Respiratory Protection

The purpose of the Respiratory Protection Policy is to protect employees from respiratory hazards encountered on the job by providing guidelines for training, selection, use and care of respirators and by establishing accepted practices for respirator use.

These guidelines are intended to provide information to assist in the development of a site and hazard specific respiratory protection program. This information is limited to air purifying respirators (APR) under normal conditions of use. Contact Environmental Health and Safety (EH&S) for information on supplied air respirators.

This program applies to all employees who are required to wear respirators during normal work operations, as well as during some non-routine or emergency operations, such as a spill of a hazardous substance.

In addition, any employee who voluntarily wears a respirator when one is not required may be subject to the medical evaluation, cleaning, maintenance, training, and storage elements of this policy, depending on the type of respirator being used. More information can be found below at Voluntary Respirator Use.

A list of employees and the respiratory protection provided will be maintained by the Program Administrator. All employees and processes that fall under the provisions of this program can be listed in the Record of Respirator Issuance -[DOC Format] [XLS Format].

Responsibility

Program Administrator

The Program Administrator is responsible for administering the respiratory protection program. The Program Administrator is responsible for their department respiratory protection program. The Program Administrator can be a designated department supervisor. Duties of the program administrator include:

- Identifying work areas, process or tasks that require workers to wear respirators.
- Evaluating hazards.
- Selecting respiratory protection options.
- Arranging for and/or conducting training.
- Ensuring proper storage and maintenance of respirators.
- Conducting fit testing.
- Administering the medical surveillance program.
- Maintaining records required by the program.
- Evaluating the program.

Department Supervisor

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. 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 employees under their supervision (including new hires) receive appropriate training, fit testing, and annual medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the program.
- Ensuring that respirators fit well and do not cause discomfort.
- Continually monitoring work areas and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards.

Employees

Each employee is responsible for wearing his or her respirator when and where required and in the manner in which they are trained. Employees must also:

- Care for and maintain their respirators as instructed, guard them against damage, and store them in a clean, sanitary location.
- Inform their supervisor if their respirator no longer fits well, and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace.
- Use the respiratory protection in accordance with the manufacturer's instructions and the training received.

EH&S Industrial Hygiene - Respiratory Protection

The Industrial Hygiene- Respiratory Protection is responsible for ensuring that an FSU employee is evaluated by a qualified physician or medical service provider, provide the respiratory fit test and training to determine if the employee can safely wear a respirator:

- Facilitate the employee evaluation by providing the employee with a medical history form to be filled out and sent to the qualified physician or medical service.

Physician or medical provider

A physician or medical service provider is responsible for the following:

- Knowledge of the hazards of respirator use.
- Provide information to the Medical Monitoring Program so that the medical services may be evaluated to be consistent with the requirements of The Medical Monitoring Program.
- Establish a respirator medical evaluation service contract with department who has individual wearing respirator.
- Is familiar with the FSU Respirator Program overseen by the Industrial Hygiene Office.
- Provide the respirator medical evaluation to those individuals who wear a respirator as part of their work task and duties.

- Notify The Industrial Hygiene Office and the employee who is medically evaluated of the fitness of the individual for wearing a respirator

Hazard Assessment for Respirator Selection

The Program Administrator will select respirators to be used on site, based on the hazards to which workers are exposed. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present. A log of identified hazards will be maintained by the Program Administrator. More information can be found at Hazard Assessment for Respirator Selection and below-Types of Respirators.

The hazard evaluations shall include:

- Identification of hazardous substances used in the workplace.
- Review of work processes to determine where potential exposures to hazardous substances may occur.
- Exposure monitoring to quantify potential hazardous exposures.

The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer's instructions.

The Program Administrator 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, they are to contact their supervisor or the Program Administrator.

Training

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. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

Types of Respirators

Respirators are classified into two main classes according to the type of hazardous environment in which the respirator is to be used and the degree of danger to life and health, which that environment presents.

The OSHA Respiratory Protection Standard (29 CFR 1910.134) requires the employer to prevent occupational diseases caused by breathing contaminated air by the use of engineering control measures such as the enclosure of the operation or the substitution of less toxic materials. When effective engineering controls are not feasible, or while these controls are being instituted, appropriate respirators must be used in accordance with the requirements of the standard.

- Air-Purifying Respirators

  This type of respirator usually consists of a facepiece fitted with appropriate mechanical filters or chemical cartridges or canisters to remove dusts, mists and specific fumes, gases and vapors from the breathing air. The filters and cartridges are color-coded to help the user match the right respirator, filter and/or cartridge to the hazard(s) present in the work area. They are the lightest and the easiest to use type of respiratory protection. The vast majority of work environments fall within their protection limits. Air-purifying respirators include:

- Powered Air-Purifying Respirators (PAPRs) have air blowers to pull air through the cartridges and filters. Some PAPRs are available with hoods or other protective headgear for use in specific types of environments. PAPRs are available with chemical cartridges or with High Efficiency Particulate Air-Purifying (HEPA) filters.
- Full-Face piece Air-Purifying Respirators are equipped with chemical cartridges and/or filters and a face shield to protect the wearer's face and eyes from liquid splashes or flying particles. Some devices include a speaking diaphragm for easier communication.
- Half-Mask Air-Purifying Respirators cover only the nose and mouth. They often use the same cartridges and filters as full-face piece models. Most manufacturers offer two or three sizes to fit nearly all workers. They usually come with a rubber or silicone face piece and can be worn with prescription or non-prescription glasses or goggles.
- Mouthpiece Respirators are for emergency escape from known concentrations of contaminants. They are lightweight and easily worn around the neck or clipped to a belt. Mouthpiece respirators however are *not* designed for extended or routine use.
- Disposable Respirators protect the wearer from low (nuisance) concentrations of fumes, mists and/or dust. Some models include an exhalation valve that exhausts air directly for less hot air and moisture buildup in the mask.

- Supplied-Air Respirators

  This type of respirator will supply uncontaminated breathing air to the user from an external source of air connected by a high-pressure hose to the face piece, hood or helmet. They offer certain advantages over other types of respirators and may be the preferred form of respiratory protection in some applications. Some models are equipped with an air cylinder for emergency escape from an Immediately Dangerous to Life or Health (IDLH) atmosphere. An IDLH atmosphere poses an immediate hazard to life or produces irreversible debilitating effects on health. Supplied-air respirators are approved for use under the following conditions where the use of air-purifying respirators is precluded:

  - In atmospheres where contaminants do not emit a detectable odor or taste or cause irritation at safe concentrations.
  - To protect against substances that would generate a high heat reaction with the absorbent in an air-purifying respirator.
  - Where chemicals in the atmosphere are absorbed very poorly by the absorbents used in air-purifying respirators, causing very short service life, or where the chemicals are not absorbed at all.
  - Where there are two or more contaminants in the atmosphere for which different air-purifying elements are recommended, such as ammonia and benzene, and a combination element is not available.
  - When the concentration of a substance is greater than the approved limit for an air-purifying respirator.

  Self-Contained Breathing Apparatus (SCBA) is a special type of supplied-air respirator that gives the user an independent air supply from a pressurized tank on the wearer's back. Generally, the air supply lasts for 30 to 60 minutes, but is dependent upon the wearer's size and the type of work performed. SCBAs are used under the following conditions:

- In oxygen-deficient atmospheres where the oxygen level is below 19.5%.
- In poorly ventilated areas and/or in confined spaces such as tanks, tunnels, or vessels. Note: SCBAs are not required if the confined space is well ventilated and the concentration of toxic contaminants is known to be below the upper protection limit recommended for the respirator.
- In atmospheres where the concentration of contaminants is Immediately Dangerous to Life or Health (IDLH).
- In atmospheres where the concentration of toxic contaminants is unknown. Any unknown concentration must be treated as IDLH.
- For firefighting.

Voluntary Respirator Use

Definition of Voluntary Use

Voluntary use is respirator use that is requested by the employee and permitted by the employer when no respiratory hazard exists.

Important

In rare cases where the employee requests and the employer allows the use of a negative-pressure respirator (tight-fitting with a silicon or rubber face-piece), or where the employee brings such a respirator into the workplace, the employee must be included in the full respiratory protection program. These requirements are necessary because use of a negative pressure (tight-fitting) respirator imposes a significant physiologic burden on a respirator user, and it is crucial to determine that the user can withstand that burden without suffering adverse health consequences. Similarly, reusable tight-fitting negative pressure respirators can become contaminated if they are not cleaned, maintained, and stored properly. So, if an employee is allowed use of this type of respirator, program elements necessary to ensure that use or contamination does not harm the employee must be implemented.

The Program Administrator shall authorize voluntary use of respiratory protective equipment as requested by all other employees on a case-by-case basis, depending on specific workplace conditions and the results of medical evaluations.

If the Program Administrator or a supervisor requires respirator use, use is not voluntary and all the requirements of the written respirator program apply.

- Respirator use is **not** voluntary if a respiratory hazard, such as exposure to a substance over the OSHA permissible exposure limit (PEL) or hazardous exposure to an airborne biological hazard is present.
- For assistance with evaluating respiratory hazards in the work place contact EH&S.

The great majority of voluntary use situations involve the use of filtering face-pieces, or dust masks as they are commonly known. Filtering face-pieces are provided for the employee's comfort. For example, some employees who have seasonal allergies may request a dust mask for comfort when working outdoors, or an employee may request a dust mask for use while sweeping a dusty floor. Some filtering-face-piece respirators are equipped with a sorbent layer for absorbing “nuisance” organic vapors. These can be used for voluntary use, but aren’t NIOSH certified for protection against hazardous concentrations of organic vapors. There are no medical limitations on the use of these respirators, but their use needs to ensure:

- That the dust mask is not dirty or contaminated.
- The dust mask does not interfere with employees' ability to work safely.
- That the employee is provided information found in the OSHA respiratory protection standard's Appendix D. The website can be viewed at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9784 or, in printable form Mandatory Information for Employees Using Respirators When Not Required Under the Standard

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Additional Information:

- How to Properly Put on and Take off a Disposable Respirator.

Medical Evaluation

The use of a respirator places unusual stress on the wearer to the extent that employees entering this program must be evaluated by a physician or other licensed health care professional. The purpose of the evaluation is to screen employees for pre-existing conditions not conducive to respirator use, confirm that the employee can handle the additional stress caused by the respirator and re-evaluate the wearer periodically for changes in health and abilities. Once medically evaluated and cleared to wear a respirator, the employee will then be required to complete a fit test and training. The fit test and training are provided by the Program Administrator. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

Obtaining Respirator Medical Evaluations

The medical evaluation will be conducted using the OSHA Respirator Medical Evaluation Questionnaire form. The Program Administrator will provide a copy of this questionnaire to employees requiring medical evaluations.

To the extent feasible, assistance will be provided to employees who are unable to read the questionnaire. When this is not possible, the employee will be sent directly to the physician for medical evaluation.

All affected employees will be given a copy of the medical questionnaire to complete, along with a stamped and addressed envelope for mailing the questionnaire to the physician.

Follow-up medical exams will be granted to employees as required by the OSHA Standard, and/or as deemed necessary by the evaluating physician.

All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.

The Program Administrator shall provide the evaluating physician with a copy of this Program, a copy of the OSHA Respiratory Protection Standard, the list of hazardous substances by work area, and the following information about each employee requiring evaluation:

- His or her work area or job title.
- Proposed respirator type and weight.
- Length of time required to wear respirator.
- Expected physical work load (light, moderate or heavy).

- Potential temperature and humidity extremes.
- Any additional protective clothing required.
- The Employer-Provided Information for Medical Evaluations form can be used.

After an employee has received medical clearance to wear a respirator, additional medical evaluations will be provided under the following circumstances:

- The employee reports signs and/or symptoms related to their ability to use the respirator, such as shortness of breath, dizziness, chest pains or wheezing.
- The evaluating physician or supervisor informs the Program Administrator that the employee needs to be re-evaluated.
- Information found during the implementation of this program, including observations made during the fit testing and program evaluation, indicates a need for re-evaluation.
- A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the physician. The Program Administrator will only retain the physician's written recommendations regarding each employee's ability to wear a respirator.

Fit Testing

Employees who are required to wear respirators will be fit tested as follows:

- Prior to being allowed to wear any respirator with a tight-fitting face piece.
- Annually.
- 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 will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of powered air purifying respirators will be conducted in the negative pressure mode.

General Respirator Use Procedures

Employees will use their respirators under conditions specified in 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 respirators. Employees shall use either the positive or negative pressure check (depending on which test works best for them).

- Positive Pressure Test: This test is performed by closing off the exhalation valve with your hand. Breathe air into the mask. The face fit is satisfactory if some pressure can be built up inside the mask without any air leaking out between the mask and the face of the wearer.
- Negative Pressure Test: This test is performed by closing of the inlet openings of the cartridge with the palm of your hand. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath for ten (10) seconds. If the vacuum remains and no inward leakage is detected, the respirator is fit properly.

All employees shall be permitted to leave the work area to maintain their respirator for the following reasons:

- To clean their respirator if it is impeding their ability to work.
- To change filters or cartridges.
- To replace a part.
- To inspect their respirator if it stops functioning as intended.

Employees should notify their supervisor before leaving the area.

Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures that would prevent a proper seal. Employees are not permitted to wear headphones, jewelry, or other items that may interfere with the seal between the face and the face piece.

Before and after each use of a respirator, the employee must make an inspection of tightness or connections and the condition of the face piece, headbands, valves, filter holders and filters. Questionable items (see below: Respirator Malfunctions and Defects) must be addressed by the supervisor and/or Program Administrator.

Respirator cartridges shall be replaced as determined by the Program Administrator, supervisor(s), and manufacturers' recommendations.

Cleaning, Maintenance, and Storage

Cleaning

Respirators are to be regularly cleaned and disinfected. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.

The following procedure is to be used when cleaning and disinfecting reusable respirators:

- Disassemble respirator, removing any filters, canisters, or cartridges.
- Wash the face piece and all associated parts (except cartridges and elastic headbands) in a manufacturer approved cleaner-disinfectant solution in warm water (about 120 degrees Fahrenheit). Do not use organic solvents. Use a hand brush to remove dirt.
- Rinse completely in clean, warm water.
- Disinfect all facial contact areas by spraying the respirator with an approved disinfectant.
- Air dry in a clean area.
- Reassemble the respirator and replace any defective parts. Insert filters or cartridges and make sure the seal is tight.
- Place respirator in a clean, dry plastic bag or other airtight container.

Maintenance

Respirators are to be properly maintained at all times in order to ensure that they function properly and protect employees adequately. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer.

All respirators shall be inspected routinely before and after each use. The Respirator Inspection Checklist can be used when inspecting respirators.

Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include:

- Washing face and respirator face piece to prevent any eye or skin irritation.
- Replacing the filter, cartridge or canister
- Detection of vapor or gas breakthrough or leakage in the face piece.
- Detection of any other damage to the respirator or its components.

Storage

Respirators shall be stored appropriately to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.

Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own respirator and will store their respirator in a plastic bag in a clean and dry area.

Respirators shall be packed or stored so that the face piece and exhalation valve will rest in a near normal position.

Respirators shall not be placed in places such as lockers or toolboxes unless they are in carrying cartons.

Respirator Malfunctions and Defects

Respirators that are defective or have defective parts shall be taken out of service immediately. Defects an employee finds during an inspection should be brought to the attention of the supervisor. Supervisors will give all defective respirators to the Program Administrator.

Program Evaluation

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations can include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records. Items to be considered will include:

- Comfort.
- Ability to breathe without objectionable effort.
- Adequate visibility under all conditions.
- Provisions for wearing prescription glasses.
- Ability to perform all tasks without undue interference.
- Confidence in the face piece fit.

Documentation and Recordkeeping

Copies of training and fit test records shall be maintained by the Program Administrator. If a department administers their program and has a designated Program Administrator, copies of training and fit tests must be forwarded to the Industrial Hygiene Office.

For employees covered under the Respiratory Protection Program, the EH&S Biological Safety Office shall maintain copies of the physician's written recommendation regarding each employee's ability to wear a respirator. The completed medical questionnaires and evaluating physician's documented findings will remain confidential in the employee's medical records at the location of the evaluating physician's practice.

Forms

- Record of Respirator Issuance [DOC Format] [XLS Format]
- Hazard Assessment for Respirator Selection
- Employer-Provided Information for Medical Evaluations
- Respirator Inspection Checklist

Additional Information and Resources

- OSHA Video-Respiratory Protection for Healthcare Workers Training Video