMOSPHERES AND DURING INTERIOR STRUCTURAL FIREFIGHTING

University Fire Department personnel are the only employees authorized to enter IDLH atmospheres unless otherwise approved by the Department of Environmental Health and Safety. Whenever respirators are used in IDLH atmospheres or during interior structural firefighting, the following must be ensured:

The appropriate number of standby personnel are deployed. Standby personnel and employees in the IDLH environment maintain communication. Standby personnel are properly trained, equipped, and prepared. A designated representative is notified before the standby personnel enters an IDLH atmosphere to provide emergency rescue. Standby personnel are equipped with a pressure-demand or other positive pressure SCBA, or a positive pressure supplied air

respirator with an escape SCBA, and appropriate retrieval equipment or other means for rescue.

In addition to the requirements for all IDLH atmospheres, if workers are involved in interior structural firefighting, the following must be ensured:

At least two employees enter the IDLH atmosphere and remain in visual or voice contact with one another at all times.
At least two employees are located outside the IDLH atmosphere.
All employees engaged in interior structural firefighting use SCBAs.

Although two individuals must always be located outside the IDLH atmosphere, one may be assigned to an additional role (such as incident command, pump operations, or operator of the fire apparatus) so long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident. Any assignment of additional duties to the second firefighter must be weighed against the potential for the additional duties to interfere with assistance or rescue activities.

Exemption: If life is in jeopardy, the "two-in, two-out" requirement is waived. The incident commander and the firefighters at the scene must decide whether the risks posed by entering the interior structural fire before at least four firefighters have assembled is outweighed by the need to rescue a victim whose life may be at risk.

XI. PROGRAM EVALUATION

The Program Administrator in the Department of Environmental Health and Safety will conduct periodic workplace evaluations to ensure that this policy is being effectively implemented. The evaluations will include site inspections, a review of records, and regular consultations with employees who use respirators and their supervisors. The evaluations may also include air monitoring.

A report identifying problems will be forwarded to the employee's supervisor, and will include recommended corrective action and target dates for the implementation of those corrections.

APPENDIX A

OSHA Regulations (Standards - 29 CFR)
(Mandatory) Information for Employees Using Respirators
When Not Required Under Standard - 1910.134 App D

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.

APPENDIX B

OSHA Regulations (Standards - 29 CFR)
Respiratory Protection. - 1910.134 -section e

(e) Medical evaluation. Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, this paragraph specifies the minimum requirements for medical evaluation that employers must implement to determine the employee's ability to use a respirator.

(e)(1) General. The employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

(e)(2) Medical evaluation procedures

(e)(2)(i) The employer shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

(e)(2)(ii) The medical evaluation shall obtain the information requested by the questionnaire in Sections 1 and 2, Part A of Appendix C of this section.

(e)(3) Follow-up medical examination

(e)(3)(i) The employer shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination.

(e)(3)(ii) The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

(e)(4) Administration of the medical questionnaire and examinations

(e)(4)(i) The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.

(e)(4)(ii) The employer shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

(e)(5) Supplemental information for the PLHCP

(e)(5)(i) The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

(e)(5)(i)(A) The type and weight of the respirator to be used by the employee;

(e)(5)(i)(B) The duration and frequency of respirator use (including use for rescue and escape);

(e)(5)(i)(C) The expected physical work effort;

(e)(5)(i)(D) Additional protective clothing and equipment to be worn; and

(e)(5)(i)(E) Temperature and humidity extremes that may be encountered.

(e)(5)(ii) Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.

(e)(5)(iii) The employer shall provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

Note to Paragraph (e)(5)(iii): When the employer replaces a PLHCP, the employer must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP

or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically reevaluated solely because a new PLHCP has been selected.

(e)(6) Medical determination. In determining the employee's ability to use a respirator, the employer shall:

(e)(6)(i) Obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

(e)(6)(i)(A) 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;

(e)(6)(i)(B) The need, if any, for follow-up medical evaluations; and

(e)(6)(i)(C) A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

(e)(6)(ii) If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, the employer shall provide a PAPR if the PLHCP's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the employer is no longer required to provide a PAPR.

(e)(7) Additional medical evaluations. At a minimum, the employer shall provide additional medical evaluations that comply with the requirements of this section if:

(e)(7)(i) An employee reports medical signs or symptoms that are related to ability to use a respirator;

(e)(7)(ii) A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;

(e)(7)(iii) Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or

(e)(7)(iv) A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

APPENDIX C

TO THE EMPLOYEE: Can you read (circle one)?: Yes/No

Your employer must allow you to answer this questionnaire during normal working 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: _____
Signature _____
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 (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?
 - Asbestosis: Yes/No
 - Asthma: Yes/No
 - Chronic bronchitis: Yes/No

Emphysema: Yes/No
Pneumonia: Yes/No
Tuberculosis: Yes/No
Silicosis: Yes/No
Pneumothorax (collapsed lung): Yes/No
Lung cancer: Yes/No
Broken ribs: Yes/No
Any chest injuries or surgeries: Yes/No
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?

Shortness of breath: Yes/No
Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
Have to stop for breath when walking at your own pace on level ground: Yes/No
Shortness of breath when washing or dressing yourself: Yes/No
Shortness of breath that interferes with your job: Yes/No
Coughing that produces phlegm (thick sputum): Yes/No
Coughing that wakes you early in the morning: Yes/No
Coughing that occurs mostly when you are lying down: Yes/No
Coughing up blood in the last month: Yes/No
Wheezing: Yes/No
Wheezing that interferes with your job: Yes/No
Chest pain when you breathe deeply: Yes/No
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?

Heart attack: Yes/No
Stroke: Yes/No
Angina: Yes/No
Heart failure: Yes/No
Swelling in your legs or feet (not caused by walking): Yes/No
Heart arrhythmia (heart beating irregularly): Yes/No
High blood pressure: Yes/No
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?

Frequent pain or tightness in your chest: Yes/No
Pain or tightness in your chest during physical activity: Yes/No
Pain or tightness in your chest that interferes with your job: Yes/No
In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
Heartburn or indigestion that is not related to eating: Yes/No
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?

Breathing or lung problems: Yes/No

Heart trouble: Yes/No
Blood pressure: Yes/No
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, check here and go to question 9): _____

Eye irritation: Yes/No
Skin allergies or rashes: Yes/No
Anxiety: Yes/No
General weakness or fatigue: Yes/No
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

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 eardrum: Yes/No

13. Do you currently have any of the following hearing problems?

Difficulty hearing: Yes/No
Wear a hearing aid: Yes/No
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?

Weakness in any of your arms, hands, legs, or feet: Yes/No
Back pain: Yes/No
Difficulty fully moving your arms and legs: Yes/No
Pain or stiffness when you lean forward or backward at the waist: Yes/No
Difficulty fully moving your head up or down: Yes/No
Difficulty fully moving your head side to side: Yes/No
Difficulty bending at your knees: Yes/No
Difficulty squatting to the ground: Yes/No
Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

16. How often are you expected to use the respirator(s) (circle "yes" or "no" for all

answers that apply to you)?:

Escape only (no rescue): Yes/No

Emergency rescue only: Yes/No

Less than 5 hours per week: Yes/No

Less than 2 hours per day: Yes/No

2 to 4 hours per day: Yes/No

Over 4 hours per day: Yes/No

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

Light (less than 200 kcal per hour): 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 (200 to 350 kcal per hour): 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.

Heavy (above 350 kcal per hour): 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.).

18. Will you be wearing protective clothing and/or equipment (other than the respirator)

when you're using your respirator: Yes/No

If ``yes,`` describe this protective clothing and/or equipment: _____

19. Will you be working under hot conditions (temperature exceeding 77°F): Yes/No

20. Will you be working under humid conditions: Yes/No

APPENDIX D

ATMOSPHERE-SUPPLYING RESPIRATORS

CHECKLIST FOR BREATHING AIR QUALITY AND USE

Check that at your facility:

General

- q Compressed breathing air meets the requirements for Grade D breathing air.
- q Compressed oxygen is not used in respirators that have previously used compressed air.
- q Oxygen concentrations greater than 23.5 percent are used only in equipment designed for oxygen service or distribution.
- q Breathing air couplings are incompatible with outlets for other gas systems.
- q Breathing gas containers are marked with appropriate NIOSH certification.

Breathing Air Cylinders

- q Cylinders are tested and maintained according to DOT 49 CFR Part 173 and 178.
- q A certificate of analysis for breathing air has been obtained from the supplier.
- q Moisture content in the cylinder does not exceed a dew point of -50 oF at 1 atmosphere pressure.

Compressors

- q Are constructed and situated to prevent contaminated air from getting into the system.
- q Are set up to minimize the moisture content.
- q Are equipped with in-line air-purifying sorbent beds and/or filters that are maintained or replaced following manufacturer's instructions.
- q Are tagged with information on the most recent change date of the filter and an authorizing signature.
- q Carbon monoxide does not exceed 10 ppm in the breathing air from compressors that are not oil-lubricated.
- q High-temperature and carbon monoxide alarms are used on oil-lubricated compressors, or that the air is monitored often enough to ensure that carbon monoxide does not exceed 10 ppm if only a high-temperature alarm is used.