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## Respiratory Protection Program

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**THE UNIVERSITY OF MAINE**  
**RESPIRATORY PROTECTION PROGRAM**

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## 1. Scope

The University of Maine (“UMaine”) is committed to protecting employees from respiratory hazards that may be encountered on campus or at its remote facilities. Additionally, non-employee students participating in classes that encounter respiratory hazards due to the nature of the class requirements are included in the scope of this program. The primary goal at UMaine is to eliminate or significantly reduce all respiratory hazards through engineering or administrative controls. When respiratory hazards cannot be feasibly controlled through engineering or administrative controls, respiratory protection will be used in accordance with 29 CFR 1910.134 and respirator manufacturers’ recommendations. This program describes the requirements for selection, maintenance, and use of a respirator at UMaine.

## 2. Program Administration and Responsibilities

### 2.1 Safety and Environmental Management Department (SEM)

- Develop, maintain, and make available the UMaine Respiratory Protection Program.
- Assist departments in identifying and assessing respiratory hazards in the workplace. Recommend engineering and administrative methods to control those hazards.
- Provide training in the proper use and maintenance of respiratory protection.
- Provide fit testing for employees and non-employee students included in the scope of the program.
- Maintain records of respiratory clearances received, fit tests performed, and training conducted by SEM. Maintain records and reports of contaminant air monitoring.
- Notify the respiratory protection user and their designated supervisor or classroom instructor (non-employee student) when approval to use respiratory protection will expire.
- Conduct an annual audit of the UMaine Respiratory Protection Program.

### 2.2 Supervisors of Respiratory Protection Users

- Ensure engineering and administrative controls are instituted where possible to eliminate the need for respiratory protection.
- Request an air monitoring evaluation to determine contaminant concentration(s) and to aid in the selection of proper respiratory protection and the implementation of a respirator cartridge change-out schedule.
- Provide a medical evaluation, fit test, training, and respirator with cartridges at no cost to the respirator user.
- Ensure, *prior to respirator use*, that users have been medically approved to wear respiratory protection. Annually schedule users for a medical evaluation by a Licensed Health Care Professional (“LHCP”). **(See Section 5.)**
- Ensure, *prior to respirator use*, that tight fitting respirators are fitted properly to the user and that users are re-fitted to their respirator on an annual basis. **(See Section 7.)**
- Ensure that users are using the respirator they were fitted to wear in accordance with their training and the requirements outlined in this program.

- Ensure that users are cleaning, maintaining, and storing their respirator as recommended by the manufacturer.
- Ensure replacement cartridges are available for the user and cartridges are replaced according to change-out schedules.

## 2.3 Respiratory Protection Users

- Prior to receiving UMaine approval to use respiratory protection, complete a **“Respirator Medical Evaluation Questionnaire”**. This form should meet the specific requirements of, and be submitted to, a UMaine designated Licensed Health Care Professional (“LHCP”). The current LHCP for the UMaine campus in Orono is the Cutler Health Center. **(See Section 5.)** An example of the Cutler Health Center form is included in the Appendix.
- Work in accordance with your respiratory protection training. **(See Section 6.)**
- Only use respirators for which you are currently medically approved to use and have been fit tested for your use. **(See Section 7.)**
- Before each use inspect the respirator to ensure proper function. Read and follow all manufacturers’ recommendations for respirator use and care. **(See Section 8.)**
- Perform a user seal check each time you put on the respirator. **(See Section 9.)**
- Properly clean, maintain, and store respirators in accordance with manufacturers’ recommendations and enclosed guidelines. **(See Section 10.)**
- Report, to your supervisor, any change in medical status that may affect your ability to safely wear respiratory protection. Examples include, but are not limited to, head colds, flu, significant weight change, or other conditions affecting use.
- Replace respirator cartridges according to change-out schedules.

## 2.4 Human Resources

- When requested by a departmental contact, aid in the scheduling of initial and annual medical evaluations for UMaine employees or non-employee users within the scope of the program that have been identified as needing respiratory protection.
- In conjunction with the LHCP, notify SEM when an employee has been medically approved to wear a respirator.
- In conjunction with the LHCP, notify a users’ supervisor and the user when an affected user is not physically capable to wear a respirator.

## 3. Immediately Dangerous to Life and Health (IDLH)

UMaine employees are not allowed to enter work environments having an atmosphere which is Immediately Dangerous to Life and Health (IDLH). In addition, employees are required to evacuate work areas where the concentration of air contaminants may approach life threatening levels, for example during a building fire or major chemical spill. Other examples of IDLH atmospheres include:

- Airborne chemicals in concentrations that pose an immediate threat to life due to toxicity.
- Contaminants at concentrations known to cause irreversible adverse health effects.

- Explosive atmospheres.
- Atmospheres containing less than 19.5% oxygen.
- Atmospheres having contaminants found in concentrations that impair the immediate escape of individuals during an emergency.
- Situations where contaminants and their concentrations are unknown.

Self-contained Breathing Apparatus (SCBA) or emergency escape respirators are not approved for use by UMaine employees or non-employee students included in the scope of the program; therefore, procedures governing these types of respirators are not included in this program. Departments opting to use respiratory protection not covered in this program must develop their own comprehensive program with the approval of SEM. Research diving activities one example a comprehensive stand-alone program.

#### 4. Respirator & Respirator Cartridge Selection

As noted in **Section 2.2** a supervisor of a work environment where the respiratory hazards cannot be controlled by the preferred use of engineering or administrative controls may use respiratory protection to reduce or eliminate the employee's potential exposure. Before respiratory protection is chosen as the control method for managing their employees' exposure to respiratory hazards, the supervisor must contact SEM to conduct an exposure assessment. A **"Respirator Hazard Assessment Form"** (*SEM Form: MF08031*) will be used by SEM to conduct an exposure evaluation and to determine the appropriate respiratory protection required to adequately protect the employee.

The selection of a respirator and respirator cartridge will be based on assessment of:

- Contaminant(s);
- Contaminant(s) expected airborne concentration;
- Work rate of individuals using the respirator; and,
- Environmental and other workplace conditions.

In addition, the completed assessment will be referenced and used in conjunction with:

- The LHCP's medical evaluation of the respirator user.; and
- Fit testing.

Only respirators and respirator cartridges that are approved and certified by National Institute for Occupational Safety and Health (NIOSH) or Mine Safety and Health Administration (MSHA) are allowed for use at UMaine. Respirator components and cartridges may not be interchanged with another respirator unless it is the same manufacturer and model.

See **Appendix C** for approved respiratory protection.

#### 5. Medical Evaluations

Prior to using a respirator and in conjunction with or after work environment assessment of respiratory hazards, SEM must be contacted to begin the medical evaluation process for a potential user of respiratory protection. The completion of a “**Respirator Medical Evaluation Questionnaire**” is required and must be submitted to the UMaine designated LHCP in a timely fashion. A LHCP will evaluate the completed questionnaire to determine whether or not the potential respirator user requires an additional medical examination. The LHCP will decide if an employee is medically capable to use a respirator.

See **Appendix B** for Licensed Health Care Professionals (LHCP)

Medical evaluations are to be performed by the LHCP:

- Prior to using respiratory protection.
- When a potential respiratory protection user gives a positive response to any question among questions 1 through 15 in Section 2, Part A of medical questionnaire. (Please Note: The LHCP will notify the potential user if this is the case.)
- If a potential respiratory protection user reports medical signs or symptoms that are related to their ability to use a respirator.
- When observations made by a user’s supervisor or SEM indicates the need for re-evaluation.
- When a change occurs in workplace conditions (e.g. work effort, clothing, and temperature) that may result in a substantial increase in the physiological burden placed on a user.
- According to the following schedule or on a more frequent schedule if the LHCP deems necessary:

Age of Worker	Medical Evaluation & Approval
Up through 35 yrs	Every 5 yrs
36 – 40 yrs	Every 2 yrs
40 and Older	Every Year

## 6. Training

A user of respiratory protection must be trained:

- How and why a particular respirator and respirator cartridge was selected and its limitations.
- To identify the contaminant(s) or situations where their respirator will provide protection
- To use other controls (i.e. local exhaust ventilation, safe work practices, etc.) in conjunction with respirator use to help reduce exposure to hazardous substances in the workplace.
- How to put on (donning), wear, and take off (doffing) their respirator.
- How to properly perform a respirator seal check.
- How to properly clean, inspect, and store their respirator in accordance with manufacturer recommendations.
- When to change the face-piece, cartridges, or filters based upon hours of use, contaminant concentration, work rate, end-of-service-life indicator, or when breathing through the respirator (filtering face-piece or filters) becomes difficult.

- To inform their supervisor if they develop any health or technical problems that affect their ability to use a respirator.
- How to recognize emergency situations and immediately exit the area and call 911.

Training is to occur:

- Annually, at the time of or before the required annual fit test;
- When there are changes in the work-place that render previous training irrelevant; or
- When an employee demonstrates that they have not retained the requisite understanding or skill to use their respirator.

Online training is available through the SEM website providing respiratory protection users a convenient method for meeting many of the above requirements. Upon completion a training certificate is generated that can be presented to the fit tester to represent proof of training.

## 7. Respirator Fit Testing

Prior to being issued respiratory protection a user must have successfully completed a fit test within the past twelve months preceding use and **after** successful completion of a medical evaluation and approval by a LHCP. A proper fit test helps select the best fitting respirator for a user and is required on an annual basis. If facial hair, glasses, safety goggles, or any other equipment or condition interferes with the face to face-piece seal, the employee may not be able to achieve an adequate seal and thus not be able to utilize respiratory protection.

Various fit test methods are available. At UMaine there are several methods utilized including a semi-quantitative OSHA approved method using a TSI, Inc. Portacount® and the qualitative Bitrex® and irritant smoke methods. These methods can be used for both filtering face-piece respirators and tight fitting elastomeric respirators. The Portacount® is also available for fit testing of 2-strap filtering face pieces (similar to “dust masks” but normally having stricter manufacturer use requirements) and common valve-less dust masks. The specific steps for performing a fit test using each method are found in the Appendix of the OSHA standard 29 CFR 1910.134, or they can be found by referencing the fit test manufacturer instruction manual. SEM can provide individuals with details if desired.

Prior to a fit test, a user must be cleared by a LHCP and complete Respiratory Protection Training. Upon completion of these items SEM can be contacted by the user or supervisor to schedule a date and time for a fit test to be administered.

## 8. Respirator Inspections

Respirators must be inspected prior to each use, during the cleaning process, and in the event that chemical breakthrough occurs while using the respirator, in which case the inspection must occur outside the contaminated work area. Many respirator manufacturers’ will include guidance on proper inspection of their products. The inspection must include the following:

- Inspection of the respirator for defects;



- Ensuring that the respirator is pliable and free of cracks, tears, holes, shape distortion, or other observed deterioration of the construction material;
- Ensuring that filters and cartridge mounts are free from damage;
- Ensuring that the respirator has no parts missing or damaged gaskets;
- Ensuring that the respirator is free from damaged or improperly installed valves; and,
- Ensuring that the respirator is free from broken or worn head straps (straps that exhibit loss of elasticity, cuts, tears, or broken buckles / clips).

Filtering face-piece respirators (for example, dust masks) that are damaged, or contaminated on the interior surface, must not be used. They must be discarded, and a new filtering face-piece obtained.

## 9. Seal Checks (Tight Fitting Respirators)

User seal checks must be performed each time the user puts on an elastomeric tight fitting respirator. Seal checks are performed while wearing the respirator and include these steps:

- (i) Cover the attached cartridges with the palms of your hands while *gently* inhaling. If air does not leak through the face to face-piece seal of the respirator then you have passed the negative pressure check.
- (ii) Cover the exhalation valve with the palm of either hand while *gently* exhaling. If air does not leak through the face to face-piece seal of the respirator then you have passed the positive pressure check.

Both steps must be passed for a successful seal check. Users must pass a seal check prior to using their respirator for protection against workplace contaminants. Air should neither leak in or out of the mask during the seal check, nor should air leak out of a respirator except through the exhaust valve during use. If these leaks occur the respirator or respirator fit fails and is not to be used until it has been replaced, repaired, or re-fitted to the user.

## 10. Maintenance and Storage of Respirators

Respirators issued exclusively to a user are to be cleaned and disinfected as often as necessary to maintain the respirator in a sanitary condition. When users share a respirator the respirator must be cleaned prior to each use.

A mild soap solution and warm water should be used to clean the elastomeric portions of a respirator as directed by the manufacturer. The respirator should be dried with a cloth, then set in an appropriate location to air-dry. Once the respirator is dry it should be properly stored.

**Note:** Prolonged presence of sand, dirt, dust, or visible microbial growth can damage a respirator.

Users must store respirators in a clean, sanitary area away from sunlight, excessive moisture, chemicals, extreme temperatures, and dust. Separate the cartridges from the respirator and place within a container (or equally effective manner) in a way that protects the face seal from being

deformed. Store the cartridges in a similar manner. Respirators are not to be stored by hanging them from their straps; this will weaken the straps potentially cause a poor fit to the user's face.

## 11. Voluntary Use

Employees are allowed to use a respirator on a voluntary basis as long as:

- Air monitoring results (or other objective data) indicate that exposure to airborne contaminants is below regulated limits;
- Voluntary users read, sign, document, and keep current a voluntary use form: “**Respirator Protection Voluntary Use Requirements**” (*SEM Form: MF08034*) which is part this program;
- Voluntary users read and follow the manufacturer recommendations for proper respirator use;
- Voluntary users properly use, store, and clean the respirator; and
- Voluntary users have obtained the approval of a LHCP within the past year, stating that such respirator use is safe.

**Exception** – Departments are not required to include in the program those users whose only use of respirators involves the voluntary use of filtering face-pieces (dust masks) not described as a “**respirator/respiratory protection**” by a manufacturer. However, such use must be proven to be voluntary through appropriate air monitoring results.

## 12. Recordkeeping

SEM will maintain a copy of the LHCP medical approval provided to the user, a copy of the fit test form titled, “**Respiratory Protection Record**” (*SEM Form MF080833*), and a copy of training records for all participants in the UMaine Respiratory Protection Program. These records will be maintained on file and specific information pertaining to these records will be kept in SEM's Industrial Hygiene Database. However, some departments with the approval of SEM will maintain all the above records and coordinate parts of the program, for example fit testing. Supervisors are required to maintain a copy of training and fit test records for all users that they are responsible for that are included in the program.

## 13. Respirators for Protection against Tuberculosis (TB) Exposure

Departments with healthcare duties and users needing protection from potential exposure to TB (or other airborne illnesses) must follow all other guidelines found in this program. Users of respirators to protect against (potential or actual) TB exposure are to dispose of filtering face-piece respirators (2-strap dust masks) following each use. Elastomeric respirators are to be cleaned, and the filters thrown away, following each use.

#### **14. Additional Requirements for use of Supplied Air Respirators**

All departments with a need to use a supplied air respirator(s) are required to contact SEM for approval and development of a specific plan for their use.

## **15. Audits**

SEM will conduct an annual self-audit of the program including review of all users and records maintained in the Industrial Hygiene Database. The purpose of this audit is to review the information stored in the database making certain that users have current medical approvals, fit tests, and training records. Random field audits will be performed to determine how users utilize, store, and maintain their respirators. The program will be updated as necessary to reflect changes in the workplace.

## Revision Page

DATE	TYPE	PAGE NUMBERS
May 4, 2009	New Template format and University of Maine to UMaine	Throughout document
November 2012	Major Revision. Complete review of wording, applicability, and processes. Review of grammar, sentence structure, departmental terminology, responsible party requirements, form and guidance references, and procedural direction.	Throughout document. All pages.
October 2015	Added information and appendices for allowed respiratory protection manufacturers and Licensed Healthcare Professionals (LHCP). Minor reviews and edits of wording and structure.	Throughout document. All pages.

## **Appendix A Forms**

**MF08034 – Respiratory Protection Voluntary Use Requirements**

**EXAMPLE – Respirator Medical Evaluation Questionnaire (LHCP/Cutler Health Center)**

Insert

## **Appendix B**

### **Approved Licensed Healthcare Providers (LCHP) - UMaine and Associated Locations**

**UMaine – Eastern Maine Health Center affiliated Cutler Health Center  
Attention: Sande Curtis, FNP; Respirator Clearances**

**Aroostook Farm – TAMC (EMHS Member) Occupational Health & Wellness Services, 23 North Street,  
Presque Isle, Maine 04769; (207) 768-4568**

**Blueberry Hill Farm – Eastern Maine Health Center affiliated Cutler Health Center  
Attention: Sande Curtis, FNP; Respirator Clearances**

**Darling Marine Center – Eastern Maine Health Center affiliated Cutler Health Center  
Attention: Sande Curtis, FNP; Respirator Clearances**

**Highmoor Farm – Eastern Maine Health Center affiliated Cutler Health Center  
Attention: Sande Curtis, FNP; Respirator Clearances**

**Rogers Farm – Eastern Maine Health Center affiliated Cutler Health Center  
Attention: Sande Curtis, FNP; Respirator Clearances**

**Witter Center – Eastern Maine Health Center affiliated Cutler Health Center  
Attention: Sande Curtis, FNP; Respirator Clearances**

## **Appendix C**

### **Approved Manufacturers of Respiratory Protection - UMaine and Associated Locations**

#### **Air-Purifying Respirators**

**PREFERRED:** Honeywell Safety Products Series Full (NORTH Series 5400 or 7600) or Half Face (NORTH Series 5500 or 7700) Respirators; equipped with Defender® protective cartridges for most applications or as directed by UMaine Industrial Hygienist. Available through Maine Marketplace System Purchasing Application

**ALTERNATE:** 3M Safety Products; DRAEGER, or Survivair products with approval of UMaine Industrial Hygienist

#### **Powered Air Purifying Respirators (PAPR)**

To be determined/selected in consultation with UMaine Industrial Hygienist

#### **Self-Contained Breathing Apparatus (SCBA)**

NOT approved to be used as respirator protection by employees of UMaine and its associated locations