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**Table 6-4  
NFPA 1404 Fire Department Self-Contained Breathing Apparatus (SCBA) Program  
- Minimum Requirements Applicable to Fairfax County OHSP -**

**Introduction**

**Philosophy**

The use of self-contained breathing apparatus (SCBA) by fire fighters is always assumed to be in an atmosphere immediately dangerous to life or health (IDLH) because there is no way to predetermine those hazardous conditions, concentrations of toxic materials, or percentages of oxygen in air that exist in a fire environment, during overhaul (salvage) operations, or under other emergency conditions involving spills or releases of chemicals or other toxic materials. Thus, SCBA shall be required at all times during any fire-fighting or overhaul operations inside, and frequently outside, a structure.

**Coordinated Administrative Policies**

The authority having jurisdiction shall adopt and maintain a respiratory protection program that meets the requirements of Section 5-3 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

The authority having jurisdiction shall establish and enforce written standard operating procedures for the use of respiratory protection equipment. Utilization policies shall include: (1) when respiratory protection equipment is to be used; (2) when to exit due to reduced air supply; (3) procedures for ensuring proper facepiece fit; (4) cleaning of respiratory protection equipment components.

The authority having jurisdiction shall:

- Provide respiratory protection equipment for each member at the scene of an incident who might be exposed to respiratory hazards.
- Conduct an ongoing respiratory protection training program that meets the requirements of this standard. The training program shall be conducted according to written standard operating procedures.
- Establish written training policies for a respiratory protection program. Training policies shall include, but shall not be limited to: (1) identification of the various types of respiratory protection equipment; (2) responsibilities of members to

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**Coordinated Administrative Policies** (Continued)

The authority having jurisdiction shall: (Continued)

obtain and maintain proper facepiece fit; (3) responsibilities of members for proper cleaning and maintenance; (4) identification of factors that affect the duration of the air supply; (5) determination of the point of no return for each member; (6) responsibilities of members for using respiratory protection equipment in a hazardous atmosphere.

- Establish written standard operating procedures for inspection, maintenance, repair, and testing of respiratory protection equipment in accordance with NFPA 1500 and the manufacturer's recommendations.

The SCBA shall be cleaned and sanitized after each use in accordance with the standard operating procedures of the authority having jurisdiction. (*EXCEPTION: Where impracticable under tactical conditions*).

All SCBA shall be inspected, maintained, and tested in accordance with the standard operating procedures of the authority having jurisdiction.

**Provisions of SCBA**

**Inventory and Allocation of SCBA**

- Sufficient SCBA shall be available at the incident to provide one unit for each member who might be exposed to respiratory hazards.
- Sufficient reserve SCBA shall be provided to maintain the required number in service when maintenance or repairs are being conducted.
- An adequate reserve air supply shall be provided by use of reserve cylinders or by an on-scene refill capability, or both.
- Where carried on apparatus, SCBA shall be secured in brackets or carrying cases and shall be stored in a manner that protects the regulator openings and facepiece from contamination by road dirt, dust, or weather conditions.
- All SCBA shall be stored in a ready-for-use condition and shall be protected from damage or exposure to rough handling, excessive heat or cold, moisture, or other elements.

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**NIOSH/MSHA Certification**

- SCBA of the open-circuit design shall be positive-pressure apparatus and shall meet the requirements of NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters*. Closed-circuit-type SCBA shall be approved by NIOSH/MSHA with a minimum service duration of 30 minutes and shall operate in the positive-pressure mode only. The use of rescue or “buddy” breathing devices shall be prohibited.
- The authority having jurisdiction shall maintain a complete inventory record of all SCBA. Each SCBA and cylinder shall be identified individually by serial number or inventory number.
- An individual record of each SCBA regulatory and harness assembly shall be maintained. This record shall include the inventory or serial number, date of purchase, date of manufacture, date placed in service, location, maintenance and repairs, replacement parts, upgrading, and test performance.
- A record shall be maintained for each SCBA cylinder. This record shall include the inventory or serial number, date of purchase, date of manufacture, date placed in service, locations, hydrostatic test pressure and dates, and inspection and repairs. Hydrostatic test dates shall appear on each cylinder according to the manufacturer’s instructions and applicable government agencies.
- A record shall be maintained for each SCBA facepiece. This record shall include the inventory or serial number, date of purchase, location, maintenance and repairs, replacement parts, upgrading, and test performance.

**Acceptance Testing Program**

- Respiratory protection equipment shall be selected according to the hazards to which a member might be exposed and to the operations expected to be performed.
- Prior to being placed in service, all SCBA that are acquired shall be inspected and tested by factory certified personnel. Testing shall include: (1) all major components shall be inspected for compatibility, completeness of assembly, and signs of damage; (2) all components shall be tested for proper function and performance. Testing shall include: (1) manipulation of all adjustable components such as slides, buckles, control valves, and levers; (2) facepiece, regulator mechanism, alarm, and cylinder valve shall be tested on the manufacturer’s test equipment for compliance with specifications.

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**Emergency Scene Use**

**Criteria for Use**

- The authority having jurisdiction shall require the use of respiratory protection by all members who might be exposed to respiratory hazards in the performance of their duties.
- Respiratory protection shall be used by all members who are exposed to respiratory hazards or who might be exposed to such hazards without warning. Members who are operating in areas that might be subject to these hazards where there is sufficient warning to don respiratory protection equipment shall have it readily available for use.
- Respiratory protection equipment shall be used by all members operating in confined spaces, below ground level, or where the possibility of a contaminated or oxygen-deficient atmosphere exists until, or unless, it can be established by monitoring and continuous sampling that the atmosphere is not contaminated or oxygen deficient.
- Where used, respiratory protection equipment shall be worn according to the manufacturer's requirements.
- Members shall be monitored for indications of fatigue or other factors that can result in unsafe conditions.
- Members using a SCBA shall operate in teams of two or more who shall be able to communicate with each other through visual, audible, physical, safety guide rope, electronic, or other means to coordinate their activities and who shall be in close proximity to each other to provide assistance in case of an emergency.
- Where members are involved in operations that require the use of a SCBA or other respiratory protective equipment, at least one member shall be assigned to remain outside the area where respiratory protection is required. This member shall be responsible for maintaining a constant awareness of the number and identify of members using a SCBA, their location and function, and their time of entry. Members with a SCBA shall be available for rescue.
- Unapproved devices, or approved devices that have been modified in a manner that voids their approval shall not be used.

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**SCBA Training**

**Recruit Training Program**

- All training related to the use, maintenance, and care of respiratory protection equipment shall be provided by instructors meeting the objectives of Instructor I of NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications*, or instructors who have been trained and certified by a SCBA manufacturer or authorized distributor.
- Records of all respiratory protection training shall be maintained, including training of personnel involved in maintenance of such equipment.
- Minimum performance standards shall be established by the authority having jurisdiction for donning respiratory protection equipment.

**Annual Member Certification**

- Prior to initial training, members shall be examined and certified by a physician as being medically and physically fit in accordance with Chapter 3, NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.
- If physician certifying members for respiratory protection equipment use is other than the fire department physician, the examination report shall be subject to the approval of the fire department physician.
- All members who may be required to use respiratory protection equipment shall be medically certified by a physician on an annual basis in accordance with NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.
- Facepiece seal capability of SCBA for each member qualified to use a SCBA shall be verified by qualitative fit testing on an annual basis and any time that new types of SCBA are issued. Each new member shall be tested before being permitted to use a SCBA in a hazardous atmosphere. Only members with a properly fitting facepiece shall be permitted by the fire department to function in a hazardous atmosphere with a SCBA.

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**Annual Member Certification** (Continued)

- Records of SCBA fitting tests shall include at least the following information: (1) name of member tested; (2) type of fitting test performed; (3) specific make and model of facepiece tested; (5) results of the tests: (a) satisfactory or (b) unsatisfactory. For departments that perform quantitative fitting tests, the protection factor produced shall be at least 1000 for negative-pressure SCBA (facepiece leakage shall be 0.1 percent penetration or less).
- Beards or facial hair that interferes with the facepiece seal shall be prohibited for members required to use respiratory protection equipment. If eyeglasses are worn, the member shall use frames that do not pass through the seal area of the facepiece.
- Members required to wear respiratory protection equipment in conjunction with specialized protection equipment (e.g. proximity suits or totally encapsulated suits) shall be evaluated for physical and emotional stresses associated with these specialized applications.
- The authority having jurisdiction shall be responsible for establishing a program that provides members with training in the proper and safe use and the limitations of respiratory protection equipment and related equipment; in the policies and procedures related to the authority having jurisdiction's respiratory protection program; and in those areas outlined by this standard. The program also shall provide a means of evaluating member performance in the use of respiratory protection equipment and member knowledge of the respiratory equipment used. Respiratory protection training shall be conducted as an ongoing training program.
- All members permitted to use a SCBA shall, at least annually, successfully demonstrate their ability to meet the performance standards set by the authority having jurisdiction.
- All members shall meet training and performance requirements of this standard prior to the actual emergency operations during which they might be expected to wear respiratory protection equipment.

**SCBA Safety**

- The authority having jurisdiction shall provide members with the most current information available concerning the safe operation of their respiratory protection equipment.
- Standard operating procedures shall be written concerning the safe operation of respiratory protection equipment during training and while in use on the emergency scene.

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**SCBA Safety** (Continued)

- The SCBA training program shall provide members with training in the safe operation of a SCBA, the uses and limitations of SCBA equipment, and the individual limitations of members who might be required to use a SCBA.
- Members shall demonstrate proper knowledge of safety procedures and practices through an evaluation process that is established by the authority having jurisdiction.
- Instruction on the common reasons for the breakdown of safety procedures or equipment that might cause injuries shall include the following subjects: (1) abuse and misuse of equipment; (2) physiological and psychological factors; (3) unapproved equipment; (4) buddy breathing; (5) information supplied to agencies that collect accident information, where available.

**Ability to Act Properly in Emergencies**

- The authority having jurisdiction shall provide a means for evaluating its members in the use and operation of a SCBA under simulated emergency incidents.
- Periodic evaluations shall be held to determine the proficiency level of members while using a SCBA under simulated emergency incident conditions. These simulated emergency incident conditions shall be as realistic as possible while maintaining a safe level of protection for the wearer.
- Members shall demonstrate proper ability to operate under simulated emergency incident conditions.

**Requirements for the Progression of Training**

- Recruit training shall include the identification of SCBA components, terminology, and equipment specifications through the following: (1) operation of SCBA and related equipment; (2) inspection and maintenance of equipment; (3) donning methods employed by the authority having jurisdiction; (4) performance of related emergency scene activities, such as advancing hose lines, climbing ladders, crawling through windows and confined spaces, and performing rescues while wearing a SCBA; (5) comprehension of organizational policies and procedures concerning safety, emergency operations, use, inspection, and maintenance; (6) performance of activities under simulated emergency conditions; (7) compliance with all performance standards of the authority having jurisdiction.

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**Evaluation of SCBA Training**

All members who might be required to wear a SCBA shall be evaluated periodically on their knowledge of SCBA equipment operation, safety, organizational policies and procedures, and facepiece seal. This evaluation shall occur at least annually.

**Required Training**

Set forth, in a sequential format, a logical progression toward achieving training goals, first by requiring minimum policies to be established by the authority having jurisdiction; next by requiring a theoretical understanding of SCBA and finally by developing practical skills.

**Recognizing Hazards that Could be Encountered**

The authority having jurisdiction's training program shall evaluate the ability of personnel to:

- Identify hazardous environments that might require the use of respiratory protection.
- Identify the primary gases produced by combustion.
- Identify the primary characteristics of gases that might be present or generated by processes other than combustion.
- Identify any toxic gases that might be unique to the particular authority having jurisdiction resulting from manufacturing or industrial processes.
- Identify the shipping labels of hazardous materials.

Fire department members shall be trained to handle problems related to the following that can be encountered during the use of a SCBA: (1) low temperatures; (2) high temperatures; (3) rapid temperature changes; (4) communications; (5) confined spaces; (6) vision; (7) facepiece-to-face sealing problems; (8) absorption through or irritation of the skin; (9) effects of ionizing radiation on the skin and the entire body; (10) punctured or ruptured eardrums; (11) use near water; and (12) overhaul.

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**Understanding the Components of a SCBA**

The authority having jurisdiction's training shall evaluate the ability of members to:

- Identify the components of facepieces, regulators, harnesses, and cylinders used by the authority having jurisdiction.
- Demonstrate the operation of the SCBA used by the authority having jurisdiction.
- Describe the operation of the SCBA used by the authority having jurisdiction.
- Describe the potential incompatibility of different makes and models of SCBA.

**Understanding the Safety Features and Limitations of a SCBA**

The training program of the authority having jurisdiction shall evaluate the ability of members to:

- Describe the operational principles of warning devices required on a SCBA.
- Identify the limitations of the SCBA used by the authority having jurisdiction.
- Describe the limitations of the SCBA's ability to protect the body from absorption of toxins through the skin.
- Describe the procedures to be utilized if unintentionally submerged in water while wearing a SCBA.
- Demonstrate the possible means of communication(s) when wearing a SCBA.

**Donning and Doffing SCBA**

The training program of the authority having jurisdiction shall evaluate the ability of members to:

- Demonstrate the proper techniques for donning and doffing all types of SCBA used by the authority having jurisdiction while wearing full protective clothing.
- Demonstrate that a proper face-to-facepiece seal has been achieved.

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**Practical Application in SCBA Training**

The training program of the authority having jurisdiction shall evaluate the ability of members to:

- Demonstrate knowledge of the components of respiratory protection.
- Demonstrate the use of all types of SCBA utilized by the authority having jurisdiction under conditions of obscured visibility
- Demonstrate the emergency operations that are required when a SCBA fails.
- Demonstrate emergency techniques using a SCBA to assist other members, conserve air, and show restrictions in use of bypass valves.
- Demonstrate the use of a SCBA in limited or confined spaces.

Training shall be conducted under simulated stressful circumstances to promote immediate response to emergency operations.

Annual SCBA training shall be provided to each member required to use breathing apparatus. This training shall include reevaluation of the individual for the required facepiece seal.

**Training in the Maintenance and Testing of a SCBA**

The training program of the authority having jurisdiction shall evaluate the ability of members to:

- Demonstrate proper procedures for conducting routine and post-incident inspections of a SCBA.
- Demonstrate a thorough examination and test of the SCBA.
- Demonstrate the proper procedure for reporting a defective SCBA.

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**Training in the Storage of SCBA and Reserve SCBA Cylinders**

The authority having jurisdiction's training program shall evaluate the ability of members to demonstrate the proper storage of SCBA. This shall include, but not be limited to: (1) SCBA mounted on apparatus; (2) SCBA in carrying cases; (3) individually issued facepieces; and (4) reserve air cylinders.

**SCBA In-Service Inspection**

- Where fire apparatus is in daily use, routine inspections of all respiratory protection equipment and reserve cylinders on the apparatus shall be conducted at least daily. If fire apparatus is not in daily use, routine inspections shall be conducted at least weekly. All inspections shall be in accordance with the requirements of the manufacturer of the specific respiratory protection equipment.
- Monthly inspections of respiratory protection equipment shall be conducted and shall include a check of the entire unit for deteriorated components, airtightness of cylinders and valves, gauge comparison, reducing valve and bypass valve operation, and a check of the regulator, exhalation valve, and low-air alarm. The SCBA shall be cleaned and returned to service.
- Inspection of respiratory protection equipment shall be conducted by the user before and after each use.

**SCBA Maintenance**

**User Maintenance**

- All maintenance and repairs on SCBA shall be conducted in accordance with manufacturer's instructions by qualified personnel.
- Annual inspection and servicing of SCBA shall be conducted by qualified personnel and whenever an operational problem is reported.
- Annual inspection and servicing shall include at least the following procedures and the manufacturer's recommendations: (1) disassembling of the SCBA into major components; (2) flow testing of the regulator;

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**SCBA Maintenance**

**User Maintenance (Continued)**

(3) disassembling and cleaning of the regulator; (4) replacement of worn parts, or those recommended by the manufacturer, in the regulator assemblies; (5) disassembling of the low-air alarm, and cleaning and replacement of components as necessary; (6) cleaning and replacement of components of the facepiece and harness assembly, and replacement of components as needed or scheduled; (7) reassembling of the entire SCBA and testing for proper operation of all components; and (8) proper recording of all performed maintenance on the forms provided and return of the SCBA to service.

- The authority having jurisdiction shall adopt a cleaning and sanitizing procedure. Each member shall be trained in this procedure.
- Fire fighters or other designated and trained personnel shall clean and sanitize each SCBA after each use upon their return to the fire station. The entire device shall be cleaned, and the facepiece and breathing tube shall be sanitized.

**Preventive Maintenance**

- A preventive maintenance program shall be established by the authority having jurisdiction for all SCBA used in the organization.
- The established SCBA preventive maintenance program shall be conducted in order to prevent SCBA malfunction and failures of equipment during use.
- The SCBA preventive maintenance program shall be conducted by qualified fire department members or by another organization using qualified personnel. Qualified personnel shall be trained and certified by the manufacturer or by an authorized distributor.
- Organizations without an internal SCBA maintenance program shall be permitted to contract with an outside organization to provide SCBA preventive maintenance services.

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**Breathing Air Program**

**Air Quality Control**

- Air for SCBA taken from the regular production of a compressor and storage system shall meet the testing and quality requirements of CGA G7.1 *Commodity Specification for Air*, with a minimum air quality of Grade D and a maximum dew point of -50°F (-45°C) or 10°F (5°C) lower than the coldest temperature expected in the area.
- If compressed breathing air is purchased and provided in a vendor supplied cylinder, the fire department shall require certification and documentation that the breathing air has been tested and meets the requirements of this standard. Documentation shall demonstrate that the laboratory is accredited by the American Industrial Hygiene Association, the American Association of Laboratory Accreditation, or the National Voluntary Laboratory Accreditation Program.
- If the fire department makes its own breathing air or transfers purchased breathing air from vendor cylinders into other storage cylinders, the air quality from compressors, cascade system cylinders, storage receivers, and other such breathing air manufacturing or storage equipment used for filling SCBA cylinders shall be tested at least every 3 months by a laboratory accredited by the American Industrial Hygiene Association, the American Association of Laboratory Accreditation, or the National Voluntary Laboratory Accreditation Program to certify that the breathing air meets the requirements of this standard. Laboratories shall be required to notify the fire department immediately of air not meeting these requirements.
- Records shall be maintained for each air quality test. If the required air quality is not achieved, the use of the system shall be discontinued until repairs are made and the air quality is verified by testing.
- Any air cylinders that contain air suspected of not meeting air quality standards shall be emptied and purged.

**Recharging Air Cylinders**

- Air cylinders of all SCBA shall be maintained at not less than 90 percent of the rated pressure stamped on the cylinder. Cylinders filled to less than 90 percent of their rated pressure shall be segregated from full cylinders until they are refilled.
- SCBA cylinders shall be refilled only with approved breathing quality air, as specified in this standard.
- Written policies shall be established to ensure that air is obtained only from a source that meets the requirements of this standard. Refilling shall be conducted by qualified personnel using proper equipment and procedures.

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**Recharging Air Cylinders** (Continued)

- Air cylinders shall be filled only by personnel trained in the proper procedures and equipment.
- Proper operating procedures and safety precautions shall be posted in a conspicuous location at the fill station.
- Personnel assigned to operate fill station equipment shall visually inspect all cylinders before filling. Cylinders that do not meet manufacturer's requirements due to defects or damage, or that have not met hydrostatic test requirements, shall be left unfilled and removed from service.
- All air cylinders shall be refilled in accordance with manufacturer's instructions.
- Where a breathing air compressor system, mobile or fixed, is used, it shall be located in an area where the air is free from contamination.
- The authority having jurisdiction shall have the ability to support emergency scene operations of extended duration by providing a reserve supply of air for a SCBA.
- Mobile breathing air compressor systems shall be equipped with monitoring equipment to detect carbon monoxide contamination and an automatic shutdown device that activates when the level of carbon monoxide exceeds the limits of Grade D air (20 ppm).
- All breathing air compressors shall have the air quality tested as required in this standard.
- Equipment used to produce compressed air for SCBA shall be inspected and maintained in accordance with manufacturer's instructions.
- All filters and other components of air purification systems shall be inspected and replaced in accordance with manufacturer's instructions.
- A record shall be maintained for each air compressor, fill station, cascade cylinder, purification system, and related equipment used to produce and store air for SCBA. The record shall indicate the date of purchase, location, inspection, maintenance, and testing of the device.

**Program Evaluation**

**Annual Review**

- The authority having jurisdiction shall review the organization's respiratory protection program annually for the purpose of determining the need to upgrade or change various aspects of the program.

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**Annual Review** (Continued)

- An annual review of the respiratory protection program policies and procedures shall be conducted to ensure they are being followed and to make necessary adjustments for effective operation of the plan.
- Problem areas involving members, equipment, inspection, maintenance, and repair schedules or resources shall be addressed in a timely manner.
- Levels of responsibility for the SCBA program shall be established and maintained to ensure proper assignments are made and all members of the program know exactly which duties they are to perform.
- Any failures encountered in the respiratory protection program dealing with members, training, or equipment shall be analyzed and appropriate corrective action shall be taken to preclude the recurrence of an additional failure of a similar or related nature.