University of Minnesota
Respiratory Protection Program

STATEMENT OF POLICY

When employees are exposed or potentially exposed to respiratory hazards, the primary method of protecting employees will be to prevent exposures through the judicious use of accepted engineering methods, such as elimination of the hazardous substance or isolation of the process. However, when engineering controls are infeasible, or when they fail to reduce the level of contamination to acceptable levels, or during periods that engineering controls are being implemented, respirators will be provided to, and worn by, employees.

In all cases, the use of respirators will be classified as “required” or “voluntary,” based on exposures and management discretion. Specific portions of the Respiratory Protection Program (RPP) may apply to both mandatory and voluntary use, and other sections will apply to mandatory use, but not voluntary, or vice versa. Each section of the program will clearly delineate this distinction.

This program is intended to conform to Federal and Minnesota laws and specifically comply with the Occupational Safety and Health Administration (OSHA) requirements codified at 29 CFR 1910.134.

RELATED

None.

SCOPE AND APPLICATION

This program applies to all use of respirators, voluntary or mandatory, regardless of frequency of use, reason for use, duration of use, etc.

This program applies to all U of M community members and operations. This includes employees, visitors, and students. Contractors who are exposed to unsafe levels of contaminants, or who wear respirators for any reason, must develop and implement a formal, written Respiratory Protection Program (RPP), which complies with 29 CFR 1910.134.

Non U of M community members working at the U of M shall observe procedures that are equivalent to or exceed U of M Respiratory Protection Program requirements.

DEFINITIONS
RESPONSIBILITIES

Supervisors and Principal Investigators

Supervisors have the primary responsibility for implementing and establishing compliance with the Respiratory Protection Program in their work area. Implementation involves:

- Identifying U of M community members and their jobs or tasks which may require respiratory protection, providing this information to the Office of Occupational Health and Safety, who serves as the RPP Program Administrator and seeking assistance in evaluation of respiratory hazards.
- Complying with all aspects of this respiratory protection program and directives from the Office of Occupational Health and Safety.
- Supervising U of M community members to ensure that the Respiratory Protection Program procedures are being followed.
- Purchasing and providing appropriate respirators and making them available for authorized use by respirator users.
- Enforcing the proper use of respirators.
- Ensuring that respirators are properly cleaned, maintained, and stored.
- Ensuring that respirator users under their supervision (including new hires) receive appropriate training, medical evaluation, and fit testing per this policy.
- Identifying changes in jobs or tasks which may require re-evaluation of respirator use and notifying the Respiratory Protection Program Administrator.
- Maintaining, storing, and monthly inspection of emergency use respirators as required so that they are readily accessible and operational when needed.

Office of Occupational Health and Safety (OHS)

OHS is the University’s Respiratory Protection Program Administrator and is responsible for developing, implementing, and administering the U of M Respiratory Protection Program. The OHS Respiratory Protection Program Administrator is responsible for:

- Reviewing and updating the written Respiratory Protection Program.
- Coordinating medical evaluation and fit testing services for respirator users.
- Maintaining records on medical clearances, fit testing, and online respirator training.
- Evaluating the overall effectiveness of the respirator program.
- Administering the University’s online medical evaluation system.
Department of Environmental Health and Safety (DEHS)

DEHS is responsible for the following aspects of the U of M Respiratory Protection Program:

- Evaluating respiratory hazards in the work areas and generating reports detailing findings and recommendations.
- When necessary, specifying the appropriate type of respirator to be worn, and calculating useful life.
- Providing training (including refresher sessions) on the proper use, maintenance, and storage of respirators to all respirator users, including emergency Self Contained Breathing Apparatus (SCBA) users.
- Assisting with fit testing for respirator users.
- Transmitting fit testing and training records to OHS.
- Conducting periodic monitoring to assess concentrations of airborne contaminants.
- Conducting periodic inspections of respirator storage and use, and ensuring that these inspections are properly documented.
- Transmitting monitoring and inspection results to Supervisors, Principal Investigators and OHS.

Respirator User

The respirator user is responsible for following the requirements of the written program, including:

- Using the respirator in accordance with the manufacturer’s instructions and the training received.
- Storing, cleaning, maintaining, and guarding against damage to the respirator.
- Reporting any malfunction of the respirator to his/her supervisor.
- Inspecting the respirator before each use.
- Promptly reporting to his/her supervisor or the Respiratory Protection Program Administrator any symptoms of illness that may be related to respirator usage or exposure to hazardous atmospheres.
- Informing the supervisor or Respiratory Protection Program Administrator of operation changes or health status changes that could affect the safe use of the equipment.
- Participating in all required training, medical evaluations, fit testing, and other program activities.
Occupational Health Physician or Other Licensed Health Care Professional (PLHCP)

The PLHCP is responsible for:

- Performing initial and periodic medical evaluations and any necessary follow-up examinations of respirator users to determine their ability to wear a respirator.
- Providing a written evaluation of the respirator user’s ability to use a respirator to the Respiratory Protection Program Administrator.
- Maintaining records of medical evaluations.

PROGRAM ELEMENTS

1. Site-specific programs and program administration

1.1 General. Individual departments/locations which choose to implement and administer their own site-specific respiratory protection programs may do so as long as those programs comply with 29 CFR 1910.134(c) which is summarized in sections 1.2 and 1.3 below, and this University policy. This applies even when respirator use is voluntary.

1.2 Content of program when respirator use is mandatory. When respirator use is mandatory, the written program shall include (as applicable):

- Procedures for selecting respirators for use in the workplace;
- Medical evaluations of employees required to use respirators;
- Fit testing procedures for tight-fitting respirators;
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
- Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and
- Procedures for regularly evaluating the effectiveness of the program.

1.3 Content of program when respirator use is voluntary. When respirator use is voluntary, the written program may be limited to the following:
2. Exposure monitoring and respirator selection

2.1 General. The U of M will evaluate and document employees’ exposures to respiratory hazards. Evaluations may include monitoring of exposures, professional judgment of safety staff, and existing knowledge of similar exposures.

2.2 Exposure monitoring. Community members who identify substances, processes, or equipment that may present a respiratory hazard, must contact the Department of Environmental Health & Safety (DEHS) at (612) 626-6002 to request a workplace exposure assessment.

2.3 Voluntary or mandatory use. The need for respiratory protection will be based on professional evaluation of the exposure, which could include monitoring of exposures, professional judgment of safety staff, and existing knowledge of similar exposures.

All use of respiratory protection will be designated as either mandatory or voluntary by OHS, DEHS or by supervisors/investigators. However, final determination of the status of respirator use (i.e. voluntary or mandatory) will be at the discretion of the respiratory protection program administrator.

“Mandatory use” shall mean that the proper use of the designated respirator is required as a condition of employment. The use of respirators will be mandatory when any of the following conditions exist:

- When there is reasonable probability that an employee’s exposure to a respiratory hazard approaches, equals, or exceeds an established limit, such as an OSHA Permissible Exposure Limit (PEL), or an ACGIH Threshold Limit Value (TLV);
- When the RPP program administrator, a PLHCP or other qualified safety professional determines based on epidemiologic, analytic, and/or clinical evidence that there is a significant risk of exposure to infectious aerosols;
- When DEHS, OHS or a supervisor or PI chooses to require the use of respiratory protection, even when hazards do not approach or exceed applicable limits;
- When an individual chemical label or Safety Data Sheet indicates that use of respiratory protection is necessary; and
- When an SOP, safety posting, or other such internal, written document indicates that use is required.
“Voluntary use” shall mean the use respirators by employees on an optional basis.

2.4 **Selection of respirators.** Selection of a respirator for a specific operation and/or contaminants shall be made by DEHS in consultation with occupational health experts, industrial hygienists, etc. as appropriate. The selection of a respirator for any given situation shall require evaluation of workplace respiratory hazards, including identification of the following:

- A reasonable estimate of the employee exposures to respiratory hazard(s)
- The contaminant’s chemical state (valence state) and physical form (gas, vapor, particulate, etc.).

Any respirator usage by U of M community members, either mandatory or voluntary, shall be pre-approved by DEHS. U of M community members shall only wear the specific respirator-type(s) for which they were pre-approved.

2.5 **End of Service Life Indicators (ESLI)/Change schedules.** When feasible, air purifying respirators worn for protection against gases or vapors must be equipped with an End of Service Life Indicator (ESLI) certified by NIOSH for contaminant at hand. If there is no ESLI for the contaminants encountered, then a written change schedule, based on objective written exposure data will be developed, to ensure that respirators are not worn beyond their useful service life. It shall be the responsibility of supervisors/PIs to determine cartridge change-out schedules in consultation with DEHS.

2.6 **NIOSH approval and labeling.** Only respirators certified by the National Institute of Occupational Safety and Health (NIOSH) shall be selected and all appropriate filters, cartridges, and canisters shall be labeled and color coded with the NIOSH approval label. Labeling shall not be removed and shall remain legible.

2.7 **Cost of respirators.** Employees who are required to wear any type of respirator will have respirators provided to them at no cost. The University reserves the right to hold employees financially responsible for respirators which are worn voluntarily.

3. **Medical evaluation and approval**

3.1 **General.** Using a respirator may place additional physiological burden on the user. This burden may vary with the type of respirator worn, the job and workplace conditions, environmental factors, and more importantly, the medical status of the user. Therefore, the U of M requires all respirator users to be medically evaluated for respirator use to ensure the employee’s medical fitness to safely use a respirator.
Medical evaluation and approval must be obtained prior to allowing the respirator to be worn by the employee, and prior to any required fit testing. Periodic follow up may also be required.

3.2 Information provided to PLHCP prior to evaluation. The following information is provided to the Physician or Licensed Health Care Professional (PLHCP) at the outset of the medical evaluation process.

- The type and weight of the respirator to be used.
- The duration and frequency of use (including use for rescue and escape).
- The expected physical work effort.
- Additional protective clothing and equipment to be worn.
- Temperature and humidity extremes that may be encountered.
- A copy of the written respiratory protection program.

Any of the information previously provided to the PLHCP need not be provided for subsequent medical evaluation if the information is the same from employee to employee.

3.3 Initial screening. An initial screening of each respirator user will be made by requiring the user to complete the standard medical questionnaire (see 29 CFR 1910.134, appendix C). Alternatively, the U of M reserves the right to arrange for a medical evaluation that obtains the same information as the questionnaire.

3.4 Follow-up to initial screening. Additional medical evaluation will be provided to any employee who gives a positive response to any question among questions 1 through 8 in section 2, part A of the questionnaire or whose initial screen demonstrates a need for follow up medical evaluation. The follow up medical screen will include any tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

3.5 Periodic re-screening. In addition to the initial screening and follow up to initial screening (if needed), periodic re-screening will be provided if/when:

- An employee reports signs or symptoms that are related to ability to wear a respirator.
- A PLHCP, supervisor/PI, program administrator, or other suitably qualified and authorized person believes an employee needs to be re-evaluated.
- A change in workplace conditions (e.g., physical work load, temperature, humidity, protective clothing, etc.) that may result in a substantial increase in physiological burden.
3.6 **Medical determination.** The PLHCP will issue a written recommendation regarding the employee’s ability to safely use a respirator. The recommendation will provide *only* the following information:

- Any limitations on respirator use related to the medical condition of the employee, or related to workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator.
- The need, if any, for periodic re-screening (annually, bi-annually, etc.)
- A statement that the PLHCP has provided the employee with a copy of the PLHCP’s written recommendation.

3.7 **Special provisions for negative pressure respirators.** If the employee is required or permitted to wear a negative pressure respirator and the PLHCP observes a medical condition which precludes the employee from wearing a negative pressure respirator, then the U of M will provide to the employee (at no cost) a Powered Air Purifying Respirator (PAPR). If/when subsequent medical evaluation shows that the employee may safely wear a negative pressure respirator, then the U of M may opt to no longer provide the PAPR.

3.8 **Administration of the questionnaire and other medical evaluations.** The medical questionnaire and other medical evaluations will be administered confidentially during the employee’s normal working hours, or at a time and location convenient to the employee. Medical screening questionnaires may be administered via online formats.

4. **Fit testing**

4.1 **General.** Before an employee may be *required* to use any respirator with a positive or negative pressure tight-fitting face piece, the employee must be fit tested with the same make, model, style and size of the respirator that will be used.

4.2 **When fit testing is to be provided.** Employees required to use a tight-fitting respirator will be fit tested only after they have been medically approved for respirator use. Employees will be fit tested at their time of initial assignment to a job or task requiring respiratory protection, and at least annually thereafter.

Additional fit testing will be provided when/if the employee reports, or the PLHCP, supervisor/PI, Respiratory Protection Program Administrator, or other qualified person makes visual observations of changes in the employee’s physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
4.3 **Fit testing.** All fit testing will comply with 29 CFR 1910.134, appendix A and/or the respirator manufacturer’s instructions.

4.4 **Records of fit testing.** A record of each fit test will be maintained until the next fit test is required, and will include at least:

- The name or identification of the employee tested.
- Type of fit test performed (i.e. qualitative or quantitative, challenge media, etc.).
- Specific make, model, style, and size of respirator tested.
- Date of test.
- The pass/fail results of qualitative fit tests, or the fit factor and strip chart recording or other recording of the test results for quantitative fit tests.

DEHS or the contracted service provider will provide records of fit testing to the Respiratory Protection Program Administrator. The Office of Occupational Health and Safety will maintain records of all fit testing.

5. **Use of respirators**

5.1 **Face piece seal protection.** Respirators with tight-fitting face pieces shall not be worn by employees who have:

- Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function; or
- Any other condition that interferes with the face-to-face piece seal or valve function.

5.2 **Continuing respirator effectiveness.** Appropriate surveillance of work areas and degree of employee exposure and stress must be maintained by supervisors and employees. Supervisors and/or employees must notify OHS/DEHS when there is a change in work area condition or degree of employee exposure or stress that may result in increased employee exposure or risk. Respirator effectiveness will then be re-evaluated by DEHS and/or OHS.

5.3 **Procedures for IDLH environments and/or structural firefighting.** No U of M employee is to knowingly work in an area which is, or is suspected of being, Immediately Dangerous to Life and Health (IDLH); nor is any employee to engage in any type of structural firefighting.

6. **Storage, maintenance, care, and repair of respirators**
6.1 **General.** All respirators will be cared for, cleaned, maintained, stored, and repaired, as directed by the manufacturer.

6.2 **Frequency of cleaning.** The required frequency of cleaning and disinfecting is as follows:

- An individually assigned respirator which is used routinely shall be cleaned as often as necessary to keep it in a sanitary condition.
- Respirators not individually assigned shall be cleaned and disinfected before each use. [EXCEPTION: Respirators kept for emergency/rescue use or fit-testing shall be cleaned and disinfected after each use.]

6.3 **Additional inspection requirements for emergency use respirators.** All Supervisors shall ensure that emergency use respirators are inspected as follows:

- Check for proper function before and after each use.
- Inspect at least monthly, and in accordance with manufacturer’s recommendations; and certify the respirator by documenting inspection dates, the inspector’s identification, findings, and remedial actions. The documentation shall be provided as a tag or label attached to the respirator’s storage compartment and is included in inspection reports. This information shall be kept until replaced by a subsequent certification.
- Emergency escape-only respirators shall be initially inspected before bringing into the workplace for use.

6.4 **Additional storage requirements for emergency use respirators.** Emergency use respirators shall be stored in compartments or in covers that are clearly marked as containing emergency respirators.

7. **Breathing air quality and use**

7.1 **General.** The U of M will ensure that employees using atmosphere-supplying respirators (supplied-air and SCBA) are supplied with breathing gases of high purity.

7.2 **Manufacturer’s recommendations.** The installation, use, maintenance, storage, inspection, etc. of any supplied air system will comply with manufacturer’s instructions.

7.3 **Grade D breathable air.** Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
● Oxygen content (v/v) of 19.5-23.5%;
● Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
● Carbon monoxide (CO) content of 10 ppm or less;
● Carbon dioxide content of 1,000 ppm or less; and
● Lack of noticeable odor.

7.4 Breathing air compressors and prevention of carbon monoxide exposures. Compressors used to supply breathing air to respirators shall be constructed and situated so as to:

● Prevent entry of contaminated air into the air-supply system;
● Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
● Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer’s instructions; and
● Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

For compressors that are not oil-lubricated, carbon monoxide levels in the breathing air shall not exceed 10 ppm. For oil-lubricated compressors, a high-temperature or carbon monoxide alarm, or both, shall be used to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

8. Training and communication

8.1 General. The U of M shall provide effective training to all respirator users (voluntary or mandatory). The training must be comprehensive, understandable, and recur annually or more often if necessary. Employees shall be trained prior to using a respirator in the workplace.

8.2 Training for mandatory users. Training shall consist of, and employees must be able to demonstrate knowledge of, at least the following:

● Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
● What the limitations and capabilities of the respirator are;
● How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
● How to inspect, put on and remove, use, and check the seals of the respirator;
● What the procedures are for maintenance and storage of the respirator;
● How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
● The general requirements of this program.

8.3 Training for voluntary users. Before voluntary respirator use is approved by the supervisor, the U of M community member:

● Must receive initial training in the proper use, care, and limitations of the selected respirator.
● Shall read, sign, and submit the form entitled “Information for employees using respirators when not required” (Appendix A).

8.4 Retraining. Retraining shall be administered annually, and when the following situations occur:

● Changes in the workplace or the type of respirator render previous training obsolete;
● The employee’s knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
● Any other situation arises in which retraining is deemed necessary to ensure safe respirator use.

8.5 Documentation of training. All training conducted under this program will be documented in writing using the form in appendix B or equivalent.

PROGRAM EVALUATION

The U of M will conduct evaluations of the workplace to ensure that the written Respiratory Protection Program is being properly implemented.

At least annually, a formal, documented review of this program shall be conducted by the Office of Occupational Health and Safety to ensure that its provisions are being effectively implemented and that it continues to be effective.

Mandatory respirator users shall be regularly consulted to assess their views on program effectiveness and to identify any problems. Problems that are identified during this
assessment shall be evaluated and prioritized for correction based on seriousness and feasibility. Factors to be assessed include but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance).
- Respirator availability.
- Appropriate respirator selection for the hazards to which the employee is exposed.
- Proper respirator use under the workplace conditions the employee encounters.
- Proper respirator maintenance.
APPENDIX A – INFORMATION FOR EMPLOYEES USING RESPIRATORS WHEN NOT REQUIRED

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 respirator’s 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 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.

Employee Name: ________________________________________________

Department: ____________________ Employee ID#: ________________

I have read and understood the information provided above regarding voluntary respirator use.

______________________________________________
Employee Signature

______________________________________________
Date
APPENDIX B – RESPIRATORY PROTECTION TRAINING DOCUMENTATION

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**Training outline**

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
- The general requirements of the respiratory protection program.

**Other topics discussed**

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