Scope

This program[1] serves to provide practices and policies concerning the selection, use, and maintenance of respiratory protection equipment. This procedure applies to all employees required to use respirators to protect them from hazardous levels of airborne substances that cannot be fully eliminated in the workplace. This procedure also applies to employees who choose to voluntarily wear respirators during the course of their work.

Purpose

Whenever respirators are necessary to protect the health of the employee or are required, this written program will help ensure that respirators are properly selected, used, and maintained.

It should be emphasized that respiratory protection is to be used only after all feasible engineering controls and administrative work practices have been implemented in an attempt to eliminate the need for respirator use or reduce the employee's exposure to as low an amount as can be achieved. When this is not possible, a respirator will be provided and used in conjunction with other controls.

Member-Level Responsibilities

On the line below, list the job title of the person who is the Program Administrator of this policy.

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Managers and first line supervision are responsible for:

- Compliance with the procedure
- Ensuring their work areas have been evaluated to identify physical risks and/or hazards by completing hazard reviews of their areas of responsibility
- Determining if these risks/hazards can be properly controlled through the use of engineering and/or administrative controls.
- Selecting the proper respirator for risks/hazards that cannot be eliminated or properly controlled
- Ensuring that resources are available to meet the needs of the procedure
- Ensuring employees are provided with adequate training and supervision related to the use of specific respirator required by their activities

Employees are responsible for:

- Understanding, and adhering to, all aspects of this procedure that apply to their work activities
- Properly wearing the required PPE in the manner it was intended to be used
- Exercising proper care of their respirator

[1] The content of this program is based upon the following regulations:

- Pennsylvania Title 34, Part VIII, Bureau of Workers' Compensation – Chapter 129, Subchapter D §129.452; Group Self-Insurance Fund's AIPP Requirements
- Federal Occupational Safety and Health Administration (OSHA) regulations for Personal Protective Equipment, 29 CFR 1910.134 Respiratory Protection

- Reporting any issues with the respirators hazard review
- Notifying their supervisor of any new, or changes to, hazards in their work areas
- Contacting their supervisor with any questions regarding the requirements

General Requirements

If an employee will be working in an area or with a process that contains, or is likely to contain airborne concentrations of a hazardous substance that could present a hazard to the employee's health, the employee is not permitted to work in that area or with that process without proper respiratory protection or without complying with all applicable requirements of this procedure.

Selection and Use of Respiratory Protection Equipment

All respirators utilized by employees will be approved by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 84 and will be provided at no cost to the employee.

Supervisors are responsible for determining which respirators or supplied-air systems are appropriate based on the following criteria:

- What is the estimated contaminant concentration where the respirator will be used, as determined by industrial hygiene monitoring information?
- What are the exposure limits for the contaminant? (i.e. Permissible Exposure Limit – OSHA; Threshold Limit Value - American Conference of Governmental Industrial Hygienists)
- Is the contaminant a gas, vapor, mist, dust or fume? If the contaminant is a gas or vapor, is there is an available absorbent in the respirator cartridge that will trap it efficiently?
- Does the contaminant contain oil?
- What information is provided on Safety Data Sheets?
- Can the contaminant concentrations can be classified as Immediately Dangerous to Life or Health (IDLH)? All oxygen deficient atmospheres are considered IDLH (oxygen deficiency is defined as a concentration of oxygen of less than 19.5%) Other airborne chemical may present an IDLH at or above certain concentrations; the SDS will indicate the level at which a substance is IDLH.
- If the contaminant is flammable, does the estimated concentration approach the lower explosive limit (LEL), or do dust concentrations create a potential explosion problem?
- Does the contaminant have adequate warning properties? (i.e. odor)
- Will the contaminant irritate the eyes at the estimated concentration?
- Can the contaminant be absorbed through the skin as a vapor or liquid? If so, will it significantly add to the employee's exposure and cause injury?
- What is the size of the employee's face? Are different sizes of respirators available?
- What is the protection factor of the respiratory protection? The protection factor is defined as the ratio of the ambient air (outside) concentration of the contaminant to the concentration inside the facepiece.
- What types of respirators will give the required maximum use concentration (MUC)? Has the MUC been determined? (MUC= PEL x Protection Factor)?

Air Purifying Respirators (APR)

Filtering face-piece respirators (Dust Masks) and half-face air-purifying respirators (APRs) may be used by employees if the employee has been medically cleared by a physician or Licensed Health Care Provider (LHCP) (See Medical Surveillance section below). Chemical cartridge or particulate filter respirators shall not be used in IDLH environments, defined as atmospheres containing less than 19.5 percent oxygen.

Half-face respirators with goggles are used when working in environments where chemicals can splash into the eyes. In environments where the concentration of airborne chemicals can be irritating to the eyes, a full-face respirator should be used.

Chemical cartridge respirators cannot be used for protection against gases that are not effectively stopped by the chemical cartridges utilized; for example, carbon monoxide.

Single use filtering face-piece respirators (dust masks) are considered to be respirators, so the same criteria used for selecting a cartridge respirator must also be applied when selecting a single use respirator.

Any employee utilizing a particulate filter respirator will be permitted to change filter elements whenever an increase in breathing resistance is detected. Program Administrator will assure that sufficient quantities of filter elements are available at all times.

Any employee who wears a respirator is permitted to leave the work area at any time they feel the need to wash their face and respirator facepiece to prevent the skin irritation often associated with respirator use.

Chemical Cartridge Particulate Filter Selection

Cartridge selection for half-face respirators shall be based upon the type of atmosphere and the concentration of the contaminant the employee may encounter.

- Filters and cartridges shall be NIOSH-approved and be properly labeled and color-coded. Program Administrator must check and re-check the label on the cartridges or particulate filter to make sure the correct ones are issued.
- Respirator cartridges are classified as N, R or P designations for particulate filters. N series filters are “not resistant to oil,” R series filters are “resistant to oil,” and P series filters are “oil proof.”
- Particulate cartridges are also classified by the percent of particulates that are 2 microns or larger that the filter will remove; 100 (99.7%), 99 (99%) or 95 (95%). An example of a particulate filter classification is N95, indicating the filter is not resistant to oil or oily mists, and will only remove 95% of particulates that are 2 microns or larger. A P100 cartridge will remove 99.7% of particles that are 2 microns or larger, including oily particles and oil mists. Filter class certification is contained in 42 CFR Part 84.

Positive Air Pressure Respirator (PAPR)

A positive air pressure respirator (PAPR) is a respirator that uses a battery-operated pump to draw air through a filtering media and provide it to the wearer at a pressure higher than the ambient air pressure. This continuous positive pressure air flow around the face of the wearer prevents contaminated air from entering the facepiece of the respirator.

- Filtering cartridges used by PAPRs are similar in design and performance to the cartridges used by APRs, and selection of the filters follows the same process.
- This type of respirator is not permitted in IDLH atmospheres.
- PAPRs are effective for use in other situations where the wearer is not able to effectively use an APR, such as when the wearer has facial hair that would prevent an APR from making a good seal.

Self-Contained Breathing Apparatus (SCBA)

A self-contained breathing apparatus (SCBA) affords a greater degree of respiratory protection in atmospheres with high concentrations of contamination, when the percent of oxygen is less than 19.5, or when the respiratory hazard cannot be identified or reasonably estimated.

These situations are considered to be among the most dangerous that could be encountered by employees, as the failure or improper use of an SCBA could result in severe injury/illness, or multiple deaths when attempts at rescue are not properly executed.

Since the risk of using an SCBA in an IDLH atmosphere is significantly higher than the use of other forms of respirators, employees are not permitted to use this equipment without proper specific training, and without developing a written SCBA Standard Operating Procedure.

Special Respirator Use Problems

The following address specific issues/concerns related to respirator use.

Facial Hair

- Facial hair lying between the sealing surface of a respirator facepiece and the wearer's skin will prevent a tight-fitting respirator from making a good seal. Negative pressure exists within the mask upon inhalation; therefore, a poor seal will permit contaminated air to enter the facepiece. Even a few days growth of beard can permit contaminant air penetration.
- Tight fitting respirators (half-face or full-face) will not be worn when conditions prevent a good seal of the facepiece to the face.
- If an employee with facial hair is required to use a respirator, the employee is permitted to use only use a positive air pressure respirator (PAPR) that provides sufficient air flow, and this type of respirator cannot be use in IDLH conditions.

Corrective Lenses

- Glasses or goggles can interfere with half-mask sealing. This problem is to be identified and addressed during fit testing.
- When using a tight fitting full-faced respirator or SCBA, the arms of prescription glasses can interfere with the seal of the mask to the face, defeating the protection provided by the respirator. Employees with prescription glasses cannot wear their regular glasses while wearing a full-face or SCBA respirator. Specially designed spectacle kits are available to mount prescription lenses into the facepiece of full face and SCBA respirators.
- Contact lens use is not permitted with full face and SCBA respirators. If a contact lens slips out of place, the wearer would not be able to manually adjust the lens, and would be at a higher risk due to their decreased vision. Additionally, contact lens use with half faced respirators is strongly discouraged in situations where airborne or splashing chemicals could permeate the lenses and come into contact with the wearer's eyes.

Voluntary Use of Respirators

There may be times when employees voluntarily choose to utilize a respirator when one is not required or may choose to use their own respirator. In such cases the employee will be provided with a copy of 29 CFR 1910.134 Appendix D or assure that they understand the information in this standard.

Employees voluntarily choosing to use a respirator must also comply with all of the medical surveillance requirements listed, particularly in terms of: medical evaluations, cleaning procedures, inspection procedures, storage procedures, and maintenance procedures. Program Administrator will be responsible to assure that the employee is following all necessary policies and procedures.

In situations when an employee chooses to provide their own respirator, Program Administrator is responsible to assure that the respirator and its chemical cartridges/particulate filters are appropriate for the expected or confirmed exposure level and will assure that the respirator is NIOSH-approved.

In situations where an employee, who voluntarily chose to use a respirator when one is not required, is newly assigned to a work area/activity that requires respirator use, the Program Administrator is responsible for ensuring that all requirements of this policy are adhered to.

Medical Surveillance

A medical evaluation, in the form of the standard questionnaire and/or a medical exam, must be performed for any employee prior to fit testing and use of respiratory protection.

A physician or licensed health care professional (LHCP) may perform a medical evaluation using the medical questionnaire located in 29 CFR 1910.134, Appendix C. Employees will complete the questionnaire and in the event that a positive response to questions 1-8 is given, a follow-up medical exam will be required. In addition, the physician, may at any time, require a medical exam in lieu of the use of the questionnaire.

The following information will be supplied to the physician or LHCP prior to the physical:

- Type & weight of the respirator to be used
- The duration & frequency to be used
- Expected physical work effort of the employee
- Additional PPE to be worn by the employee
- Temperature & humidity extremes

At the conclusion of the evaluation/medical exam, Program Administrator will obtain a written recommendation from the physician or LHCP concerning the employee's "fit for duty" status or ability to wear a respirator. After initial medical evaluations are provided, re-evaluations are to be performed as follows:

- When requested by the physician or LHCP
- In the event that the employee reports signs or symptoms related to the ability to use a respirator
- When a change occurs in workplace conditions (physical work effort, PPE, temperature)

If the medical questionnaire is used and the employee is not "fit for duty," Program Administrator may explore the following options, including but not limited to:

- Determine that the employee will not perform work that requires the use of respiratory protection
- After a physical evaluation, the LHCP can provide medical clearance that allows the employee to wear any negative-pressure air-purifying respirator
- After a physical evaluation, the LHCP can provide medical clearance that allows the employee to wear a PAPR air-purifying respirator

Fit Testing

- Employees whose job assignments require use of negative-pressure APRs, must be qualitatively fit-tested using the protocols described in 29 CFR 1910.134, Appendix A (The OSHA Respiratory Protection Standard) prior to work on tasks or in areas that require the use of a respirator.)
- A new fit test will need to be performed whenever a different respirator facepiece (size, style, model or make) is used and at least annually thereafter.
- A new fit test will need to be performed whenever the employee or any other supervisory personnel observes or reports that the employee has changes in his/her physical condition that could affect respirator fit.
- This includes, but is not limited to, weight gain or loss, facial scarring, dental changes, or cosmetic surgery.
- Fit tests shall be performed to identify the brand and size of respirator that fits each employee and to facilitate final fitting adjustments.
- Prior to fit testing, the employee will have participated in the medical surveillance procedures described above and will have been determined to be medically fit to wear a respirator.

Positive-Negative Pressure Fit Checks

- This fit check can be performed by the employee alone and requires no special equipment.
- Fit checks must be performed on all respirators that require a face-to-facepieces seal in order to protect adequately.
- The checks must be performed on respirators just after donning the respirator and for preliminary fitting during qualitative fit tests.
- Employees should also utilize this fit check process when they are wearing a respirator and either feel it slip off its seal or are concerned about whether the fit is remaining in place.
- In the positive pressure check, the employee closes off the exhalation valve of the respirator by gently placing his/her palm over the valve and gently exhales into the facepiece. The fit is considered satisfactory if a slight pressure builds up in the facepiece with no evidence of outward leakage.
- In the negative pressure test, the employee closes off the inlet of the canister, cartridge(s) or filter(s) with his/her palm. While inhaling gently the facepiece should collapse slightly. The employee then holds his/her breath for about 10 seconds. If the facepiece remains slightly collapsed and no inward leakage is detected during the 10-second period, fit may be considered satisfactory.
- These fit checks should only be performed in areas where the atmosphere is known to be safe, prior to entering an area or conducting an operation that could have a compromised atmosphere.

Procedures for Wearing Respirators

Filtering Facepiece Respirator and Single Use Respirators are donned and fitted as follows:

- Cup respirator in hand with the nosepiece at your fingertips, allowing the straps to hang freely below your hand.
- Position the respirator under chin with nose piece up.
- Pull the top string overhead resting at the top back of your head. Pull the bottom strap over the head and position it around the neck.
- To fit test, place both hands over the exterior of the respirator and exhale. If the air leaks around the seal of the respirator, readjust and try again.
- In the event that a proper seal cannot be gained, try a smaller or larger respirator.

APRs and PAPRs are to be donned and fitted as follows:

- Untwist straps. Cup respirator in hands and nose contour at fingertips allowing headstraps to fall below hand.
- Place respirator under chin with nose contour facing up.
- Pull harness back over head. Raise strap to crown of head. Untwist straps.
- Adjust strap tension for tight and conformable seal. Pull straight back, not out.
- For APRs, perform positive/negative pressure fit checks as described in the section above.

SCBAs are to be donned and fitted by consulting the manufacturer's instruction/user's manual for specific requirements and procedures.

Care, Maintenance, and Storage of Respirators- General

PPE is to be kept clean and properly maintained by the employee to whom it is assigned according to the manufacturer's instructions. PPE is to be inspected, cleaned, and maintained by employees at regular intervals as part of their normal job duties so that the PPE provides the necessary protection. Employees should bring any defects or problems with their assigned PPE to the immediate attention of their supervisor. Contaminated PPE that cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

Procedures for Cleaning and Disinfecting Respirators

- Employees who are assigned a respirator for their individual use must maintain their respirator in clean and sanitary condition at all times.
- Any problems with the functioning of the respirator must be immediately reported to the employee's immediate supervisor. Should the respirator not be able to be repaired, it will be removed from service, and a new one will be issued.
- Respirators that are used for emergency purposes only will be cleaned and disinfected after each use.
- Respirators that are used for fit test purposes will be cleaned and disinfected after each use.

Procedures for Inspecting Air Purifying Respirators (APR)

Employees are responsible for the ongoing inspection of all APRs. These inspections must be done before use and during each cleaning using the manufacturer's inspection procedures. The following is a general list of items that should be inspected:

- Check the condition of the rubber straps on harness; they will be elastic and flexible and return to their proper size after stretching.
- Check cartridges to ensure seal and that they sit properly on the facepiece either by screwing the cartridge on or by twisting.
- Check gasket sealing the cartridge. Make sure that it is not damaged.
- Check the seal that goes against the face; it will not be so damaged as to prevent a good seal.
- Check the condition of the inhalation/exhalation valves. Verify that they are pliable and not damaged.
- Ensure that the End of Service Life Indicator (ESLI) does <u>not</u> indicate that the cartridges are in need of changing. Do not use cartridges after expiration date printed on the label.

Procedures for Inspecting Emergency Use Only Respirators

- Respirators that are to be used in emergencies only must be inspected at least monthly.
- This inspection may be performed by any employee trained to do so, but requires a confirmation check by at least Program Administrator.
- The inspection documentation consists of the name of the inspector, the date of the inspection, the findings, required remedial action, and the identifying number of the respirator.

Procedures for Storage of all Respirators

- Employees are expected to store all respirators in a manner that protects them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals.
- They must also be stored in such a manner that the facepiece and exhalation valve is protected from deformation.
- With regard to respirators that are for emergency use only, they will be stored in an area that is accessible to the work area, outside of areas that could be expected to have contaminated air during an emergency.
- They will be clearly marked as being emergency use respirators.

Procedures for Repair of all Respirators

Due to the unique make-up of different styles and models of respirators, there is a limit to how much repair may be done by employees. Occasionally, a valve or similar part of the facepiece may be able to be replaced, but generally speaking a respirator that requires repair must either be sent to the manufacturer or a service shop that has been properly certified by the manufacturer to repair the respirators. Due to the cost involved in this type of repair, it is not cost effective to repair most APRs other than minor part replacement.

Training

Program Administrator will provide effective training to employees who are required to wear respirators prior to allowing those employees to use the respirators. Training will be comprehensive, understandable, and will include at least the following topics and information:

- Reason that respiratory protection is needed
- Explanation of the nature, extent and effects of the respiratory hazard to which the employee may be exposed
- Engineering controls utilized and the need for respirators. Discuss any efforts made to eliminate the need for respirators
- Reason for selecting a particular respirator
- Reason for selecting a particular cartridge (for reusable respirators)
- Operation, the capabilities and limitations of the selected respirator
- Instruction in the inspection, donning and fit testing the respirator. Recurrent training will be provided annually
- Recognition of, and to handle, emergency situations

In order to be considered competent in the above training, all employees will be required to demonstrate their skills with the use of a respirator by donning and doffing the respirator they will be required to use. In addition, the employee will be required to demonstrate and discuss the proper procedures for conducting positive/negative pressure fit checks, and how to properly clean, inspect and store their respirator.

The above training will be repeated at least annually. Any of the following situations will also generate the need for retraining prior to the anniversary date:

- Changes in the workplace or the type of respirator that renders the previous training obsolete;
- Observed or reported inadequacies in an employee's knowledge or skill in the use of a respirator indicating that the employee has not retained the required information and/or skills; and
- Any other situation that arises which appears to warrant retraining to assure safe respirator use.

Respirator Program Evaluation

On an annual basis Program Administrator will review the policies and procedures to assure that they are current and meet the needs of all employees. Appropriate changes will be made as soon as new hazards have been identified, and employees will be trained on these changes.