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### Respiratory Protection Plan Record of Revisions

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<td>1</td>
<td>HS</td>
<td>6/18/18</td>
<td>Slight language change; added Supervisor and Employee responsibilities language; reorganized and consolidated sections; added sections (Recordkeeping, Training, Program Evaluation); removed sections (Respirator For Emergency Use, Additional Information, Fit Testing Techniques)</td>
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Legend:

HS: Holly Swan, Industrial Hygienist/Environmental Programs Manager
INTRODUCTION

In order to control the risk of inhaling air contaminated with hazardous dust, pesticides, vapors, smoke, gases, mists, or fumes, the primary objective should be to prevent atmospheric contamination. This goal may be accomplished by providing protection through the use of proper engineering controls such as exhaust systems or fume hoods. Another step to ensure that the potential for hazardous atmospheres does not exist is by promoting administrative controls such as substituting a harmful material with a less toxic substance, and/or shift rotations to reduce employee’s amount of exposure. Finally, if the above techniques cannot be met the use of personal respiratory protection equipment is necessary.

At the University, only air purified respirators will be used. Individual department supervisors and/or managers will determine if air-purifying respirators will be required for an employee’s use. While specific job duties may not require the use of a respirator to be used daily, the occasional use of a respirator will require the employee to be a part of the Respiratory Protection Program.

The first process in respirator selection and usage is a medical examination. A medical examination is conducted to determine if the employee is capable to wear a respirator safely. Upon passing the medical examination, the Department of Environmental Health and Safety (EHS) will conduct training on the Respiratory Protection Program. Upon completion of employee training, the Department of Environmental Health and Safety will conduct a fit test for University employees with their designated respirator. Upon passing the medical examination, training of the Respiratory Protection Program, and the fit test, the employee may use the respirator at their will.

Activities involving the use of respiratory protection equipment are conducted in compliance with Title 8, Section 5144 and Title 3, Section 6739 of the California Code of Regulations (CCR), and Title 29, Section 10910.134 of the Code of Federal Regulations (CFR). For more information regarding respiratory protection regulations please refer to the regulations noted above.
2.0 RESPONSIBILITIES

2.1 Environmental Health and Safety Responsibilities:

- Develop, implement, and update as necessary a written Respiratory Protection Program.
- Provide initial and annual respirator training which will include: use, maintenance, storage, limitations and capabilities.
- Conduct initial, annual, and other required fit tests for employee’s who utilize respiratory protective equipment.
- Coordinate medical evaluations for employee’s required to use a respirator.
- Conduct inspections, upon request, for respiratory equipment usage, maintenance, and storage.

2.2 Supervisor Responsibilities:

- Identify those employees that may need respiratory protective equipment.
- Notify EHS of the need for respiratory equipment for individual employees.
- Notify EHS if there are any changes to work environments that may present new respiratory hazards.
- Purchase respirators, filters, cartridges, and respirator cleaning supplies.

2.3 Employee Responsibilities:

- Utilize the issued respirator in accordance with instructions and training provided by EHS.
- Ensure proper respiratory maintenance such as storage, cleaning and disinfecting.
- Notify supervisor if there are any changes to health that may prevent respiratory protector’s effectiveness.
3.0 MEDICAL EVALUATIONS

It is the University’s responsibility to provide medical evaluations to determine the employee’s ability to use a respirator before the employee is fit tested or required to use a respirator in the workplace. Each employee whose duties require the use of a respirator is required to complete a medical examination by a physician or other licensed health care professional (PLHCP) before using a respirator. This confidential medical examination will consist of a Medical Evaluation Questionnaire and satisfactory completion of a pulmonary function test. A copy of the Respirator Medical Evaluation Questionnaire is available by contacting EHS at 898-5126. After the medical evaluation the PLHCP will submit a Health Status Medical Report to EHS.

Additional medical evaluations shall be conducted if any of the following exist:

- An employee reports medical signs or symptoms that change their ability to use a respirator.
- A doctor, supervisor, or respirator protection program administrator informs the employee they need to be re-evaluated.
- Information from the Respiratory Protection Program, including observations made during fit testing and program evaluation indicates a need for employee re-evaluation.
- A change occurs in workplace conditions such as physical work effort, protective clothing, temperature, or any other situation which may result in a substantial increase in the physiological burden placed on an employee.
4.0 FIT TESTING PROCEDURES

It is only when a respirator fits properly that it protects the employee. Many different factors can affect the fit of the respirator, such as face shape, facial hair, eye glasses, missing teeth, and certain skin conditions. In addition, facial hair or any facial condition that interferes with the proper seal of the respirator to the face will not be permitted to wear a respirator and a fit test will not be conducted. When choosing a respirator, it must fit properly and provide protection from the specific type of contaminant.

When an employee requires a fit test, the employee must provide their designated respirator for use during the test. A pre-fit assessment, fit testing exercises, and a quantitative or qualitative test will be performed.

4.1 General Requirements

4.1.1 Pre-Fit Assessment

The respirator must be donned and worn to assess comfort prior to the fit test. During this time, assessment on the comfort of the respirator will be conducted. This assessment includes the following:

- The position of the mask on the nose;
- Room for eye protection;
- Room to talk; and
- Position of mask on face and cheeks.

The following criteria will help determine the adequacy of the respirator fit:

- Chin properly placed;
- Adequate strap tension, not overly tightened;
- Fit across nose bridge;
- Respirator of proper size to span distance from nose to chin;
- Tendency of respirator to slip; and
- Self-observation in mirror to evaluate fit and respirator position.

4.1.2 Fit Testing Exercises

The respiratory must be worn for 5-minutes before fit testing exercises begin. The fit test exercises consist of the following (each exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15-seconds):

- Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
- Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply.
- Standing in place and turning head from side to side.
- Standing in place and moving head up and down.
• Talking. Speaking out loud slowly and loud enough to be heard clearly, the subject shall read the *Rainbow Passage*. (Text to be provided at time of fit test.)
• Grimace. The test subject shall grimace by smiling or frowning.
• Standing in a bent over position. The employee will bend at the waist and touch their toes.
• Normal breathing for conclusion of the fit test.

4.1.3 Positive/Negative Pressure Test

A positive or negative pressure test will be performed as part of the fit testing protocol.

4.1.4 Qualitative Fit Testing

Qualitative fit testing is a pass or fail test that relies on the sensory response of the individual being tested to detect the agent being introduced. The protocol outlined by OSHA for respirator fit testing is followed using an irritant smoke.

4.1.5 Quantitative Fit Testing

Quantitative fit testing measures the effectiveness of the respirator seal in the ambient atmosphere. A special device is used to measure the pressure concentration both outside the mask and inside the mask. This ratio is known as the fit factor. A fit factor of 100 is considered for passing in a half face respirator and 500 fit factor minimum for passing in a full face respirator based on regulatory guidelines.

4.2 Repeated Fit Testing

Fit testing must be repeated at least annually or sooner if there is any change to an employee’s health or environment. Some of these changes include, weight change of 20-pounds or more, significant facial scarring, significant dental changes, cosmetic surgery, and any other condition that may interfere with the seal. If an employee experiences changes in work conditions, degree of exposure, or stress that may affect the effectiveness of the respirator, they need to be re-evaluated.
RESPIRATOR SELECTION

Each respirator issued is equipped with a filter cartridge(s) for the specific hazard to be protected against. Respiratory protective equipment such as air supplied respirators, which include airline respirators, and Self-Contained Breathing Apparatus (SCBA), that are used when ambient air is harmful to breathe, will NOT be used by University employees. If conditions exist where there is the possibility that air supplied respirators are necessary, emergency personnel will respond appropriately.

5.1 General Requirements to Follow when Selecting a Respirator

- Respirators must be worn based on the hazard to which the worker is (or has the potential to be) exposed to, the workplace and the possibility of the work performed to affect the respirator’s reliability.
- Respirators shall be National Institute for Occupational Safety & Health (NIOSH) certified and shall be used according to manufacturer’s recommendations.
- The supervisor or manager shall identify hazards in the workplace. This evaluation shall demonstrate a reasonable estimate of employee exposure to respiratory hazard(s) and an identification of the contaminants properties.
- Air-purifying respirators are not designed to be in any atmosphere:
  - that is immediately dangerous to your life or health;
  - where oxygen is less than 19.5% or greater than 23.5%; or
  - with unknown contaminants.
- Respirators can only be worn after medical examinations have been approved and EHS has conducted a fit test with passing results.

5.2 Filter Selection

When selecting a respirator filter, be aware that each filter is made to filter out a specific or a few specific contaminants. Protection of filters varies in three levels of filter efficiency, 95%, 99%, and 100%. There are three categories of resistance to filter efficiency degradation labeled N, R, and P. The selection of N, R, or P series filters depends on the presence or absence of oil particles as follows:

- If there are no oil particles present, all filters N, P, and R are acceptable.
- If there is the possibility for oil to be present, N filters are NOT acceptable. Only P or R filters may be used.
- If there are oil particles and the filter may be used in more than one, eight (8) hour work shift, only a P filter may be used.

Cartridges and canisters are color coded, as specified in the American National Standards Institute (1973). Always check the written description on the cartridges and canisters to ensure the filter selected is appropriate for the respiratory hazards present.
6.0 VOLUNTARY USE

An employee may voluntarily use a respirator as long as his/her workplace atmosphere does/will not exceed threshold limits.

6.1 Voluntary Use of Respirators

If a supervisor provides respirators for voluntary use, or if an employee provides their own respirator, certain precautions need to be done to ensure that the respirator itself does not present a hazard. To ensure that the respirator itself does not present a hazard, a medical evaluation will be performed, the employee must be trained and fit tested, and these guidelines must be followed (language from Appendix D of Title 8, Section 5144):

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning, and warnings regarding the respirator limitations.
- Choose respirators certified for the use to protect against the contaminant of concern. Only NIOSH certified respirators shall be worn. 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.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designated 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.
- Keep track of your respirator do that you do not mistakenly use someone else’s respirator.

6.2 Voluntary Use of Dust Masks

Dust masks may be worn at any time where an employee feels necessary to protect against any non-hazardous dust, fume, or mist. Dust masks shall be changed out regularly. No medical evaluation, training or fit test is required for an employee to wear a dust mask. The employee must abide by the guidelines of Appendix D of Title 8, Section 5144 listed above.
7.0 PROPER USE OF RESPIRATORS

Improper use of a respirator may result in the decline of an individual’s health. Before using a respirator, check for cleanliness, and signs of wear, tear, and other damage. Perform a seal check each time a respirator is put on by either performing a positive or negative pressure check. Make sure filters are replaced as often as necessary.

7.1 Positive and Negative Pressure Check

7.1.1 Positive Pressure Check

Positive pressure check requires the user to block the exhaust port(s) with the palm of the hand and exhale gently into the face-piece to cause a slight positive pressure inside the face-piece. If the face-piece bulges slightly, and no air leaks are detected between the face and the face-piece, then a proper fit has been obtained.

7.1.2 Negative Pressure Check

Negative pressure check requires the user to block the intake ports with the palm of the hand and inhale for five to ten seconds. If the face-piece collapses slightly and no air leakage is detected between the face and the face-piece, a proper fit has been obtained.

7.2 Filter Change Schedule

Do not wait to smell or taste a chemical through the filter of the respirator. Filters need to be changed out before the end of their filter life. The University’s policy on changing filters relies on a number of factors, which will determine the length of the filter. These factors include:

- The concentration of the chemical being used.
- How long the employee is being exposed.
- Manufacturer’s recommendations for filter use found on the SDS.

If in doubt, change it out.
8.0 MAINTENANCE OF RESPIRATORS

The responsibility for maintaining respirators is with the employee. The maintenance and care of respirators includes inspecting for defects, cleaning and disinfecting, and storage.

8.1 Storage

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, moisture, and damaging chemicals. Respirators shall be packed or stored to prevent deformation of the face-piece and exhalation valve. A loose plastic zip lock bag can be used to store respirators. Do not store your respirator in the trunk of your car.

8.2 Cleaning and Disinfecting

As necessary, the employee shall clean and disinfect the respirator using detergent and a disinfecting agent. During this operation, it is also a good opportunity to examine the respirator and check for damage. Procedures for proper cleaning of respirators include:

1. Remove filters or cartridges. Discard or repair any defective parts.
2. Wash components in warm water (110°F; 43°C maximum) with a mild detergent or with a manufacturer recommended cleaner. A non-wire stiff bristle brush may be used to facilitate the removal of dirt.
3. Rinse components in warm (110°F; 43°C maximum) running water.
4. When the detergent being used does not contain a disinfecting agent, respirator components should be immersed for 2 minutes in a hypochlorite solution made my adding approximately 1 milliliter of bleach to one liter of warm water (110°F; 43°C).
5. Rinse components thoroughly in warm (110°F; 43°C maximum) running water.
6. Components should be hand-dried with a clean lint-free cloth or air-dried.
7. Reassemble respirator and test the respirator to ensure its proper function.

8.3 Inspection for Defects

Before each use, inspect equipment for defects, signs of wear, or damage. This process requires a check of the respirators function, tightness of connections, condition of the face-piece, head straps, connecting tube, and filters. If repairs or adjustments need to be made to respirators that have the potential for affecting the effectiveness of the respirator, bring the respirator to the Department of Environmental Health and Safety located at the Park II Parking Structure, for inspection.
9.0 TRAINING

It is the responsibility of the Department of Environmental Health and Safety to retrain employees in the Respiratory Protection Program annually and/or when the following occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the employee’s knowledge or use of the respirator; or
- Any additional situation that may arise in which retraining appears necessary to ensure proper respirator use.

Training will consist of the following:

- Why the respirator is necessary;
- What the limitations and capabilities of the respirator are;
- How to use respirator effectively, including in 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; and
- How to recognize medical signs and symptoms that may limit the effectiveness of respirators.


Recordkeeping

10.1 Medical Evaluations

The Medical Evaluation Questionnaire is maintained by the physician or other license health care professional (PLHCP). Both must be kept on file for 30-years after separation from the University.

10.2 Health Status Medical Report

The Health Status Medical Report that is provided to EHS by the PLHCP will be kept on file at the Department of Environmental Health and Safety.

10.3 Fit Tests

Fit test records must be kept on file until a new fit test is completed. Fit test records will be kept at the Department of Environmental Health and Safety.

Program Evaluation

The Respiratory Protection Program will be evaluated for effectiveness, as necessary, by administering a questionnaire to those who are enrolled in the Program.