

PROCEDURE 10 - Respiratory Protection

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Synopsis

The purpose of this procedure is to establish requirements related to respiratory protection. This procedure applies to all NWS facilities and work locations where respiratory protection is required and to the employees using respiratory protection.

Initial Implementation Requirements:

- **Analyze Site Operations versus Requirements of the Procedure**
 - Evaluate Workplaces for airborne contaminants. (10.5.2c, 10.3.2)
 - Evaluate the use of Engineering and Administrative Controls, if applicable (10.5.2c, 10.3.11)
- **Develop/Obtain Documentation/Information required for Site**
 - Establish Respiratory Protection Program (10.3.11c, Attachment B), if required
 - Develop Procedures for selecting respirators. (10.3.11e.1)
 - Develop Procedures for proper use of respirators. (10.3.11e.4)
 - Prepare Fit Test Procedures. (10.3.11e.3)
 - Develop Procedures and Schedule for maintenance of respirators. (10.3.11e.5)
 - Establish Records for Medical Evaluations, Fit Tests and Training. (10.3.10)
- **Provide Medical Evaluations to all employees required to use respirators**
 - Medical Evaluation. (10.3.3 & 10.3.11e.2)
 - Fit Testing (10.3.4)
- **Designate Person to Administer Respiratory Protection Program**
- **Provide Local Training of Site Personnel**
 - Respiratory Hazards Training. (10.3.11e.7)
 - Training for Respirator Users. (10.3.11e.8)
- **Inventory Material/Equipment (Procure as required)**
 - Notification Signs/Postings. (10.5.2b, 10.3.8)
 - Respirators/Filters. (10.5.2b, 10.3.7)

Recurring and Annual Task Requirements:

- **Review/Update Documentation/Information required for Site**
 - Maintain Respiratory Protection Program (10.3.11c, Attachment B), if required
 - Maintain Records for Medical Evaluations, Fit Tests and Training. (10.3.10)
- **Provide Refresher Training of Site Personnel**
 - Annual Training for Respirator Users. (10.3.9)
- **Provide Medical Evaluations to all employees required to use respirators**
 - Medical Examination. (10.3.3 & 10.3.11e.2), as necessary
 - Annual and as-required Fit Testing (10.3.3, Attachment A)
- **Inspect/Replace/Maintain Material/Equipment**
 - Notification Signs/Postings.(10.5.2b, 10.3.8)
 - Respirators/Filters. (10.5.2b, 10.3.7)

Respiratory Protection Checklist

Requirements	Reference	YES	NO	N/A	Comments
Is initial and annual review of this procedure conducted and documented?	10.4.2				
Does the facility require a written Respiratory Protection Program?	10.3.11c				
Is this program updated as necessary to reflect the changes in the workplace that affect respiratory use?	10.3.11d				
Are the Safety or Environmental/Safety Focal Point, Regional Environmental/Safety Coordinator, and the NOAA SECO being notified when work activities are suspected to involve breathing contaminated air?	10.3.2				
Is a “Qualified Individual” being used to determine the need for protection based on air monitoring and/or professional judgment for those work activities suspected to involve breathing contaminated air?	10.3.2				
Have all feasible administrative and engineering controls been exhausted prior to implementing the use of respiratory protection?	10.3.1				
Are respirators that are appropriate for the hazard to which the employee is exposed being selected and issued by a “Qualified Individual”?	10.3.6				
Have all employees who must use a respirator, been medically evaluated by a physician or a licensed health care professional (PLHCP) prior to being fit tested?	10.3.3				
Has a health care professional provided a written	10.3.3				

Requirements	Reference	YES	NO	N/A	Comments
recommendation concerning each employee’s ability to use a respirator?					
Has the “Qualified Individual” performed Fit Test to all employees who have been medically cleared to use a respirator?	10.3.4				
Have all employees who have been issued a respirator received annual training in the testing, maintenance, donning and use of respirators?	10.3.5				
Where respirators are required, are the respirators, training and medical evaluations provided at no cost to the employee?	10.3.11h				
Are all respirators being cleaned and disinfected every two weeks or at the end of each project?	10.3.7				
Are notification signs stating “Respiratory Protection Required” used at each entrance of the work area where respirators are used?	10.3.8				
Is Fit Testing completed on an annual basis, or when major facial changes or loss of weight occurs?	10.3.11e				
Are records maintained for those employees who have been medically evaluated, fit tested and received respirator training?	10.3.10				
Are procedures in place to establish guidelines for voluntary respirator use?	10.3.11f				
Is the Safety or Environmental/Safety Focal Point, in conjunction with the NOAA SECO and the NWS Environmental/Safety Regional Coordinator, conducting required evaluations to measure the overall program	10.3.11g				

Requirements	Reference	YES	NO	N/A	Comments
effectiveness, if required?					

10 RESPIRATORY PROTECTION

10.1 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to establish requirements related to respiratory protection. This procedure applies to all NWS facilities, work locations, and employees where respiratory protection is used.

10.2 Definitions

Air-Purifying Respirator. A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Demand Respirator. An atmosphere-supplying respirator that admits breathing air through the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), and a Data Collection Office (DCO).

Fit Testing. Evaluation of sealing characteristics and performance of the respirator under controlled conditions while worn by the user.

Harmful Atmosphere. Any atmosphere with contaminant concentrations above OSHA Permissible Exposure Levels (PEL's) or American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Values (TLV's), in addition to atmospheres with recognized hazardous levels of contaminants.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Field Support Center (SFSC).

PEL. Permissible Exposure Level. Established by OSHA, PELs are the maximum allowable concentrations of substances in the air that an employee can be exposed to without harmful effects during an 8-hour period.

Qualified Individual. A person who is qualified by appropriate education, training, and experience to provide technical support on respiratory protection issues, e.g., selecting the appropriate respirator for a specific environment.

Respirator. A device used to protect the wearer from the inhalation of harmful atmospheres.

MSDS. Material Safety Data Sheet.

NOAA SECO: NOAA Safety and Environmental Compliance Office

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8; Space Weather

Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC)

Supplied-Air Respirator. An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-Fitting Respirator. A respirator with a respiratory inlet covering that forms a complete seal with the face.

TLV. Threshold Limit Value. Exposure guidelines established by ACGIH for airborne concentrations of various chemicals.

10.3 Procedure

10.3.1 Respirators shall be used when engineering or administrative controls cannot be adopted to control or prevent the inhalation of harmful atmospheres. Respiratory protection may be required for NWS personnel involved in work with certain hazardous chemicals; during sand blasting operations; when spray painting; when exposed to dust, smoke and fumes associated with welding operations; or when working in an oxygen-deficient or potentially oxygen-deficient atmosphere.

10.3.2 When work activities are suspected to involve contaminated breathing air, the Safety or Environmental/Safety Focal Point shall be notified in advance of any work performed. The Focal Point should notify the Regional Environmental/Safety Coordinator and the NOAA Safety and Environmental Compliance Office (SECO), as needed. The Safety or Environmental/Safety Focal Point shall then, with assistance of SECO, obtain services of a Qualified Individual to determine the need for protection based on air monitoring and/or professional judgment.

10.3.3 Before an employee can be fit tested, a physician or other licensed health care professional (PLHCP) shall evaluate and determine if the employee is physically able to use a respirator.

10.3.4 For employees who have been medically cleared to use a respirator, a fit test shall be performed by a Qualified Individual to ensure that a proper face seal is maintained. Fit testing shall be provided initially, annually and as necessary.

10.3.5 Respirators shall then be provided to those employees who have received training in the testing, maintenance, donning and use of respirators. Employees shall also receive training on the proper types and uses of respirators and filters and their limitations.

10.3.6 The Qualified Individual shall select and issue respirators which are appropriate for the hazard to which the employee is exposed.

10.3.7 In order to help provide the wearer with the proper protection, routinely used respirators shall be cleaned and disinfected every two weeks or at the end of the project (whichever comes first) or, as needed. Respirators shall be inspected before each use and during cleaning. Worn parts shall be replaced.

10.3.8 In work areas where respirators are required to be used, a notification sign shall be posted at each entrance which states "Respiratory Protection Required." Employees shall not

enter an area where respiratory protection is required without proper training, medical clearance, and fit testing.

10.3.9 Respiratory protection training shall be given to respirator users annually and shall include, at a minimum, the proper use, inspection, and cleaning of respirators.

10.3.10 Records shall be maintained on those employees who have been medically evaluated; fit tested; or received respirator training. Records of medical evaluations shall be kept for the duration of the wearer's employment and 30 years following.

10.3.11 It is the policy of the NWS to adhere to the provisions of 29 CFR 1910.134, "Respiratory Protection" including the following:

- a. In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, when effective engineering and/or administrative controls are not feasible, or while they are being instituted, appropriate respirators shall be used.
- b. Respirators shall be provided when such equipment is necessary to protect the health of the employee. The respirators shall be applicable and suitable for the purpose intended.
- c. In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, a written Respiratory Protection Program with worksite-specific procedures shall be established, implemented, and maintained.
- d. The Respiratory Protection Program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use.
- e. The Respiratory Protection Program shall include the following provisions, as applicable:
 - (1) Procedures for selecting respirators for use in the workplace.
 - (2) Medical evaluations (initially and as necessary) of employees required to use respirators.
 - (3) Fit-testing procedures for tight-fitting respirators.
 - (4) Procedures for proper use of respirators in routine and emergency situations.
 - (5) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding and otherwise maintaining respirators.
 - (6) Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators.
 - (7) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations.
 - (8) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.

- (9) Procedures for regularly evaluating the effectiveness of the Program:
- f. Where respirator use is not required and voluntary respirator use is permissible, the employer shall establish and implement those elements of a written Respiratory Protection Program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

<p>NOTE: NWS does allow voluntary use of disposable dust masks (i.e., filtering facepieces, which are provided for the employee's comfort). There are no medical limitations on the use of dust masks. Employers who allow use of dust masks are required to ensure that the masks are not dirty or contaminated, that their use does not interfere with employees' ability to work safely.</p>
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- g. The Site Focal Point, in conjunction with the NOAA SECO and the NWS Environmental/Safety Regional Coordinator, shall administer or oversee the Respiratory Protection Program and conduct the required evaluations of program effectiveness.
- h. Respirators, training, and medical evaluations shall be provided at no cost to the employee.

10.4 Responsibilities

10.4.1 Regional or Operating Unit Environmental/Safety Coordinators

- a. Will monitor and promote compliance with the requirements of this procedure at field offices or Operating Unit facilities.
- b. Will ensure that applicable procedures are implemented at regional headquarters or Operating Unit facilities.

10.4.2 Station Manager

- a. Will have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Will ensure that initial and periodic inventory of notification signs/postings, respirators, filters and other safety equipment is accomplished and adequate stock is maintained, as required.
- c. Will ensure that workplaces are evaluated for air contaminants, if required, and that engineering or/and administrative controls are used, if possible, before establishing the Respiratory Protection Program.
- d. Will review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/ Safety Coordinator.

10.4.3 NWS Headquarters (NWSH)

- a. The NWS Safety Office will provide assistance to Regional Headquarters, Operating Units, and field personnel to ensure that NWS facilities comply with requirements of this procedure.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this procedure.

10.4.4 Safety or Environmental/Safety Focal Point

- a. Will ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.
- b. Will ensure that a “qualified individual” identifies the site operations which require the use of respiratory protection.

10.4.5 Physician or Other Licensed Health Care Professional (PLHCP)

- a. Will determine, if required, the physiological and psychological capabilities of the potential respirator user to certify that the employee is fit to wear a respirator.

10.4.6 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure and to report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p>NOTE: Reference NWS PD 50-11 for complete list of responsibilities http://www.weather.gov/directives/050/pd05011c.pdf</p>
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10.5 References

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 10.5.1 American National Standards Institute, ANSI Standards Z88.2 - “American National Standard for Respiratory Protection.”
- 10.5.2 National Institute for Occupational Safety and Health (NIOSH), 84 CFR 42, “Respiratory Protection.”
- 10.5.3 National Safety Council, Fundamentals of Industrial Hygiene, 4th edition.
- 10.5.4 U.S. Department of Labor, Occupational Safety and Health Administration, Standard 29 CFR 1910.134, “Respiratory Protection.”
- 10.5.5 U.S. Department of Labor, Occupational Safety and Health Administration, Standard 29 CFR 1910.139, “Respiratory Protection for M. Tuberculosis.”
- 10.5.6 U.S. Department of Labor, Occupational Safety and Health Administration, Standard 29 CFR 1910, Subpart Z, “Toxic and Hazardous Substances.”

10.6 Attachments

Attachment A: Information for Employees Using Respirators When Not Required Under the Standard (29 CFR 1910.134).

Attachment B: Sample Respiratory Protection Program

ATTACHMENT A

Information for Employees Using Respirators When Not Required Under the OSHA Standard (29 CFR 1910.134, Appendix 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 comply with all instructions provided by the manufacturer on use, maintenance, cleaning and care of respirators, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) 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. 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.

ATTACHMENT B
Sample Respiratory Protection Program

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I. Purpose

The purpose of this plan is to establish a program and procedures for respiratory protection at the _____ . This program supports compliance with the Occupational Safety and Health Administration Respiratory Protection Standard, 29 CFR 1910.134. This program describes the procedures for identifying airborne hazards, selecting and using proper respirators, medical evaluations of employees, fit testing of respirators, and training and record keeping requirements. The program outlines the policy and procedures necessary to implement a Respiratory Protection Program.

II. Scope

This program applies to all employees who are required to wear air purifying respirators to prevent exposure to airborne contaminants. It also applies to employees who voluntarily wear respirators although respirators are not required.

This program does not cover the use of atmosphere supplying respirators in oxygen deficient atmospheres, high concentration atmospheres, or unknown atmospheres.

III. Definitions

Administrative Controls: administrative changes in work schedules or procedures that reduce employee exposure to respiratory hazards.

APR: air purifying respirator. 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: a respirator that supplies the wearer with breathing air from a source independent of the ambient air, including supplied air respirators (SAR) and self contained breathing apparatus (SCBA).

Canister or cartridge: means a container with a filter, sorbent or catalyst, or a combination of these items, which removes specific contaminants from the air passed through the container.

Contaminants: substances in the air that can cause immediate (acute) or long term (chronic) health problems.

Concentration: the amount of contaminant in the air, measured in parts per million (ppm) or milligrams per cubic meter (mg/m^3).

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.

Dusts: are fine particles that are created when solid material breaks down. Operations that typically create dust are grinding, crushing, drilling, sanding and milling.

Dust Masks (Filtering Facepieces): 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.

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 exposure: means an 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): 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.

Engineering Controls: specialized equipment, processes or practices that can reduce employee exposure to respiratory hazards.

Escape only respirator: means a respirator that is intended to be used only for emergency exit.

Exposure: coming into contact with a hazardous substance through inhalation, ingestion, skin contact or absorption.

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.

Fumes: are created when solid materials vaporize under extreme heat. As the vapor cools it condenses into an extremely small particle, e.g., fumes created during welding and cutting of steel.

Gases: gases have the ability to diffuse and spread throughout an enclosure or area. Examples of gases are nitrogen, carbon monoxide and carbon dioxide.

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

IDLH: an OSHA classification “Immediately Dangerous to Life and Health” for atmospheres that are immediately fatal.

Loose fitting facepiece: a respirator with an inlet covering that is designed to form a partial seal with the face.

Mists: are created when liquids are atomized and condensed. Typical sources of mists are spraying operations, mixing and cleaning operations.

MSDS: Material Safety Data Sheet. Written or printed material from the product manufacturer which has information about the hazards of a material.

MUL: Maximum Use Limit. The maximum amount of protection provided by a respirator. MUL is calculated by multiplying the respirator's protection factor by the Permissible Exposure Level (PEL) for the contaminant.

Negative Pressure Respirator: a tight fitting respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air outside the respirator.

NIOSH: National Institute for Occupational Safety and Health. A federal agency which establishes minimum performance standards for respirators and approves respirators for various uses.

Oxygen Deficiency: too little oxygen in the air, which can result in illness or injury to employees. By OSHA definition, it is an oxygen level less than 19.5%.

PAPR: *a powered air purifying respirator.* A respirator that uses a blower to force the ambient air through air purifying elements to the inlet covering.

PEL: *Permissible Exposure Level.* Established by OSHA, PELs are the maximum allowable concentrations of substances in the air that an employee can be exposed to without harmful effects during an 8-hour period.

PLHCP: *Physician or other licensed health care professional,* whose legally permitted scope of practice allows him or her to independently provide or be delegated the responsibility to provide some or all of the health care services required by 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.

PPE: *Personal Protective Equipment.* Any equipment used to protect an employee from danger, including hard hats, boots, gloves, hoods, goggles, and respirators.

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

QNFT: *Quantitative fit test:* 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.

Supplied air respirator (SAR): means an atmosphere supplying respirator for which the source of breathing air is not designed to be carried by the user. (e.g., an airline respirator).

Tight fitting facepiece: a respirator with an inlet covering that forms a complete seal with the face.

TLV: Threshold Limit Value. Exposure guidelines established by American Conference of Governmental Industrial Hygienist (ACGIH) which have been established for airborne concentrations of many chemical compounds.

TWA: Time Weighted Average. A weighted average exposure level over a given amount of time, usually 8 hours.

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

Vapors: are formed through the evaporation of liquids or solids. Examples include gasoline, paint thinners, and solvents.

IV. Responsibilities

The Program Administrator is responsible for:

- Maintaining a written Respiratory Protection Program.
- Ensuring the coordinating of hazard assessments, respirator selection, training, medical evaluations and fit tests.
- Maintaining records and a current list of approved respirator wearers, including training, medical evaluations, fit tests, and the types of respirators which have been approved for use.
- Purchasing and providing approved respirators and replacement cartridges.
- Funding medical evaluations and fit tests for employees who wear respirators.
- Auditing the program for continued effectiveness.

The Supervisor of employees who wear respirators is responsible for:

- Knowing the hazards in their areas that require respiratory protection.
- Knowing the types of respirators that need to be used.
- Ensuring that Respirator Program procedures are followed.
- Enforcing the wearing of respirators where it is required.
- Ensuring that employees receive training and medical evaluations when necessary.
- Coordinating annual re-training.
- Notifying Environmental Health and Safety of any problems with respirator use, or any changes in work processes that would impact airborne contaminant levels.

The Employee who wears a respirator is responsible for:

- Participating in all training.
- Wearing the respirator in accordance with the program policies and work site-specific procedures.
- Properly maintaining their respiratory protection equipment.
- Reporting any malfunctions or concerns to their supervisor.

V. Program Elements

1. Identification of Airborne Contaminants

Types of Contaminants

- There are two main types of respiratory hazards: oxygen deficiency and airborne contaminants. This program covers only airborne contaminants.
- The main types of airborne contaminants are:
 - a. dusts: particles, released during work operations such as grinding and sawing.

- b. mists: particles of liquid, released during operations such as spray painting.
- c. vapors: gaseous forms of a liquid, such as paint solvents.
- d. fumes: vaporized condensed metals, as present in welding operations.
- e. gases: such as nitrogen, methane, carbon monoxide.

Workplace Evaluations/Hazard Assessments

- Each workplace shall be evaluated for possible airborne contaminants by Safety or Environmental Health and Safety focal point or his/her designee. A hazard assessment shall be conducted in workplaces with the possibility of over exposure.
- Once a respiratory hazard has been identified, the work area shall be monitored for any changes in concentration level or for new hazards. Changes in work processes, substitution of materials, or changes in the ventilation of an area may necessitate re-testing. Supervisors are responsible for monitoring day to day operations and reporting changes to Safety or Environmental Health and Safety focal point.

2. Selecting Proper Respiratory Protection

Controlling airborne hazards

When controlling airborne hazards, engineering and administrative controls will first be considered as a means to reduce the hazards. Engineering controls can include enclosure, substitution, process modification, and ventilation. Administrative controls include scheduling changes to reduce time spent in contaminated areas.

Required Use of Respirators

In situations where engineering and administrative controls do not sufficiently reduce exposure to levels below Permissible Exposure Levels (PEL's), respirators are required.

Selection of Respirators

- Only NIOSH approved respirators will be used.
- Single strap disposable comfort masks are not approved respirators.
- Respirators will be selected based on the respiratory hazards to which the employee is exposed, and the workplace and user factors that affect performance.
- An employee shall wear only a respirator which has been fit tested and approved for the employee and for the hazards of the exposure.
- Respirator types, sizes, and cartridges are not interchangeable.
- The following factors are to be considered when determining the proper respiratory protection:
 - a. Employee exposure (e.g., concentration, route of exposure).
 - b. Physical form and chemical state of the contaminant.
- If the employee exposure cannot be identified or estimated, then the atmosphere shall be considered IDLH.

- For protection against particulates, one of the following respirators shall be provided:
 - a. An atmosphere supplying respirator or,
 - b. An air purifying respirator equipped with a filter certified by NIOSH as a HEPA (High Efficiency Particulate Air) filter or,
 - c. An air purifying respirator equipped with a filter certified for particulates by NIOSH or,
 - d. For contaminants consisting primarily of particulates with a mass median aerodynamic diameter (MMAD) of at least 2 micrometers, an air purifying respirator with any filter certified for particulates by NIOSH.
- For protection against gases and vapors, one of following respirators shall be provided:
 - a. An atmosphere supplying respirator or,
 - b. An air purifying respirator that is either equipped with a chemical cartridge that has an end of service life indicator (ESLI) certified by NIOSH for the contaminant, OR if there is no appropriate ESLI, then a replacement schedule must be in place for cartridges and filters based on information that will assure the cartridges are changed before their end of service life. The replacement schedule must be included in the worksite specific instructions.
- Consult Appendix A-1 for a description of Respirator types and Appendix A-2 for selection guidelines.

Voluntary Use of Respirators

- Employees will be allowed to use respirators voluntarily if the respirator itself will not create a hazard.
- Employees who only use dust mask (filtering facepiece) are not subject to the requirements of the written program.
- Employees voluntarily wearing air purifying respirators are subject to the requirements of this program, including medical evaluations, training, and maintenance procedures.
- Fit tests are not required for voluntary users, but are encouraged.
- All employees voluntarily wearing respirators will be provided a copy of the information contained in Appendix B: “Information for Employees Using Respirators When Not Required Under the Standard.”

3. Maintenance and Care of Respirators

Cleaning and Disinfecting

- Each employee shall be provided with a respirator that is clean, sanitary and in good working order.
- Respirators shall be cleaned and disinfected using the procedures in Appendix C or procedures recommended by the manufacturer if they are equally effective.
- The frequency for cleaning and disinfecting is as follows:

- a. Respirators used by only one employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- b. Shared respirators must be cleaned and disinfected prior to use.
- c. Emergency use respirators must be cleaned and disinfected after each use.
- d. Respirators used in fit tests and training exercises must be cleaned and disinfected after use.

Storage

- Respirators shall be stored so as to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals.
- Respirators shall be stored in such a manner as to prevent deformation of the facepiece and valves.
- Emergency use respirators shall be kept accessible to the work area, in compartments or covers that are clearly marked as containing emergency respirators, and stored in accordance with the manufacturer's instructions.

Inspection

- Respirators used in routine situations shall be inspected before each use and during cleaning.
- Emergency use respirators shall be inspected at least monthly, and in accordance with the manufacturer's instructions.
- Emergency use respirators shall also be checked for proper function before and after each use.
- Escape-only respirators shall be inspected before being brought into the work area.
- A respirator inspection includes the following:
 - a. A check of respirator function, tightness of connections, and the condition of the various parts, including the facepiece, head straps, valves, connecting tubes, cartridges, canisters and filters.
 - b. A check of the elastic parts for pliability or deterioration.

Repairs

- Respirators that fail inspections or are otherwise found to be defective shall be removed from service and discarded, repaired, or adjusted by appropriately trained persons, with NIOSH approved parts, according to manufacturer's specifications.
- Valves, regulators and alarms shall be adjusted or repaired only by the manufacturer or manufacturer's technicians.

Identification of Filters, Cartridges and Canisters

- Filters, cartridges and canisters must be labeled and color coded with the NIOSH approval label. The label is not to be removed and must remain legible.

4. Limitations of Air Purifying Respirators

IDLH Atmospheres

- Air purifying respirators shall not be used in oxygen deficient atmospheres, IDLH atmospheres, or unknown atmospheres. All confined spaces shall be considered IDLH unless proven otherwise. If assistance is required to determine an unknown atmosphere, contact Safety or Environmental Health and Safety focal point.

Respirator Types

Respirator types, models, and sizes are not interchangeable. An employee shall only wear a respirator which has been fit tested and approved for the employee's use.

Cartridges and Filters

Cartridges and filters are specific to certain hazards. Use the cartridge approved for the task. Do not interchange manufacturer's cartridges or filters.

Concentration

There are limits to the concentration levels that can be used with half mask and full face respirators. Consult the cartridge's Maximum Upper Limit and Safety or Environmental Health and Safety focal point to determine if you have the proper level of protection.

Face Seal Protection

- Anything that breaks the seal of a respirator will reduce its effectiveness. Facial hair, temple bars of glasses and head coverings are not to be worn.
- Corrective lenses can be fitted inside a full face respirator with a special insert kit.

5. Medical Evaluations

Initial Evaluations

- Every employee must be medically evaluated prior to fit testing and initial use of a respirator.
- Medical evaluations shall be conducted by a physician or other licensed health care professional (PLHCP).
- Medical evaluations shall consist of either a medical questionnaire or an initial medical examination that obtains the same information as the questionnaire.
- The requirements of the questionnaire are mandatory. (Appendix D).
- Medical questionnaires and examinations shall be administered confidentially and during normal working hours.

Followup Medical Examinations

- Follow up medical examinations are necessary if an employee gives a positive response to any of the questions numbered 1 through 8 in section 2 of the questionnaire.

- The followup medical examination shall include any medical tests, consultations or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Supplemental Information for the PLHCP.

- The following information must be supplied to the PLHCP before a recommendation is made:
 - a. type and weight of the respirator to be used.
 - b. duration and frequency of use.
 - c. expected physical effort.
 - d. additional protective clothing and equipment to be worn.
 - e. temperature and humidity that may be encountered.
 - f. a copy of the written program and the regulation.

Medical Determination

- The Program Administrator must obtain a written recommendation from the PLHCP on whether or not the employee is medically able to use the respirator.
- The recommendation shall include only the following information:
 - a. any limitations on respirator use related to the medical condition of the employee or workplace conditions including whether the employee is medically able to wear the respirator.
 - b. the need, if any, for a follow-up medical examination.
 - c. a statement that the PLHCP has provided the employee with a copy of the recommendation.
 - d. If the PLHCP finds an employee cannot use a negative pressure respirator, a PAPR will be provided, if suitable.

Additional Medical Evaluations

Additional medical evaluations shall be provided if:

- an employee reports medical signs or symptoms related to the ability to use a respirator.
- a PLHCP, supervisor, or the program administrator deems an employee needs re-evaluation.
- information from the program, observations during fit tests, or evaluations indicate the need for re-evaluation.
- changes in the workplace conditions result in increased physiological burden on the employee.

Employee Access

- The employee shall receive a copy of the PLHCP's recommendation.
- The employee shall have an opportunity to discuss the questionnaire and examination with the PLHCP.

6. Fit testing

Initial Fit Tests

- Before wearing a respirator, employees are required to be fit tested with the same make, model, style and size of respirator that will be used.
- A sufficient number of respirator models and sizes shall be available so that the respirator is acceptable to and correctly fits the user.
- Employees shall wear only respirators which have been fit tested and approved for use.

Fit Test Procedures

- Fit tests are either qualitative or quantitative, depending on the respirator type and use, and must follow the procedures outlined in the OSHA Standard 1910.134.
- Fit test shall be performed by qualified fit test technicians. To be qualified, a fit test technician must have been trained in both qualitative and quantitative fit test procedures in a 16 hour training course.

Frequency

- Fit testing shall be conducted initially, annually, and whenever changes in an employee's physical condition could affect respirator fit, and whenever requested by the employee because the fit is unacceptable.

Records

- Records of fit tests must be maintained by the Program Administrator and should include names, dates, types of tests, results and make, model, style and size of the respirator fitted.

7. Face Seal Protection

Prohibitions

- Tight fitting face pieces are not to be worn by employees:
- who have facial hair that comes between the sealing surface and the face, or that interferes with valve function.
- who have any condition that interferes with the seal, such as missing dentures, jewelry, or head gear.
- if corrective glasses, goggles or other PPE interfere with the seal.

User Seal Checks

- Employees must perform a user seal check each time they put on the respirator according to the procedures in Appendix E.

Continued Respirator Effectiveness

- Appropriate surveillance of the work area and employee exposure shall be maintained by the supervisor and Program Administrator. Respirator effectiveness must be re-evaluated when there is a change in work area conditions or degree of employee exposure or stress.

Leaving the Respirator Work Area

- a. Employees must be allowed to leave the respirator use area:
 - to wash their faces and respirators as necessary to prevent eye or skin irritation.
 - if they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.
 - to replace the respirator or the filter cartridges or canisters.
- b. A defective respirator must be replaced or repaired before returning to the work area.

8. Training and Information

For Required Users of Respirators

- All employees who are required to wear respirators will receive initial training in their use and maintenance.
- Employees must be trained sufficiently to demonstrate:
 - a. a knowledge of why the respirator is required.
 - b. how improper fit, usage or maintenance can compromise the protectiveness of the respirator.
 - c. the limitations and capabilities of the respirator.
 - d. how to deal with emergencies or malfunctions.
 - e. how to inspect, don and remove, and check the seal of the respirator.
 - f. maintenance and storage procedures.
 - g. medical symptoms and signs that may limit or prevent the effective use of respirators (in Appendix D).
 - h. general requirements of this standard.
- Training shall be provided by qualified persons who are familiar with the regulatory requirements of the Respiratory Protection Standard and trained in respirator use and fit test procedures.

For Voluntary Users of Respirators

- Employees voluntarily wearing a respirator shall be provided the information in Appendix B.

Frequency of Re-Training

- Re-training will be provided annually and whenever the following occur:
 - a. changes in the workplace or type of respirator used.
 - b. inadequacies in the employee's knowledge or use of the respirator are apparent.
 - c. any other situation in which re-training is necessary to ensure safe respirator use.

9. Recordkeeping

- Records of training and fit testing shall be kept by the Program Administrator for the duration of the wearer's employment.
- Records of medical evaluations shall be kept for the duration of the wearer's employment and 30 years following.

10. Program Evaluation

- The Program Administrator shall conduct evaluations of the workplace as necessary to ensure the provisions of this written program are being effectively implemented.
- The program evaluation shall include consulting with employees required to wear respirators to assess the employee's views on program effectiveness and to identify any problems. Any problems identified shall be corrected.
- Factors to be assessed include respirator fit, appropriate respirator selection, proper use and maintenance.

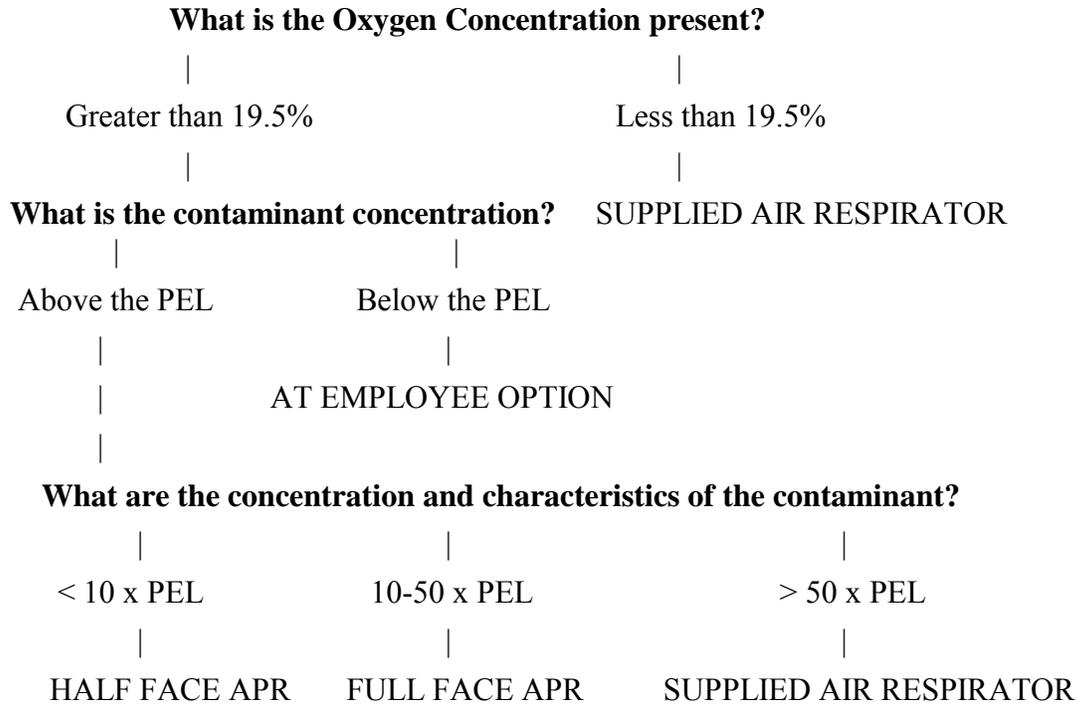
Summary of Program Requirements:

Element	Frequency	Documentation	Responsibility
Hazard Assessment	initially whenever work processes change	written hazard assessment	Program Administrator
Cleaning and Disinfecting	respirators used by one employee must be cleaned as often as necessary	none	Employee
	shared respirators must be cleaned prior to use	none	Employee
	emergency respirators must be cleaned after each use	none	Employee
User seal check	each time a respirator is put on	none	Employee
Inspections	respirators must be inspected before each use and during cleaning	none	Employee
	emergency respirators must be inspected monthly	a record of inspections	Supervisor
Medical Evaluations	initially as necessary	records kept	Program Administrator
Fit testing	initially annually as necessary	records kept	Program Administrator
Training	initially annually as necessary	records kept	Program Administrator
Program Evaluation	as necessary (at least annually)	written evaluation	Program Administrator

**Appendix 1-A
Respirator Types**

Type	Capabilities	Fit Test	Limitations
Air Purifying, Chemical Cartridge, Half-face	Chemical Specific Cartridge APF = 10	qualitative	Not for use in atmosphere with concentrations above 10 times the PEL. Not for use for any chemical not listed on the cartridge, IDLH or unknown atmospheres.
Air Purifying, Chemical Cartridge, Full-face	Chemical Specific Cartridge APF = 50	qualitative or quantitative	Qualitative fit testing is not approved for respirator use in atmospheres above 10 times the PEL. Not for use for any chemical not listed on the cartridge, IDLH or unknown atmospheres.
Powered Air Purifying, Chemical Cartridge, Full-face	Chemical Specific Cartridge APF = 50	qualitative or quantitative	Not for use for any chemical not listed on the cartridge, IDLH or unknown atmospheres.

**Appendix 2-A
Respirator Selection Guide**



Appendix 3 Respirator Cleaning Procedures

Procedures for Cleaning Respirators:

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 with 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 and drain.
4. Disinfect components. 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 (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
 - b. 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 43 deg. C (110 deg. F); or,
 - c. Other commercially available cleansers 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 (43 deg. C [110 deg. F maximum]), 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. Dry components. 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.

Appendix 4
OSHA Respirator Medical Evaluation Questionnaire

To the employer:

Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

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: _____
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 before? (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. 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. 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. 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?

- a. Heart attack: Yes/No. Stroke: Yes/No
- c. Angina: Yes/No. 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. 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. 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. 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. 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
 - e. 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. Pain or stiffness when you lean forward or backward at the waist: Yes/No
- e. Difficulty fully 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. 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

Part B

Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or 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

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them:

3. 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., in 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 (for example, mining): Yes/No

g. Iron: Yes/No. Tin: Yes/No

i. Dusty environments: Yes/No

j. Any other hazardous exposures: Yes/No If "yes," describe these exposures: _____

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

5. List your previous occupations: _____

6. List your current and previous hobbies: _____

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat):
Yes/No

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

9. 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: _____

10. Will you be using any of the following items with your respirator(s)?

a. HEPA Filters: Yes/No

b. Canisters (for example, gas masks): Yes/No

c. Cartridges: Yes/No

11. 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

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

a. Light (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: _____ hrs. _____
_____ minutes.

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
_____ minutes.

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 (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: _____ hrs.
_____ minutes.

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.).

13. 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

14. Will you be working under hot conditions (temperature exceeding 77 deg. F)? Yes/No

15. Will you be working under humid conditions? Yes/No

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

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

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the second toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the third toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

The name of any other toxic substances that you'll be exposed to while using your respirator:

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, or security):

Appendix 5

User Seal Check Procedures

The individual who uses a tight-fitting respirator is to 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 and/or Negative Pressure Checks

- a. Positive pressure check.**
 - i.** Close off the exhalation valve and exhale gently into the facepiece.
 - ii.** 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.
 - iii.** 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.**
 - i.** 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).
 - ii.** Inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds.
 - iii.** 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.
 - iv.** 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.

Manufacturer's Recommended User Seal Check Procedures

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.