



## Title: Respiratory Protection Program

**Applies to:**  
Indiana University Northwest

**Issue Date:**  
04/1996

**Latest Revision:**  
06/11/2002

## Purpose

The purpose of this Respiratory Protection Program is to:

- Protect IUN personnel from identified inhalation exposure hazards; and,
- Comply with Indiana University safety and health policy and applicable OSHA standards.

## Regulatory Reference

29CFR1910.134, OSHA's Respiratory Protection Standard

## Definitions

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

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

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

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

**Fit test** means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

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

**Immediately dangerous to life or health (IDLH)** means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

**Negative pressure respirator (tight fitting)** means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

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

**Physician or other licensed health care professional (PLHCP)** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by this section.

**Powered air-purifying respirator (PAPR)** means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

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

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

**Tight-fitting facepiece** means a respiratory inlet covering that forms a complete seal with the face.

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

## Policy on Respirator Use

### Restriction on Respirator Use

The use of respirators is restricted at Indiana University Northwest. Respirators may not be required by IUN departmental managers or used by IU personnel except under the guidelines of this Program.

Respirators may only be used when:

- Engineering controls (such as ventilation systems) are:
  - Not feasible to install or operate; or,
  - Not sufficient to keep exposures below applicable limits; or,
  - Being installed; AND,
- Potential exposures in the work environment have been adequately characterized to ensure proper respirator selection before performing work; OR,
- Some limited voluntary use is permitted.

## Responsibilities

Responsibilities for the implementation of this Program area as follows:

Department/Staff	Responsibilities
IU Departmental Managers	<ul style="list-style-type: none"><li>○ Ensuring compliance with this Program.</li><li>○ Implementing all provisions of this Program.</li><li>○ Taking corrective action on all identified potential airborne contaminant exposures at IUN facilities.</li><li>○ Paying all costs of this Program, including costs of equipment, training, and medical evaluation.</li></ul>

EH&S	<ul style="list-style-type: none"> <li>○ Evaluation and monitoring of potential workplace airborne contaminant exposures.</li> <li>○ Selection of respirators and cartridges according to NIOSH/ANSI selection criteria.</li> <li>○ Training and initial fit testing of IUN personnel in the scope of this Program. EH&amp;S may authorize personnel in other departments to perform annual fit tests.</li> <li>○ Program evaluation to ensure progress in implementation.</li> <li>○ Technical assistance per individual or department request.</li> </ul>
PLHCP	<ul style="list-style-type: none"> <li>○ Medical evaluation and approval for respirator use.</li> </ul>
IUN personnel	<ul style="list-style-type: none"> <li>○ Complying with all provisions of this program.</li> <li>○ Using respirators in designated areas or when performing designated jobs/tasks.</li> <li>○ Proper use, inspection, and maintenance of respirators.</li> <li>○ Reporting any potential exposures or compliance failures to departmental managers and/or EH&amp;S.</li> </ul>

**Who Will Use Respirators –Affected Personnel**

Personnel in the following departments and work areas may be subject to the provisions of this Program:

- EH&S
- Physical Plant
- Academic Departments
- Part-time and student employees in any of the above departments

**Respirator Selection Criteria**

**Policy on Respirator Selection**

Respirators used at IUN will be selected according to NIOSH/ANSI guidelines. A summary follows below. The use of Air-Purifying Respirators (APR’s) is restricted to work situations in which each of these criteria has been met.

**Air-Purifying Respirator Selection Criteria**

- The correct cartridge is worn on the APR.

- Assigned Protection Factor is adequate for the potential exposure--i.e., below the applicable regulatory or consensus exposure standards, for example: OSHA Permissible Exposure Limit (PEL).
- Only NIOSH/MSHA-approved equipment is used.

#### **Environment/Contaminant Criteria**

- The atmosphere has normal ambient oxygen content (= 21% approx.).
- Warning properties of the contaminant, such as an odor, taste or irritating effect are adequate, i.e., detectable and persistent at a concentration lower than the PEL.
- The physical and chemical properties and any adverse health effect(s) of exposure to the contaminant are known.
- Concentrations of airborne contaminant characteristic of the workplace are known.
- Concentrations of airborne contaminant are well below levels which would be Immediately Dangerous to Life or Health (IDLH) as defined by NIOSH.

#### **Worker/Task Criteria**

- Nature of the job and task performed has been evaluated.
- Physical configuration (including confined space hazards) and location of the work area have been evaluated.
- Duration of task is known.

#### **NIOSH Approval**

EH&S will not issue respirators unless they are approved by the National Institute of Occupational Safety and Health (NIOSH 42 CFR Part 84).

#### **Fit-Testing**

Before an employee is required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. Employees covered under this program shall be fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.

Changes in the employee's physical condition that could affect respirator fit will require another fit test. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

A variety of makes, models and sizes of respirators will be provided for use during fit testing. EH&S personnel will determine which equipment provides the employee with the best fit based on employee input and fit testing results.

Copies of completed respirator fit-test forms are kept by EH&S.

#### **Medical Evaluation and Approval**

Medical evaluation and approval is required prior to fit testing and issuance of respirators. After a determination that a respirator is required for a job or task, the employee shall receive a medical evaluation from a physician or other licensed health care professional.

## Procedures for Respirator Use

Before donning the respirator inspect to ensure that the:

1. Proper cartridge has been selected.
2. Cartridges are secured in place.
3. Exhalation and inhalation valves are secured in place and in good condition.
4. Facepiece is secured in place.
5. Head straps are properly secured.

Employees shall not wear respirators with tight-fitting facepieces when:

- The employee has facial hair that comes between the sealing surface of the facepiece and the face OR that interferes with valve function; or,
- The employee has any other condition that interferes with the face-to-facepiece seal or valve function.

If an employee wears corrective glasses or goggles or other personal protective equipment, the department shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user. Should corrective glasses or goggles interfere with the seal of the facepiece to the face of the user, or should the respirator interfere with the wearing of corrective lenses, the employee shall be provided with respiratory protection that incorporates the vision correction into the respirator or corrective lenses that can be worn without interfering with the seal or downgrading vision.

After donning the respirator:

1. Adjust the facepiece straps until the facepiece is secured comfortably in place.
2. Conduct a positive and negative fit-check (complete procedure available in training outline).
  - If an odor is detected through the respirator, leave the work area and re-adjust the cartridges and facepiece straps.
  - If, after checking these adjustments and returning to the work area, the odor persists, leave the work area and exchange the cartridges for new ones.
  - Discard used respirator cartridges as recommended by EH&S.

After leaving the work area and removing the respirator:

1. Remove the cartridges.
2. Wash the inside surface of the respirator with soap and warm water or with a respirator wipe (available from your department).
3. Place the cartridges in clean, dust-free area or preferably a “Ziploc” type bag for storage.
4. Place the facepiece in a separate, storage bag, in a clean, well-ventilated, dust-free area.

### Inspection

All respirators used in routine situations shall be inspected before each use and during cleaning.

All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use.

## Minimum Requirements for Selected Tasks

UOEHSM has established minimum respiratory protection requirements for certain tasks. *These requirements apply where there is no effective local exhaust ventilation unless otherwise noted.* All are subject to re-evaluation when processes, equipment or materials change. The list below contains example tasks requiring respiratory protection. Contact EH&S for Personal Protective Equipment (PPE) Hazard Assessments for specific tasks, which list PPE requirements, including respiratory protection.

- Use of power equipment to heat, cut, grind, pulverize or shape wood, wood products, metals, plastics, thermal insulation (non-asbestos-containing) or other materials, which generates dust, vapors or gases.
- Any processes which generate dusts from silica-containing materials, such as concrete, masonry and ceramic products, mortars, and tile.
- Cutting/heating caulking products.
- Application of chemical compounds or mixtures such as paints, surface coatings, finishes, water-sealants, adhesives, biocides, pesticides, herbicides, fertilizers, lubricants, cutting oils which may release airborne vapors, gases or particulates into the worker breathing zone, which are not adequately controlled by engineering controls.
- HVAC maintenance and demolition involving removal of molds, when a mold stain is visibly evident; call EH&S for guidance.
- Any of the above categories of task, when performed inside a confined space, such as a tank, if entry is necessary to perform the task.
- Many types of common operations, such as welding, cutting, arc gouging, or application of organic solvents indoors or in confined spaces.
- Abrasive blasting.
- Pesticide application.
- Cleaning or maintenance activities on electrostatic precipitators, hoppers, and boilers.
- Asbestos abatement.
- Woodworking tools under some conditions, especially if treated wood, pressed, particle or plywood, or Western Red Cedar is used.

### Voluntary Respirator Usage

Employees may be permitted to voluntarily wear NIOSH-approved, filtering facepiece respirators (AKA dust masks), when the following conditions have been met:

- Exposure to airborne contaminants is below OSHA Permissible Exposure Limits (PELs). EH&S must evaluate potential exposures to ensure that voluntary usage is applicable. If an evaluation of the workplace reveals that air contaminants are not within acceptable limits and/or it is determined that the use of respiratory protection is required to perform the work, then all the provisions of this program apply and must be followed.
- Employees requesting to wear a respirator under voluntary usage must first fill out a Voluntary Usage Request Form (attached) and submit to EH&S. The employee's supervisor must also sign the Request Form before an evaluation will be made. Upon receipt of the form, EH&S will evaluate the workplace and potential exposure(s). Voluntary usage will then be approved only if air contaminants are within acceptable limits. Approval shall be noted on the form.
- The original form shall be kept by EH&S.
- If an employee chooses to wear a respirator under voluntary usage, then the employee must be provided with Appendix D of the OSHA respiratory standard (29CFR1910.134).

Only N95 dust masks shall be approved for voluntary usage.

## **Notification and Training**

### **Notification**

- Departmental Managers will notify any affected employee(s) as soon as possible after a need for respirator use has been identified.
- A copy of the federal OSHA Respiratory Protection Standard, 29 CFR 1910.134, is available to any and all IU personnel by request from EH&S at 219-981-4230.
- A copy of this program is available to any IU personnel or other interested parties by request from EH&S on our web site: [www.iun.edu/~ehs/](http://www.iun.edu/~ehs/)

### **Organization and Delivery of Training**

Departmental Managers will work with EH&S to:

- Identify work conditions that may require respirator use.
- Schedule all affected personnel for initial training as soon as possible after working conditions requiring respirator use have been identified.
- Provide all required training:
  - Either by EH&S staff or training contractors approved by EH&S;
  - At the time the respirator is issued initially; and,
  - Refresher training will be provided, annually; and,
  - Supervisory training will be provided, as necessary.

### **Content of Training**

- Anatomy and physiology of the respiratory system
- Health risks resulting from workplace inhalation exposures
- Industrial hygiene measurements of airborne contaminants
- Potential workplace inhalation exposures in IUN work areas, focusing on potential exposures in the trainee's work area.
- Review of OSHA Respiratory Protection Standard
- Review of IU Respiratory Protection Program
- Use, inspection, storage and limitations of respirators
- Medical evaluation and approval
- Respirator selection criteria
- Supervisory responsibilities

## **Program Evaluation and Recordkeeping**

All affected parties should be concerned with proper implementation of this Program. To assist in this effort, EH&S will:

- Conduct industrial hygiene surveys, inspections and employee interviews.
- Review training records and medical evaluation data periodically to ensure that they are current and identify any trends.
- Report the results of all program evaluations activities to departmental managers.

## Recordkeeping

The table below describes record retention for the Respiratory Protection Program:

<b>Record</b>	<b>Kept By</b>	<b>Length of Time</b>
Training	EH&S	EH&S recommends keeping initial and current training records; however, OSHA has no minimum requirement for training record retention.
Exposure Records	EH&S	At least 30 years
Respirator Fit-Test Form and Voluntary Usage Form	EH&S	Retain the most current fit test record.
Medical Evaluation and Approval	Medical Evaluation—PHLCP Approval—PHLCP and EH&S	Term of employment plus 30 years



## Respirator Fit-Test Form

### Employee Information

Employee Name	
Department	
Job Title	
Exposure	
Date Fit-Test Completed	

### Respirator Information

- Fit-test method
  - Irritant Smoke tubes
  - Iso-Amyl Acetate
  - Bitrex

### Respirator #1

Manufacturer	Cartridge Type
Model	Size
IUN-EH&S	Date

### Respirator # 2

Manufacturer	Cartridge Type
Model	Size
IUN-EH&S	Date

### Respirator # 3

Manufacturer	Cartridge Type
Model	Size
IUN-EH&S	Date

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
EH&S Signature



## Request for Voluntary Respirator Usage

**Employee certification:**

I, \_\_\_\_\_ (printed name) do hereby certify that I am voluntarily using a respirator to reduce my exposure to \_\_\_\_\_ (give name or type of air contaminant). I have been given a copy of 29CFR1910.134 Appendix D regarding the proper respirator use and I have read and understand it.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**EH&S certification:**

I have determined that this voluntary use of a respirator will not create a hazard in the workplace and approve this voluntary usage of respiratory protection for this employee.

The respirator is a NIOSH-approved, filtering facepiece (dust mask) respirator and no further action is required.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name \_\_\_\_\_ Title \_\_\_\_\_

**Employer certification:**

I approve this voluntary usage of respiratory protection for this employee.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name \_\_\_\_\_ Title \_\_\_\_\_

*Please return this form to EH&S, Tamarack Hall, F02, IUN.*

## **Appendix D to Sec. 1910.134 (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 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.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

## APPENDIX A

### Fit Testing Procedures—General Requirements

The employer shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

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 #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 the OSHA standard 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. The following test exercises are to be performed for all fit testing. The test subject shall perform exercises, in the 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).

**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) Protocols**

#### 1. General

(a) The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.

(b) The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

#### 2. 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 face seal 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 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.