



RESPIRATORY PROTECTION POLICY

Review Date: October 2013

Applicability

This policy applies to OHSU employees (including staff, volunteers and students) who may be exposed to harmful dusts, fumes, mists, gases, smokes, sprays, vapors, or airborne pathogens during routine and non-routine operations, **where respiratory protection is required.** This is determined by Environmental Health & Radiation Safety (EHRS) in all situations except for possible airborne pathogen exposures in OHSU Healthcare System settings, where the determination is the responsibility of the Infection Prevention and Control Program. Consultation with the Infection Prevention and Control Program may be requested by other OHSU entities.

Section 5 of this policy, **Infectious Disease Provisions**, is reserved for policy provisions specifically applicable to the prevention of occupational exposures to airborne pathogens in the Healthcare System, for which the use of respirators is appropriate. Infection Control is responsible for determining applicability to specific employees or disease entities.

Employees who work in specific areas or engage in processes or tasks, as outlined in **Appendix A**, must be enrolled in OHSU's Respiratory Protection Program.

Scope and Purpose

This policy establishes the OHSU Respiratory Protection Program. The program is designed to minimize employee exposure to hazardous air contaminants in the workplace. Procedures for respiratory protection selection, medical evaluation, fit testing, use and maintenance, training, and policy evaluation, are outlined in this policy. Respirators may include tight-fitting (Half-face & Full-face), cartridge-type; N95; and Powered Air Purifying Respirators (PAPR).

Administrative and/or engineering control measures (such as job rotation, substitution of toxic substances with less toxic substances, enclosure or confinement of the operation, and/or general and local ventilation) must be considered and implemented, when feasible, prior to using respiratory protection. If administrative and/or engineering controls are not feasible, the appropriate respiratory protection must be used.

This policy meets respiratory protection requirements mandated by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) and (29 CFR 1910.134 and .139) and Oregon OSHA (OAR 437, Division 2).

Implementation

Implementation of the provisions within this policy is the responsibility of each OHSU department under the advisement of EHRS, the Infection Prevention and Control Program and/or Occupational health.

Participation in the Program is at no charge to employees. Expenses associated with respirator equipment will be covered by individual departments.

Requirements

a) Selection

Departments shall provide respirators, including N95 disposable respirators, at no cost to employees, when respiratory protection is required.

All respirators and filter cartridges shall be obtained through or with the approval of EHRS (with consultation from the Infection Prevention and Control Program in the case of airborne pathogens).

EHRS shall evaluate the following information for each work situation or task:

- The nature of the hazard;
- The physical and chemical properties of the air contaminant;
- Warning properties of the hazardous chemical;
- The adverse health effects of the respiratory hazard;
- The relevant hazardous exposure level;
- The results of workplace sampling of airborne concentrations of contaminants;
- The nature of the work operation or process;
- The period of time respiratory protection will be worn by employees during the work shift;
- The work activities of the employees and the potential stress of these work conditions on employees wearing the respirators;
- Fit test results; and,
- The physical characteristics, functional capabilities, and limitations of the various types of respirators.

Appropriate respirators shall be selected from among those approved and certified by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) under the provisions of 30 CFR Part 11 when they exist.

The Supplied-Air-Respirators (SAR) and Powered Air Purifying Respirators (PAPR) that are used in the Emergency Department (ED) during decontamination or medical treatment procedures of patients that have suspected or confirmed exposures to hazardous materials will be under the direction of the lead ED physician or EHRS. Users of these hoods are exempt from the fit-testing provisions of this policy, **however medical evaluations must occur.**

Where an oxygen deficient atmosphere (less than 19.5% by volume) or an IDLH atmosphere exists, OHSU employees will not be allowed entry to work.

1) Voluntary Use of Respirators

When respiratory protection is not required, yet an employee voluntarily desires it, OHSU is not obligated to provide equipment free of charge.

Voluntary use of respirators employees must be given the information in Appendix B

However, medical monitoring provisions must be met. In voluntary use cases, employees must be provided a copy of **Appendix B – Voluntary Use of Respirators.**

b) Medical Evaluation

Occupational health shall report to the employee's manager whether the employee has any medical condition which would place the employees' health at increased risk of impairment from respirator use and any limitations upon the use of respirators for each employee required to wear a respirator, as appropriate.

Medical Evaluations for respirators will follow **Appendix C** as outlined.

The following information is important in evaluating an employee's situation:

- The type of respiratory protection to be used;
- Description of the work effort required;
- Duration and frequency of usage;
- The type of work performed, including any special responsibilities that affect the safety of others such as fire fighting or rescue work;
- Any special environmental conditions (such as heat or confined space entry);
- Additional requirements for protective clothing and equipment.

In the case of new employees, Occupational health may accept a pre-existing medical examination or written opinion from a physician stating whether the employee has any detected medical condition which would place the employee's health at increased risk of adverse health effects from respirator use and any

recommended limitations upon the use of respirators provided the evaluation was conducted within a year of the date of OHSU employment.

Occupational health shall review the employee's medical status, under the supervision of a licensed physician, at any time the employee reports to Occupational health or EHRS with concerns related to using a respirator, such as difficulty breathing or significant physical or health changes since the most recent evaluation.

After Occupational health has medically cleared an employee for respiratory protection use, respirator selection and a fit test may be performed.

c) Fit Testing

Fit testing must occur prior to initial use of the respirator and annually thereafter. Fit test procedures will follow those outlined in **Appendix D**. The employee shall be refitted when visual observations are noted regarding an employee' condition which could affect respirator fit. Conditions to look for include facial deformities or scarring, cosmetic surgery, or an obvious change in body weight. Employees are responsible to report any such conditions and to request repeat fit testing. Employees shall be given the opportunity to repeat fit testing at any time to ensure their comfort and protection.

1. Tight-fitting respirators: Quantitative fit testing will be performed by EHRS for employees required to wear tight fitting air-purifying respirators. The fit test shall be administered using an OSHA approved procedure.
2. N95 respirators: These will be fit tested qualitatively, as instructed by EHRS. Fit testing will be coordinated by Occupational health or any trained department designee.
3. PAPRs: No fit test is required; however a medical evaluation is required.

d) Use

Respirators are to be worn by employees when required for a given task or by the work area.

Respirators that depend on a tight facepiece-to-face seal for effective performance, including disposable N95 respirators, are **not** to be worn by employees with conditions that prevent acceptable fits. Examples of these conditions include facial hair that interferes with the facepiece seal, absence of normally worn dentures, significant facial deformities or scars, temple pieces of glasses or headgear that projects under the facepiece seal.

If an employee must wear corrective glasses or goggles while wearing respiratory protection, the supervising department shall ensure that they are worn

in such a manner that they do not interfere with the seal of the facepiece to the face of the wearer.

The supervising department shall determine the types and numbers of employee positions that are required to use respirators and ensure adequate compliance to accomplish work.

The supervising department shall permit employees to leave the respirator use area to wash their faces and respirator facepieces as necessary to prevent skin irritation associated with respirator use.

The supervising department shall permit employees to leave the respirator use area to change the filter elements or replace air-purifying respirators whenever they detect the warning properties of the contaminant, chemical vapor breakthrough, or they detect a change in breathing resistance or as otherwise required.

The supervising department shall ensure that respirators are immediately repaired, or discarded and replaced when they are no longer in proper original working condition.

The supervising department shall ensure that employees perform a User **Seal Check** upon donning the respirator and prior to entering the work area for all respirators on which such a test is possible to be performed. The recommended procedure is in **Appendix E**, or the respirator manufacturer's recommended procedure shall be used.

A pre-use operational check (fit, battery condition, and flow rate) must be performed prior to every use of a PAPR. The user is responsible for this.

e) Maintenance

1) Cleaning and Disinfecting

The supervising department shall ensure that reusable respirators are cleaned and disinfected as follows: (Cleaning procedures are outlined in **Appendix F** or as recommended by the respirator manufacturer.)

- (a) Routinely used respirators issued for the exclusive use of an employee shall be cleaned and disinfected after each day's use;
- (b) Routinely used respirators issued to more than one employee shall be cleaned and disinfected after each use;
- (c) Respirators maintained for emergency use shall be cleaned and disinfected after each use.

NOTE: Disposable N95 respirators may usually be used for the duration of a shift and are discarded instead of cleaned in each of the above situations or

when they become soiled, wet or damaged. In the case of SARS or pandemic flu, the outside of the respirator would be considered contaminated from droplets and the N95 should be discarded after each use (after exiting the patient room or cohorted patient area).

2) Storage

The supervising department shall store respirators as follows:

- (a) All respirators shall be stored in a manner that protects them from damage, dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals. Emergency respirators shall be kept accessible to the work area.
- (b) Non-emergency respirators shall be stored in plastic bags or otherwise protected from contamination or damage.
- (c) Respirators shall be packed or stored to prevent deformation of the facepiece or exhalation valve.
- (d) Disposable N95 respirators, once used, are to be stored for no more than the single shift during which they are used. (See also comment above about discarding N95 in the face of SARS or pandemic flu.)

3) Inspection

The supervising department shall ensure that respirators are inspected as follows:

- (a) All respirators used in non-emergency circumstances and all N95 disposable respirators shall be inspected before each use.
- (b) All respirators being cleaned shall be inspected during cleaning; and
- (c) All respirators maintained for emergency situations shall be inspected at least monthly, and checked for proper function before and after each use.

The supervising department shall ensure that respirator inspections include the following:

- (a) A check of respirator function, tightness of connections and the condition of the facepiece, headstraps, valves, connecting tube, and cartridges, canisters or filters as appropriate; and
- (b) A check of rubber or elastomer parts for pliability and signs of deterioration.

4) Repairs

The supervising department shall ensure that respirators which fail to pass inspection are removed from service and repaired (or discarded if disposable) in accordance with the following:

- (a) Repairs to respirators are to be made only by persons appropriately trained to perform such repairs, using parts designed for the respirator; and
- (b) Manufacturer's recommendations concerning the type and extent of repairs that can be performed shall be followed.

f) Training

Training shall be provided prior to requiring the employee to wear a respirator in the workplace, and annually thereafter.

Training of temporary or contracted employees is a joint responsibility of the employer and OHSU. The employer must provide general training, and OHSU must inform the employee of specific hazards.

Training in the use of tight-fitting respirators will be performed by or coordinated through EHRS (503 494-7795). Training in the use of N95s or PAPRs used for airborne isolation is the responsibility of the supervising department.

Before any employee wears a respirator for the first time, and annually as long as respirator use is required, they must receive and understand training that covers the following:

- Nature, extent, and effects of respiratory hazards to which the employee may be exposed;
- Explanation of the operation, limitations, and capabilities of the selected respirator(s);
- Instruction in procedures for inspection, donning and removal, checking the fit and seals, and in the wearing of the respirator, including sufficient practice to enable the employee to become thoroughly familiar and confident with the use of the respirator;
- Explanation of the procedures for maintenance and storage;
- How improper fit, use, or maintenance can compromise the protective effect of the respirator
- How to recognize medical signs and symptoms that may limit or prevent effective use of the respirator and reasons to seek repeat medical evaluation from Occupational health.
- Instruction on how to deal with emergency situations involving the use of respirators or with respirator malfunctions; and
- The contents of the OSHA Standard (29 CFR 1910.134), and of the written Respiratory Protection Program, its location and availability.

Policy Evaluation

This policy will be evaluated annually by the manager of EHRS for its adequacy in form and function.

Responsibilities

The successful prevention of respiratory injury is dependent on the understanding and follow through of EHRS, Occupational health, individual departments, and employees. Specific responsibilities are outlined in **Appendix G**.

Infectious Disease Provisions

Provisions specific to Hospitals and Clinics personnel and situations are provided in the [Healthcare policy database](#) under the control of the Infection Prevention and Control Program.

Guidance on Respiratory Protection from Tuberculosis only is given in Appendix H

Recordkeeping

Occupational health shall establish and maintain an accurate record for each employee subject to the Program. The names of the affected employees are provided to Occupational health by individual departments.

This record shall include:

- The name, Employee Identification Number and job title of the employee;
- The results of the medical evaluation, the level of medical certification, and any medical opinion, including results of medical examination and all tests, opinions and recommendations;
- Fit test results including date, type and size of respirator and result of test (pass or fail).

Training records will be maintained for three years by individual departments. Training will be fully documented, certifying that the employee understands the concepts presented and has demonstrated how to use and wear the respirator.

Responsible Office:

[Environmental Health & Radiation Safety](#)

Resources

Information about this policy, regulatory compliance, or industry standards is available through OHSU EHRS. This policy was written and is maintained by OHSU EHRS.

Reference:

[Oregon OSHA](#) (OAR 437-02)

[U.S. Department of Labor, Occupational Safety and Health Administration \(OSHA\)](#) (29 CFR 1910.134 and .139)

Related policies, procedures and forms:

[Healthcare Policy Database](#)

Appendices

Appendix A: Tasks, Processes, and Work Areas Requiring Respiratory Protection

Appendix B: Respirators use under Voluntary status

Appendix C: Respirator Medical Evaluation Questionnaire

Appendix D: Fit Test Procedures

Appendix E: User Seal Check Procedures

Appendix F: Respirator Cleaning Procedures

Appendix G: Respiratory Protection Program Responsibilities

Appendix H: TB Guidance; Unit-based N95 Respirator Use Certification Flowchart

Appendix A - OHSU Respiratory Protection Program

Tasks, Processes, and Work Areas Requiring Respiratory Protection

Participation in the OHSU Respiratory Protection Program may be required for the following work areas, processes, and tasks, depending on exposure levels:

- Maintenance or construction operations - sawing, sanding, cutting, crushing, insulating, grinding, or any other operation that releases a fine dust;
- Processes involving metals (fumes or particles) - soldering, brazing, etching, welding, photograph developing, printer works, or paints containing heavy metals;
- Exposure to airborne pathogens as determined by Infection Prevention and Control;
- Application of liquid chemicals - painting, pesticides, open pouring or transfer of liquids;
- Decontamination and medical treatment post-hazardous material exposure where respiratory protection is required (Emergency Department);
- Processes involving combustion;
- Processes involving uncontained chemical reactions or spills;
- Processes using carcinogens, sensitizers, or highly toxic materials;
- Non-routine tasks - confined space entry, chemical spill clean-up, chlorine systems, asbestos abatement, decontamination, etc.
- Indicators that respirators may be required - employee complaints, employee symptoms, results of medical tests.

Appendix B – Information for Employees Using Respirators When Not Required under the Standard (Mandatory)

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.

**Questions? Contact OHSU Environmental Health & Radiation Safety.
503 494-7795**

Appendix C RESPIRATOR MEDICAL EVALUATION

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, noncartridge type only).
 - b. ____ Other type (for example, half- or full-face-piece 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 2 years, have you noticed your heart skipping or missing a beat: Yes / No
- e.** Heartburn or indigestion that is not related to eating: Yes / No
- f.** Any other symptoms that you think may be related to heart or circulation problems:
Yes / No

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

- a.** Breathing or lung problems: Yes / No
- b.** Heart trouble: Yes / No
- c.** Blood pressure: Yes / No
- d.** Seizures (fits): Yes / No

8. If you've used a respirator, have you *ever had* any of the following problems? (If you've never used a respirator, 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-face-piece** 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 pounds: 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 to 3 pounds) 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 pounds) 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 pounds) 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 pounds) 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 pounds).

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 degrees 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 introductory text, 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):

**Questions? Contact OHSU Environmental Health & Radiation Safety.
503 494-7795**

Appendix D

Fit Testing Procedures

A) General

1. The respirator wearer shall adjust his/her respirator as follows;
 - (a) Adequate strap tension, not overly tightened;
 - (b) Fit across nose bridge;
 - (c) Respirator of proper size to span distance from nose to chin;
 - (d) Tendency of respirator to slip;
 - (e) Self-observation in mirror to evaluate fit and respirator position.

2. The test subject shall conduct a user seal check, either the negative or positive pressure seal checks described in Appendix E of this section or those recommended by the respirator manufacturer which provide equivalent protection. 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 face-piece shall be selected and retested if the test subject fails the user seal check tests.

3. The test shall not be conducted if there is any hair growth between the skin and the face-piece 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.

4. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to Occupational Health, or his/her 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.

5. 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.

6. 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.

B) Test Exercises.

- 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.
- 6. Grimace.** The test subject shall grimace by smiling or frowning.
- 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.
- 8. Normal breathing.** Same as exercise (1).

Each test exercise shall be performed for 1-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.

C) Quantitative Fit Test (QNFT) Protocols

1. General

- (a)** The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.
- (b)** The employer shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

(c) When testing air-purifying respirators, the normal filter or cartridge element shall be replaced with a high efficiency particulate air (HEPA) or P100 series filter.

2. Porta-count Protocol.

(a) A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator and a minimum fit factor pass level of at least 500 is required for a full face-piece negative pressure respirator.

(b) Check the respirator to make sure the sampling probe and line are properly attached to the face-piece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test (e.g., NIOSH 42 CFR 84 series 100, series 99, or series 95 particulate filter) per manufacturer's instruction.

(c) Instruct the person to be tested to don the respirator for 5 minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.

(d) Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.

(e) Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting face-piece, try another size of the same model respirator, or another model of respirator.

(f) Follow the manufacturer's instructions for operating the Portacount and proceed with the test.

(g) The test subject shall be instructed to perform exercises as outlined in paragraph B.

(h) After the test exercises, 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.

2. Portacount Test Instrument

(a) The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.

(b) Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance.

(c) A record of the test needs to be kept on file, assuming the fit test was successful.

The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

**Questions? Contact OHSU Environmental Health & Radiation Safety.
503 494-7795**

Appendix E USER SEAL CHECK

The individual who uses a respirator (including disposable N95 respirators) 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.

A) Face-piece Positive and/or Negative Pressure Checks

1. Positive pressure check. (This does NOT apply to N95 respirators.) Close off the exhalation valve and exhale gently into the face-piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face-piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

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

B) 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.

The test can be performed for disposable N95 respirators by inhaling sharply once the respirator is properly seated. If the respirator collapses, (no breath holding is necessary) the fit is considered satisfactory.

**Questions? Contact OHSU Environmental Health & Radiation Safety.
503 494-7795**

Appendix F RESPIRATOR CLEANING

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.

Note: Disposable N95 respirators are not to be cleaned but to be discarded if wet, soiled, contaminated or at the end of the shift.

A) Procedures for Cleaning Respirators

- 1.** Remove filters, cartridges, or canisters. Disassemble face-pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- 2.** Wash components in warm (43 degrees C. [110 degrees F.] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- 3.** Rinse components thoroughly in clean, warm (43 degrees C. [110 degrees F.] maximum), preferably running water. Drain.
- 4.** When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for 2 minutes in one of the following:
 - (a).** Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 degrees C. (110 degrees F.); or,

(b). Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45 percent alcohol) to one liter of water at 43 degrees C. (110 degrees F.); or,

(c) Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

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

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

7. Reassemble face-piece, replacing filters, cartridges, and canisters where necessary.

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

**Questions? Contact OHSU Environmental Health & Radiation Safety.
503 494-7795**

Appendix G - OHSU Respiratory Protection Program

Respiratory Protection Program Responsibilities

The overall responsibility for the Respiratory Protection Program for OHSU rests with Environmental Health & Radiation Safety (EHRS) in consultation with the Infection Prevention and Control and/or Occupational health. However, it is ultimately up to each department to ensure that their employees are provided the support and means to adequately carry out the provisions of the program.

The following is a list of responsibilities for each key player:

Environmental Health & Radiation Safety

EHRS is responsible for administering the Program and has the authority to make decisions and implement changes, as necessary. Duties of EHRS include:

- Maintain OHSU University Level Policies and Procedures and consult with the OHSU Healthcare Policy Steering Committee regarding Policies and Procedures related to respiratory protection;
- Assist departments in identifying work areas, processes, or tasks that require employees to wear respirators;

- Evaluate hazards to determine the level of protection required;
- Select appropriate respiratory protection for specific tasks;
- Monitor respirator use to ensure that respirators are used in accordance with their certifications;
- Arrange for and/or conduct training related to tight fitting respirators for Program participants;
- Conduct fit testing for tight-fitting respirators;
- Assist departments in periodic inspections of those workplaces/conditions that require respiratory protection to determine exposure and/or changing situations;
- Interface with Occupational health for participant authorization and recordkeeping; and
- Evaluate the program for effectiveness, and revise, as needed.

Occupational health

Occupational health is responsible for administering the medical evaluation portion of the Respiratory Protection Program and has the authority to make decisions regarding individual employees' use of respirators. Duties of Occupational health include:

- Administer the medical evaluation portion of the Program for employees required to wear respiratory protection equipment.
- Maintain the Medical Evaluation Form design, contents and availability.
- Screen Medical Evaluation Forms for follow-up.
- Coordinate N95 fit testing and related training.
- Coordinate physician visits and medical testing, as required.
- Monitor records for re-evaluation and re-fit notifications.
- Maintain fit test and medical records required by the program.

Infection Prevention and Control Program

The Infection Prevention and Control Program is responsible for determination of appropriate use of respiratory protection in the case of infectious agents in the Healthcare setting. The program is responsible for the promulgation of Healthcare System policies to this effect. They are also the expert consultants for respiratory protection requirements related to airborne pathogens in other settings.

Departments

Departments are responsible for ensuring that the Program is implemented in their work areas and for their employees. Managers must ensure that the program is understood and followed by employees under their charge. Managers will supervise work conditions in all places where employees for whom they are directly responsible work. Managers will promptly notify employees and EHRS of changes, as necessary. Duties of the department include:

- Identify employees (including new hires) who require annual training, equipment, initial and annual fit testing, and medical evaluation, to EHRS except for disposable N95 users where notification is to be given to Occupational health. This will occur prior to exposure to hazards;
- Provide work time to complete medical evaluations, fit testing, and training;
- Ensure the availability of appropriate respirator protection equipment;
- Consult with EHRS to determine what tasks, processes and areas require respiratory protection, as necessary (new situation or situation change);
- Be aware of tasks requiring the use of respiratory protection;
- Enforce the proper use of respiratory protection;
- Ensure that respirators owned or stored by the department are properly cleaned, maintained, and stored according to manufacturer recommendations and this policy;
- Ensure compliance with annual fit testing (see Appendix F for optional unit-based fit testing process) and training requirements;
- Continually monitor work areas and operations to identify respiratory hazards.

Equipment Pool

- Provide storage and maintenance of PAPRs for use in Healthcare settings that do not maintain departmental units;
- Ensure timely delivery of PAPRs in clinical settings.

Logistics

- Maintain adequate supply of disposable N95 respirators for use in Healthcare settings.

Employees

Each employee has the responsibility to wear their respirator when and where required and in the manner in which they were trained. The employee shall maintain a facial surface consistent with proper fit of respiratory equipment when use is required (e.g.: clean-shaven). Employees must also:

- Read all training materials and literature pertaining to the use and maintenance of each protective device;
- Attend training prior to respirator use;
- Use, maintain, and store respirators as instructed;
- Complete medical certification and fit testing at the required intervals;
- Inform their manager if the respirator no longer fits well or is damaged, and arrange for a new fit-test, if applicable;
- Inform their manager or EHRS of any respiratory hazards or concerns that you feel are not adequately addressed in the workplace;
- Inform Occupational health of any change in health that would affect the ability to use a respirator.

No employee shall perform a job that requires respirator use or be present at any place where respirators are required unless all provisions of this Program are met.

Employees are required to contact managers, Occupational health and/or EHRS immediately whenever any of the following conditions exist:

- Dizziness, difficulty breathing, or other physical stress while using a respirator;
- Damage to, or ineffectiveness of, the respirator being worn;
- Smelling or tasting any contaminant, known or unknown, that is concerning while using a respirator; or
- Lack of the required Program training or other inadequacy.

Appendix H - OHSU Respiratory Protection Program

For Protection From Tuberculosis Only

