



# **Respiratory Protection Program**

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University of Memphis  
Respiratory Protection Program

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## **Environmental Health and Safety Respiratory Protection Program**

### **Purpose**

University of Memphis employees are exposed to respiratory hazards from time to time during routine processes and reasonably foreseeable emergency operations. These hazards may include dusts, fumes, mists, gases, smokes, sprays, or vapors and may present Immediately Dangerous to Life or Health (IDLH) conditions in some cases.

The purpose of this program is to ensure that all employees at The University of Memphis, designated herein as the University, are protected from exposure to these respiratory hazards. Engineering controls and the substitution of less toxic materials are the first line of defense at the University. However, engineering controls have not always been feasible for some work areas or have not always completely controlled the identified hazards; because of the nature of the work, substitution of materials is often out of the control of personnel. In these situations, respirators and other appropriate protective equipment shall be used. Respirators are also needed to protect employees' health during emergencies. The work processes requiring respirator use for personnel are outlined in Table 1 under the designated departmental appendix of this program.

Some employees may express a desire to wear respirators during operations that do not require respiratory protection; each situation of this type shall be evaluated on a case-by-case basis. If the use of respiratory protection in a specific case is determined to not jeopardize the health or safety of the employee, the employee's department may provide respirators for voluntary use. As outlined in the Scope and Application section of this program, voluntary respirator use is subject to certain requirements of this program.

### **Scope and Application**

This program applies to all University of Memphis employees who are required to wear respirators during normal work operations and during some non-routine or emergency operations, such as a spill of a hazardous substance. All employees working in hazardous material spill areas presenting respiratory hazards and those engaged in certain processes or tasks (as outlined in Table 1 under the designated departmental appendix of this program) must participate in the University's respiratory protection program.

Any employee who voluntarily wears an air purifying respirator (APR), when a respirator is not required (except for dust masks), is subject to the respiratory medical evaluation, cleaning, maintenance, and storage elements of this program, and must be provided with information specified in this section of the program.

Employees participating in the respiratory protection program do so at no cost to them. The expense associated with training, medical evaluations, and respiratory protection equipment shall be borne by the University.

## **Responsibilities**

### *Program Administrator*

The Program Administrator (PA) is responsible for administering the respiratory protection program. Duties of the PA include:

- Identifying work areas, processes, or tasks requiring workers to wear respirators, and evaluating hazards;
- Selecting respiratory protection options;
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications;
- Arranging for and/or conducting training;
- Ensuring proper storage and maintenance of respiratory protection equipment;
- Conducting fit tests using OSHA protocols;
- Administering the medical surveillance program;
- Maintaining records required by the program;
- Evaluating the program; and
- Updating the written program, as needed.

The chair or director of individual departments shall appoint the Program Administrator for his/her department. Each unit's PA shall be documented in the designated departmental appendix.

### *Directors/Supervisors*

Directors of departments included in this Respiratory Protection Program are responsible for ensuring that the respiratory protection program is implemented in their departments. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- Ensuring that supervised employees (including new hires) have received appropriate initial training, annual re-training, annual fit testing, and medical evaluation;
- Ensuring the availability of appropriate respirators and accessories;
- Being aware of tasks requiring the use of respiratory protection and reasonably foreseeable emergency situations;
- Enforcing the proper use of respiratory protection when necessary;
- Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan;
- Continually monitoring work areas and operations to identify respiratory hazards; and
- Coordinating with the PA on how to address respiratory hazards or other concerns regarding the program.

### *Employees*

Each employee has the responsibility to wear his/her respirator when and where required and in the manner in which they were trained. Employees must also:

- Ensure that respirators fit properly and do not cause undue discomfort;
- Care for and maintain their respirators as instructed, and store them in a clean, sanitary location;
- Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly; and
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns they have regarding the program.

## **Program Elements**

### *Selection Procedures*

The PA shall select respirators to be used on site based on the hazards to which workers are exposed and in accordance with all state and federal regulations. The PA shall conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during a reasonably foreseeable emergency. The hazard evaluation shall include:

- Identification and development of a list of hazardous substances used in the workplace, by department, or work process.
- Review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.
- Exposure monitoring to quantify potential hazards.

Exposure monitoring will be done as required. EH&S may perform such monitoring; however, departments may contract with an industrial hygiene service when EH&S is unable to assist. In cases where exposures cannot be reasonably estimated and monitoring is needed but unavailable, personnel shall assume IDLH conditions exist and shall avoid the exposure.

### *Updating the Hazard Assessment*

The PA must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, the employee is to contact his/her supervisor or the PA. The PA shall evaluate the potential hazard, arranging for outside assistance as necessary. The PA shall then communicate the results of that assessment back to the employee. If it is determined that respiratory protection is necessary, all other elements of this program shall be in effect for those tasks, and the departmental appendix to this program shall be updated accordingly.

### *NIOSH Certification*

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. All filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label and certified for the appropriate protection need. The label must not be removed or defaced while it is in use.

### *Voluntary Respirator Use*

Where an employee requests to voluntarily use a dust mask in controlling nuisance dusts, such masks shall be provided by the employee's department at no cost to the employee.

The PA shall provide all employees who voluntarily choose to wear dust masks with a copy of Appendix D of 29 CFR 1910.134, detailing the requirements for voluntary use of respirators by employees. Employees choosing to wear a half or full facepiece APR must comply with the procedures for medical evaluation, respirator use, cleaning, maintenance, and storage.

Directors/chairs/supervisors may authorize voluntary use of respiratory protective equipment as requested by employees on a case-by-case basis, depending on specific workplace conditions and the results of medical evaluations.

### **Medical Evaluation**

Employees who are either required to wear respirators or who choose to wear an APR voluntarily (other than a dust mask), shall complete a medical evaluation before being permitted to wear a respirator on the job. Medical evaluations shall be done at no cost to the employee. Medical evaluations shall be conducted during normal working hours or a time and place convenient to the employee. Employees shall not wear respirators until a physician or other licensed health care professional (PLHCP) has determined that they are medically able to do so. Any employee refusing the medical evaluation shall not be allowed to work in an area requiring respirator use. Medical evaluation procedures are as follows:

- The medical evaluation shall be conducted using the questionnaire provided in Appendix C of the Respiratory Protection Standard, 29 CFR 1910.134. The PA shall provide a copy of this questionnaire (or equivalent) to all employees requiring medical evaluations.
- To the extent feasible, the University shall assist employees who are unable to read the questionnaire (by providing help in reading the questionnaire). When this is not possible, the employee shall be sent directly to the physician for medical evaluation.
- Employees shall be permitted to fill out the questionnaire on University time.
- Follow-up medical exams shall be granted to employees as required by the standard and/or as deemed necessary by the physician or other licensed health care professional.
- All employees shall be granted the opportunity to speak with the PLHCP about their medical evaluation, if they so request.
- The PA will provide the PLHCP with requested documentation: a copy of this program, a copy of the Respiratory Protection Standard, the list of hazardous substances by work area, and hazardous substances for each employee requiring evaluation.
- Any employee required to use a negative pressure respirator, and who is found by the PLHCP to have a medical condition that may place the employee at risk if the respirator is used, shall be provided with a positive pressure air purifying respirator (PAPR). The PAPR shall no longer be required if a subsequent medical evaluation determines that the health risk no longer exists.
- After an employee has received clearance and begun to wear his/her respirator, additional medical evaluations shall be provided under the following circumstances:
  - An employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing;
  - The PLHCP, supervisor, or PA determines that the employee needs to be reevaluated;

- Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation; or
- A change occurs in workplace conditions that may result in a substantially increased physiological burden on the employee.

A list of employees currently included in medical surveillance is provided in Table 2 of the designated departmental appendix, upon the completion of Table 2 by the unit's PA. All examinations and questionnaires are to remain confidential between the employee and PLHCP.

### **Fit Testing**

Fit testing is required for employees wearing APRs. Fit testing shall be performed as indicated below:

- Prior to being allowed to wear any respirator with a tight fitting facepiece,
- Whenever a different respirator facepiece is to be used,
- At least annually if no other reasons exist for repeating the fit test, and
- When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

Employees shall be fit tested with the make, model, and size of respirator that they will wear. Employees shall be provided with several models and sizes of respirators so that they may find an optimal fit.

Fit testing of APRs is to be conducted in the negative pressure mode. The PA shall conduct fit tests following one of the OSHA approved test protocols found in Appendix A of the Respiratory Protection Standard, 29 CFR 1910.134.

The Environmental Health and Safety Office will assist any department that needs support with fit testing employees.

### **Respirator Use**

Respiratory protection is required for the personnel listed in Table 2 of the designated departmental appendix.

#### *General Use Procedures*

Employees shall use their respirators under conditions specified by this program and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

All employees shall conduct user seal checks each time they wear their respirator. Employees shall use either the positive and/or negative pressure check specified in Appendix B-1 of the OSHA Respiratory Protection Standard.

All employees shall leave the work area to perform maintenance on their respirator for the following reasons: to clean their respirator if the respirator is impeding their ability to work, change filters or cartridges, replace parts, or to inspect respirator if it stops functioning as intended.

Employees shall not wear tight-fitting respirators if they have any condition, such as facial scars, facial hair (beard growth greater than 24 hours), or missing dentures, that prevents them from achieving a good seal. Employees are not permitted to wear headphones, jewelry, or other articles that may interfere with the facepiece-to-face seal.

### *Respirator Malfunction*

For any malfunction of an APR, the respirator wearer shall inform his/her supervisor that the respirator no longer functions as intended and go to the designated safe area to maintain the respirator. The supervisor shall ensure that the employee receives the needed parts to repair the respirator or is provided with a new respirator.

### *IDLH Procedures*

If the Program Administrator has identified areas as presenting the potential for IDLH conditions, these areas are listed in the designated departmental appendix.

Until the department has appropriate equipment and personnel to allow safe operations in an IDLH environment, no employee shall enter a suspected IDLH environment.

Employees shall follow the permit-required confined space entry procedures specified in the University Confined Space Program, when entering confined areas. Personnel shall not enter confined spaces which require the use of a pressure demand SAR or SCBA.

## **Cleaning, Maintenance, Change Schedules, and Storage**

### *Cleaning*

Respirators shall be regularly cleaned and disinfected at the designated respirator cleaning station. The location of the cleaning station is stated in the designated departmental appendix. Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary to be maintained in sanitary condition. Emergency use respirators are to be cleaned and disinfected after each use. Manufacturer recommendations and best practices should be used when cleaning and disinfecting respirators.

The PA shall ensure an adequate supply of appropriate cleaning and disinfection material. If supplies are low, employees should contact their supervisor or the PA.

### *Maintenance*

Respirators are to be properly maintained at all times to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts shall be replaced prior to use. No components shall be replaced nor repairs made beyond those recommended by the manufacturer. Inspection of respirators include inspecting the facepiece, head straps, valves, filters, and cartridges.

Employees are permitted to leave the work area to perform limited maintenance on their respirator in an area that is free of respiratory hazards.



### *Change Schedules*

Employees wearing APRs or PAPRs with P100 filters for protection against dust and other particulates shall change the cartridges on their respirators when they first begin to experience difficulty breathing (e.g., resistance) while wearing their masks or as recommended by the filter manufacturer, whichever comes first. Employees wearing APRs with organic vapor cartridges, acid gas cartridges, and other types of cartridges without end-of-service-life (EOSL) indicators shall change the cartridges on their respirators at the interval recommended by the cartridge manufacturer or annually, whichever comes first, to ensure the continued effectiveness of the respirators. The PA shall perform calculations, as necessary, to determine EOSL. APR cartridges with EOSL indicators shall be replaced when the indicators show end-of-service-life has been reached or annually, whichever comes first. Unopened cartridges shall be disposed of when the manufacturer's expiration date is reached.

### *Storage*

Respirators shall be stored in a clean, dry area in accordance with the manufacturer's recommendations. Each employee shall clean and inspect his/her own air-purifying respirator in accordance with the provisions of this program and shall store the respirator in a plastic bag in his/her work area. Each employee's respirator shall have identifying markings to ensure respirator ownership is not confused among employees.

The PA shall store his/her department's supply of respirators and respirator components in their original manufacturer's packaging. Respirator and respirator component storage location is stated in the designated departmental appendix.

### *Defective Respirators*

Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his/her supervisor. Supervisors shall give all defective respirators to the PA. The PA shall decide whether to:

- Temporarily take the respirator out of service until it can be repaired,
- Perform a simple fix on the spot (e.g., replacing a head strap), or
- Dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator shall be tagged "out of service," and the employee shall be given a replacement of the same make, model, and size or shall be fit tested with a replacement respirator. All tagged out respirators shall be kept in a specific location. A department's tagged out respirator location is stated in the departmental appendix.

### **Training**

The PA shall provide training to respirator users and their supervisors on the contents of the Respiratory Protection Program, their responsibilities under it, and on the TOSHA Respiratory Protection Standard. Workers shall be trained prior to using a respirator in the workplace. Supervisors shall also be trained

prior to using a respirator in the workplace or prior to supervising employees who must wear respirators.

The training course shall cover the following topics:

- The University of Memphis Respiratory Protection Program
- The TOSHA Respiratory Protection Standard
- Respiratory hazards encountered and their health effects
- Proper selection and use of respirators
- Limitations of respirators
- Respirator donning and user seal (fit) checks
- Fit testing
- Emergency use procedures
- Maintenance and storage
- Medical signs and symptoms limiting the effective use of respirators

Employees shall be retrained annually or as needed. Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. Respirator training shall be documented by the PA and the documentation shall include the type, model, and size of respirator for which each employee has been trained and fit tested.

The Environmental Health and Safety Office shall assist with training employees from any department that needs support.

### **Program Evaluation**

The PA shall conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations shall include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring (where possible and necessary), and a review of records. Problems identified shall be noted in an inspection log and addressed by the PA. These findings shall be reported to the Director of EH&S; the report shall list plans to correct deficiencies in the respirator program and target dates for the implementation of those corrections.

### **Documentation and Recordkeeping**

An electronic copy of this program is available on the Environmental Health and Safety website. A paper copy is kept in 414 J.M. Smith Hall and is available during normal business hours to all employees who wish to review them.

Copies of training and fit test records are maintained in 414 J.M. Smith Hall. Copies of the medical records shall be maintained in a separate personnel file in Human Resources; the University shall only retain the physician's written recommendation regarding each employee's ability to wear a respirator. Records shall be updated as new employees are trained, as existing employees receive refresher training, following medical evaluations, and as new fit tests are conducted.

## **Appendix: References**

Questions and Answers on the Respiratory Protection Standard OSHA Publication

Available from: OSHA, Website: [www.OSHA.gov](http://www.OSHA.gov).

OSHA Instruction: Inspection Procedures for the Respiratory Protection Standard OSHA Publication.

Available from OSHA website: [www.OSHA.gov](http://www.OSHA.gov).

Respirator Selection Guide OSHA Publication

Available from: OSHA, See the list of area and regional offices in Appendix II; Website: [www.OSHA.gov](http://www.OSHA.gov).

Documentation of the Threshold Limit Values

Available from: ACGIH Publications Office, 6500 Glenway Ave., Building D-5, Cincinnati, OH 45221

NIOSH/OSHA Pocket Guide to Chemical Hazards

Available from: National Institute for Occupational Safety and Health

Phone Number: (800-356-4674); Web site: [www.cdc.gov/niosh/homepage.html](http://www.cdc.gov/niosh/homepage.html)

ANSI Respirator Standard 1992 Z88.2

Condensed Chemical Dictionary

Gessner G. Hawley, Van Nostrand Reinhold Co., 135 W. 50th St., New York, NY 10020

Industrial Respiratory Protection NIOSH Publication

Available from: National Institute for Occupational Safety and Health

Phone Number: (800-356-4674); Web site: [www.cdc.gov/niosh/homepage.html](http://www.cdc.gov/niosh/homepage.html)

Respirator Decision Logic NIOSH Publication

Available from: National Institute for Occupational Safety and Health

Phone Number: (800-356-4674); Web site: [www.cdc.gov/niosh/homepage.html](http://www.cdc.gov/niosh/homepage.html)

NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR 84

Available from: National Institute for Occupational Safety and Health

Phone Number: (800-356-4674); Web site: [www.cdc.gov/niosh/homepage.html](http://www.cdc.gov/niosh/homepage.html)

**Appendix: [Insert Department Name]**

<b>Program Administrator</b>		<b>Phone</b>		<b>Email</b>	
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<b>TABLE 1: Voluntary and Required Respirator Use in</b>	
Respirator	Process
Filtering facepiece (dust mask)	Voluntary use for nuisance dust
Full-facepiece APR with various cartridges as per situation requirements	

<b>Results of the current hazard evaluation are as follows:</b>	
A list of hazardous materials is found	
Work practices involving exposure to these hazardous materials include	

<b>TABLE 2: [Insert Department Name] Personnel in Respiratory Protection Program</b>			
Title	Work Procedure	Employee	Respirator(s)

<b>The PA has identified the following areas as presenting the potential for IDLH conditions:</b>
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Specific Locations	Room	Building	Area
Respirator Cleaning Station			
Respirator and Respirator component station			
Locked out respirators			

<b>Additional DEPARTMENT Notes:</b>