LAFAYETTE COLLEGE

# Respiratory Protection Program

**Department of Public Safety - Environmental, Health and Safety**
**Standard Operating Procedure (SOP) #11**

## 1.0 Introduction

The Occupational Safety and Health Administration (OSHA) General Industry Standard on Respiratory Protection, 29 CFR 1910.134, requires that a Respiratory Protection program be established by the employer and that respirators be provided and be effective when such equipment is necessary to protect the health of the employee.

It is our goal to control respiratory hazards at their point of generation by using engineering controls and good work practices. In keeping with this goal, the use of respirators as the primary means of protecting employees and students from airborne hazards is considered acceptable only in very specific situations. These situations include short term; temporary experiments or projects where engineering controls are not feasible; use of respiratory protection as an added or supplemental control; and emergency conditions.

When it has been determined by the user in conjunction with Environmental, Health and Safety (EHS) that respiratory protection may be used, it is the responsibility of each Department to provide a standard operating procedure with respect to the use of respirators.

Such a procedure is required even if respiratory protection is not required (voluntary use) but is being used for comfort of Departmental personnel, unless exempted under 1910.134(c)(2)(ii). Lafayette employees and/or student workers may elect to use filtering facepiece respirators (e.g., N95 or N99 disposal dust masks) on a voluntary basis, during activities that involve exposure to low-level, non-hazardous nuisance dust or other similar particulate. Please see Appendix D of this SOP for further information on the voluntary use or filtering facepiece respirators. **The College strictly prohibits the voluntary use of respirators other than filtering facepiece respirators.**

This program must follow the guidelines set forth in this document. Our Respirator Program includes the following components:

- Respirator selection (including NIOSH approval)
- Instruction to Respirator Users
- Fit Testing of Respirators
- Assignment of Respirators
- Cleaning and Disinfecting
- Inspection and Maintenance
- Storage
- Work Area Surveillance
- Inspection and Evaluation of the Program
- Medical Examinations

EHS will review each mandated respirator user at least annually and volunteer users will be fitted initially and only annually at their own discretion.

**2.0 Responsibility**

The Department of Public Safety - Environmental, Health and Safety is the designated administrator for the Respiratory Protection program at Lafayette College. EHS is responsible for oversight and evaluation of the Program. EHS may delegate responsibility for various aspects of the Program to other qualified Lafayette personnel as appropriate.

Principal investigators and supervisors of Facilities Operations or specific department groups are responsible for ensuring that personnel and students under their supervision seek respiratory protection when it is appropriate. Responsibility for overseeing the implementation of the Respiratory Protection Program for individuals requiring protection at the College rests with the immediate supervisor/advisor with technical support from EHS.

Before anyone at the College can wear a respirator the following OSHA required conditions must be met:

- Written medical approval must be obtained from a physician.
- Training in respirator use by EHS.
- Qualitative and/or quantitative fit testing of the respirator on the individual.
- If an employee uses a respirator that is not required by this program please provide them with a copy of Appendix D.

### 3.0 Medical Examinations

Federal regulations require a medical evaluation of all personnel who are required to wear respiratory protection. This evaluation must take place before fit testing and subsequent use of the respirator.

The examining physician or licensed health care professional will issue to the respirator user a qualification statement (Appendix E) which will allow EHS to fit test the user or will state that the user is not qualified to wear a respirator or is restricted to specific types of respirators or conditions of use.

The use of any type of respirator may impose some degree of physiological stress on the user. The degree of stress will be a function of the following factors:

- The type of respirator to be used
- The tasks to be performed while wearing it
- The energy requirements of the tasks
- The visual and auditory requirements of the task
- The length of time the respirator must be worn
- The nature of the hazard prompting the need for respiratory protection
- Thermal environment

Consequently, it is necessary to determine that all persons required and volunteering to wear a respirator are physically able to perform the work and use the required equipment. The users provide information relating to the issues specified above to the physician via the initial Medical Questionnaire (Appendix C).

Furthermore, as part of this program, the documentation necessary to demonstrate that the physician has approved all respirator users is kept by EHS.

Any respirator user shall have additional medical evaluation if any of the following conditions are found to warrant such attention:

- The initial medical evaluation for a respirator user demonstrates the need for further medical examination
- The respirator user reports signs or symptoms that are related to one's ability to wear a respirator
- The physician, EHS or the employee's supervisor determine that re-evaluation is necessary
- Information from the periodic evaluation of the Lafayette College Respiratory Protection Program indicates a need for user re-evaluation
- A change in work environment conditions (physical exertion, clothing requirements, temperature or relative humidity) may substantially increase the physiological burden placed on the respirator user

**4.0 Work Area Surveillance**

To select appropriate respiratory protective devices exposure concentrations will be determined (OSHA 29 CFR 1910.134 and 1910.1450). EHS performs this evaluation at the request of the user or whenever EHS becomes aware of a potentially hazardous process. The evaluation includes a review of the chemicals in use, the condition of use, the availability of engineering controls, and any past exposure monitoring. Additional exposure monitoring may be warranted.

Documentation of this work area evaluation will be compiled on the form in Appendix J, or other suitable format (e.g. memorandum). This information will provide the basis for estimating employee/student exposures to the identified respiratory hazards, which in turn are factors in selecting the appropriate type of respiratory protection for the employee.

**5.0 Respirator Selection**

Before the proper respirator can be selected, an evaluation of the potential hazard must be carried out (Section 4) and the respirator user must see a physician or licensed healthcare professional (Section 3). This involves a review of each chemical's Safety Data Sheet (SDS) or where an SDS does not exist, a review of potential health hazards based on chemical structural analogy or other toxicological information. The availability of engineering controls, i.e. ventilation, will also be assessed.

Once the potential airborne hazards have been evaluated and it has been determined that there exists a potential for exposure to airborne contamination in concentrations that exceed the OSHA Permissible Exposure Levels (PEL), or whenever there is a realistic respiratory allergy hazard, then a respirator should be selected. Decision logic is used to select the appropriate respirator and the following factors are taken into account:

- Physical state of the contaminants.
- Toxicity of the contaminants.
- Warning properties of contaminants.
- Potential for oxygen deficiency.
- Potential concentrations (immediately dangerous to life and health).
- Health Standard (OSHA PEL, ACGIH TLV, etc.).
- Expected respirator protection factor.
- Only NIOSH/MSHA approved respirators shall be used.

It should be noted that whenever a process change occurs which might affect the airborne concentration of the contaminant(s), the choice of respirator should be reviewed. The respirator and its replacement parts are available in sizes necessary to fit the user population from your supervisor.

## 6.0 Instruction of Respirator Users

### General Training

EHS and/or the departmental supervisor will train appropriate individuals who wear respirators in the proper use of such equipment. This training includes discussion and/or demonstration of the elements of respirator use provided in Appendix F and/or viewing of an instructional video provided by the respirator manufacturer.

Training related to the general use of respiratory protective equipment will be done by EHS. Individual departments will provide specific details of any unique aspects of respirator use. Training is conducted before anyone uses a respiratory protective device and at least annually thereafter for non-voluntary use.

### Specific Training

In addition to the general training discussed above, respirator users must receive training in the health hazards associated with the specific chemicals to be handled and the rationale for use of respiratory protection. This includes specific information on how and why the respirator was selected, a discussion of its limitations, and the consequences of improper use of the respirator. This training will be done by the appropriate departmental person (e.g., laboratory supervisor, safety coordinator, senior technician, etc.) with support/assistance from EHS.

**7.0 Fit Testing Of Respirator**

In order to receive the desired protection from a tight fitting respirator, it is essential that it fits properly. Therefore, all personnel required to wear respirators (including SCBA and air line units) must undergo fit testing. There are two basic steps in determining the fit of a respirator:

- Quantitative fit testing in a test atmosphere is performed to determine which particular size of a given respirator model provides the best fit for an individual user. This testing is done when the respirator is first issued by the supervisor prior to its initial use, repeated at least annually, and whenever a user has a facial change that may affect the fit of his/her respirator (e.g. growth or shaving of facial hair, significant gain or loss of weight, plastic surgery, or change in dentures). Such physical changes that may warrant fit testing are covered by the medical evaluation questionnaire. EHS does this testing and maintains the records. Appendix A describes the fit testing procedure.

- The OSHA regulations (Appendix B1 to 1910.134) require that a respirator be tested qualitatively for fit **EVERY TIME IT IS WORN** (user seal check). This requirement is usually met by performing a positive and/or negative pressure seal check. These instructions must be included as part of the formal training of respirator users. They are provided below:

    - 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 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 valve and then carefully replacing it after the test.
    - 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. Covering the inlet opening of the cartridge with a thin latex or nitrile glove can perform the test. 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.

Individuals with facial hair that interferes with the respirator face seal (e.g. beard, mustache, sideburns) shall be allowed to wear only an air-supplied respirator or a powered air-purifying respirator with a hood. An individual with facial hair will not be allowed to wear a respirator that requires a facial seal.

**8.0 Assignment of Respirators**

Respirators are assigned to individuals for their exclusive use. This policy should be adhered to for all routine respirator users at the College. For emergency and some other designated non-routine uses, shared respirators may be used, but they must be made available in all sizes necessary to accommodate the user population.

Each respirator permanently assigned to an individual should be durably marked to indicate to whom it was assigned. This mark should be made so as not to affect the respirator performance in any way. The date of respirator assignment is recorded for both individuals and general-use respirators. EHS keeps these records.

**9.0 Respirator Cleaning & Disinfecting Procedures**

Refer to Appendix B-2 of this SOP.

**10.0 Inspections and Maintenance of Respirators**

The formal Respirator Training program shall include instruction on the inspection of the respirator before each use and during cleaning. The user shall inspect all non-emergency respiratory equipment during cleaning and immediately before and after each use. Respiratory equipment designated for emergency use shall be thoroughly inspected before and after each use, during cleaning, but not less frequently than once a month.

NOTE: Records of inspection dates and findings for respirators maintained for emergency use are the responsibility of the department that owns them.

The following is a list of items to look for when inspecting various types of respirators and corrective action when appropriate:

- Air Purifying respirators (half-mask, full facepiece and gas mask)
    - Rubber face piece - check for:
        - Excessive dirt (clean & sanitize).
        - Cracks, tears or holes (obtain new face piece).
        - Distortion (allow facepiece to sit free from any constraints and see if distortion disappears. If not, obtain new face piece).
        - Cracked, scratched or loose-fitting lenses (replace lens if possible. If not, obtain a new face piece).
    - Head straps - check for:
        - Breaks or tears (replace head straps).
        - Loss of elasticity (replace head straps).
        - Broken or malfunctioning buckles or attachments (obtain new buckles).

        - Excessively worn serrations on the head harness that might allow the face piece to slip (replace head strap).
        - Check the tightness of all strap connections.
    - Inhalation valve and exhalation valve - check for:
        - Detergent residue, dust particles or dirt on valve or valve seat. (Remove residue with soap and water)
        - Cracks, tears or distortion in the valve material or valve seat. (Replace valve material if possible, contact the manufacturer for instructions).
        - Missing or defective valve cover (obtain new valve cover).
    - Cartridge elements - check for:
        - Proper cartridge for the hazard
        - NIOSH approval
        - Missing or worn gaskets (replace with new parts)
        - Worn threads - both cartridge thread and face piece threads (replace cartridge or face piece).
        - Cracks or dents in cartridge housing (replace cartridge)
        - Deterioration of gas mask canister harness (replace harness)
        - Check the tightness of the connection
    - Gas mask corrugated breathing tube - check for:
        - Cracks or holes (replace tube)
        - Missing or loose hose clamps (obtain new clamps)
        - Broken or missing end connectors (obtain new connectors)
        - Check the tightness of the connections

<u>Atmosphere Supplying Respirators</u>

- Check face piece, head strap, valves and breathing tubes as for air-purifying respirators.
    - Face shield, hood, helmet, full suit - check for:
        - Cracks or breaks in face shield (replace face shield)
        - Rips and torn seams (if unable to repair, replace)
    - Air supply system
        - Breathing air quality
        - Breaks or kinks in air supply hoses and end fitting attachments (replace hose and/or fitting)
        - Tightness of connections
        - Proper setting of valves and regulators (consult manufacturer's recommendations)
        - Correct operation of air-purifying elements
    - Self-contained breathing apparatus
        - Consult manufacturer's literature for inspection protocol.
        - Worn or deteriorated parts shall be replaced.

## 11.0 Storage

- After cleaning and disinfecting, each respirator should be placed in its storage box or bag. If not individually assigned, store each respirator in a heat-sealed or re-sealable plastic bag. The in-bag storage is critical to prevent premature failure of air purifying cartridges.
- Respirators shall be stored in a convenient, clean and sanitary location, positioned so as to minimize any deformation of the facepiece and exhalation valve.
- Care shall be taken to protect them from dust, sunlight, temperature extremes, moisture and chemicals.
- Respirators in bulk storage shall be placed in a single layer, in such a way that all components (e.g. face piece, valves, breathing tubes) will rest in a normal position. Storage in an abnormal position may cause deformation of the unit that will impair the fit and functioning of the respirator.
- Respirators intended for emergency use shall be stored at a location accessible to the work area, and in a compartment or cover that is clearly marked as containing emergency respirators.

## 12.0 Respirator Use Under Special Conditions (EHS)

- **Dangerous Atmospheres ("IDLH")**

  If respiratory protective equipment usage is anticipated in atmospheres "immediately dangerous to life or health", special preparations must be made. A standard operating procedure for work in high hazard areas must be written.

  The standard operating procedure must cover at least the following:

  - Individuals designated to enter into dangerous atmospheres must have training with the proper equipment, i.e., self-contained breathing apparatus (SCBA).
  - Designation and provision of at least one standby individual, equipped with proper rescue equipment, which must be constantly present in a nearby safe area for possible emergency rescue. Written procedures should address the rescue procedure, including notification of other appropriate Lafayette College personnel.
  - Provision for communication between persons in the dangerous atmosphere and the standby person(s) must be made. Communication may be visual or by voice, signal line, telephone, radio, or other suitable means. Other important data such as toxicological information and emergency telephone number should also be included.

- **Confined Spaces**

  Confined spaces are defined as spaces that are large enough and so configured that an employee can bodily enter and perform work, that have limited or restricted means for entry or exit, and that are not designed for continuous occupancy. In many cases, confined spaces contain toxic air contaminants, are deficient in oxygen, or both. As a result, special precautions must be taken.

  When choosing the appropriate respirator for work in a confined space, the following factors should be considered:

  - Airline supplied-air respirators may be worn in a confined space only if the tests show that the atmosphere contains adequate oxygen and that air contaminants are well below levels immediately dangerous to life or health. While individuals wearing these types of respirators are in a confined space, the atmosphere must be monitored continuously.
  - If the atmosphere in a confined space is immediately dangerous to life or health due to a high concentration of air contaminants or oxygen deficiency, those entering the space must wear a positive pressure SCBA or a combination airline and a positive pressure self-contained breathing respirator.
  - Compliance with the OSHA Confined Space Standard (29CFR 1910.146) is the responsibility of each department. Assistance is available from EHS. Refer to Lafayette College SOP #20 Confined Space Entry program.

- **Low and High Temperature Environments**

  Use of respiratory protective equipment in low temperatures can create several problems. The lenses of the full-facepiece equipment may fog due to condensation of the water vapor in the exhaled breath. Coating the inner surface of the lens with an anti-fogging compound will reduce fogging. Nose cups that direct the warm, moist exhaled air through the exhalation valve without passing over the lens are available from the manufacturer for insertion into the full-face piece. At low temperatures, the exhalation valve can freeze onto the valve seat due to the moisture in the exhaled air. The user will be aware when this situation occurs by the increased pressure in the face piece. When unsticking the valve, be careful so as not to tear the rubber diaphragm.

  Respirator usage in hot environments can put additional stress on the user. Using a lightweight respirator with low breathing resistance can minimize the stress. In this respect, an airline type atmosphere-supplying respirator equipped with a vortex tube can be used. Since the vortex tube may either cool or warm the supplied air (depending on the connection and setting), this protection scheme can be used in both hot and cold environments.

  Examples of such work environments at Lafayette College are the manholes, areas of the Steam Plant, and seasonal outdoor work.

## 13.0 Ongoing Evaluation of the Respirator Program

Numerous factors affect the employee's acceptance of respirators including comfort, ability to breathe without objectionable effort, adequate visibility under all conditions, provisions for wearing prescription

glasses, if necessary, ability to communicate, ability to perform all tasks without undue interference and confidence in the facepiece fit.

For a respirator program to be effective, it is important that all these factors be considered as the program is developed. Furthermore, it is essential that the respirator users be involved in the process of developing the procedures for respirator use. To this end, EHS actively involves the users both by observing respirator use and by soliciting user comments with respect to resolution of problems associated with respirator use. This cooperation is vital to the ultimate success of any Respirator program, and the user involvement is documented as part of the program.

A respirator user audit checklist (Appendix I) is employed for workplace evaluation of a portion of affected Lafayette College employees each year. Factors to be evaluated include fit, appropriateness of selection, maintenance, and storage. In addition, a questionnaire is sent annually to every respirator user.

**Appendix A to § 1910.134: Fit Testing Procedures (Mandatory)**

A. Fit Testing Procedures -- General Requirements

1. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.

3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.

5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.

6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

(a) Position of the mask on the nose

(b) Room for eye protection

(c) Room to talk

(d) Position of mask on face and cheeks

7. The following criteria shall be used to help determine the adequacy of the respirator fit:

(a) Chin properly placed;

(b) Adequate strap tension, not overly tightened;

(c) Fit across nose bridge;

(d) Respirator of proper size to span distance from nose to chin;

(e) Tendency of respirator to slip;

(f) Self-observation in mirror to evaluate fit and respirator position.

8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.

9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.

11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

14. Test Exercises.

(a) Employers must perform the following test exercises for all fit testing methods prescribed in this appendix, except for the CNP quantitative fit testing protocol and the CNP REDON quantitative fit testing protocol. For these two protocols, employers must ensure that the test subjects (*i.e.*, employees) perform the exercise procedure specified in Part I.C.4(b) of this appendix for the CNP quantitative fit testing protocol, or the exercise procedure described in Part I.C.5

(b) of this appendix for the CNP REDON quantitative fit-testing protocol. For the remaining fit testing methods, employers must ensure that employees perform the test exercises in the appropriate test environment in the following manner:

(1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

(2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.

(3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

(4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).

(5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

***Rainbow Passage***

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

(6) Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)

(7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.

(8) Normal breathing. Same as exercise (1).

(c) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

**Qualitative Fit Test (QLFT)**

Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

(a) General Requirements and Precautions

(1) The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

(2) Only stannic chloride smoke tubes shall be used for this protocol.

(3) No form of test enclosure or hood for the test subject shall be used.

(4) The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

(5) The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

(b) Sensitivity Screening Check

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

(1) The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

(2) The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.

(3) The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

(c) Irritant Smoke Fit Test Procedure

(1) The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).

(2) The test subject shall be instructed to keep his/her eyes closed.

(3) The test operator shall direct the stream of irritant smoke from the smoke tube toward the faceseal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

(4) If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.

(5) The exercises identified in section I.A. 14. of this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.

(6) If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.

(7) Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

(8) If a response is produced during this second sensitivity check, then the fit test is passed.

**Appendix B-1 to § 1910.134: User Seal Check Procedures (Mandatory)**

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. Facepiece Positive and/or Negative Pressure Checks*

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

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 facepiece 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 facepiece 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 B-2 to § 1910.134: Respirator Cleaning Procedures (Mandatory)**

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 employees, provided such procedures are as effective as those listed here in Appendix B- 2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B-2, 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.

*I. Procedures for Cleaning Respirators*

A. 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.

B. 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.

C. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. 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 43 deg. C (110 deg. 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 43 deg. C (110 deg. 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 (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.

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

G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

H. Test the respirator to ensure that all components work properly.

**Appendix C to Sec. 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)**

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:

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 (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: Yes/No

b. Diabetes (sugar disease): Yes/No

c. Allergic reactions that interfere with your breathing: Yes/No

d. Claustrophobia (fear of closed-in places): Yes/No

e. Trouble smelling odors: Yes/No

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

a. Asbestosis: Yes/No

b. Asthma: Yes/No

c. Chronic bronchitis: Yes/No

d. Emphysema: Yes/No

e. Pneumonia: Yes/No

f. Tuberculosis: Yes/No

g. Silicosis: Yes/No

h. Pneumothorax (collapsed lung): Yes/No

i. Lung cancer: Yes/No

j. Broken ribs: Yes/No

k. Any chest injuries or surgeries: Yes/No

l. Any other lung problem that you've been told about: Yes/No

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

a. Shortness of breath: Yes/No

b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No

c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No

d. Have to stop for breath when walking at your own pace on level ground: Yes/No

e. Shortness of breath when washing or dressing yourself: Yes/No

f. Shortness of breath that interferes with your job: Yes/No

g. Coughing that produces phlegm (thick sputum): Yes/No

h. Coughing that wakes you early in the morning: Yes/No

i. Coughing that occurs mostly when you are lying down: Yes/No

j. Coughing up blood in the last month: Yes/No

k. Wheezing: Yes/No

l. Wheezing that interferes with your job: Yes/No

m. Chest pain when you breathe deeply: Yes/No

n. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you *ever had* any of the following cardiovascular or heart problems?

a. Heart attack: Yes/No

b. Stroke: Yes/No

c. Angina: Yes/No

d. Heart failure: Yes/No

e. Swelling in your legs or feet (not caused by walking): Yes/No

f. Heart arrhythmia (heart beating irregularly): Yes/No

g. High blood pressure: Yes/No

h. Any other heart problem that you've been told about: Yes/No

6. Have you *ever had* any of the following cardiovascular or heart symptoms?

a. Frequent pain or tightness in your chest: Yes/No

b. Pain or tightness in your chest during physical activity: Yes/No

c. Pain or tightness in your chest that interferes with your job: Yes/No

d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No

e. Heartburn or indigestion that is not related to eating: Yes/No

d. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you *currently* take medication for any of the following problems?

a. Breathing or lung problems: Yes/No

b. Heart trouble: Yes/No

c. Blood pressure: Yes/No

d. Seizures: Yes/No

8. If you've used a respirator, have you *ever had* any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

a. Eye irritation: Yes/No

b. Skin allergies or rashes: Yes/No

c. Anxiety: Yes/No

d. General weakness or fatigue: Yes/No

e. Any other problem that interferes with your use of a respirator: Yes/No

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

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

10. Have you *ever lost* vision in either eye (temporarily or permanently): Yes/No

11. Do you *currently* have any of the following vision problems?

a. Wear contact lenses: Yes/No

b. Wear glasses: Yes/No

c. Color blind: Yes/No

d. Any other eye or vision problem: Yes/No

12. Have you *ever had* an injury to your ears, including a broken ear drum: Yes/No

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

a. Difficulty hearing: Yes/No

b. Wear a hearing aid: Yes/No

c. Any other hearing or ear problem: Yes/No

14. Have you *ever had* a back injury: Yes/No

15. Do you *currently* have any of the following musculoskeletal problems?

a. Weakness in any of your arms, hands, legs, or feet: Yes/No

b. Back pain: Yes/No

c. Difficulty fully moving your arms and legs: Yes/No

d. Pain or stiffness when you lean forward or backward at the waist: Yes/No

e. Difficulty 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

h. Difficulty squatting to the ground: Yes/No

i. 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

h. 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._____mins.

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

b. *Moderate* (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:_____hrs._____mins.

Examples of moderate work effort are *sitting* while nailing or filing; *driving* a truck or bus in urban traffic; *standing* while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; *walking* on a level surface about 2 mph or down a 5-degree grade about 3 mph; or *pushing* a wheelbarrow with a heavy load (about 100 lbs.) on a level surface. c. *Heavy* (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift:_____hrs._____mins.

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

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, security):
_____

# Voluntary Respirator Use

Some Lafayette employees and/or student workers may elect to use filtering facepiece respirators (e.g., N95 or N99 disposal dust masks) on a voluntary basis, during activities that involve exposure to low-level, non-hazardous nuisance dust or other similar particulates. According to Lafayette's **Respiratory Protection Program** and Occupational Safety and Health Administration (OSHA) regulations, Lafayette must provide the following information to employees wearing filtering facepiece respirators voluntarily.

The following is from OSHA's Respiratory Protection Standard and pertains to the voluntary use of respirators.

**29 CFR 1910.134, Appendix D – (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard**

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

**You should do the following:**

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. 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 to protect against. For example, a respirator designed to filter dust particles will not protect you against gasses, 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.

**If you have questions concerning any of this information, please call EHS at X 5330.**

**The voluntary use of respirators other than filtering facepiece respirators is strictly prohibited.**

**Appendix E: Respirator User Qualification Statement**

*** Provided by St. Luke's Occupational Medicine ***

**Appendix F: Respirator Training Outline**

Instructor(s): List names in appendix or refer to log
Time: (60 minutes)

1. Background Information

- Respirators are used to protect you from air contaminants.
- Use them when engineering controls are not feasible or inadequate alone, or during their installation.
- Use them when the airborne concentration is known to exceed the PEL or the degree of exposure is unknown and/or the suspected problem may exist but has not yet been evaluated by air sampling.

2. Reason For Training

- To get the expected protection you must know how to use a respirator properly.
- To use it properly you must understand:
    - How to wear and maintain it, etc.
    - The proper application (i.e. appropriate cartridge and its limitations)

3. Choice Of Respirator

- Air Purifying
    - Choosing the proper cartridge for the hazard
    - Cartridges are color coded to match a specific hazard
    - Cartridges must match
    - Do not interchange cartridges from different manufacturers
    - Concentration limitations
    - Toxicity limitations for dust, mist, fumes
    - Must have adequate $0_2$ (19.5%)
    - Negative pressure respirators have potential for leakage
    - If gas or vapor, the contaminant must have adequate warning properties, i.e., detectable by smell, taste or irritation at non-hazardous concentration
- Supplied Air or Self-Contained Breathing Apparatus or Powered Air Purifying Respirator

  Use of a cartridge is inappropriate:
    - $O_2$ too low (<19.5%)
    - Inadequate warning properties
    - Concentration of toxic material too high (IDLH)
    - No cartridge applicable
    - Only use NIOSH-approved equipment

4. Respirator Fit

- How to put on (demonstration)
- Fit Testing
    - Qualitative
        - Positive or negative pressure test
        - Required every time put on - OSHA Requirement
        - Isoamyl acetate-subjective
    - Quantitative
        - Annual; after significant change in facial characteristics
        - Hair
        - Weight change
        - Dental
        - Plastic surgery
        - Problem with fit
        - Facial hair
        - Facial shape-try different sizes
        - Corrective lenses with full face piece

- If you detect contaminant with your respirator - two possible reasons:
    - Bad fit: re-adjust mask
    - Cartridges need changing: see maintenance

5. Inspection And Maintenance

- Each time put on check:
    - Valves
    - Straps
    - Face piece
    - Cover for exhalation valve

- When to change cartridge/filter
    - When you detect a chemical odor inside the mask or for dust respirators, resistance is too great
    - Administrative i.e. daily/weekly - frequency based on conditions of use
- Cleaning
    - Individual user is responsible
    - Do not use solvents it will degrade the rubber of the face piece

6. Storage

- Keep it in a clean, dry location away from contaminants, preferably in a sealed plastic bag
- In natural position, not distorted

7. Wear It.

**Appendix G: Fact Sheet for Respirator Users**

Environmental, Health and Safety (EHS) implements the College's Respiratory Protection Program. Exhaust ventilation, work practices or other engineering controls are the primary methods used to control exposure to toxic chemicals. When use of these controls is not possible respiratory protection may be used. Respiratory protection may also be used as an added precaution to help protect against unforeseen events such as chemical spills or accidental releases.

Before anyone at the College can use respiratory protection a medical evaluation must be scheduled for you with St. Luke's Occupational Medicine and a qualification statement must be obtained from a licensed health care professional.

1. Contact EHS to inform them of your intended respirator use. EHS will review the use and recommend appropriate respiratory protection.
2. Make arrangements with your supervisor to order the appropriate respirator.
3. Ask your supervisor for a Respirator Medical Evaluation Questionnaire.
4. Complete the questionnaire in confidence during regular working hours.
5. A medical evaluation will be scheduled for you with St. Luke's Occupational Medicine.
6. Obtain a written Respirator User Qualification Statement from the physician.
7. Contact EHS and make an appointment to be trained and fit tested. Bring the signed Respirator User Qualification Statement.
8. EHS will perform the following:
    a. Select the appropriate filters/cartridges for the intended use.
    b. Instruct the user in the limitations, use, maintenance and storage of the respirator issued.
    c. Perform a quantitative or qualitative fit test on the user to determine the appropriate size and type respirator.

The respirator is issued to individuals for their exclusive use and shall not be used by anyone else. Replacement filters/cartridges can be obtained from your supervisor. EHS performs an annual follow-up fit test for respirator users.

You will be asked to verify your continued need for respiratory protection and that conditions have not changed. Contact EHS to schedule a re-fit. Failing to do so will trigger the notification to your supervisor that you will be removed from the list of approved respirator users. We ask that all users return the respirators when they complete the work requiring its use or when they leave the College.

A copy of the complete written Lafayette College Respiratory Protection Program is available from your supervisor or EHS.

**Appendix H: Departmental Respirator Use Audit**

In general, the Respirator Program should be evaluated at least annually, with program adjustments, as appropriate, made to reflect the evaluation results. Program function can be separated into administration and operation.

1. Program Administration

    A. Is responsibility for overseeing the program vested in one individual who is knowledgeable and who can coordinate all aspects of the program?
    B. What is the present status of the implementation of engineering controls, if feasible, to alleviate the need for respirators? (Complete, In-Progress, Needs Evaluation)
    C. Are there written procedures/statements covering the various aspects of the Respirator program?
        i. Designation of administrator;
        ii. Respirator selection;
        iii. Purchase of approved equipment;
        iv. Issuance of equipment;
        v. Fitting;
        vi. Maintenance, storage, repair;
        vii. Inspection;
        viii. Use under special condition.

2. Program Operation

    A. Respiratory protective equipment selection
        i. Are work area conditions and employee exposures properly surveyed?
        ii. Are respirators selected on the basis of hazards to which the employee is exposed?
        iii. Do the individuals make selections knowledgeable to selection procedures?
    B. Are only approved respirators purchased and used and do they provide adequate protection for the specific hazard and concentration of the contaminant?
    C. Has a medical evaluation of the prospective user been made to determine their physical and psychological ability to wear respiratory protective equipment?
    D. Where practical, have respirators been issued to the users for their exclusive use, and are their records covering issuance?
    E. Respiratory protective equipment fitting
        i. Are the users given the opportunity to try on several respirators to determine whether the respirator they will subsequently be wearing is the best fitting one?
        ii. Is the fit tested at appropriate intervals?
        iii. Are those users who require corrective lenses properly fitted?

iv. Is the facepiece to face seal tested in a test atmosphere?

F. Maintenance of respiratory protective equipment
   i. Cleaning and Disinfecting
      1. Are respirators cleaned and disinfected after each use when different people use the same device, or as frequently as necessary for devices issued to individual users?
      2. Are proper methods of cleaning and disinfecting utilized?
   ii. Storage
      1. Are respirators stored in a manner so as to protect them from dust, sunlight, heat, excessive cold or moisture, or damaging chemicals?
      2. Are respirators stored properly in a storage facility so as to prevent them from deforming?
      3. Is storage in lockers and toolboxes permitted only if the respirator is in a carrying case or carton?
   iii. Inspection
      1. Are respirators inspected before and after each use and during cleaning?
      2. Are qualified individuals/users instructed in inspection techniques?
      3. Is respiratory protective equipment designated as "emergency use" inspected at least monthly (in addition to after each use)?
      4. Is a record kept of the inspection of "emergency use" respiratory protective equipment?
   iv. Repair
      1. Are replacement parts used in repairing those of the manufacturer of the respirator?
      2. Do knowledgeable individuals make repairs?
      3. Are repairs of SCBA made only by certified personnel or by a manufacturer's representative?
   v. Training
      1. Are users trained in proper respirator usage?
      2. Are users trained in the basis for selection of respirators?