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1.0 PURPOSE AND SCOPE

1.1 Purpose

The purpose of this guideline is to provide a framework for controlling the distribution and use of respiratory protection and ensuring that individuals using respirators are adequately protected from respiratory hazards, and are aware of respirator uses and limitations. A secondary purpose is to ensure that the respiratory protection program is in compliance with the OSHA Respiratory Protection Standard (29CFR1910.134).

1.2 Scope

This program covers all WHOI personnel using respirators, and includes provisions for both supplied air respirators and air-purifying respirators. No self-contained breathing apparatuses are currently used at WHOI.

This guideline does not apply to Marine Operations that are addressed by applicable United States Coast Guard regulations.

2.0 ROLES AND RESPONSIBILITIES

2.1 Environmental Health and Safety (EH&S) Office

Provides technical expertise, identifies and assesses work areas, processes or tasks that require respiratory protection. Conducts respirator training and retains respirator program-related records. Orders and distributes full and half-face respirators, and powered air-purifying respirators.

2.2 Personnel (Includes Students)

Uses only respirator types for which they have been medically cleared and fit-tested. Complies with all applicable respirator program requirements, which include: a medical questionnaire, fit-testing, and training. Wear respirators when and where required. Inspect and maintain their respirators as instructed, and store them in a clean sanitary location. Inform their Supervisor if the respirator no longer fits well or if problems arise from respirator use. Inform their Supervisor or the Program Administrator of any respiratory hazard they feel has not been adequately addressed or of any other concerns regarding the program.

2.3 Stockroom

Issues only NIOSH approved disposable respirators for voluntary use. A compliance instruction packet is provided which includes OSHA’s Appendix D, 3M disposable respirator fitting instructions, a medical questionnaire, and a hazard evaluation form.

2.4 Program Administrator

Responsible for the shore-side respiratory protection program. Selects respiratory protection devices and accessories. Issues full and half-face respirators, and powered air-purifying respirators. Provides the medical questionnaire, fit-testing and training. Monitors respirator use and conducts checks to ensure that respirators are being used, cleaned, and stored correctly. Periodically reviews program and makes necessary changes. The Program Administrator is the Safety & Health Officer, x2244, within the EH&S Office.

2.5 Supervisors/Principal Investigators

Ensures that all feasible engineering controls (e.g., ventilation systems, substitution, containment, etc.) have been evaluated before respirator use is requested. Must be knowledgeable about program requirements, identifies and evaluates new or existing tasks or procedures that may require respiratory protection, and requests...
the Program Administrator to assess the need for respiratory protection. Ensures personnel wear required respiratory protection and that respirators are properly used, cleaned, maintained, and stored. Informs the Program Administrator of any concerns. Coordinates with the Program Administrator to enforce effective and compliant use of this program.

3.0 DEFINITIONS

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

**Assigned Protection Factor (APF):** Is the level of protection that a respirator is expected to provide.

**Atmosphere-Supplying Respirator:** A respirator that supplies the wearer with breathing air from a source other than the ambient atmosphere. Examples are supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

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

**Change Schedule:** Schedule of how often respirator cartridges or canisters must be changed.

**Disposable Respirator:** A National Institute for Occupational Safety and Health (NIOSH)-approved disposable respirator marked with the manufacturer's name, the part number (P/N), the protection provided by the filter (e.g. N-95), and "NIOSH."

**Exposure:** Exposure to a concentration of an airborne contaminant that would occur if personnel were not wearing respiratory protection.

**End-of-Service-Life Indicator (ESLI):** An indicator strip or indicator material on a respirator cartridge or canister that indicates that the sorbent material in the cartridge or canister is saturated and needs to be changed.

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

**Fit Test:** Protocol to qualitatively or quantitatively evaluate respirator fit.

**Immediately Dangerous to Life and Health (IDLH):** An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair the individual’s ability to escape from a dangerous atmosphere.

**Maximum Use Concentration (MUC):** The maximum airborne concentration of a substance for which a particular type of respirator may be worn. It is determined by multiplying the occupational exposure limit times the APF.

**Occupational Exposure Level (OEL):** A health-based workplace standard to protect workers from adverse exposure (e.g., PELs, TLVs®, RELs, WEELS, etc.)

**Oxygen Deficient Atmosphere:** An atmosphere containing <19.5% oxygen.

**Physician or Other Licensed Health Care Professional (PLHCP):** An individual whose legally permitted scope of practice allows him/her to independently provide, or be delegated to provide, some or all of the health care services required for medically evaluating a respirator wearer.

**Powered Air-Purifying Respirator (PAPR):** Air-purifying respirator that uses a blower to force ambient air through air-purifying elements to the inlet covering.

**Qualitative Fit Test (QLFT):** A pass/fail test to assess the adequacy of respirator fit that relies on the individual’s response to the test agent.
Quantitative Fit Test (QNFT): An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

User Seal Check: An action conducted by the respirator wearer to determine if the respirator is properly seated on the face.

Voluntary Use: Using respirators when not required under the OSHA Respiratory Protection Standard (e.g., exposures below the occupational exposure limit).

4.0 HAZARD EVALUATION

It is the Supervisor’s responsibility to ensure that a hazard evaluation is conducted for any activity, process, or operation expected to generate air contaminants above the occupational exposure limit. Activities evaluated may include routine activities, non-routine activities, or foreseeable emergency situations. If respiratory protection is needed, the Program Administrator should be notified.

When the Program Administrator identifies an activity which may pose a respiratory hazard, a hazard evaluation may be conducted (see Appendix A). The hazard evaluation will include a review of the substances used, a review of work activities and conditions, and exposure monitoring as necessary.

The hazard evaluation will be the basis of deciding whether or not respiratory protection is needed. Respiratory protection will be mandatory in the following situations:

• Exposure levels exceed generally accepted occupational exposure limits such as OSHA PELs or ACGIH TLVs® where control of the air contaminant(s) using substitution or engineering controls is infeasible or inadequate.
• WHOI determines that a contaminant level is unacceptably high and that respiratory protection is required.

WARNING: Personnel shall NOT enter an atmosphere that is oxygen deficient, where there are unknown conditions, or where an IDLH level may be present.

5.0 MEDICAL CLEARANCE AND FIT-TESTING

Personnel may not wear or be initially fit-tested for a respirator until a physician or other licensed health care professional (PLHCP) has determined that he/she is medically able to do so. This includes disposable respirators. An individual who refuses to complete a medical questionnaire will not be issued a respirator or allowed to work in any area requiring respirator use.

5.1 Medical Questionnaire Procedure

A medical questionnaire is the basis of most evaluations. The questionnaire used will include the questions required by OSHA in the Respiratory Protection Standard’s Appendix C. The PLHCP may substitute a medical examination for the questionnaire or require additional medical examinations or tests at their discretion. Personnel shall fax their completed medical questionnaire to the approved PLHCP. The medical questionnaire is located on the EH&S website under the Respiratory Protection link.

5.2 Medical Evaluation Procedure

The medical provider will be given the following information:

• The completed medical questionnaire
• A description of particular work place activities and exposures including a description of the respirator to be used (Appendix B), if requested
• A copy of the written plan, if requested
• A copy of the OSHA’S Respiratory Protection Standard, if requested

The PLHCP may require additional medical exams or procedures if the questionnaire responses indicate a need for follow-up medical testing. In some situations, the PLHCP may require a clearance from the respirator wearer’s own physician. If their physician provides respirator use clearance, it will be accepted by WHOI. Personnel will be provided with the opportunity to speak with the PLHCP about their medical evaluation if they so request.

The PLHCP will notify the Program Administrator as to whether or not the individual is medically able to wear a respirator. The report will note any limitations on respirator use.

Personnel who are required to wear a respirator but are not medically cleared to wear a negative pressure air purifying respirator may be provided with a powered air purifying respirator (PAPR) unless the medical questionnaire contraindicates this.

After initial medical clearance to wear a respirator, additional medical evaluations will be provided under the following circumstances:
• Personnel report signs and/or symptoms related to their ability to use a respirator.
• The PLHCP or the Supervisor informs the Program Administrator that the respirator wearer needs to be re-evaluated.
• Information including observations made during fit-testing and program review indicates a need for re-evaluation.
• A change occurs in workplace conditions or personnel state of health that may result in an increased physiological burden on personnel.

5.3 Respirator Fit-Testing

Individuals wearing tight-fitting face piece respirators are required to be fit-tested, either quantitative or qualitative. Fit-testing will be done using the make, model, and size respirator that will actually be worn. Personnel will be provided with a selection to find an optimal fit. Fit-testing is required as follows:
• Prior to being assigned to a job requiring respirator use
• Annually
• When changes in the personnel’s physical condition could affect respirator fit (e.g., obvious change in body weight, facial scarring, etc.).

5.3.1 Quantitative Fit-Testing

Full facepiece respirators may be fit tested using a quantitative fit test method performed by the PLHCP following OSHA protocols. The PLHCP has equipment to measure the proper fit of the respirator. Wearers may also require a quantitative fit-test for tight-fitting half face respirators.

5.3.2 Qualitative Fit-Testing

Qualitative fit-testing may be performed by the Program Administrator for full-face and half-face respirators. The Program Administrator will determine the type of fit-test needed, based on the hazard evaluation. The fit-test is conducted annually and may use either saccharin or Bitrex solution.

IMPORTANT: The qualitative fit test will only provide an assigned protection factor of 10 for either a half-face or full-face respirator; meaning personnel may only work in an area where chemical contamination is less
than 10 times the PEL. For exposure levels greater than 10 times the PEL, a quantitative fit test must be performed. See table below.

<table>
<thead>
<tr>
<th>Type of Respirator</th>
<th>Half-Face</th>
<th>Full-Face</th>
<th>Loose-Fitting Face-piece</th>
<th>Fit-Test Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-Purifying Respirator</td>
<td>10</td>
<td>10</td>
<td></td>
<td>Qualitative</td>
</tr>
<tr>
<td>Air-Purifying Respirator</td>
<td>10</td>
<td>50</td>
<td></td>
<td>Quantitative</td>
</tr>
<tr>
<td>Powered Air Purifying Respirator</td>
<td>50</td>
<td>1000</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>NIOSH-Disposable Respirator</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.0 RESPIRATORS

6.1 Respirator Selection

All respirators used at WHOI must be approved by the EH&S Office. The Program Administrator will select respirators. Selections will be based on exposure hazards, the respirator fit factor, and the expected maximum use concentrations.

Personnel may not order or obtain their own respirator for use at WHOI. The EH&S Office will not reimburse individuals for respirators they purchase.

6.1.1 NIOSH Approval

All respirators used will be National Institute for Occupational Safety and Health (NIOSH) approved for the air contaminants encountered. All filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label, which should not be removed or defaced.

Filters, cartridges, and canisters must be from the same manufacturer as the respirator and must be approved by the manufacturer for use with that respirator model. No adaptations or substitutions are allowed.

If a situation arises where a respirator is required and there is no NIOSH approved air-purifying respirator for the particular chemical, the hazardous condition must be eliminated using engineering controls or an air supplied respirator must be used.

6.2 Respirator Use

The Program Administrator will evaluate and authorize respirator use on an as needed basis. Both specific workplace conditions and the results of any medical questionnaire will be considered. Respirators will be provided at no cost to personnel. Depending on circumstances, they may be purchased by the project, department, or the EH&S Office. The costs associated with any medical evaluation or off-site fit-testing will be covered by the EH&S Office.

Individuals using tight-fitting respirators must comply with applicable program requirements which include completing a medical questionnaire, annual fit-testing and training, respirator use limitations, cleaning, maintenance, and storage. Personnel must use respirators when required in accordance with the training
received. In addition, respirators will only be used in the circumstances for which they were issued. Personnel shall not loan, assign or otherwise allow another person to wear their assigned equipment. Only respirators that are supplied and/or approved by the EH&S office may be used by WHOI personnel.

Respirators should be inspected before each use. A respirator with a defect needs to be repaired before use or replaced with a new respirator. Seal checks need to be conducted each time personnel don a respirator. Either the positive or negative pressure check may be used (see Appendix C). Individuals must leave the work area for any respirator cleaning, adjustment, or repair.

- Tight-fitting facepiece respirators may not be worn if there are conditions that prevent a good face piece-to-skin seal, such as facial scars, facial hair, or missing dentures.
- Eyeglasses, headphones, jewelry, or other articles that may interfere with the face piece-to-face seal are not permitted.

**IMPORTANT**: Disposable filtering facepieces (dust masks) that do not have NIOSH approval are exempt from the requirements of this program, including medical evaluation and fit-testing.

7.0 CARTRIDGE CHANGE SCHEDULE

If a cartridge has an end-of-service-life-indicator (ESLI) for a particular chemical, the cartridge will be replaced at the end of the service life. If there is no ESLI indicator for the particular chemical, individuals wearing air-purifying respirators (including PAPRs) shall change cartridges according to the hierarchy listed below.

**For organic vapor contaminants below OSHA PELS**, including voluntary use, users should begin each work shift with new cartridges.

**For all other contaminants below OSHA PELs**, including voluntary use, users should change out cartridges quarterly.

If the cartridges are physically contaminated, an odor or taste is detected, breathing becomes difficult, or other discomforts occur, leave the contaminated area and change cartridges before returning to the work area. Contact the Program Administrator to re-evaluate the frequency of the cartridge change schedule if these discomforts have occurred.

**For contaminant concentrations at or above OSHA PELs**, the Program Administrator will establish a specific cartridge change out schedule using one of the following methods:
- Any mandated changes based on requirements in OSHA substance-specific standards
- Manufacturer’s recommendation based on information relating to exposure levels, work rate, and environmental conditions
- Use of the Gerry O. Wood Mathematical Model (see [www.OSHA.gov](http://www.OSHA.gov))
- Experimental tests

7.1 Specific Change Schedules

There are several OSHA substance-specific standards that require exact cartridge change out schedules when exposed at or above the action level or PEL. See table below for examples.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>OSHA Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylonitrile</td>
<td>1910.1045 (h)(2)(ii)</td>
<td>End-of-service life or end of shift, whichever occurs first.</td>
</tr>
<tr>
<td>Benzene</td>
<td>1910.1028 (g)(2)(ii)</td>
<td>End-of-service life</td>
</tr>
<tr>
<td></td>
<td>1910.1051 (h)(2)(ii)</td>
<td>1910.1017 (g)(3)(ii)</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Butadiene</td>
<td>Table 1: 1910.1051 (h)(3)(i)</td>
<td>Every 1, 2, 3, or 4 hours dependent on concentration according to Table 1, or at the beginning of each shift, or End-of-service life.</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td></td>
<td>After 3 hours of use or at the end of the shift, whichever occurs first, unless the cartridge contains a NIOSH-approved end-of-service-life indicator (ESLI) to show when breakthrough occurs.</td>
</tr>
<tr>
<td>Vinyl chloride</td>
<td>1910.1017 (g)(3)(ii)</td>
<td>End-of-service life or end of shift, whichever occurs first.</td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>1910.1052 (g)(2)(ii)</td>
<td>Canisters may only be used for emergency escape and voluntary use. Cartridges must be replaced after use.</td>
</tr>
</tbody>
</table>

### 7.2 Emergency Response

Emergency response personnel will use the hierarchy established for mandatory use respirators. Respirator cartridges will only be used once and disposed of thereafter.

### 7.3 Cartridge Service Life

A number of factors can reduce the service life of a cartridge, including:

- Worker exertion level (breathing rate)
- Respirator cartridge variability
- Temperature
- Humidity
- Multiple contaminants
- Contaminant concentration

### 8.0 EMERGENCY USE RESPIRATORS

Some of WHOI’s emergency response personnel are equipped with full-face piece negative pressure air-purifying respirators. These may only be used in situations (i.e., small chemical spills where there are known levels of contaminants) for which appropriate cartridges are available.

These respirators will not be used in the following emergency situations:

- Fire
- Oxygen deficient atmospheres
- IDLH (Immediately dangerous to life and health) atmospheres
- Unknown atmospheres
- Contaminant levels exceed the maximum use concentration for the respirator
- Appropriate cartridges are not available

Under any of the above situations, outside assistance is required.
9.0 SUPPLIED AIR RESPIRATORS

9.1 Self-Contained Breathing Apparatus (SCBAs)

SCBAs are currently not used at WHOI. (Exception: Some work may be done on vessels that fall under Coast
Guard regulation.)

9.2 Airline Respirators

Airline respirators will only be used when contaminant levels exceed the maximum use concentration (MUC)
for air-purifying respirators. They will not be permitted for use on a regular or routine basis. Case by case
situations will be reviewed by the EH&S Office.

Airline respirators should be attached to compressors dedicated to this usage. They should not be attached to
house compressed air. No adaptations will be made to airline hose connections. The air intake needs to be
placed in a location outside any zone of potential contamination. Requirements for compressed breathing air are
provided in the OSHA Respiratory Protection Standard (29CFR1910.134 (i) (1) (ii)).

Carbon monoxide (CO) levels will not exceed 10 ppm. If compressor is oil-lubricated, use a high temperature
alarm and a CO alarm or air testing for CO. For portable or electric breathing air compressors, the air intake
need only be placed in an area with clean breathing air where the carbon monoxide level does not exceed 10
ppm. Carbon monoxide levels would need to be measured each time a location is changed.

Airline face pieces need to be detached from the airline after each use. The face pieces will be inspected,
cleaned, disinfected, and stored in a plastic bag.

10.0 CLEANING, INSPECTION, MAINTENANCE, & STORAGE

Each respirator wearer will clean, inspect, maintain, and store his/her respirator as described below.

10.1 Cleaning

A respirator cleaning procedure is outlined in Appendix E. This procedure or one that will result in at least
equal cleaning and disinfecting must be used. Respirators should be cleaned and disinfected regularly.
Respirators should be cleaned with alcohol-free towellettes after each use. Do not use organic solvents to clean
respirators.

10.2 Inspection and Maintenance

Respirators are to be regularly inspected and maintained to ensure that they function properly and adequately
protect the wearer. They should be inspected before and after each use, in accordance with manufacturer’s
instructions, and as part of the cleaning and disinfecting procedure.
• Worn or deteriorated parts will be replaced prior to the next use.
• No components will be replaced or repairs made beyond those recommended by the manufacturer.

10.3 Defective Respirators

Defective respirators are not to be used. They shall be immediately taken out of service and tagged “Defective –
Do Not Use” and turned in to the Program Administrator who will decide whether to fix, return the respirator to
the manufacturer for repair, or dispose of the respirator. If needed, personnel will be given a replacement respirator. Only replacement parts from the same manufacturer and model may be used.

10.4 Storage

Respirators must be stored in a clean, dry area, and in accordance with the manufacturer’s recommendations. Storage of a clean respirator in a plastic bag in a locker is acceptable, as long as the respirator is not damaged or distorted by contact with other items in the locker. The individual’s name should be written on the plastic bag or container. A respirator should not be stored in a location where it is exposed to airborne contaminants, direct sunlight, or temperature extremes.

11.0 TRAINING

Personnel using respirators will be trained by the Program Administrator prior to use of respirators in a work area. All training documentation will be maintained by the EH&S Office.

11.1 Training Topics

The Program Administrator and Supervisors shall ensure that personnel can demonstrate knowledge of the following minimum criteria:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators;
- The general requirements of this guideline.

11.2 Respirator Training Schedule

Respirator training will be conducted on the following schedule:

- Prior to assignment to an area or operation where a respirator is used on a mandatory or voluntary basis
- Annual retraining
- When needed because of changes in hazards or there appears to be a lack of understanding on the safe use and care of respirators

12.0 PROGRAM EVALUATION

The respiratory protection program will be reviewed by the Program Administrator or a designee periodically to evaluate its effectiveness and to ensure that the provisions of this program are being followed. Reviews will also be made when there are indications from inspections or feedback that the program is ineffective.

13.0 RECORDKEEPING

Respiratory program documents maintained by the EH&S Office includes:

- A list of all WHOI personnel medically cleared to wear respirators and any restrictions established by the PLHCP
- Fit-testing records
- Training records

Medical examination and questionnaire results are retained by the medical provider and remain confidential between personnel and the evaluating physician.
Appendix A
Hazard Evaluation Form

| Requestor’s Name: ____________________________ | Assessment Date: ____ / ____ / ____ |
| Job Title(s): ____________________________ | Department: ____ |
| Job Description: _____ |
| Frequency: One-time ☐ Infrequent ☐ Routine ☐ #Hours/Day: _____ |
| #Employees on Job: ____ #Shifts/Month: ____ |

### Hazard Information

<table>
<thead>
<tr>
<th>Chemical/Product Name</th>
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<table>
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<th>Environmental Factors</th>
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<table>
<thead>
<tr>
<th>Comments</th>
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**Assessor’s Name/Job Title: _____**
**Assessor’s Signature: _____**
### Appendix B

**Example of Additional Information for Medical Provider**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Employee Number:</th>
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<table>
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<table>
<thead>
<tr>
<th>Job Title:</th>
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<tr>
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</tbody>
</table>

### Exposure Information: Chemicals/Expected exposure levels/Exposure duration

### Type/Weight of Respirators:

### Type of filter(s)/cartridge(s):

### Basis of respirator use: (check items)
- Routine
- Non-routine
- Emergency response

### Respirator Use: Frequency: Average Duration per Use:

### Expected Work Activity (check level):
- Light
- Medium
- Heavy

**Describe work activity:**

### Personal Protective Equipment Worn: (check items used)
- Eye protection (check type): Safety glasses Safety goggles
- Face Shield
- Hard hat
- Hearing protection (check type): Ear muffs Ear plugs
- Gloves (list types):
- Chemical Protective Suit (list type):
- Coveralls
- Safety Shoes
- Other (list):

### Environmental:
- Expected temperature range:
- Expected humidity range:
- Other:

### Additional Comments:
Appendix C
User Seal Check Procedures
(OSHA Appendix B-1 of 1910.134)

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 in this appendix, 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.

I. Face piece Positive and/or Negative Pressure Checks

A. Positive pressure check. Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

II. 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.
Appendix D
Information for Employees Using Respirators When Not Required Under the OSHA Standard or by the Employer (From Appendix D to Section 1910.134)

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 respirators 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 E
Respirator Cleaning Procedure

These procedures are provided for employer use when cleaning respirators. They are general in nature and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their personnel, provided such procedures are as effective as those listed below. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in this appendix, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

Procedures for Cleaning Respirators:

A. Remove filters, cartridges, or canisters. Disassemble face piece by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or components recommended by the manufacturer. Discard or repair any defective parts.

B. Wash components in warm (43º C [110º F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

C. Rinse components thoroughly in clean, warm (43º C [110º F] maximum), preferably running water. Drain.

D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43º C [110º F]; or
2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43º C [110º F]; or,
3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

E. Rinse components thoroughly in clean, warm (43º C [110º F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

F. Components should be hand-dried with a clean lint-free cloth or air-dried.

G. Reassemble face piece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.