



UNIVERSITY *of* NEW HAMPSHIRE

Respiratory Protection Program

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Respiratory Protection Program

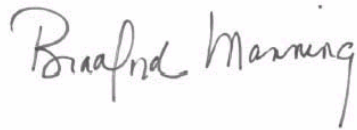
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I: INTRODUCTION

Individuals at the University of New Hampshire (UNH) are entitled to a working and learning environment free of unsafe and unhealthy conditions. This goal, as it pertains to respiratory health, is best attained through engineering controls - modifying the source in order to reduce the amount of contaminants to which an individual is exposed. Often these types of controls are either insufficient or not feasible. It is in these situations, in accordance with the State of New Hampshire Occupational Health & Safety Standards, that respirators are required.

Respirators act as a barrier, preventing contaminant dusts, fumes, mists, smokes, gases, and vapors from entering the body via the respiratory system. A respirator will only be effective, however, if used with a comprehensive respiratory program that includes guidance on proper selection, use, and maintenance. The purpose of the UNH Respiratory Protection Program is to provide this guidance and define responsibilities for the timely issue, testing, maintenance, and administration of fitted respirators.



Bradford Manning

Director of Environmental Health & Safety

II: LIST OF ACRONYMS

APR	Air Purifying Respirator
ESLI	End of Service Life Indicator
NIOSH	National Institute for Occupational Safety and Health. A division of the Centers for Disease Control and Prevention (CDC)
OEL	Occupational Exposure Limit. May refer to the Permissible Exposure Limit established by OSHA, or the Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists (whichever is more protective).
OEHS	The UNH Office of Environmental Health and Safety
OHSC	The Occupational Health and Safety Coordinator at the UNH Office of Environmental Health and Safety
OSHA	The U.S. Occupational Safety and Health Administration
PAPR	Powered Air Purifying Respirator. At UNH the PAPR device is used in conjunction with a loose-fitting hood.
SCBA	Self-Contained Breathing Apparatus
UNH	The University of New Hampshire

III: PROGRAM OVERVIEW

Respiratory protective devices are issued to UNH employees when the inhalation hazard in the work environment cannot be adequately controlled through engineering controls. Two types of hazards may necessitate respiratory protection - oxygen deficiency and contaminated atmospheres. Oxygen deficient atmospheres have an oxygen concentration that is less than 19.5%. Contaminated atmospheres contain toxic gases, vapors, or particles at harmful levels.

Oxygen deficient atmospheres require the use of an atmosphere-supplying respirator (typically self-contained breathing apparatus or SCBA). Work in oxygen deficient environments is generally **not** performed by UNH employees.

In general, environments with hazardous air contaminants may warrant the use of either an air-purifying respirator (APR) or an atmosphere-supplying respirator. The type of respirator required for a contaminated atmosphere is determined in large part by the level of air contamination. Air contaminants in excess of fifty (50) times above the occupational exposure limit (OEL), in excess of the limit immediately dangerous to life and health (IDLH), environments with unknown air contamination, or emergency response situations require the use of atmosphere-supplying respirators. Employees at UNH generally do **not** perform work that requires an atmosphere-supplying respirator.

UNH employees may be required to work in environments with air contaminants up to fifty (50) times above the OEL. One of several types of APRs may be issued to UNH employees for such work. APRs rely on cartridges or canisters containing filtering and/or absorbent materials to remove contaminants from the air. Each type is described below:

- A filtering facepiece (sometimes referred to as a “dust mask”) is an air-purifying respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.
- A half-face elastomeric APR is an air purifying respirator with a facepiece that covers only the nose and mouth. This type of respirator can provide protection of up to ten (10) times the occupational exposure limit for the air contaminant when the respirator is equipped with the appropriate cartridge.
- A full-face elastomeric APR is an air purifying respirator with a facepiece that covers the entire face. This type of respirator can provide protection of up to fifty (50) times the occupational exposure limit for the air contaminant if the respirator is equipped with the appropriate cartridge and the user receives a quantitative fit test (see Section V Part D of this program document).
- A Powered Air Purifying respirator (PAPR) with a hood is an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering. The inlet covering is typically located in the rear of a loose-fitting hood. This type of respirator can provide protection of up to twenty-five (25) times the OEL for the air contaminant if the respirator is equipped with the appropriate cartridge.

When the UNH Office of Environmental Health and Safety (OEHS), Employees or Supervisors identify work areas with potential hazardous atmospheres, a hazard assessment must be conducted to determine if respiratory protection is required. Hazard assessments are performed by the Occupational Health and Safety Coordinator (OHSC). Hazard

assessments have already been conducted for some jobs or tasks. Departments or employees who identify new tasks or locations with potential hazardous atmospheres must contact the OHSC for assessment. In no instance should a Department or Employee attempt to determine whether a respirator is necessary or select a respirator without professional guidance. Assessments must be made by a qualified designee for the University. The OHSC is this qualified designee.

Once the OHSC has performed a hazard assessment and determined the appropriate type of respirator for the job/task, Departments must ensure that affected Employees receive medical evaluations, training, are issued respirators, and receive fit tests as appropriate. Each of the sections that follow detail the procedures for compliance with the UNH Respiratory Protection Program.

IV: RESPONSIBILITIES

A. OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY

1. Designates the Occupational Health and Safety Coordinator (OHSC) as the *Program Administrator* to oversee the campus Respiratory Protection Program.
2. Performs hazard assessments to determine where respirators are necessary, what type of respirator is appropriate for tasks/jobs, the correct cartridge or filter media for each task/job, and establishes a cartridge/media change-out schedule.
3. Evaluates and approves respiratory protection equipment before the purchase and issuance to individuals.
4. Oversees issue of respiratory equipment.
5. Provides initial and refresher training classes and fit tests. Training classes and fit tests are scheduled on an as-needed basis as requested by the affected Departments.
6. Assists Departments with respiratory protection issues upon request.
7. Conducts inspections of respirator use, maintenance, and storage.
8. Provides the Respirator Medical Evaluation Questionnaire to individuals needing a respirator prior to issue.
9. Maintains records of compliance with this program in accordance with Section V Part G of this program document.
10. Periodically evaluates and updates this program document as needed.

B. DEPARTMENT

1. Ensures all affected Employees have proper protection before entering a hazardous environment.
2. Contacts the OHSC for a hazard assessment whenever new respiratory hazards are introduced into the environment. This includes changes in methods, equipment, and/or products that may pose an inhalation hazard.
3. Coordinates routine maintenance of respirators. Ensures that affected Employees periodically clean respirators, replace deteriorated parts, change filters and cartridges, use proper fit check techniques before respirator use, and maintains an adequate supply of replacement parts. Provides adequate facilities for cleaning and storage of respirators.
4. Complies with the cartridge change-out schedule developed between the Department and the OHSC. Coordinates availability of necessary respirators and cartridges with the OHSC and Central Stores (if applicable).
5. Coordinates initial and refresher training for affected employees and supervisors.
6. Coordinates respirator fitting for affected employees.
7. Coordinates initial medical evaluations and additional medical evaluations in

accordance with Section V Part B of this program document.

8. Maintains a record of local compliance with the Respiratory Protection Program. Departments document local compliance by filling out Appendix D of this program manual and by maintaining copies of the Respirator Fit Test Records. A copy of Appendix D shall be kept on file at each Department and updated periodically as necessary.

C. EMPLOYEES

1. Visually inspects respirator before wearing. Requests replacement parts or replacement respirator if damaged.
2. Performs proper fit check techniques before and during use.
3. Cleans respirator after each use.
4. Replaces cartridges according to the Department's established respirator cartridge change-out schedule, or when contaminant can be detected through the filter or breathing becomes difficult due to a clogged filter.
5. Employees who wear a tight fitting respirator (filtering facepiece, half-face APR or full-face APR): Ensures a tight seal on mask by maintaining a clean-shaven appearance any morning that respirator is used.
6. Reports potentially hazardous environments to a Supervisor.
7. Reports episodes of dizziness, lightheadedness, or other health effects while wearing the respirator immediately to a Supervisor.
8. Attends annual training.
9. Attends annual fit test.

V: PROCEDURES

A. HAZARD ASSESSMENT & RESPIRATOR DETERMINATION

Hazard Assessment

The purpose of a hazard assessment is to determine whether respirators are necessary for a particular task or job, what type of respirator is indicated, what type of cartridge/filter media is necessary, and how often the cartridge/filter media must be changed. The OHSC will conduct a hazard assessment in each case where OEHS, a Department, or an Employee has determined that there is a hazardous atmosphere in the work environment. During the hazard assessment the OHSC will consider whether or not the hazard can be adequately controlled through source reduction, engineering controls, or changes in work practices. Respirators will only be used where the hazard assessment indicates that the contaminant cannot be effectively controlled through any other feasible means.

The OHSC shall consider all recognized hazards before selecting a respirator. At a minimum, the OHSC considers the following information when making a hazard assessment:

- Oxygen deficiency (less than 19.5%)
- Physical property of contaminant
- Toxicological data
- Occupational exposure limits (OELs)
- Immediately dangerous to life or health (IDLH) concentrations
- Contaminant odor warning potential
- Eye irritating pollutants
- Service life of appropriate cartridge
- Work practices affecting contaminant generation

The OHSC shall also consider working conditions when selecting a respirator for a task:

- Job task
- Frequency and duration of use
- Location
- Ventilation
- Physical exertion
- Other personal protective equipment the individual must use
- Special considerations of the individual

Respirator Selection¹

¹ This section is intended to be informational only. The OHSC is responsible for the ultimate determination of the most appropriate respirator type for each application. Departments and employees should not attempt to utilize the information in this section to make respirator selections without consulting the OHSC.

Once the OHSC has assessed the hazards and job considerations, the OHSC will determine the most appropriate type of respirator (filtering facepiece, half- or full-face APR, or PAPR) for the task or job. All respirators, face pieces, and cartridges shall have a NIOSH certification of approval.

Filtering facepiece respirators are designed only to eliminate particulate matter. These respirators do not provide any protection against hazardous gases or vapors. Filtering facepiece respirators may be selected where the contaminant is a particulate and is present at a level no greater than 10 times the OEL for the contaminant.

PAPRs, half-face APRs, and full-face APRs utilize interchangeable cartridges to protect the user against the hazardous atmosphere. A hooded PAPR is usually selected where the employee cannot obtain a fit with a tight-fitting respirator or where the employee has facial hair and will not be clean shaven during the work activity. Full-face APRs may be selected for work in environments with a contaminant concentration of 10 to 50 times above the OEL, where the employee cannot fit a half-face respirator, or where the contaminant is an eye irritant. Half-face tight-fitting APRs may be selected for work environments with a contaminant concentration of up to 10 times above the OEL and where the contaminant is not an eye irritant.

Note: At this time UNH employees do not perform tasks that require the use of atmosphere-supplying respirators (air-line respirators or SCBA). In the unlikely event that an employee is assigned to a task requiring the use of an atmosphere-supplying respirator the Employee and affected Department will be provided with information on the selection, fitting, use, and care of that respirator. Air-line and SCBA respirators are not discussed in this program document.

Air purifying respirators have limitations and are not effective in every working environment. Air purifying respirators will **not** be issued to UNH employees under the working conditions listed below. Under these circumstances UNH will either seek to control the contaminant through engineering controls or utilize specialty vendor services for the work activity:

- Emergency response
- Unknown atmosphere or contaminant
- Atmospheres which contain less than 19.5% oxygen
- Atmospheres containing contaminant concentrations greater than 50 times the OEL
- Atmospheres where the contaminant exceeds the level at which it is immediately dangerous to life or health (IDLH)
- Atmospheres containing highly toxic contaminants which have poor warning properties (no odor, etc.)
- Fire fighting

Cartridge/Filter Media Selection²

² This section is intended to be informational only. The OHSC is responsible for the ultimate determination of the most appropriate cartridge or filter type for each application. Departments and employees should not attempt to

Filtering facepiece respirators are designed for protection against particulate matter. The filter media may be selected in one of several efficiency levels. The filter media may also be selected at differing levels of protection against oil mists. The OHSC will determine the appropriate oil protection and filter efficiency rating for the particular application. Appendix C contains additional information on selecting filter media for protection against particulate matter.

Half-face APRs, full-face APRs and PAPRs can be equipped with cartridges to remove gases, vapors, particulates, or combinations of these. Cartridges and filters will be selected to match the hazards of the work environment. Filter media selection for cartridge respirators follows the same logic described in the paragraph above on filtering facepiece respirators.

Cartridge/Filter Change-out Schedule

Cartridges and filters have an expected service life and must be replaced periodically. In some cases, the manufacturer may have an end of service life indicator (ESLI) on the cartridge which may be used by the Department to indicate when the cartridges need to be changed. Where ESLIs are not available, the OHSC shall determine a change-out schedule based on information gathered in the hazard assessment, and information available in the public domain (e.g., literature reviews, etc.) to ensure that cartridges are changed before the end of their service life.

When filter media reaches the end of its expected service life the filter has a detectable resistance to breathing (overloading). When chemical cartridges reach the end of their expected service life the user *may* be able to detect the contaminant in the respirator (but not always) by sense of taste, smell, or by the experience of health effects from exposure (breakthrough). During the hazard assessment the OHSC will determine a change-out schedule for the cartridge or filter that will identify when to change the media before breakthrough or overloading occurs.

Voluntary Use of Respirators

In the course of the hazard assessment the OHSC may determine that respiratory protection is not required to maintain employee safety for a particular task. As per U.S. Occupational Safety and Health Administration (OSHA) rules, voluntary use of respirators, when not required by UNH, must be controlled as strictly as under required circumstances. When used improperly, respirators may pose a greater hazard to the user than the work environment. To maintain employee safety and prevent violations to the OSHA Respiratory Protection Standard, UNH employees are not allowed voluntary use of respirators in non-hazardous atmospheres. Departments or Employees who are concerned about exposures to hazardous atmospheres should be directed to the OHSC for a hazard assessment and guidance.

EXCEPTION: Employees may voluntarily use a filtering facepiece respirator (“dust mask”). Employees using a filtering facepiece are not required to have a medical evaluation, annual respiratory protection training, or fit test. However, affected Employees must sign a

Voluntary Use form (see Appendix E) before using filtering facepiece respirators. The Voluntary Use form shall be kept on file at the employee's department and a copy must be sent to the OHSC.

B. MEDICAL EVALUATION

Respirators can impose physiological stresses including restriction of breathing. For this reason, a medical evaluation will determine whether a medical condition would preclude the use of a respirator. All affected Employees must be medically cleared before wearing a respirator in a contaminated environment. Individuals that experience claustrophobia or shortness of breath during respirator use must notify their supervisor. Any accidental exposure to a contaminant while wearing a respirator must be reported to the supervisor followed by prompt medical attention.

Before respirator issue, each individual must complete the Respirator Medical Evaluation Questionnaire (see Appendix A), which will be evaluated by a Physician or other Licensed Health Care Professional (PLHCP). Most Departments participating in the UNH Respiratory Protection Program submit the Respirator Medical Evaluation Questionnaire to UNH Health Services for review by a qualified Physician. Individual respirator wearers can mail or drop off their questionnaires. In limited cases some departments utilize a third party vendor for medical evaluation and review. Affected Employees should check with their Department before submitting the questionnaire to the appropriate service provider.

All questionnaires and examinations are processed in confidence with the PLHCP. Upon completion of the medical review process, the Physician or PLHCP submits a Physician's Written Opinion letter to the OHSC stating whether or not the individual is medically cleared to wear the respirator necessary for his/her job functions. In the cases where Departments choose to utilize a third party vendor for medical evaluations, Departments are responsible for ensuring that the OHSC receives a copy of the Physician's Written Opinion letter from the vendor. The OHSC shall maintain the Physician's Written Opinion forms on file according to the recordkeeping schedule of this program document.

A follow-up medical evaluation must be conducted where determined necessary by the Physician or PLHCP. Follow-up medical evaluations are required and scheduled by the affected Department under the following conditions:

- A change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed on an individual.
- An Employee reports medical symptoms that are related to their ability to use a respirator.
- The PLHCP, Department, or the Supervisor determines that an Employee needs to be re-evaluated.
- Observations made during respirator fit testing or program evaluation indicate a need for the individual's re-evaluation.

C. RESPIRATOR TRAINING

Respirator training is generally conducted by OEHS. Training will be conducted when the respirator is issued and annually thereafter as a refresher. Both affected Employees and their Supervisors must attend. Individuals in attendance must sign a roster verifying their presence at the training session.

Initial training will include the following:

- Reasons for respiratory protection including the nature of respiratory hazards and why engineering controls aren't used
- Criteria used in hazard evaluation
- Explanation of respirator selection procedure
- Hands-on demonstration of proper fitting, donning, wearing, removal, and inspection of respirator
- Capabilities and limitations of respirators including effects of damage, modification, and facial hair
- Proper maintenance and storage procedures
- Explanation of Respirator Medical Evaluation Questionnaire
- Explanation, demonstration, and implementation of fit testing procedures for each individual to be issued a respirator
- Emergency procedures

A fit test is typically performed in conjunction with initial training. Those individuals who have not yet been cleared through a PLHCP for respirator use or fail to complete the fit test portion of the initial training session may call OEHS at ext. 2-4041 to schedule an appointment for a fit test.

Refresher respirator training is required annually. OEHS routinely schedules refresher training during the months of January (campus-wide) and September (select departments only) on an open enrollment basis. Refresher trainings may also be scheduled on an as-needed basis when requested by Departments. Fit testing is typically performed in conjunction with refresher training. Refresher training will include the following:

- Hazard assessment
- Need for respirator
- Basic respirator selection
- Fit test procedures
- How to inspect a respirator
- Cleaning and sanitizing
- Medical conditions

- Supervisor responsibilities
- Respirator safety
- Emergency procedures

Each individual should bring their respirator to the retraining session conducted by OEHS. This training is designed to update an individual's knowledge of proper respirator wear, use, and maintenance. Each individual will receive refresher respirator training on an annual basis. During this session, OEHS will conduct spot inspections for serviceability and cleanliness.

Note: In limited cases some Departments may seek respiratory protection training and/or fit testing from a third party vendor outside of UNH. In these cases the Department is responsible for notifying the OHSC of this practice and forwarding copies of all training and fit test records to the OHSC.

D. FIT TESTING PROCEDURES

Because of the variation in face size and shape, respirators must be custom fit to ensure an adequate seal between the face and face piece. Fit testing procedures are designed to find a respirator size and style that provides maximum protection and comfort.

Respirator wearers may be offered a qualitative fit test, or a quantitative fit test. A qualitative fit test is performed using a challenge agent. The respirator wearer subjectively reports whether s/he can detect the challenge agent while wearing the respirator and performing a series of exercises. The OHSC performs qualitative fit tests where the user is wearing an air-purifying respirator and entering an environment with a contaminant concentration **no greater** than 10 times the OEL. The OHSC can perform qualitative fit testing at any time as needed. Detailed information on the qualitative fit test is provided in Section V Part D of this program document.

A quantitative fit test utilizes a specialty instrument to simultaneously measure the concentration of airborne particles in the fit testing room and inside of the respirator mask. The OHSC performs quantitative fit testing for air purifying respirators that will be used in environments with a contaminant concentration greater than 10 times the OEL. Quantitative fit testing is uncommon at UNH. The OHSC performs quantitative fit testing once per calendar year in September. Employees needing a quantitative fit test at other times of the year will be required to obtain the fit test from a third party vendor. In these cases the Departments are responsible for any charge and for providing a copy of the fit test record to the OHSC immediately upon receipt. As quantitative fit tests are not common, detailed information on the quantitative fit test is not provided in this program document. Employees who will receive a quantitative fit test will receive information on the fit testing procedure individually.

Initial Respirator Fit Testing

Employees who are new to the UNH Respiratory Protection Program will select a respirator from the inventory available from the OHSC. Selection is limited to the type of respirator selected during the hazard assessment (e.g., half-face APR, full-face APR, etc.)

Employees who will wear a PAPR with a loose fitting hood and enter environments with contaminant concentrations no greater than 10 times the OEL do not need to have a fit test.

For the purposes of fit testing the OHSC maintains a supply of air purifying respirators and accessories of various makes, models, and sizes so that each user can select a respirator that is acceptable and fits correctly. Once the user selects a respirator and passes a fit test, the user can order that respirator and its accessories from either Central Stores or UNH's designated safety equipment vendor, whichever is appropriate.

Although not recommended, Departments may choose to purchase respirators of other brands or other models not available from the OHSC. In these cases the Departments are also responsible for purchasing the appropriate supplies necessary to perform the fit test (e.g., filter media, fit testing adapters, etc.). Departments **must** to contact the OHSC prior to purchasing any respiratory equipment. The OHSC is not responsible for respiratory equipment purchased by a Department which subsequently fails a fit test.

The initial respirator fitting, regardless of whether it is a qualitative or quantitative fit test, shall follow the same basic procedure. The Employee will be guided through the following processes:

- Try on various respirators until the user finds one that is acceptable and fits correctly
- Inspect the selected respirator
- Don the respirator and wear for several minutes to become accustomed to the feel of the device
- Perform a negative fit check
- Perform a positive fit check
- Undergo the fit test procedure

When donning a respirator for the first time, the user shall evaluate its comfort and acceptability. The user should pay special attention to:

- Straps properly placed with correct tension
- Respirator position on nose
- Fit across nose bridge
- Room for glasses or safety glasses
- Tendency to slip
- Effects of smiling, talking

Upon successful completion of the fit test, the OHSC will document the fit test results on a Fit Test Record. The original record will be sent to the employee's Department and a copy will be maintained on file at OEHS in accordance with the recordkeeping policy of this program document.

Annual Respirator Fit Tests

Employees who are participating in the UNH Respiratory Protection Program are required to have a fit test at least annually. An additional fit test is also necessary if employees exhibit any of conditions listed below. Departments are responsible for arranging for fit tests annually or as needed under any of the following circumstances:

- A participating employee has significant dental surgery that alters the shape of his/her face
- A participating employee sustains injury, exhibits new facial scarring, or has undergone any other medical procedure that alters the shape of his/her face
- A participating employee has a weight change of greater than 15 pounds.
- A participating employee will be issued a respirator of another brand, model, or size than the one s/he was fit tested for previously.

Annual fit testing is generally scheduled in conjunction with annual refresher training. Employees are responsible for bringing their actual respirator to the fit test. If employees are using respirators other than those typically stocked by the OHSC, the employee's Department is responsible for providing the OHSC with the correct respirator cartridges for fit testing. The correct respirator cartridges for fit testing are determined according to the respirator in use and the fit test performed; the cartridge needed for fit testing may differ from the cartridge normally used by the employee.

The annual respirator fitting, regardless of whether it is a qualitative or quantitative fit test, shall follow the same basic procedure. The employee will be guided through the following processes:

- Inspect the selected respirator
- Don the respirator
- Perform a negative fit check
- Perform a positive fit check
- Undergo the fit test procedure

Upon successful completion of the fit test, the OHSC will document the fit test results on a Fit Test Record. The original record will be sent to the employee's Department and a copy will be maintained on file at OEHS in accordance with the recordkeeping policy of this program document.

Fit Test Procedures

Respirator Inspection

Before donning a respirator, it must be inspected for the following:

All respirators:

- General construction of respirator (not dented, cracked)
- A check of elastomeric parts for pliability and signs of deterioration
- Cleanliness of respirator

Half-face and full-face APRs:

- Condition of valves
- Filter and cartridge condition (intact, unbroken)
- Flexibility of valve disk (not brittle)
- Tightness of connections

Positive Pressure Fit Check

The positive pressure fit check is performed by users wearing a tight-fitting respirator (e.g., filtering facepiece, half-face APR, or full-face APR). The user must perform this test each time s/he dons the respirator. The user will be required to demonstrate this fit check during initial and annual respirator fit testing. The fit is considered satisfactory if a slight positive pressure can be maintained inside the face piece without any evidence of outward leakage. The user should perform this test just before entering any hazardous atmosphere.

Full-face and half-face APRs:

Cover the exhalation valve and exhale gently into the face piece. Hold the positive pressure for 10 seconds.

Filtering facepiece respirators:

Cover the entire surface of the respirator and exhale gently into the mask. Hold the positive pressure for 10 seconds.

Care must be taken so that the individual does not exhale so strongly as to force the respirator away from their face. Pushing hard on the exhalation valve of half-mask respirators will also force the respirator away from the face. No air should pass out of the respirator during the test.

If leakage is detected, the individual should try any or all of the following:

- Adjust tension on temple straps
- Filtering facepiece respirator: adjust nosepiece
- Refit respirator
- Try different size respirator

This test should be repeated until a satisfactory seal has been achieved. If leakage persists, notify the OHSC.

Negative Pressure Fit Check

The negative pressure fit check is performed by users wearing a tight-fitting respirator (e.g., filtering facepiece, half-face APR, or full-face APR). The user must perform this test each time s/he dons the respirator. The user will be required to demonstrate this fit check during respirator fit testing. The fit is considered satisfactory if the face piece remains slightly collapsed and no inward leakage is detected.

Full-face and half-face APRs:

Cover the cartridge air inlets with the palms of the hands and inhale for 5-10 seconds. The face piece should collapse slightly and remain collapsed.

Filtering facepiece respirators:

Don the respirator and inhale for 5-10 seconds. No leaks should be detected around the seal.

If no air leakage between face and face piece has been detected, a proper fit has been obtained. If leakage has been detected, the individual should do any or all of the following:

- Adjust tension on straps
- Filtering facepiece respirator: adjust nosepiece
- Refit respirator
- Try different size respirator

This test should be repeated until a satisfactory seal has been achieved. If leakage persists, notify the OHSC representative.

Qualitative Fit Test: Sweetener Aerosol Challenge Agent

A non-toxic, sweet liquid aerosol (sodium saccharin) is used to determine if a respirator is properly fitted. Since the person's ability to taste the sweet solution is used to determine

whether the respirator fits, he or she must refrain from activities that would affect the sense of taste such as consuming any food or beverage (other than plain water), and using tobacco products or gum for at least 15 minutes prior to the fit test. The individual dons the respirator and a fit testing hood for the procedure. The individual remains stationary as the aerosol is blown into the hood. The individual will be instructed to breathe through the mouth only. The OHSC will then guide the individual through a series of exercises meant to challenge the respirator seal:

- Breathe normally
- Breathe deep
- Turn head side to side
- Nod up and down
- Bend at the waist and resume upright position
- Grimace
- Talk (typically reading a passage out loud)

If a leak occurs, the user will experience a sweet taste in the mouth. If this occurs the individual should leave the immediate area and re-don their respirator. Any adjustments and corrections must be verified by the OHSC before re-testing.

E. CLEANING, MAINTENANCE, AND STORAGE

Routine maintenance is an essential component of the Respiratory Protection Program. By properly cleaning, maintaining, and storing a respirator, its effectiveness is assured and its service life increased. These procedures apply to non-disposable air-purifying respirators.

Cleaning Procedures

All respirators will be cleaned after each day's use to prevent possible infection or contamination. If the respirator has not been used, it should be cleaned monthly. Each manufacturer provides instructions for cleaning the respirator. Always follow the manufacturer's recommendations for cleaning solutions. Never use solutions that contain ammonium chloride as this can accelerate the deterioration of rubber parts. Never use paper towels to clean the lenses of full faceplates as this can abrade the surface.

Cleaning procedures are as follows:

- Air purifying respirators: remove filters, cartridges and valve flaps
- Immerse face piece in warm water and soap/disinfectants (see manufacturer's instructions for appropriate cleaning solution)
- Use a soft brush or cloth to remove dust, grease, paint

- Rinse off cleaning solution with plain water
- Towel or air dry. Do not dry by using compressed air, heat, or sunlight.
- Gently wash valve flaps. Inspect flaps, replace if needed
- Reassemble
- Store respirator in re-sealable bag

Inspection Procedures

Respirators must be inspected before and after each use, after each cleaning, and at least every 30 days when in storage. Respirators displaying any of the following characteristics shall be removed from service:

All respirators:

- Brittle or frayed temple straps and elastic head band
- Excessive fraying or stretching around respirator edges
- Warped exhaust or intake valve
- Torn face piece
- Cracked or foggy faceplates
- Any other items per manufacturer's recommendations

Air-purifying respirators:

- Cracked cartridge
- Damaged filter
- Excessive odor around cartridge
- Stripped cartridge grooves
- Rubber valve flap frayed or inelastic

Storage Procedures

Respirators must be properly stored to protect them from conditions that may negatively affect their protection capabilities.

Dust, sunlight, extreme temperatures, moisture, chemicals, and physical damage can all contribute to the deterioration of the respirator. Respirators should be stored in individual re-sealable plastic bags in their natural positions, protected from contamination, distortion, and damage.

F. RESPIRATOR REGULATORY REQUIREMENTS

The selection, use, and maintenance of respirators in the United States are presently regulated by several Federal agencies. The acts which authorize their activities, agencies, and current regulations relating to selection, use, and maintenance of respirators, are as follows:

Legislation	Agency	Regulations
Federal Mine Safety And Health Act of 1977	Mine Safety and Health Administration, Department of Labor	Title 30 CFR Part 11, 70
Occupational Safety and Health Act of 1970	National Institute for Occupational Safety and Health, Centers for Disease Control, Department of Health and Human Services	Title 42 CFR Part 84
	Occupational Safety and Health Administration, Department of Labor	Title 29 CFR Part 1910
Toxic Substances Control Act of 1970	Environmental Protection Agency	Title 40 CFR Part 750
Title II of the Energy Reorganization Act of 1974	Nuclear Regulatory Commission	Title 10 CFR Part 20

G. RECORDKEEPING REQUIREMENTS

UNH is responsible for maintaining records of specific activities performed under the Respiratory Protection Program.

Medical Evaluations

Record retention requirements for medical documents related to the Respiratory Protection Program are specified by OSHA (29 CFR 1910.1020). The Respiratory Medical Evaluation Questionnaire and all records of follow up evaluations by the Physician or PLHCP shall be preserved and maintained by the medical provider's organization (Health Services or a third party occupational health vendor) for the duration of the employee's employment with UNH plus thirty (30) years.

Copies of the Physician's Written Opinion form shall be preserved and maintained in the Office of Environmental Health and Safety for the duration of the employee's employment with UNH plus thirty (30) years.

Fit Tests

Copies of the Respiratory Fit Test Records shall be preserved and maintained in the Office of Environmental Health and Safety for a minimum of one (1) year. The records shall include the name or identification of the employee tested; the type of fit test performed; the specific make, model, style, and size of the respirator tested; the date of the test; the pass or fail results, and the fit factor.

Training

Attendance records for Employee initial and refresher training shall be preserved and maintained in the Office of Environmental Health and Safety for a minimum of the duration of the employee's employment with UNH .

Voluntary Use Forms

Copies of the Voluntary Use Forms for employees voluntarily using filtering facepiece respirators shall be preserved and maintained in the Office of Environmental Health and Safety for the duration of the employee's employment with UNH.

APPENDIX A: OSHA RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE

Can you read (check one): Yes No

The following information must be provided by every individual who has been selected to use any type of respirator (please print).

Name: _____ Date: _____

Job Title: _____

Department: _____

Supervisor: _____

Social Security Number (for Health Services records only): _____

Date of Birth: _____

Sex (check one): Male Female

Height: _____ ft. _____ in. Weight: _____ lbs.

A phone number where you can be reached by the health care professional who reviews this questionnaire (include the *area code*): _____-_____-_____

The best time to phone you at this number: _____

Has your employer told you how to contact the health care professional who will review this questionnaire (check one):

Yes No

Check the type of respirator you will use (you can check more than one category):

- N, R, or P disposable respirator (filter-mask, non- cartridge type only).
- Other type (for example, half- or full-face piece type, powered-air purifying, supplied-air, self-contained breathing apparatus). Describe:

Do you have any of the following conditions which could affect respirator fit?

- | | |
|-----------------------------------------|------------------------------------------|
| <input type="checkbox"/> Clean Shaven | <input type="checkbox"/> Facial Scar |
| <input type="checkbox"/> 1-2 Day Growth | <input type="checkbox"/> Dentures Absent |
| <input type="checkbox"/> 2+ Day Growth | <input type="checkbox"/> Glasses |
| <input type="checkbox"/> Mustache | <input type="checkbox"/> None |

Comments: _____

Have you worn a respirator before? (check one):

Yes No

If "Yes," what type(s): _____

The questions below must be answered by every individual who has been selected to use any type of respirator (please check "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?

Yes <input type="checkbox"/>	No <input type="checkbox"/>	Seizures (fits)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Diabetes (sugar disease)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Allergic reactions that interfere with your breathing
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Claustrophobia (fear of closed-in places)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Trouble smelling odors

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

Yes <input type="checkbox"/>	No <input type="checkbox"/>	Asbestosis
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Asthma
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Chronic bronchitis
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Emphysema
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Pneumonia
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Tuberculosis
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Silicosis
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Pneumothorax (collapsed lung)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Lung cancer
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Broken ribs
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Any chest injuries or surgeries
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Any other lung problem that you've been told about

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

Yes <input type="checkbox"/>	No <input type="checkbox"/>	Shortness of breath
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Shortness of breath when walking fast on level ground or walking up a slight hill or incline
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Shortness of breath when walking with other people at an ordinary pace on level ground
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Have to stop for breath when walking at your own pace on level ground

- | | | |
|------------------------------|-----------------------------|-------------------------------------------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Shortness of breath when washing or dressing yourself |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Shortness of breath that interferes with your job |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Coughing that produces phlegm (thick sputum) |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Coughing that wakes you early in the morning |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Coughing that occurs mostly when you are lying down |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Coughing up blood in the last month |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Wheezing |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Wheezing that interferes with your job |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Chest pain when you breathe deeply |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other symptoms that you think may be related to lung problems |

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

- | | | |
|------------------------------|-----------------------------|-------------------------------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Heart attack |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Stroke |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Angina |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Heart failure |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Swelling in your legs or feet (not caused by walking) |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Heart arrhythmia (heart beating irregularly) |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | High blood pressure |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other heart problem that you've been told about |

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

- | | | |
|------------------------------|-----------------------------|-----------------------------------------------------------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Frequent pain or tightness in your chest |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Pain or tightness in your chest during physical activity |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Pain or tightness in your chest that interferes with your job |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | In the past two years, have you noticed your heart skipping or missing a beat |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Heartburn or indigestion that is not related to eating |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other symptoms that you think may be related to heart or circulation problems |

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

- | | | |
|------------------------------|-----------------------------|----------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Breathing or lung problems |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Heart trouble |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Blood pressure |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Seizures |

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 box below and proceed directly to question 9) :

- | | | |
|------------------------------|-----------------------------|--------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Eye irritation |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Skin allergies or rashes |

- | | | |
|------------------------------|-----------------------------|-----------------------------------------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Anxiety |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | General weakness or fatigue |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other problem that interferes with your use of a respirator |

Check here if you have never used a respirator.

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 individual who has been selected to use either a **full-face piece respirator or a self-contained breathing apparatus (SCBA)**. For individuals 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?

- | | | |
|------------------------------|-----------------------------|---------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Wear contact lenses |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Wear glasses |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Color blind |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other eye or vision problem |

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?

- | | | |
|------------------------------|-----------------------------|----------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Difficulty hearing |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Wear a hearing aid |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other hearing or ear problem |

14. Have you **ever had** a back injury?

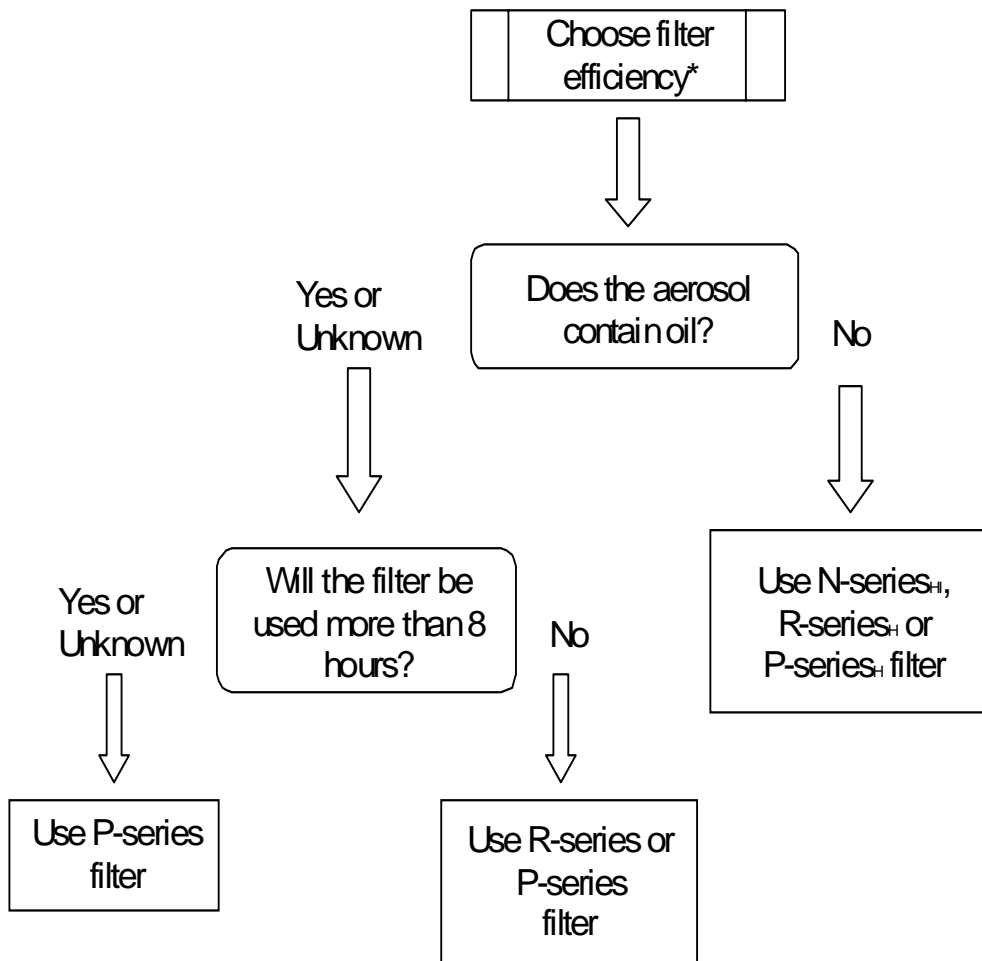
Yes No

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

- | | | |
|------------------------------|-----------------------------|----------------------------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Weakness in any of your arms, hands, legs, or feet |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Back pain |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Difficulty fully moving your arms and legs |

- | | | |
|------------------------------|-----------------------------|------------------------------------------------------------------------------|
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Pain or stiffness when leaning forward/backward at the waist |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Difficulty fully moving your head up or down |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Difficulty fully moving your head side to side |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Difficulty bending at your knees |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Difficulty squatting to the ground |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Climbing a flight of stairs or a ladder carrying 25 lbs + |
| Yes <input type="checkbox"/> | No <input type="checkbox"/> | Any other muscle or skeletal problem that interferes with using a respirator |

APPENDIX C: FLOW CHART FOR SELECTING PARTICULATE FILTERS



*The higher the filter efficiency, the lower the filter leakage

^HLimited by considerations of hygiene, damage, and breathing resistance.

^IHigh (200 mg) filter loading in the certification test is intended to address the potential for filter efficiency degradation by solid or water-based (i.e., non-oil) aerosols in the workplace. Accordingly, there is no recommended service time in most workplace settings. However, in dirty workplaces (high aerosol concentrations), service time should only be extended beyond 8 hours use (continuous or intermittent) by performing an evaluation in specific workplace settings that demonstrates (a) that extended use will not degrade the filter efficiency below the certified efficiency level, or (b) that the total mass loading of the filter is less than 200 mg (100 mg per filter for dual-filter respirators).

^JNo specific service time limit when oil aerosols are not present. In the presence of oil aerosols, service may be extended beyond 8 hours of use (continuous or intermittent) by demonstrating (a) that extended use will not degrade the filter efficiency below the certified level, or (b) the total mass loading of the filter is less than 200 mg (100 mg per filter for dual-filter respirators).

APPENDIX D: DOCUMENTATION OF DEPARTMENTAL COMPLIANCE WITH THE UNH RESPIRATORY PROTECTION PROGRAM

Name of Department Supervisor:

Date:

Signature:

Instructions: Each department with individual respirator users will fill out the required information in this section and maintain this information locally. If an employee has different respirators or different respirator cartridges for different tasks the Supervisor shall make one entry per work task. Supervisors shall contact the OHSC for assistance with respirator selection and determination of cartridge change-out schedules. Supervisors shall update this document periodically as staff assignments or work duties change. At a minimum, Supervisors shall review this document annually and update as necessary.

Employee Name	Respirator style (e.g., half mask, full face, etc.), brand, model	Respirator cartridge type (e.g., organic vapor, particulate, etc.)	Task for which respirator is used	Cartridge change-out schedule

APPENDIX E: VOLUNTARY RESPIRATOR USE FORM

Information for Employees Using Respirators When not Required- OSHA 29 CFR 1910.134 App D

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.

I have read and understand the above information:

Today's date: _____

Name (print): _____

Name (signature): _____

Department: _____

Supervisor (signature): _____

Respirator make, model, & filter/cartridge type: _____