



# **SOUTH LYON FIRE DEPARTMENT**

## **Manual of Procedures 300**

### **RESPIRATORY PROTECTION PROGRAM**

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#### **I. SCOPE**

General Industry standard 1910.134 of the Michigan Occupational Health Standards requires that a Respiratory Protection Program shall be established whenever respirators are required to be used in an occupational setting. This program is a guideline to prevent employee overexposure to atmospheric contaminants and oxygen deficient atmospheres which are potentially harmful to health. SLFD shall maintain compliance with MIOSHA, Part 451. Respiratory Protection.

#### **II. RESPONSIBILITIES**

##### **Employer**

- Determine the need for respiratory protection.
- Establish and maintain a Respiratory Protection Program in compliance, with all requirements of 1910.134 of the Michigan Occupational Health Standards.
- Provide all employees in the program with respirators appropriate to the purpose intended.

##### **Employees**

- Wear assigned respirator when and where required and in the manner in which they were trained.
- Care for and maintain their respirators as instructed, and store them in a clean and sanitary location.
- Inform supervisor if the respirator no longer fits well, and request a new one that fits properly.
- Inform supervisor or the Program Administrator of any respiratory hazards that are not adequately addressed in the workplace and of any other concerns regarding the program.

##### **Program Administrator**

The fire chief is the Program Administrator. This person administers or oversees the respiratory program including evaluating its effectiveness.

Note: The program administrator may designate other employees to carry out specific functions.

#### **III. SELECTION OF RESPIRATORS IN THE WORKPLACE AND PROCEDURES FOR USE IN FIREFIGHTING**

All personnel expected to respond and function in toxic atmospheres shall be equipped with SCBA and trained in its proper use and care.



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These respirators shall be used in accordance with the manufacture's recommendations and Michigan Fire Fighter Training Council performance testing guidelines.

### **Respirators for IDLH (Immediately Dangerous to Life and Health) Atmospheres**

Atmosphere supplying respirators operated in a positive pressure mode shall be used by all personnel working in areas where:

- The atmosphere is immediately dangerous to life and health (IDLH).
- The atmosphere is suspected of being IDLH.
- The atmosphere may rapidly become IDLH.

All interior structural fires, hazmat response hot zones and confined space entries shall be considered to be IDLH, unless air monitoring proves otherwise.

The fire department shall provide the following respirators for fire department use in IDLH atmospheres:

- A full facepiece pressure demand/positive pressure SCBA certified by NIOSH for a minimum service life of thirty minutes, or,
- A combination full facepiece pressure demand/positive pressure supplied-air respirator (SAR) with auxiliary self-contained air supply for emergency escape certified by NIOSH (for confined space rescue).

**Note: Because the federal register 29 CFR part 1910.139 will regulate respiratory protection and exposure to M. Tuberculosis, that matter will be addressed in a separate program.**

## **IV. MEDICAL EVALUATIONS OF EMPLOYEES REQUIRED TO USE RESPIRATORS**

Using a respirator may place physiological burdens on firefighters that vary with the type of work in which the respirator is used and the medical status of the employee. Accordingly, each employee must undergo a medical evaluation to determine the employee's ability to use the respirator. All new employees must undergo a medical evaluation prior to being fit tested or required to use the respirator. Medical evaluations shall be administered to all uniformed employees of the fire department according to the following schedule:

- An employee reports medical signs or symptoms that are related to ability to use a respirator;
- A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase

The Department shall identify a Physician or other Licensed Health Care Professional (PLHCP) to administer a medical questionnaire to each firefighter. The questionnaire shall be administered confidentially during a time agreed upon by the employer and employee. The questionnaire will determine the need for a follow-up physical examination.



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The department shall use the following PLHCP to administer the questionnaire and follow-up medical examinations (if needed):

Providence Park Novi - Occupational Health Partners  
47601 Grand River Ave., Suite B223, Novi, MI 48374

The employee shall have the opportunity to discuss the questionnaire and examination results with the Physician or Licensed Health Care Professional if so requested.

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

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

The program administrator, employee and physician would arrange an appropriate time for the exam. All the above exams are paid for by the employer.

### **V. FIT TESTING PROCEDURES**

All employees wearing respirators must be fit tested with the same make, model, style, and size of respirator that will be used on the job. The Respiratory Protection Program Administrator will oversee the fit testing of fire department employees.

Fit tests will be conducted on all employees who use respirators following the initial medical evaluation, at least annually thereafter, or whenever the employer observes or receives a report of changes in the employee's physical condition that could affect respirator fit, or the employee states that the fit of the respirator is unacceptable.

Factors that may affect mask fit are:

- Significant weight change.
- Significant facial scarring in the area of the facepiece seal.
- Significant dental changes.
- Reconstructive or cosmetic facial surgery.
- Any other condition that would interfere with mask fit.

Fit tests will be administered using an OSHA-accepted quantitative test in the negative pressure mode. The protocol used will be stated on the fit test record for each employee.



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### **VI. PROCEDURES FOR PROPER RESPIRATOR USE**

General Use Procedures:

- Employees will use their respirators under conditions specified by 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 that they wear their respirator.
- Employees shall use either the positive or negative pressure check as specified by the manufacturer or as listed in Appendix B-I of the Respiratory Protection Standard.
- Employees are not permitted to wear tight-fitting respirators if they have any condition such as facial scars, beards or other facial hair, or missing dentures, that prevents them from achieving a good seal. Employees are not permitted to wear headphones, jewelry, glasses, or other articles that may interfere with the facepiece-to-face seal.

#### **Procedures for IDLH (Immediately Dangerous to Life and Health) Atmospheres (2 In/2 Out)**

The following are not meant to preclude an Incident Commander from starting suppression (not entering) or rescue operations (entering) in a structural incident. The requirement intends that the Rapid Intervention Team (RIT) be established as soon as practical to ensure safety of firefighters, yet not detract from the responsibility to provide rescue and suppression to citizens.

#### **Rapid Intervention Team as described in NFPA 1500 6-5**

A rapid intervention crew shall consist of at least two members and shall be available for rescue of a member or a team if the need arises.

Rapid intervention crews shall be fully equipped with the appropriate protective clothing, protective equipment, SCBA, and any specialized rescue equipment that might be needed given the specifics of the operation under way.

The composition and structure of rapid intervention crews shall be permitted to be flexible based on the type of incident and the size and complexity of operations. The incident commander shall evaluate the situation and the risks to operating teams and shall provide one or more rapid intervention crews commensurate with the needs of the situation.

In the early stages of an incident, which includes the deployment of a fire department's initial attack assignment, the rapid intervention crew(s) shall be in compliance with NFPA 1500 6-4.4 and 6-4.4.2 and either one of the following:

- (a) On-scene members designated and dedicated as rapid intervention crew(s)
- (b) On-scene members performing other functions but ready to redeploy to perform rapid intervention crew functions. The assignment of any personnel shall not be permitted as members of the rapid intervention crew if abandoning their critical task(s) to perform rescue clearly jeopardizes the safety and health of any member operating at the incident.



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While working in IDLH atmospheres, during interior firefighting operations in fires that have progressed beyond the incipient stage, or HazMat operations, employees entering will work in teams having a minimum of two (2) persons who remain in visual or voice contact at all times.

Two firefighters shall be located outside the IDLH atmosphere; visual, voice, or signal line communication is maintained between the firefighters in the IDLH atmosphere and the firefighters located outside the IDLH atmosphere.

The firefighters located outside the IDLH atmosphere shall be trained and equipped to provide an effective emergency rescue.

The Incident Commander is notified before the RIT located outside the IDLH atmosphere enter the IDLH atmosphere to provide an emergency rescue. When the "two-out" enter to perform rescue, they must first notify the department. The department must immediately provide additional assistance.

Once notified, the RIT provides necessary assistance appropriate to the situation;

Firefighters located outside the IDLH atmospheres are equipped with;

Positive pressure SCBA's, or a pressure demand SCBA operated in positive pressure or other positive pressure supplied-air respirator with auxiliary SCBA.

Rescuers shall have appropriate retrieval equipment for removing the employee(s) who enter these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry. This could include a charged 1¾" or larger hose line.

If a firefighter detects a vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece the firefighter will notify his partner and the IC and leave the area immediately.

Nothing in this rule is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled, however, such action is not to be considered a standard of operation. Whenever the Two In, Two Out rule is not followed, a written report must be submitted to the fire chief, by the individual(s) who were involved in the incident explaining the necessity of doing so.

### **VII. CLEANING, DISINFECTING, STORING, INSPECTING, REPAIRING, DISCARDING, AND MAINTAINING RESPIRATORS**

SLFD shall provide personnel with a respirator that is sanitary, and in good working order. Employees shall ensure that respirators are cleaned and disinfected using the procedures recommended by the respirator manufacturer. The respirators shall be cleaned and disinfected after every use. Respirators issued for the exclusive use of a firefighter shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.



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Respirators issued to more than one firefighter shall be cleaned and disinfected before being worn by different individuals.

Respirators used in fit testing and training shall be cleaned and disinfected after each use.

Respirator face pieces assigned to personnel (personal facepieces) shall be cleaned and disinfected as required by the user of the facepiece.

The face piece shall be placed in a clean, dry container and stored in a manner which prevents deformation of the face seal, other damage or contamination.

Respirator facepieces are stored in fire department supplied protective bags.

The cleaning and disinfecting procedure supplied by the manufacturer/seller of the respirator shall be used by the department.

The Program Administrator or designee will ensure an adequate supply of appropriate cleaning and disinfection material at the cleaning station. If supplies are low, employees should contact their supervisor, who will inform the fire chief.

### **VIII. MAINTENANCE**

Respirators are to be properly maintained at all times in order to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be performed by the manufacturer or a person certified by the manufacturer.

Air cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Fire department personnel shall determine that the regulator and warning devices function properly.

For fire department respirators, fire department employees shall:

- Certify the respirator by documenting the date the inspection was performed (at least monthly), the name (or a signature) of the person who made the inspection, the findings, required remedial action, and a serial number or any other means of identifying the inspected respirator.
- Document this information in inspection reports stored as paper files. This information shall be maintained until replaced following a subsequent certification.

The fire department shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:



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- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;
- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
- SCBA repairs including but not limited to reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer or vendor supplying the equipment to the fire department.

### IX. QUALITY AND QUANTITY OF BREATHING AIR

Breathing air in the SCBA cylinder shall meet the requirements of the Compressed Gas Association G-7.1-1989, COMMODITY SPECIFICATION FOR AIR, with a minimum air quality of Grade D. Private vendors supplying the Department with compressed breathing air shall provide a copy of the most recent inspection and certification.

The purity of the air from the fire department's air compressor shall be checked by a competent laboratory annually.

SLFD shall assure that sufficient quantities of compressed air are available to refill SCBA for each incident.

Air cylinders for SCBA shall be filled only by trained personnel.

Compressed oxygen shall not be used in open-circuit SCBA.

Standards for breathing air and hazards associated include:

- Oxygen content (v/v) of 19.5-23.5%.
- Hydrocarbons (condensed) content of 5 milligrams per cubic meter of air or less;
- Carbon monoxide (CO) content of 10 ppm or less;
- Carbon dioxide content of 1,000 ppm or less;
- Lack of a noticeable odor.

The fire department shall ensure that cylinders used to supply breathing air to respirators meet the following requirements:

- Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178) test requirements of three years for composite cylinders and five years for steel or aluminum cylinders. Note: composite cylinders have a maximum use life of 15 years.
- The moisture content in the cylinder does not exceed a dew point of -50°F at 1 atmosphere pressure.



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### **X. RESPIRATORY HAZARDS AND TRAINING ON RESPIRATOR USE**

SLFD is required to provide training to those who use respirators. The training must be comprehensive, understandable, occur annually, and more often if necessary. Documentation of this training shall occur.

The Fire Department shall ensure that each firefighter can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- What the limitations and capabilities of the respirator are.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- What the procedures are for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- The general requirements of this program.

The training shall be conducted in a manner that is understandable to the firefighter. Retraining shall be administered annually, or when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete.
- Inadequacies in the firefighters knowledge or uses of the respirator indicate that the firefighter has not retained the requisite understanding or skill.
- Any other situations arise in which retraining appears necessary to ensure safe respirator use.

### **XI. PROCEDURES FOR EVALUATING THE RESPIRATOR PROGRAM**

Each year the fire chief shall initiate a review of the procedures contained in this program. All employees who wear, service, or supervise employees wearing respirators shall periodically be asked to provide information on:

- A. Adequacy of the respirator(s) being used.
- B. Accidents, incidents in which the respirator failed to provide adequate protection.
- C. Adequacy of training and maintenance on respirator use.

The Program Administrator shall recommend changes in the program and its implementation based on this information.

### **XII. RECORDKEEPING**

SLFD is required to keep the following records to assure compliance with this written program:

- A. Medical evaluation records.
- B. Fit testing records.





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In addition, the Department will maintain records of employee training, e.g., date, attendees, instructor, subject matter.

Approved by  
/s/ Chief Robert Vogel