

Hampshire College

Respiratory Protection
Program

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OSHA 29 CFR 1910.134(c)

Environmental Health & Safety
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HAMPSHIRE COLLEGE RESPIRATORY PROTECTION PROGRAM

Purpose

- To establish guidelines for the appropriate health and safety requirements that must be followed by Hampshire College employees and outside contractors when performing work that requires the use of respirators.
- To ensure compliance with all local state and federal regulations, including the OSHA Respiratory Protection Standard, 29 CFR1910.134.
- To promote awareness of the potential hazards.
- To prevent injury.

This Program contains operating procedures for Hampshire College employees using respiratory protection equipment. This Program is given to all employees that wear respirators, as well as their supervisors and department heads. The Director of Environmental Health and Safety administers the Program and reviews the effectiveness of the Program at least annually.

I. Choosing a Respirator

The Facilities and Grounds Director or Paint or Carpentry Supervisors are responsible for determining when a respirator is needed to comply with OSHA Permissible Exposure Limits. Respirators may also be used under other conditions when respirator use is considered prudent by the Facilities & Grounds Director, Supervisors, or the Director of Environmental Health and Safety. Prior to making a decision that respirators are required, the feasibility of achieving compliance through engineering controls, (e.g., improved ventilation), source reduction (e.g., use of less or a different chemical), or altering work practices is evaluated. In determining the appropriate respirator, the Supervisor evaluates:

- the nature of the hazard
 - physical/chemical properties (e.g., dust, vapor)
 - concentration of the chemical
 - permissible exposure limit
 - IDLH (immediately dangerous to life and health concentration)
 - warning properties of the chemical (e.g., odor)

Note: Hampshire College personnel are not permitted to work in oxygen-deficient atmospheres or perform any work for which the use of a supplied-air respirator would be required.

- the nature of the operation and work area
- NIOSH approved respirator for the contaminant

If necessary, the supervisor seeks assistance from the Facilities & Grounds Director or the Environmental Health and Safety Director.

A. Health Hazards and Warning Properties of the Contaminant

When choosing the type of respiratory protection required for a particular operation, the nature of the hazard must be clearly defined. Respirators are used to reduce employee exposure to a contaminant to a level below OSHA established Permissible Exposure Limits. Information on the potential health effects of overexposure and physical properties of the chemical are available on the container label and the MSDS for the product. The MSDS for the product being used and any air monitoring data available should be reviewed before a respirator is selected. Appendix A includes definitions for chemical characteristics used to define the nature of the hazard.

It is important to recognize that respiratory protection reduces exposures from inhalation of the contaminant. For certain chemicals, skin and eye contact and/or absorption are also important routes of exposure, in which case additional personal protective equipment is required.

Air purifying respirators can only be used for gas and vapor contaminants that have adequate warning properties that will alert the user to respirator malfunction. A chemical has adequate warning properties when the odor, taste, or irritation effects of the substance are detectable and persistent in concentrations at or below the PEL.

If the odor or irritation threshold occurs at concentrations greater than three times the PEL, the substance is considered to have poor warning properties and an air-purifying respirator cannot be used. The only exceptions to this rule are for respirators with end-of-life service indicators (e.g., carbon monoxide) or when an OSHA Standard permits such use. When the odor threshold is above the PEL, but not in excess of three times the PEL and there is no ceiling limit, potential exposures must be evaluated to determine if there could be serious or irreversible health effects. If no such effects are evident, an air-purifying respirator may be used.

B. Types of Respirators and Protection Factors

There are several basic types of respirators as listed below. The National Institute of Occupational Health and Safety (NIOSH) approves respirators.

Atmosphere-Supplying Respirators

Pressure-demand SCBA (Self Contained Breathing Apparatus): a supply of air is continuously provided to the mask from a compressed air tank(s) carried by the

individual with positive pressure maintained in the mask at all times.
(Compressed air must meet grade D breathing air standards.)

Note: Hampshire College personnel are not permitted to wear, or perform work that requires, SCBAs.

Pressure-demand Airline Respirator: a supply of air is continuously provided through a small diameter hose from a remotely located compressor or compressed-air cylinders. (Compressed air must meet grade D breathing air standards).

Air-Purifying Respirators

Air-Purifying Respirator: ambient air is passed through a filter, cartridge or canister that removes the contaminants. The breathing action of the user draws air through the system.

Powered Air-Purifying Respirator: ambient air is passed through a filter, cartridge or canister that removes contaminants. A blower worn by the user forces air through the system.

Air-purifying respirators do not protect against oxygen-deficient atmospheres and cannot be used under IDLH conditions. The maximum contaminant concentration in which an air-purifying respirator can be used is dependent on the design efficiency and capacity of the filter or cartridge and the face-piece to face seal on the user.

Air purifying respirators can only be used for certain ranges of air contaminant concentrations. A *respirator protection factor* (RPF) has been established for each type of respirator based on the overall effectiveness of the respirator. The RPF is a ratio of the air contaminant concentration outside the respirator to the air contaminant concentration inside the respirator face piece, (breathing air). RPFs are used in conjunction with PELs to determine the upper concentration limit, *maximum use concentration* (MUC), for which the respirator is acceptable.

For example, a half-face cartridge respirator with organic vapor cartridges has a RPF of 10. It can be used when air contaminant levels are less than 10 times the PEL, the MUC. In some cases, the MUC based on 10 times the PEL is too high, and a lower MUC has been established. A full-face air-purifying respirator has a RPF of 50. Some examples of MUCs for half-face cartridge respirators are provided in Table 1. NIOSH-approved MUCs can be found in the NIOSH *Pocket Guide to Chemical Hazards*.

Table 1: PELs and Maximum Use Levels of Common Chemicals

| Chemical | PEL/TWA (8 hr) | Cartridge | Maximum Use Level * |
|-------------------|-----------------------|------------------|----------------------------|
| Acetone | 250 ppm | organic vapor | 2500 ppm |
| Toluene | 100 ppm | organic vapor | 500 ppm |
| Xylene | 100 ppm | organic vapor | 900 ppm |
| chlorine | (ceiling) 0.5 ppm | chlorine | 5 ppm |
| hydrochloric acid | (ceiling) 5 ppm | acid gas | 50 ppm |

* half-face cartridge respirator

Source: NIOSH, 2004. *Pocket Guide to Chemical Hazards*.

The proper type of filter or cartridge must be chosen for the contaminant of concern. Filters and cartridges are classified into two major types: particulate-removing and vapor/gas-removing. Particulate-removing filters and cartridges provide no protection against vapors and gases. Only cartridges for a particular manufacturer and model respirator may be used.

Multiple cartridges may be used if approved by the manufacturer. Cartridges available include:

- acid gas
- organic vapor
- organic vapor/acid gas
- ammonia/methylamine
- chlorine
- carbon monoxide gas
- acid gas/organic vapor/carbon monoxide
- dust/fumes/mists

Air Filtering Disposable Masks (N95)

On occasion, employees may elect to wear a disposable mask when a respirator is not required by OSHA standards. These employees are directed to OSHA's *Information for Employees Using Respirators When Not Required Under the Standard* (see Appendix D).

Appendix E shows respirator program requirements for required and voluntary use of respirators.

C. NIOSH-Approved Respirators

Specific contaminant(s) and concentration(s) must be evaluated to identify those respirators with NIOSH/MSHA or OSHA approval for the conditions of use. The

NIOSH *Pocket Guide to Chemical Hazards* identifies for each contaminant the MUC for each type of approved respirator. For example, for acetone, a half-face

chemical cartridge respirator with organic vapor cartridges can be used for concentrations at or below 2500 ppm.

Respirators are approved as a whole unit with specific components. Only components (e.g., cartridges, filters, gaskets, straps) approved for the respirator may be used. Components from different brands of respirators cannot be interchanged.

D. Respirator Use on Campus

The following operations may require respirator use. Supervisors determine if respirators are needed for a specific job.

| Department/shop | Hazard | Respirator |
|---------------------------------|--|--|
| Facilities & Ground/Paint Shop | solvents paint spray lead paint asbestos maintenance | half-face or full-face organic vapor and/or particulate cartridges. SAS Safety Corp. airline respirator with SurvivAir half-face piece. |
| Facilities & Grounds/Carpenters | lead paint asbestos maintenance | half-face or full-face, organic vapor and/or particulate cartridges |
| Facilities & Grounds/Plumbers | asbestos maintenance | half-face or full face, organic vapor and/or particulate cartridges |
| Facilities & Grounds/Custodians | fire extinguishant mold | half-face or full face, organic vapor and/or particulate cartridges |
| Environmental Health & Safety | solvents lead paint asbestos maintenance mold fire extinguishant | half-face or full-face, organic vapor/acid gas and/or particulate cartridges |

All respirators are issued by the employee's supervisor or the Director of Environmental Health and Safety. Respirators are only issued to employees after successful completion of the medical evaluation (See section II) and instruction (see Section VII).

Outside contractors are required to have and follow their own written respiratory protection program as well as all applicable regulations. Contractors that may be in this category are pesticide applicators, pool maintenance companies, etc.

II. Medical Requirements of the Program

The *Respirator User Medical Questionnaire*, included in Appendix B, is required by OSHA. This questionnaire is confidential and administered annually to all employees in the Program. Responses are evaluated by the AEIOU occupational health clinic to determine if a medical examination is needed and the extent of that examination. Examinations are provided by AEIOU. Employees may discuss the results of the questionnaire or examination by contacting AEIOU Work Connection.

AEIOU provides a written recommendation before an employee begins participation in the Respiratory Protection Program and annually thereafter. The recommendation includes any limitations on respirator use related to the medical condition of the employee, the need, if any, for follow-up medical evaluation, and a statement that a copy of the recommendation has been sent to the employee. Additional medical evaluation will be provided if an employee reports medical signs or symptoms that are related to ability to use a respirator.

Any medical records generated by this Program that are in the possession of the College are retained for a period of thirty years and are accessible to employees, (or their designated representative), as required by the OSHA Access to Medical Standard. Employee medical records are retained at Hampshire College Human Resources.

III. Respirator Use

A. Work-place Surveillance

Before commencing work that requires a respirator, employees should familiarize themselves with:

- the warning properties of the chemicals involved, such as
 - odor
 - appearance and color
 - irritant effects
 - symptoms of overexposure
- engineering and administrative controls, such as
 - ventilation
 - recommended work practices
- other personal protective equipment such as
 - gloves, aprons, etc. to prevent skin contact
 - goggles or face shield to prevent eye contact

Questions regarding any of these factors are addressed by the supervisor.

B. Approved Respirators

Only respirators purchased by the College are used. All respirators are NIOSH-approved for the hazard encountered. An employee can only use a respirator the same make, style and size for which he/she has been fit-tested.

C. Prohibiting Conditions

Respirators cannot be worn by people with beards. Other conditions may also prevent adequate face-piece to face seal such as side burns, absence of one or both dentures, or temple bars on glasses, (when wearing full face respirators).

D. Donning the Respirator

A user seal check is performed every time a respirator is put on. Seal check methods are described in Section V and practiced during training.

E. Evaluation of Respirator Effectiveness

The supervisor will determine the requirements for surveillance of the work area to identify any changes in area conditions or employee exposure to stress that could affect respirator effectiveness. Employees must leave the work area:

- to wash face and respirator as necessary to prevent eye or skin irritation associated with respirator use,
- if they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece,
- to remove the respirator for any reason.

IV. Respirator Care and Maintenance

A. Cleaning

All respirators are issued to individual users and are not shared. Respirators are regularly cleaned with soap and water by the user. Respirators routinely used throughout the day are cleaned after each day's use or more often as necessary. Respirators used for short intermittent periods of time may be cleaned with less frequency with, at a minimum, cleaning after 8 hours of use. When used in particulate-contaminated areas, respirators, even when used for short periods, are cleaned after each use. The following general cleaning procedure is used:

1. Remove cartridges, filters, valves, and straps.

2. Wash face-piece and accessories (not cartridges) in warm soapy water. Gently scrub with a brush.
3. Rinse parts thoroughly with clean water.
4. Air dry in a clean place or wipe dry with a clean, lintless cloth.
5. Inspect for wear or defects and reassemble.

B. Inspection

Respirators should be inspected each time they are used:

1. Check face-piece for pliability, deterioration, and cracks, tears or holes.
2. Check straps for breaks, tears, loss of elasticity, or broken attachments.
3. Check filters or canisters for dents, corrosion, or expiration dates.
4. Check valves for pliability, deterioration or tears.
5. Confirm that the filter or canister is acceptable for the hazard that is present.
6. For cartridges with "end-of-service life" indicators, confirm that it is still in the usable range.

If any part of the respirator is unacceptable, replace that part or the entire respirator before use.

C. Cartridge Service Life

Cartridges must be replaced when there is "breakthrough" of the contaminant. This is evident by recognition of the taste, odor, or irritant effects of the contaminant. They must also be replaced when breathing becomes difficult or any deterioration or visible dirt is noticed. At a minimum, cartridges should be changed after 8 hours of use or, if used for less than 8 hours per month, at least monthly. The date a cartridge is removed from the package must be written on the cartridge before installation. A limited number of cartridges (e.g., carbon monoxide) have visible "end of service life" indicators that must be checked each time the respirator is used.

D. Storage

Respirators are stored in a convenient, clean, and sanitary location and protected from dust, chemicals, sunlight, excessive heat or cold, and moisture. Respirators must be closed in sealed plastic bags or containers. Storage location should be determined by the employee with approval of his/her supervisor.

V. Donning a Respirator

A. Restrictions on Use

Respirators cannot be worn under conditions that may interfere with the facial seal. Such conditions include:

1. a beard, sideburns or other facial hair at the face-piece to face seal under the face piece,
2. temple bars on glasses (full face respirators), and
3. the absence of one or both dentures.

Respirator use may also be restricted based on the results of the physical examination described in Section II.

B. Fitting Instructions and Pressure Testing

After inspection of the respirator, the respirator should be donned in a clean environment. Make sure the respirator is assembled correctly.

Manufacturer's recommendations regarding donning procedure should be followed. In general, the donning sequence for a half-face respirator should be:

1. place face-piece over face
2. pull crown strap over head
3. hook lower headband strap behind neck
4. adjust lower headband
5. adjust crown strap.

The respirator should not be over-tightened so as to be uncomfortable on the face. After donning a cartridge respirator, a negative and positive pressure test must be done to verify that the respirator is sealed properly.

To perform the negative pressure test, cover the cartridges with the palm of your hand, inhale, and hold your breath for at least ten seconds. The face-piece should collapse slightly and no inward leakage of air should be detected.

To perform the positive pressure test, cover the exhalation valve with the heel of your hand, and exhale gently. A slight positive pressure should build up within the mask and no outward leakage of air should be detected.

The respirator should not be adjusted after entering the hazardous environment. If adjustment is necessary, the employee should first go to a clean environment.

VI. Respirator Fit-Testing

Respirator fit-testing is used to determine if a particular respirator is sized properly for the user. Fit-testing is only applicable to cartridge and negative pressure respirators. Only respirators, (identified by manufacturer, model, and size), for which an acceptable fit has been demonstrated may be used.

Employee fit-testing is conducted prior to initial use of a different respirator face-piece, (size, style, model, or make), and at least annually thereafter. Additional fit-testing is done if an employee reports, or the supervisor observes, a change in physical condition that could change the fit of the respirator. Fit-testing is done using the Portacount quantitative fit testing protocol or the procedure defined in Appendix A, B.5. of the OSHA Standard, *Irritant Smoke Protocol* as summarized in Appendix C.

VII. Employee Training and Records

Instruction on the proper use and limitations of respiratory protection equipment is given prior to respirator use and at least annually thereafter; training is provided by the Director of Environmental Health and Safety. Original training records are kept by the Director of Environmental Health and Safety with copies kept by each department. The training includes the following topics:

- respirator selection
- medical evaluation
- fit-testing
- respirator use
- respirator care and maintenance

Appendix A

Hampshire College Respiratory Protection Program

CHEMICAL HAZARD DEFINITIONS

Oxygen Deficient Atmosphere: atmosphere containing less than 19.5% oxygen by volume.

IDLH (Immediately Dangerous to Life and Health): the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape impairing (e.g., vision impairment) or irreversible health effects.

Permissible Exposure Limits (PELs): an acceptable exposure limit established as a regulatory standard by OSHA. Acceptable limits are established as 8-hour time weighted averages (TWA), Short Term Exposure Limits (STEL) (usually a 15-minute average), and Ceiling (maximum not to be exceeded) limits.

Particulate: include dust (small pieces of solid), mist (small liquid droplet), and fume (very fine particle released when metal or plastic is heated and quickly cooled).

Gases: physical state defined as fluids with a vapor pressure higher than 40 psia (pounds per square inch absolute) at 100°F.

Vapors: substances that evaporate from a liquid or solid.

Organic: chemical compound containing carbon includes solvents.

Acid: a chemical which produces positively charged hydrogen ions in water and a pH less than 7.

Base: a chemical which produces negatively charged hydroxyl ions in water and a pH greater than 7.

Vapor Density: the relative weight of a vapor relative to air; air's vapor density is defined as 1, vapor densities greater than 1 indicate the vapor is heavier than air and will sink, less than 1 indicate the vapor is lighter than air and will rise.

Vapor Pressure: the pressure exerted by a vapor on the sides of its container at equilibrium. The higher the vapor pressure the more vapors will be produced by the chemical.

Flash Point: the minimum temperature of a liquid at which it gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid. The lower the flash point the greater the fire hazard.

Lower Flammable Limit: the minimum proportion of vapor or gas in air below which the vapor will not ignite (too little fuel/too much oxygen).

Upper Flammable Limit: the maximum proportion of vapor or gas in air above which the vapor will not ignite (too much fuel/too little air).

Auto-ignition temperature: the temperature at which the material will self-ignite with no external ignition source.

Appendix B

Hampshire College Respiratory Protection Program

MEDICAL QUESTIONNAIRE Annual Respirator User Medical Questionnaire

Can you read (circle one): Yes/ No

If you have trouble reading this questionnaire, please ask for assistance.

Your employer must allow you to answer this questionnaire during normal work 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.

The questionnaire will be reviewed by the AEIOU Occupational Health Clinic. AEIOU can be reached at (413) 461-3530. An envelope has been provided with this questionnaire. When you have completed the questionnaire, place it in the envelope, seal it, and mail it to AEIOU.

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: _____
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 (see text above) (circle one): Yes/ No

11. Check the type of respirator you will use (you can check more than one category):
- b. _____ Disposable respirator (filter mask, non-cartridge type only)
 - c. _____ Other type (for example, half- or full-face piece type, powdered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator before (circle one): Yes/ No
13. If "yes", what type(s):

Part A. Section 2. (Mandatory) Questions in this part 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 one of the following conditions?
 - a. Seizures (fits): Yes/ No
 - b. Diabetes (sugar disease): Yes/ No
 - c. Allergic reactions that interfere with your breathing: Yes/ No
 - d. Claustrophobia (fear of closed-in places): Yes/ No
 - e. Trouble smelling odors: Yes/ No
3. Have you ever had any of the following pulmonary or lung problems?
 - a. Asbestosis: Yes/ No
 - b. Asthma: Yes/ No
 - c. Chronic bronchitis: Yes/ No
 - d. Emphysema: Yes/ No
 - e. Pneumonia: Yes/ No
 - f. Tuberculosis: Yes/ No
 - g. Silicosis: Yes/ No
 - h. Pneumothorax (collapsed lung): Yes/ No
 - i. Lung cancer: Yes/ No
 - j. Broken ribs: Yes/ No
 - k. Any other chest injuries or surgeries: Yes/ No
 - l. Any other lung problems 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 in 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 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 problems 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
 - f. Any other symptoms that you think may be related to heart 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 (fits): Yes/ No
8. If you've used a respirator, have you ever had one 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 and 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
10. 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 bend forward or backward at the waist: Yes/ No
 - e. Difficulty moving your head up or down: Yes/ No
 - f. Difficulty 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 ladder carrying more than 25 lbs.: Yes/ No
 - j. Any muscle or skeleton problem that interferes with using a respirator: 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 rescues only: Yes/ No
 - c. Less than once per month: Yes/No
 - d. Less than once a week: Yes/No
 - e. Once a week or more: Yes/No
 - f. When wearing a respiratory, how long do you typically wear it?
 - (i) Less than 1 hour: Yes/ No
 - (ii) One to 4 hours: Yes/ No
 - (iii) Over 4 hours per day: Yes/ No
12. During the period that you are using the respirator(s), is your work effort:
 - a. Light (less than 200 kcal per hour): Yes/ No
(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. If "yes," how long does this period last during the average shift:
_____ hrs. _____ mins.
 - c. Moderate (200 to 350 kcal per hour): Yes/ No
(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.)
 - d. If "yes," how long does this period last during the average shift:
_____ hrs. _____ mins.

- e. Heavy (above 350 kcal per hour): Yes/ No
(Examples of heavy work effort 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.).)
- f. If "yes," how long does this period last during the average shift:
_____ hrs. _____ mins.

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/ No

a. If "yes," describe this protective clothing and/or equipment:

14. Will you be working under hot conditions: 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):

a. _____

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

a. _____

18. 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):

a. _____

Part B. Optional Questions. You may answer these questions, if you would like a physician to consider them in his/her evaluation.

1. 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: Yes/ No
 - g. Iron: Yes/ No
 - h. Tin: Yes/ No
 - i. Dusty environments: Yes/ No
 - j. Any other hazardous exposures: Yes/ No
 - k. If "yes," describe these exposures:

2. List any second jobs or side businesses you have:

3. List your previous occupations:

4. List your current and previous hobbies:

5. Have you been in the military services? Yes/ No
 - a. If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/ No
6. Have you ever worked on a HAZMAT team? Yes/ No
7. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking other medications for any reason (including over-the-counter medications): Yes/ No

Appendix C

Hampshire College Respiratory Protection Program

IRRITANT FUME RESPIRATOR FIT TESTING 29 CFR 1910.134 Appendix A, B.5.

Irritant Smoke may be irritating to eyes, lungs and nasal passages.

- I. Smell a weak concentration of the irritant smoke.
- II. Choose a respirator that feels comfortable.
- III. Perform positive and negative pressure checks.
 - If either check fails, choose another respirator or adjust fit.
- IV. Wear for at least 5 minutes and adjust for comfort.
- V. Expose subject to irritant smoke beginning at 12 inches from the face piece, moving to within 1 inch and moving around the entire perimeter.
- VI. During Test:
 - Keep your eyes closed
 - Breathe normally
 - Take deep and regular breaths
 - Turn head from side to side
 - Nod head up and down; do not bump respirator on chest
 - Slowly count backwards from 100 out loud, or read the “Rainbow Passage”
 - Grimace
 - Return to normal breathing
- VII. The respirator is rejected if involuntary coughing occurs during the test.
- VIII. If no response is seen during the test, the respirator is removed and the person given a sensitivity test from the same tube.

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.

Appendix C (continued)

**Hampshire College
Respiratory Protection Program**

RESPIRATOR FIT TEST RECORD

DATE: _____

EMPLOYEE: _____

RESPIRATOR:

(Brand, Model and Size)

FIT TEST PROTOCOL: Irritant Fume (29 CFR 1910.134 Appendix A, B.5.)

THE EMPLOYEE EXPERIENCED NO REACTION TO THE IRRITANT SMOKE
DURING THE FIT TEST PROCEDURE.

Test Conductor Signature

Employee Signature

Appendix D

Hampshire College Respiratory Protection Program

FOR USERS OF AIR FILTERING DUST MASK RESPIRATORS

OSHA Respiratory Protection Program, Appendix D to Sec. 1910.134,
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.

APPENDIX E

Hampshire College
Respiratory Protection Program

Respirator – Use Requirements

