Purpose

This program establishes acceptable practices for respirator use, delineates responsibilities, and provides guidance on proper selection; individual fit testing, use and care of respirators.

Protocol

An individual assigned the task requiring respiratory protection shall use an appropriate NIOSH certified respirators based on the respiratory hazard(s) to which the worker is exposed.

Personnel using a respirator shall be cleared by a licensed healthcare professional to use it.

Supervisors shall ensure that the user select and use a proper respirator and clean, disinfect and properly store it after the use.

Personnel shall not be assigned a task requiring respiratory protection unless they receive medical clearance from a licensed healthcare professional to use a respirator.

Each user shall be properly trained and fit-tested before using a respirator.

Responsibilities

Departmental supervisor shall be responsible to ensure that all employees who need respiratory protection have a proper respirator, use it during the work and are properly trained about its use and care and ensure annual fit testing.

I. Introduction

Potential exposure to respiratory hazards may occur while performing routine tasks and or during specialized work such as in confined spaces. To prevent potential occupational illnesses caused by exposure to airborne contaminants. University Environmental Health and Safety Department (EHS) has developed a Respiratory Protection Program. However, the respiratory protection shall be used only after all other engineering and/or administrative controls have been exhausted. This guiding principle should be the mindset of supervisors and EH&S staff as they assess the need for respiratory protection.

Respiratory protection is available to personnel subject to exposure to concentrations of dusts, gases, fumes, mists, and toxic materials above OSHA established permissible exposure limits (PEL.) If necessary, respiratory protection will be made available to personnel handling laboratory animals or other special tasks.

Avoiding or minimizing exposure to harmful substances can protect the respiratory system; however, in some cases this may not be possible and use of an appropriate respiratory protective device may be required. Use of respirator can reduce exposure to many contaminants present in that environment; therefore, proper selection of a respirator for the condition at hand is necessary.

The user must be physically able to wear the respirator and properly trained in its selection, use, and maintenance. The respirator should provide adequate protection against the particular hazards for which it is selected. The University of South Dakota Respiratory Protection Program covers these elements:

- A written plan explaining how the respiratory protection program will be administered.
- A complete assessment of potential respiratory hazards that may be encountered in the workplace.
- Procedures and equipment to control respiratory hazards, including the use of engineering controls and work practices designed to limit or reduce employee exposure to such hazards.
- Guidelines for the proper selection of appropriate respiratory protective equipment.
- Employee training which will include: limitations of air purifying respirators, hazard recognition, dangers associated with respiratory hazards, proper use, care, and storage of respiratory protective equipment.
- Inspection, cleaning, and repair of respiratory equipment.
- Evaluation of respirator protection plan.
- Medical evaluation of employees

II. Purpose

To establish acceptable practices for respirator use, delineate responsibilities, provide guidance on proper selection, individual fit testing, use and care of respirators in accordance with OSHA requirements and University policy.

III. Scope

This program applies university-wide for all personnel whose job responsibilities require the use of respiratory protection based on their exposure to a hazardous environment.

IV. Protocol

Authority:

University personnel will use only EHS authorized respiratory protection equipment. Use of any unauthorized equipment will not be allowed.

Needs Assessment:

A supervisor or an employee that feels that his/her work environment poses a respiratory hazard shall contact EHS for risk assessment to determine the need for respiratory protection. After evaluating the hazards present in the workplace, EHS will determine the need for respiratory protection. It is the responsibility of the supervisor to ensure that employees who work in a hazardous environment wear proper respiratory protection before they are assigned the task.

All personnel required to wear respiratory protection shall be properly trained and fit tested.

Medical Evaluation:

Any individual assigned to a task that requires the use of respiratory protection should be physically able to wear a respirator. A physician or other licensed healthcare professional will make the determination of an employee's fitness. This medical evaluation should be conducted prior to any respirator fit testing or usage. Employees refusing to undergo a medical evaluation cannot be fit tested.

Medical Clearance Procedures:

Once it has been determined that an individual needs respiratory protection, medical clearance is required. The purpose of clearance is to insure that the employee has adequate respiratory and cardiovascular fitness prior to wearing a respirator.

Voluntary Use of Respirator:

Under certain circumstances USD allows voluntary use of filtering facepiece respirators, commonly referred to as a dust mask. Only NIOSH approved filtering facepieces should be used. Voluntary users of filtering facepieces are not required to undergo fit testing.

Voluntarily users must insure that they are not jeopardizing their health by wearing the respirator, it is clean and it is not shared. Consultation with EHS is recommended.

Respirator Use Under Special Conditions:

The following are special situations, which may be encountered while wearing respiratory protective equipment:

Facial Hair: Facial hair that lies along the sealing area of the respirator, such as beards, sideburns, mustaches, or even a few days growth of stubble, will not be permitted on employees who are required to wear respirators. Facial hair between the wearer's skin and the sealing surfaces of the respirator will prevent a good seal. A worker should not enter an area, in which it has been determined that respiratory protection is necessary, when conditions prevent a good seal of the respirator facepiece to the face.

Eye Glasses: Ordinary eyeglasses should not be used with full-facepiece respirators. Eye glasses with temple bars or straps that pass between the sealing surface of a full - facepiece and the worker's face will prevent a good seal. Special spectacle kits can be ordered and mounted inside a full - facepiece respirator through the employee's supervisor.

Temperature Extremes: Low temperatures may cause respirator lenses to become fogged. Coating the inner surface of the lens with the anti-fogging compound should prevent this problem. Full-facepieces with nose cups that direct warm, exhaled air through the exhalation valve without it's touching the lens are available. At very low temperatures, exhalation valves may freeze due to moisture.

Physiological Response to Respirator Use: Wearing any respirator, alone or in conjunction with other types of protective equipment, will impose some physiological stress on the wearer. Weight of the equipment, for example, increases the energy requirement for a given task. Selection of respiratory protective devices should be based on the breathing resistance, weight of the respirator, the type and amount of protection needed as well as the individual's tolerance of the given device.

Use of respirators in conjunction with personal protective equipment (PPE) can greatly affect the human response and endurance, especially in hot environments. Normally, in hot environments or during heavy work, the body relies a great deal on heat loss through the evaporation of sweat. With impermeable clothing, the heat loss due to water evaporation is not possible. Additionally, the weight of the respirator adds to the metabolic rate of workers, increasing the amount of heat the body produces. The net effect is one of heat stress.

V. Procedures

Administration of the program

1. Respirators and accessories shall be available to all employees who require them for their assigned work exposed to a known contaminant above the Permissible Exposure Limit (PEL).

2. Respirators will be selected on the basis of hazards to which the person is exposed with consideration given to both safety and health factors, as well as to probable risk. Only NIOSH approved respirators shall be selected. Complete instruction on the use of respirators shall be given to those who use them. It is preferable that respirators are assigned to workers for their exclusive use.

3. Before initial use, each respirator must be properly fitted, leakage tests performed, and the facepiece-to-face seal tested in a realistic test situation. Before each use, both positive and negative pressure tests shall also be conducted.

4. Respirators must be regularly cleaned and disinfected. Respirators should be stored in a convenient, clean, and sanitary location free of contaminants.

5. Respirators should be inspected during cleaning. Only trained personnel may replace worn or deteriorated parts with new parts. No attempt should be made to replace components or to make adjustments or repairs beyond the manufacturer's recommendations.

6. Workers shall be instructed and trained in the selection, use, care, and maintenance of respiratory protective devices. Training shall provide each user an opportunity to handle the respirator, to have it fitted properly, to test its facepiece-to-face seal, to wear it in normal air for a familiarization period, and to wear it in a realistic test atmosphere. Retraining shall be done as needed to maintain an effective program.

7. Supervisor should conduct regular inspections to determine the continued effectiveness of the program.

8. Only clean-shaven skin may be in contact with any respirator sealing sources. Even a mild growth of whiskers will interfere with this seal. Small beards and moustaches that fit entirely within the respirator facepiece may cause an exhalation valve to fail if a hair becomes lodged in it. Thick hair styles may also create problems in maintaining proper tension of respirator head straps. In addition, respirators should not be worn when conditions such as sideburns, a skull cap that projects under the facepiece, temple pieces on corrective spectacles or goggles, or the absence of one or both dentures prevent a good facepiece to face seal. Therefore, while on duty, all employees within the scope of this policy must be clean shaven in the areas of the respirator facepiece to face seal. If hair growth, other than in the clean shaven area of facepiece to face seal, interferes with a satisfactory fit, then it must be altered or removed to eliminate interference with the fit.

9. Users shall be medically cleared by a licensed healthcare professional before using a respirator. The examining physician will be given information about the equipment to be used.

Respirator Selection

1. The guidelines outlined in this section provide assistance in the selection of appropriate respiratory protection. It is important that the supervisor assess the potential hazards and degree of control which can be exercised over each situation, and require employees to use respiratory protective devices to protect their health.

2. The degree of respiratory hazard, as it refers to the selection and classification of respirators, depends upon several things, such as the atmospheric oxygen concentration; a contaminant's physical state, toxicity, and concentration; the presence of other contaminants or stress factors in the working environment; and worker exposure time and susceptibility. Respiratory hazards may be classified as gas and vapor contaminants (immediately or not immediately dangerous to life or health), and oxygen deficiencies. Each classification requires a different type of respiratory protection.

3. In the selection and use of respiratory protective devices, various health and safety factors must be considered. For example, the characteristics of hazardous operation or process, the intended use and limitations of respiratory protective devices, the activity of workers in the hazardous area, the movement and work rate limitations, the lower flammability limits, protection factor, etc., must be taken into consideration while selecting respirators.

4. Factors used to select the appropriate respirators cartridges are sorbent efficiencies, poor warning properties, skin absorption, eye irritation, and conditions immediately dangerous to life or health (IDLH). Reference materials are available to assist in determining the general conditions or situations indicating the most appropriate use of respiratory protective devices, e.g. NIOSH Respirator Decision Logic

Training

A. Initial Training

Selecting the appropriate respirator for a given hazard is very important, but equally important is using the selected device properly. Proper use can be ensured by carefully training users in selection, use, fitting, and maintenance of respirators. Unless the reasons for the use of respirators and the instructions on proper use and maintenance are thoroughly understood and an ongoing training provided, the devices might not be used because it may not work properly. Therefore, a well-established training program is an essential component of a respiratory protection program and all employees whose work requires the use of respirators must attend it. Training includes:

1. Instructions in the nature of the hazard and what the results could be if the respirator is not used.

2. Discussion on engineering and administrative controls.

3. Recognition of emergency situations and methods of dealing with them.

4. Discussion of why a certain type of respirator is used in a particular environment; also, description of types of respirators, their capabilities, and limitations.

5. Proper selection, use, cleaning, and maintenance of respirators.

Maintenance and Storage:

A. Maintenance

1. The supervisor shall ensure that all respirators are maintained at their original effectiveness. If they are modified in any way, their protection factors may be reduced. The plan should include inspection, cleaning and sanitizing, repair and storage.

2. Each respirator must be cleaned and sanitized after each use. After cleaning, the respirator shall be inspected to determine any defects or if it needs any replacement of parts or repair

3. Only a qualified person with proper tools and replacement parts should repair respirators. No one should ever attempt to replace components or to make adjustments or repairs beyond the manufacturer's recommendations.

B. Storage

1. Manufacturer's storage instructions are usually furnished with new respirators, and they should be followed.

2. After a respirator have been inspected and cleaned, it should be stored so as to protect against dust, light, damaging chemicals, and temperature extremes.

3. Each unit shall be sealed in a plastic bag. It should not be hung or pressed against walls.

4. Cartridges must be stored, with their original seals intact, in their sealed plastic bag until ready for use.

Program Evaluation:

Wearing PPE of any type can cause undue stress on the individual wearing it. Therefore, engineering controls must be explored along with any other means to reduce employee exposure before utilizing PPE. If respirators must be used, supervisors through regular inspections and evaluations should determine the effectiveness of the respiratory protection program. EHS will assess the need for respiratory protection along with any changes (upgrade or downgrade) in the program.

VI. Responsibilities

A. SAFETY OFFICER

1. Establish a university-wide written respiratory protection program

2. Recommend appropriate respiratory protective equipment

3. Provide training on the proper use and care of respirators

4. Fit-test all potential users

5. Conduct periodic exposure surveillance of workplace hazards

6. Maintain training and fit-test records.

7. Issue guidelines for and updates to the program when necessary

B. DEPARTMENT/SUPERVISOR

1. Coordinate risk assessment of work site and need determination for respiratory protection.

2. Arrange for the medical evaluation of potential respirator users.

3. Purchase only NIOSH approved respirators.

4. Coordinate training and fit testing with EHS

5. Assume responsibility and/or appoint a respirator use coordinator within the dept.

6. Ensure the availability of sufficient quantities of filters/chemical cartridges for specific contaminants and work activities and cleaning agents.

7. Periodically evaluate the effectiveness of the program to ensure that personnel are fit tested, using proper respirators for the task and they clean and maintain them.

8. Notify EH&S if problems or deficiencies are observe

C. EMPLOYEES

1. Shall follow guidelines of this respiratory protection program.

2. Shall clean, disinfect, and properly store the respirator.

3. Will guard against damage to respirators during use, cleaning or storage.

4. Shall inspect the respirator for defects, missing parts, etc., and if found defective, return it to the supervisor.

5. Shall comply with fit test requirements.

6. Notify EH&S and health provider of any change in his/her physical condition