



Standard Operating Guidelines
Section 110.0

SECTION:		GUIDELINE:	
110.0		Respiratory Protection/SCBA Use	
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Respiratory Protection

This program provides procedures and protocols designed to prevent employee overexposure to atmospheric contaminants and oxygen deficient atmospheres, which are potentially harmful to health.

RESPONSIBILITIES:

Program Administrator:

The Evansville Fire District Safety Officer or Chiefs designee shall serve as Program Administrator. This person has the training and experience to administer or oversee the respiratory program including evaluating its effectiveness.

- A. Determines the need for respiratory protection.
- B. Establishes and maintain a Respiratory Protection Program in compliance with all requirements of Wisconsin Department of Safety and Professional Services, Chapter SPS 330, Fire Department Safety and Health Standards.
- C. Provides all employees in the program with respirators appropriate to the purpose intended.
- D. Selects a physician or licensed health care professional to administer the medical evaluation program, as well as coordinating the medical evaluation program.
- E. Fit tests applicable firefighters.
- F. Responsible for breathing air quality.
- G. Responsible for the information requirements of this program and ensuring that members are trained in the care and maintenance for the respirator.
- H. Ensures that members are trained in the respirator manufacturer's standards for repair and maintenance are responsible for the record keeping requirements of this program.
- I. May designate other members to carry out specific functions.

Fire District Members:

- A. Wear assigned respirator when and where required and in the manner in which they were trained.
- B. Care for, maintain and clean their respirators following the manufacturer's procedures and store them in a clean and sanitary location.
- C. Inform their officer if the respirator no longer fits well, and request a new one that fits properly.
- D. Inform their officer or the Program Administrator of any respiratory hazards that are not addressed in the workplace and of any other concerns regarding the program.
- E. Each member is responsible for the cleanliness and operational readiness of their issued face pieces.

SELECTION OF RESPIRATORS

Fire District members who respond to and function in toxic atmospheres shall be equipped with Self-Contained Breathing Apparatus (SCBA) and trained in its proper use and care. These respirators shall be used in accordance with the manufacturer's recommendations and appropriate governing performance testing guidelines.

Until an atmosphere has been found not to be so, it shall be considered IDLH (Immediately Dangerous to Life and Health). Where an atmosphere has potential to become IDLH it shall be entered under the assumption that it is ALREADY IDLH.

The Fire District provides the following respirators for use in IDLH atmospheres:

Respirators for IDLH (Immediately Dangerous to Life and Health) Atmospheres): SCBA shall be used by all personnel operating:

- A. In a contaminated atmosphere
- B. In an atmosphere which may suddenly become contaminated
- C. In an atmosphere which is oxygen deficient
- D. In an atmosphere which is suspected of being contaminated or oxygen deficient

This includes all personnel operating:

- A. In an enclosed, active fire area
- B. In a potential explosion or fire area, including enclosed gas leaks and fuel spills
- C. Where products of combustion are visible in the atmosphere and fire department personnel are exposed or potentially exposed to these products of combustion, including vehicle fires and dumpster fires
- D. Where invisible contaminants are suspected to be present at levels above 1992 OSHA ELs (exposure levels) (i.e. Carbon Monoxide and other toxins during overhaul) Utilizing an appropriate meter to determine if the atmosphere is safe.
- E. Where toxic products are present, suspected to be present, or may be released without warning (including Hazardous Material incidents (HazMat))
- F. In any confined space which has not been tested to establish respiratory safety

In addition to the above, SCBA shall be worn by all personnel operating at fire incidents above ground, below ground or in any other area which is not, but which may become contaminated by products of combustion or other hazardous substances. In these circumstances, the SCBA may be worn with the face piece removed. The wearing of SCBA in these situations provides that it will be immediately available for use if conditions change or if personnel are to enter an area where the use of SCBA is required. Examples include but not limited to:

- A. Atmospheres that have been reported to have a smoke or CO detector sounding but there are no signs of elements present or occupants feeling ill. Members shall investigate and if monitoring proves existence, members shall fully don SCBA face piece.
- B. Atmospheres, scenes, or conditions that are potentially dynamic, changing and/or unknown.

Premature removal of SCBA must be avoided. This is particularly significant during overhaul when smoldering materials may produce increased quantities of carbon monoxide and other toxic products. In these cases SCBA must be used or the atmosphere must be changed.

In fire situations, the decision to remove SCBA shall be made by the Operations Officer, Safety Officer or Incident Commander based on an evaluation and metering of atmospheric conditions. Prior to removal, fire areas shall be thoroughly ventilated and, where necessary, continuous ventilation shall be provided.

If there is any doubt about respiratory safety, SCBA use shall be maintained until the atmosphere is established to be safe by testing.

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 Officer or the Incident Commander and leave the area immediately.

Respirators for atmospheres that are not IDLH:

For protection against particulates, the Fire District will provide one of the following:

PROCEDURES FOR RESPIRATORS FOR USE IN FIREFIGHTING

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 (RIT):

- A. A rapid intervention team (RIT) shall consist of at least two members and shall be available for rescue of a Fire District member or a team if the need arises. A RIT 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.
- B. The composition and structure of a RIT 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 RITs commensurate with the needs of the situation.
- C. In the early stages of the incident, which includes the deployment of a ~~fire department's~~ Fire District's initial attack assignment, the RIT shall be of either one of the following:
 - 1. On-scene members designated and dedicated as rapid intervention team(s).
 - 2. On-scene members performing other functions but ready to re-deploy to perform rapid intervention team functions. The assignment of any personnel shall not be permitted as members of the rapid intervention team if abandoning their critical task(s) to perform rescue clearly jeopardizes the safety and health of any member operating at the incident.

D. When additional resources arrive, beyond the early stages of the incident, a designated RIT team shall be established until completed with interior firefighting operations.

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

E. Two firefighters shall be located outside the IDLH atmosphere as the RIT. Visual, voice, radio, or signal line communication will be maintained between the firefighters in the IDLH atmosphere and the firefighters located outside the IDLH atmosphere (RIT).

F. The firefighters located outside the IDLH atmosphere as the RIT shall be trained and equipped to provide an effective emergency rescue of the firefighters inside the IDLH.

G. The Incident Commander is to be notified before the RIT located outside the IDLH atmosphere enters the IDLH atmosphere to provide an emergency rescue. The Incident Commander must immediately provide additional assistance, if necessary.

H. Once notified, the RIT provides necessary assistance appropriate to the situation.

I. RADIO CHANNEL DESIGNATION – The Red Channel shall be the TAC channel the firefighter(s) are operating when located in the IDLH atmosphere

NOTE: *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.

GENERAL USE PROCEDURES:

A. Employees Firefighters will use their respirators under conditions specified by this program, and in accordance with training and the respirator manufacturer's recommendations 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 its manufacturer.

B. 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-1 of the OSHA Respiratory Protection Standard.

C. Firefighters may not have beards, goatees, or other facial hair that might interfere with the effective operation of the Department's SCBA. Firefighters may possess mustaches provided the mustache does not interfere with the face piece seal. Firefighters are not permitted to wear tight-fitting respirators if they have any condition such as facial scars, goatees, beards or other facial hair, or missing dentures that prevents them from achieving a good seal. Firefighters are not permitted to wear tight-fitting respirators if they have facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function or any condition that interferes with the face piece-to-face seal or valve function. These restrictions shall apply regardless of the specific fit test measurement that can be obtained under test conditions.

D. If a firefighter wears eyeglasses, the firefighter shall use frames that do not pass through the seal area of the face piece.

E. Firefighters are not permitted to wear headphones, jewelry, glasses, or other articles that may interfere with the face piece-to-face seal.

FIT TESTING PROCEDURE

A. All firefighters wearing respirators must be fit tested annually with the same make, model, style, and the appropriate individual size that will be used on the job. The Respiratory Protection Program Administrator will oversee the fit testing of the firefighters.

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

Some factors that may affect mask fit and may require additional testing are:

- A. Significant weight change.
- B. Significant facial scarring in the area of the face piece seal.
- C. Significant dental changes.
- D. Reconstructive or cosmetic facial surgery.
- E. Any other condition that would interfere with mask fit.

Fit tests will be administered using an OSHA accepted qualitative test. The protocol used will be stated on the fit test record for each firefighter.

MEDICAL EVALUATION OF FIREFIGHTERS REQUIRED TO USE RESPIRATORS Using a respirator may place physiological burdens on firefighting personnel that vary with the type of work in which the respirator is used and the medical status of the firefighter. All new **(PRIOR TO BEING VOTED ON AS A FIREFIGHTER OR ONTO THE DEPT)**, firefighters must undergo a medical evaluation prior to being fit tested or required to use the respirator. Medical evaluations shall be administered to employees of the fire department by the following Physician or other Licensed Health Care Professional (PLHCP):

The District shall identify a Physician or other Licensed Health Care Professional (PLHCP) to administer a medical questionnaire to each firefighter who uses SCBA or respirators. The questionnaire shall be administered confidentially during the firefighters normal work hours. The questionnaire will determine the need for a follow-up physical examination. The department shall use the following PLHCP to administer the questionnaire:

Medical questionnaires shall be administered prior to initial fit test to all firefighters required to use SCBA or respirators.

The Fire District will be using the following PLHCP for follow-up medical examinations, if needed:

The firefighter shall have the opportunity to discuss the questionnaire and examination results with the Physician or other Licensed Health Care Professional (PLHCP) if so requested.

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

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

The program administrator, firefighter and physician will arrange an appropriate time for the examination. The medical consultation and examination with the PLHCP will be at department expense.

CLEANING, DISINFECTING, STORING, INSPECTING, REPAIRING, DISCARDING, AND MAINTAINING RESPIRATORS

Cleaning:

The Evansville Fire District shall provide personnel with a respirator that is sanitary, and in good working order. Fire District personnel shall ensure that respirators are cleaned and disinfected using the procedures recommended by the respirator manufacturer. The respirators shall be cleaned and disinfected at the following intervals:

- A. Respirators issued for the exclusive use of a firefighter shall be cleaned and disinfected per the manufacturer's instructions as often as necessary to be maintained in a sanitary condition.
- B. Respirators issued to more than one firefighter shall be cleaned and disinfected per the manufacturer's instructions after each use and the respirator cleanliness shall be insured before being worn by different individuals.
- C. Respirators used in fit testing and training shall be cleaned and disinfected after each use.
- D. Respirator face pieces assigned to personnel (personal face pieces) shall be cleaned and disinfected per the manufacturer's instructions as required by the user of the face piece.
- E. The face piece shall be placed in a clean, dry container in a manner that prevents deformation of the face seal, other damage or contamination. The face piece will be stored with the head harness to the back, not over the lens – this will help prevent deformation of the face piece seal.
- F. The cleaning and disinfecting procedure supplied by the manufacturer of the respirator shall be used by the department.

The Program Administrator or his/her designee will ensure an adequate supply of appropriate cleaning and disinfection materials at each station. If supplies are low, employees should contact their officer, who will notify the Program Administrator or designee.

Cleaning Procedures:

Operational Recommendations:

In order to decrease the possibility of contaminant entry, it is recommended that protective covers be in place to limit contamination of dust and particles.

Cleaning Recommendation:

Cleaning is recommended after each usage where contaminants may come in contact with any part of the unit.

Gross contamination should be washed off as soon as practical at the scene or station.

Preparation:

Prepare cleaning solution as described per instructions:

Effective against a number of gram positive and negative bacteria, fungi and viruses including HIV-1 and influenza, the cleaner-sanitizer provides a quick and simple means of cleaning and disinfecting.

Cleaning Procedure:

Lung Demand Valve (LDV) and Face piece

- A. Close cylinder valve
- B. Remove pressure on entire system
- C. Thoroughly rinse face piece and SCBA under clean running tap water to remove debris
- D. Place face piece in cleaning solution and agitate solution. Use a circular motion.
- E. Place face piece into a container of clean tap water and agitate
- F. Finally rinse face piece under running clean tap water
- G. Apply air pressure to remove interior liquids
- H. Wipe out any excess rinse water with a clean, dry, towel. Allow to dry.
- I. **DO NOT USE THE FIREHOUSE AIR COMPRESSOR TO DRY ANY PART OF THE SCBA! THE LUBRICATING OIL THAT MAY BE CONTAINED IN THE AIR STREAM MAY BE HAZARDOUS AND COULD DAMAGE THE RUBBER COMPONENTS**
- J. Inspect SCBA and regulator for cleanliness and damage
- K. Leak test SCBA.
- L. Return to operation.

Harness Assembly and Air Cylinders

- A. Wipe off dirt and grime with a lathered mild soap solution. Rinse thoroughly. Take care not to get water into the regulator.
- B. Let harness air dry.
- C. Inspect the harness for loose or missing buckles and fittings. Look for worn belts and connections. Check cylinder latching strap for proper operation.
- D. Wipe off dirt and grime from air cylinders with a lathered mild soap solution. Rinse thoroughly.
- E. Make sure each cylinder has a protective thread cap over the threads.
- F. Check cylinders for deep scratches, gouges, and damaged threads. Check the gauge and cylinder hand wheel. **NOTE: Cylinder valves shall only be tightened hand tight. Do not forcefully tighten the cylinder valve. Damage to the nylon valve seat will result.**

Cases

- A. Remove any loose dirt or debris
- B. Sponge out with sanitizer/cleaner solution.
- C. Rinse with water

Unit Inspection

- A. Leak test SCBA
- B. Return to operation

If anything questionable arises, or obvious repairs are needed, place the unit out of service. Mark unit with a repair tag and forward to Fire Officer . Please refer all repairs to the responsible repair person as soon as possible.

Maintenance:

Respirators are to be properly maintained at all times in order that they function properly and

adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or 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 District personnel shall determine that the regulator and warning devices function properly weekly.

For Fire District respirators, fire district personnel shall:

- A. Inspect and certify that the respirator ready for use 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.
- B. Provide this information on inspection forms, specifically, weekly and after use inspection forms. This information shall be maintained in each station until replaced following a subsequent certification.
- C. Inspection records shall be forwarded to the Fire District designees responsible for record keeping.

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

- A. Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the manufacturer's NIOSH-approved parts designed for the respirator.
- B. Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
- C. 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 Fire District technician trained by the manufacturer or vendor supplying the equipment to the Fire District.
- D. All SCBA requiring repairs, or SCBA that fail inspections shall be tagged with a red out-of-service tag indicating the following:
 1. Date
 2. Station location
 3. SCBA unit identification
 4. Name of person(s) reporting the problem
 5. Brief description of the problem
- E. The SCBA unit with the red tag affixed will be forwarded to for repair by the manufacturer or a Fire District technician trained by the manufacturer.

INSPECTIONS

Each PASS (Personal Alert Safety System) must be tested weekly and prior to use.

Each SCBA is required to be inspected and tested at least monthly and prior to use. All air cylinders carried on the apparatus and spares in each station will be inspected for any damage, cleanliness and proper fills.

The following checklist will be used when inspecting respirators:

Face piece:

- Cracks, tears, or holes
- Facemask Distortion
- Cracked or loose lenses/face shield

Head straps:

- Breaks or tears

Filters/Cartridges:

- Approval designation
- Gaskets
- Cracks or dents in housing
- Proper cartridge for hazard

Air Supply Systems:

Broken buckles	Breathing air quality/grade
Valves:	Condition of supply hoses
Residue or dirt	Hose connections
Cracks or tears in valve material	Settings on regulators and valve

The following functional tests are to be completed on each SCBA to ensure proper operation:

- A. Pressure Gauge
- B. PASS test
- C. Leak Test
- D. Warning bell test
- E. Face piece Connection

Cylinder Pressure Gauge and Sentinel Reading Comparison

The purpose of this test is to compare the cylinder pressure gauge and the Sentinel pressure reading to make sure they read within +/- 10%.

Procedure:

- A. Open the cylinder valve and note the pressure reading on the cylinder pressure gauge.
- B. Compare the shoulder gauge pressure reading to the cylinder gauge reading. The two values must be within +/- 10% of the full scale

QUALITY AND QUANTITY OF BREATHING AIR

Breathing air in the SCBA cylinders shall meet the requirements of the Compressed Gas Association G-7.1-1989, COMMODITY SPECIFICATION FOR AIR, with a minimum 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 District's compressor shall be checked by a competent laboratory quarterly.

The Fire District shall assure that sufficient quantities of compressed air are available to refill SCBA for each incident. This shall be accomplished through the use of mobile air supplies or mutual aid from other fire departments.

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:

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

The Fire District shall insure that cylinders used to supply breathing air to respirators meet the following requirements:

- A. 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 five years for composite cylinders supplied to MSA and five years for steel or aluminum cylinders.
- B. Note: composite cylinders have a maximum use life of 15 years.
- C. The moisture content in the cylinder does not exceed a dew point of -50 degrees F. (-45.6 degrees C.) at one (1) atmospheric pressure.

RESPIRATORY HAZARDS AND TRAINING ON RESPIRATORY USE

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

- A. Why the respirator is necessary and how improper fit , usage, or maintenance can compromise the protective effect of the respirator;
- B. What the limitations and capabilities of the respirator are;
- C. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- D. How to inspect, put on and remove, use, and check the seals of the respirator;
- E. What the procedures are for maintenance and storage of the respirator;
- F. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators;
- G. 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:

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

PROCEDURES FOR EVALUATING THE RESPIRATOR PROGRAM

Each year the Program Administrator shall initiate a review of the procedures contained in this program. All firefighters 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 or 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.

RECORD KEEPING

The Fire District is required to keep the following records to assure compliance with this written program:

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

Medical records shall be maintained for member's entire career plus thirty years.

Fit test records shall be kept until the next fit test is administered.

The Fire District will also maintain records of employee/firefighter training (e.g., date, attendees, trainer(s), subject matter).

