Specific Procedures for Use of Supplied-Air Respirators (SARs)

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This attachment is meant to supplement the Respiratory Protection Program and is specific to the use of Supplied-Air Respirators (SARs).

*Currently, there are no users of SAR units. Should the use of SARs be established in the future, this appendix **must** be used in conjunction with the SAR Manufacturer's operation manual.*

Selection and Use

SARs will be used during maintenance activities where the hazardous substance, in certain atmospheres, lacks an adequate warning property (odor or taste), or air concentrations may exceed that which could be adequately protected from use of negative pressure air-purifying respirators.

SAR units will not be utilized for emergency response situations where oxygen deficiency or IDLH atmospheres may be encountered.

All SAR units **must** be NIOSH approved, positive pressure, continuous flow, and have a full facepiece.

Authorized Users of SARs

All potential users of SARs **must** register with EHS by calling 647-1143 and complying with all provisions of the Respiratory Protection Program and this attachment. Authorized users **must** meet the following specific criteria in addition to the criteria set forth in the Respiratory Protection Program:

- A PLHCP **must** determine that the user is physically able to wear an SAR and perform work;
- The individual **must** be fit tested by EHS with a full facepiece of the same make, model, and size as the SAR unit that will be assigned to the user. A fit test **must** be conducted annually. Fit tests will not be required if a loose-fitting facepiece is used;
- The user **must** attend EHS training at the time of fit testing and will receive refresher training from EHS annually. The user should also receive training from the manufacturer/supplier or the department in the use and wearing of SARs; and
- Sight-impaired users can be fitted with prescription glass inserts for use inside the full-facepiece. Employees will be provided with safety prescription eyewear through the University Prescription Eyewear Program. (Refer to EHS's Procedures for Obtaining Prescription Safety Glasses). In lieu of glass inserts, contact lenses may be worn with full-facepiece respirators if they are rigid gas permeable or soft (hydrophilic) lenses, except in atmospheres containing acrylonitrile, methylene chloride, 1,2-dibromo-3-chloropropane, ethylene oxide, and methylene dianiline.

Hard, nonpermeable lenses shall not be worn with full-facepiece respirators.

Location and Storage

Respirator facepieces **must** be stored outside of the work area where they will be worn. Respirators should be

stored to protect them from weathering, contamination, and deterioration. Each individual should be assigned their own facepiece and it should be located so that unauthorized users cannot "borrow" to enter the area.

Standard Operating Procedures

Before entering an area where SARs are used, the following procedures **must** be followed:

1. Conduct an inspection of the facepiece unit to assure proper working order of all components. Check the lens for scratches, nicks, and gouges. Check the skirt, head strap, and buckles for signs of damage or wear;
2. Check the service life of the cylinder and estimate the amount of time needed to complete tasks. If necessary, have additional cylinders on hand so as to facilitate change-out of cylinders to complete tasks. For compressors, check the pressure gauge to make sure that it is at an acceptable pressure for use;
3. Individuals entering the area and donning SARs should make notification to others outside of the work area before entry. The backup personnel that are notified are responsible for ensuring that the employees are working safely inside the work area and should be present until they exit the work area. The backup individual should notify the Department of Public Safety and Security (DPSS) at 763-1131 in the event of an emergency and should never attempt to enter the work area themselves; a. Assure there is a means for continuous communication between both authorized employees who will be entering the work area and the outside personnel. Communication can be accomplished by radio, visual signals, a signal line, etc.; and
4. When all of the above provisions are in place, the authorized employees may don the SARs in accordance with the manufacturer's specifications and enter the work area.

Cleaning

SARs shall be cleaned and disinfected after each use in accordance with the manufacturer's operation manual.

Inspection

All SAR systems should be inspected at least monthly and checked for proper function before and after each use. The inspection should be documented and maintained to serve as a written certification of the monthly inspection. Facepieces should be inspected by the user prior to use and are not necessary to be documented.

The following inspection guidance can be referenced during inspection of SAR units:

- Examine the facepiece for:
    - Excessive dirt, cracks, tears, holes, or distortion;
    - Inflexibility (stretch and massage to restore flexibility);
    - Cracks or badly scratched lenses in full facepieces; and
    - Incorrectly mounted full facepiece lens or broken or missing mounting clips
- Examine the head straps or head harness for:
    - Breaks; Loss of elasticity;
    - Broken or malfunctioning buckles and attachments (full facepieces only); and
    - Excessively worn serrations on the head harness that might permit slippage.
- After removing its cover, examine the exhalation valve for the following:
    - Foreign material, such as detergent, particles, or human hair under the valve seat;
    - Cracks, tears, or distortion in the valve material;
    - Improper insertion of the valve body in the facepiece;
    - Cracks, breaks, or chips in the valve body, particularly in the sealing surface; and

  - Missing or defective valve cover, improper installation of the valve body.
- If the device has a corrugated breathing tube, examine it for:
  - Broken or missing end connectors;
  - Missing or loose hose clamps; and
  - Deterioration (determined by stretching the tube and looking for cracks).
- When the device is a hood, helmet, blouse, or full suit, the following should be done:
  - Examine for rips, tears, seam integrity, and general condition of inlet air and out air connections;
  - Examine protective headgear for general conditions with emphasis on the suspension inside the headgear;
  - Examine the protective face shield for cracks, breaks, impaired vision due to rebounding abrasive particles, or chemical action on the lenses; and
  - Make sure that the protective screen is intact and secured correctly over the facepiece of abrasive blasting hoods and blouses.
- Examine all atmosphere-supplied respirators for:
  - Integrity of air supply hoses and lines;
  - Adequate and correct fittings for hose and lines;
  - Correct operation and condition of all regulator valves on air supply systems, belt-mounted regulator valves, exhalation valves of discharge air openings, or other air-flow regulators; and
  - Correct particulate filters or organic vapor filter in the air supply system.

Maintenance

When any aspect of the SAR system fails to work properly, the system **must** be immediately red-tagged. An authorized service facility with factory-trained technicians should be contacted for repair. Suggested authorized service facilities are:

Premier Safety 46400 Continental Drive Chesterfield, MI 48047 Phone: 1-800-873-0456
Spears Fire and Safety Services, Inc. 287 Jackson Plaza
Ann Arbor, MI 48103
Phone: 1-734-663-4133
Spears Fire and Safety Services Website

All air cylinders used **must** supply at a minimum Grade D breathing air. Breathing air compressor units should supply Grade D breathing air at a minimum. The units should be constructed to prevent entry of contaminated air into the air supply system as well as be equipped with in-line air-purifying sorbent bends and filters to further ensure breathing are quality. Sorbent beads and filters should be maintained and replaced periodically per the manufacturer's instructions. A tag should be maintained at the compressor that details the change date and signature of authorized person.

If compressors are not oil-lubricated, carbon monoxide (CO) levels **must** not exceed 10 ppm in breathing air. If compressors are oil-lubricated, they **must** have a high-temperature alarm or CO alarm, or both. If the unit is only equipped with a high-temperature alarm, CO needs to be periodically monitored to ensure that levels do not exceed 10 ppm in breathing air.

New Equipment Purchases

EHS should authorize purchase and installation of new SAR systems. All breathing air couplings **must** be incompatible with outlets for non-respirable worksite air or other gas systems.