



Lexington County Fire Service

Standard Operating Guidelines Respiratory Protection Procedures OPS-004

EFFECTIVE: December 1, 2007 **ISSUED BY:** Russell R. Rawl, Fire Service Coordinator

RECINDS: All previous policies

SCOPE: All Lexington County Fire Service personnel

POLICY: The Department of Public Safety desires to provide all of its personnel with a safe and secure work environment. Respiratory protection devices are used to protect the wearer from the inhalation of harmful atmospheres. Consequently, it is the policy of the Department of Public Safety to require each person who has the potential to be exposed to a harmful atmosphere to wear a positive pressure self-contained breathing apparatus.

PROCEDURE

I. **Introduction**

The Occupational Safety and Health Administration (OSHA) General Industry Standard on Respiratory Protection, 29 CFR 1910:134 and 29 CFR 1910:156 Fire Brigade Standards require that “a respiratory protection program be established by the employer and that respirators be provided and be effective when such equipment is necessary to protect the health of the employee.” The following procedures are required to be adhered to when using respirators in the work place.

II. **Respirator Selection**

Positive pressure self-contained breathing apparatus approved by NIOSH/MSHA and the Department’s Self-Contained Breathing Air Division are the only respirators approved for Public Safety personnel to wear. No other respirators are allowed to be brought onto or stored in Public Safety facilities or vehicles.

III. Instruction on Respirator Use

A. General Training

All members of the department who wear respirators must be trained in the proper use of such equipment. This training shall include discussion, demonstration and use of self-contained breathing apparatus. Initial training must include:

- (1) Why self-contained breathing apparatus is required to be worn by Public Safety personnel and how improper fit, usage or maintenance can compromise the protective effects of the apparatus.
- (2) The limitations of self-contained breathing apparatus
- (3) How to wear and adjust the self-contained breathing apparatus
- (4) How to conduct a user seal check
- (5) A discussion of the need to conduct a user seal check every time the self-contained breathing apparatus is put on
- (6) How self-contained breathing apparatus are assigned, i.e. individual versus group use
- (7) How to clean and disinfect self-contained breathing apparatus, who is responsible for cleaning and when it will be cleaned
- (8) How and where self-contained breathing apparatus are to be stored
- (9) How to inspect for and recognize defects
- (10) Where repairs are to be made and who is authorized to perform them
- (11) The proper way to refill air cylinders
- (12) How to use the respirator effectively in emergency situations, including situations in which the self-contained breathing apparatus malfunctions
- (13) How to recognize medical signs and symptoms that may limit or prevent the effective use of the self-contained breathing apparatus

B. Refresher Training - Use

Personnel who may be required to utilize self-contained breathing apparatus must demonstrate knowledge of and proficiency with self-contained breathing apparatus quarterly or attend a quarterly training program covering general training requirements sponsored by the County Fire Service Training Officer. The chief fire officer of each station shall insure that members receive this training.

C. Other Training

In addition to the above general and refresher training requirements, persons who use self-contained breathing apparatus must be advised that they may be expected to enter into environments which pose an immediate threat to life should the respirator fail. They should also be advised that the positive pressure breathing apparatus offers the highest available level of protection from inhalation of harmful atmospheres but does not offer protection from other mechanisms of

entry such as skin absorption or explosion. This should include specific information on how and why the respirator was selected, a discussion of its limitations and consequences of improper use.

D. Fit Testing of Self-Contained Breathing Apparatus

In order to receive the desired protection by use of self-contained breathing apparatus, it is essential that the facepiece fit properly. Therefore, all Public Safety personnel required to wear respirators must undergo fit testing. Facepiece fit pertains to all types of SCBA. It is important that an effective facepiece-to-face seal be achieved before a firefighter is allowed to utilize SCBA. Fit testing is conducted in the negative pressure mode regardless of the mode of operation that is used with the SCBA.

- (1) Quantitative fit testing is conducted by exposing the wearer to a test agent and measuring the air quality inside the respirator facepiece. Quantitative fit test will be performed by the Self-Contained Breathing Air Division of the Department of Public Safety. A mechanical device selected by the Department will be used to conduct quantitative fit test.
- (2) Restrictions
 - (a) Individuals who cannot be properly fitted with a respirator, as demonstrated by quantitative fit testing shall not be allowed to perform duties where respirator protection is required.
 - (b) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function is prohibited for SCBA users.
 - (c) Members of the Department of Public Safety who fight interior structural fires must be Interior Structural Certified. Members must have current physical examination as set forth by Lexington County standards.
 - (d) When a member must wear corrective lenses while using SCBA, the SCBA facepiece shall be fitted with spectacles inside of the facepiece in such a manner that shall not interfere with the facepiece-to-face seal.
 - (e) Spectacles with any straps or temple bars that pass through the facepiece-to-face seal area shall be prohibited.
 - (f) When quantitative fit test is used, a fit factor of at least 1000 shall be obtained. A respirator fit test shall be carried out for each wearer at least once every 12 months.
 - (g) A fit test shall be required when a person has a condition that may interfere with facepiece sealing, such as a significant change in weight (10%) or more, significant scarring in the area of the face seal, dental changes, reconstructive or cosmetic surgery, or any other condition that may affect the fit of the facepiece seal.

(h) If facial features such as scars, hollow temples, excessively protruding cheekbones, deep creases in facial skin, the absence of teeth or dentures, or unusual facial configurations prevent a seal of a respirator facepiece to a wearer's face, the person shall not be permitted to wear the respirator.

(E) Assignment of Respirators

(1) Facepiece

Respirator facepieces for self-contained breathing apparatus approved by Lexington County will be issued to each person who is interior certified, based on the results of your fit test. Those persons who possess a facepiece and have been properly trained will be allowed to use self-contained breathing apparatus approved by Lexington County.

(2) Identification

All respirator facepieces used by the Department of Public Safety must be durably marked to indicate to whom or which station it was assigned. This mark shall not affect the respirator performance in any way.

(3) Date of Issue

The date of the respirator facepiece assignment must be recorded in the person's health file.

(4) Sharing of Facepieces

Sharing of facepieces is allowed only under emergency conditions.

F. Cleaning and Disinfecting

Facepieces for self-contained breathing apparatus must be cleaned after each use. The facepiece must be cleaned in accordance with the manufacturer's recommendation utilizing a detergent/disinfectant solution approved by the Breathing Air Division.

(1) Procedures for Cleaning Respirators

(a) Remove the mask mounted regulator from the facepiece.

(b) Unthread the thumb screw of the Heads-Up Display (HUD) receiver and slide the receiver from the facepiece bracket.

- (c) Thoroughly wash the facepiece and nose cup in the cleaning solution. A soft brush or sponge can be used to clean the soiled facepiece.
- (d) Rinse the facepiece and components in clean, warm (not above 110 F) water. Running water is preferable.
- (e) Clean the pressure-demand exhalation valve by pressing in on the stem with a blunt object and flush with clean water.
- (f) Allow the facepiece to air dry. Do not dry by placing near a heater or in direct sunlight.
- (g) Operate the exhalation valve by hand to be sure it works properly.

NOTE: Each person utilizing respirators are responsible for the care and inspection of the facepiece they have been issued.

(G) Inspection and Maintenance of Respirators

(1) Personal Inspection

The self-contained breathing apparatus training program must include instruction on the proper inspection of the respirator before and after use. All equipment must be inspected by the user during the cleaning and immediately before and after each use. These inspections are to be documented on the proper form.

(2) Supervisor Instructions

In addition to the above, supervisors are required to insure that respirators are inspected at least once per month.

(3) Records of Inspection

A Form FS-10 will be prepared on each respirator and kept on file at the individual's assigned work location. Persons authorized to wear self-contained breathing apparatus should conduct a complete inspection outlined on this form at least once a month.

(4) Maintenance

Repairs are to be made only by persons certified and authorized by Lexington County. Form LCF 684 should be prepared and be submitted with each request for repair.

(H) Storage

After cleaning and disinfecting, each respirator shall be replaced to its proper protective bag to help prevent damage. Facepieces must be stored in a convenient clean and sanitary location.

Care must include protection from dust, sunlight, extremes of temperature, moisture and chemicals.

(I) Respirator Use

(1) Dangerous Atmospheres

Self-contained breathing apparatus must be worn any time there is the potential for exposure to dangerous atmospheres. Personnel must be trained in the use of self-contained breathing apparatus and be certified free of cardiac disease, emphysema, and epilepsy by the department's physician.

For interior structural firefighting that is immediately dangerous to life or health (IDLH), at least two firefighters shall enter the IDLH atmosphere and remain in visual or voice contact with one another at all times, at least two employees are located outside the IDLH atmosphere, and all employees engaged in interior structure firefighting use SCBAs.

Provision for communications between persons in a dangerous atmosphere and standby personnel shall be made when possible. Communications may be visual, by voice, signal line, telephone, radio, or other means. When communication is not possible, a safety harness line will be used.

When harmful atmospheres necessitates extended use of self-contained breathing apparatus, advanced life support with emergency transport capabilities must be on scene.

Personnel utilizing self contained breathing apparatus are allowed two consecutive entries into a harmful atmosphere (45 minute air cylinders), and then are required to rest for 15 minutes prior to re-entry.

(2) Confined Spaces

Confined spaces are those areas that are large enough and so configured that a person can bodily enter and perform assigned work, and has limited or restricted means for entry or exit, (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.). Also, the area is not designed for continues occupation.

Any entry into spaces of this type requires the use of self-contained breathing apparatus at all times.

When entering confined spaces, fire protection and advanced life support units must be on hand. All other respirator use requirements apply!!!

(3) Low and High Temperatures/Work Area Surveillance

Use of respiratory protection equipment in high/low temperatures can pose special problems for the wearer. Persons utilizing self-contained breathing apparatus in extremely cold or hot weather conditions must be closely supervised by scene commanders and backup personnel. Employee exposure and/or stress must be closely monitored.

(J) Evaluation of the Respirator Program

Numerous factors affect the person, who wears self-contained breathing apparatus, acceptance of the need to wear them. This includes comfort, ability to breathe without objectionable effort, adequate visibility under all conditions, wearing of glasses, ability to communicate, facial hair, weight of the respirator, and confidence in its safety.

For a respirator program to be effective, it is important that all these factors be considered and evaluated periodically. It is important that users be involved in the process of developing the procedures for respirator use.

Consequently, the Breathing Air Technician is charged with the periodic review of the self-contained breathing apparatus respirator program and should make recommendations for change to the Fire Coordinator.

(K) Medical Examination

The Department of Public Safety provides physical examinations to those persons who are trained and authorized to use self-contained breathing apparatus.

Personnel are not authorized nor should they be permitted to utilize self-contained breathing apparatus until they have been certified physically capable by the county physician and/or personal physician.