
S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

DIVISION: EMERGENCY OPERATIONS

Objective: To establish a Respiratory Protection Program for all work areas that contain, or potentially contain, hazardous atmospheres to which employees/members could be exposed. To comply with applicable codes, regulations, and standards pertinent to respirator use for the Department including, but not limited to, OSHA 29 CFR 1910.134 Respiratory Protection.

Background: OSHA 29 CFR 1910.134

Section 1: Definitions

- A. **Air-purifying respirator** means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- B. **Licensed Health Care Professional (LHCP)** means a physician employed or under contract to the Baltimore County Government. The physician shall be familiar with the operations and operational environment of the Department and with the Respiratory Protection Program.
- C. **Immediate Danger to Life or Health (IDLH)** means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.
- D. **Interior Structural Firefighting** means the physical activity of fire suppression, rescue or both, inside of a building or enclosed structures, which are involved in fire beyond the incipient stage.
- E. **Member** means any career employee of the Baltimore County Fire Department, or any volunteer of an incorporated body that is a member of the Baltimore County Volunteer Firemen's Association.
- F. **Self-Contained Breathing Apparatus (SCBA)** means a **Baltimore County** authorized, atmosphere supplying respirator for which the breathing air source is designed to be carried by the user.
- G. **Supplied-Air Respirator (SAR) or Airline Respirator** means an atmosphere supplying respirator for which the source of breathing air is not designed to be carried by the user.
- H. **Air Administrator** – the Safety Officer of the Baltimore County Fire Department is the designated Air Administrator.
- I. **Fit test** - Use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.
 - a. **Qualitative fit test (QLFT)** means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent. Qualitative fit testing does not measure the actual amount of leakage and is normally used for half-mask respirators.
 - b. **Quantitative fit test (QNFT)** means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator. Quantitative fit tests are used for any type of tight fitting respirator. Current test used for BCoFD initial and annual fit tests.

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

Section 2: Responsibility

- A. The Safety Officer is responsible for the overall administration and management of the Respiratory Protection Program.
- B. The Officer in Charge of the Fire-Rescue Academy is responsible for developing and conducting the training components of the Respiratory Protection Program.
- C. The Safety Officer is responsible for ensuring the maintenance of respirators and associated equipment is completed, and fit tests are conducted as required.
- D. All members are required to comply with the specific requirements of the program.

Section 3: Objectives

- A. Ensure that members are protected from potential respiratory hazards that could be encountered in the performance of their duties.
- B. Ensure that members using respirators follow required procedures.
- C. Ensure that members are adequately trained and proficient in the use of respirators.
- D. Ensure that members are medically evaluated and cleared for respirator use by the LHCP.
- E. Ensure that all respirators used by Department members meet the requirements of NIOSH Respirator Certification Requirements 42 CFR Part 84 and are appropriate for the hazards to which the user may reasonably be expected to be exposed. SCBA shall also meet the requirements of NFPA 1981 – Standard on Open Circuit Breathing Apparatus, at the time of purchase.
- F. Ensure that all respirators are regularly inspected, properly maintained, cleaned and sanitized.
- G. Ensure that SCBA are provided with air that meets recommended standards.
- H. Ensure that only SCBA and SAR units authorized by Baltimore County are used within the Department.
- I. Ensure that the Respiratory Protection Program is reviewed annually, evaluated, and revised as necessary.

Section 4: Use of Respirators

- A. Policy for Use
 - 1. All members shall use respiratory protection when they may be exposed, or potentially exposed, to respiratory hazards that are an IDLH.
 - 2. All members who perform interior structural firefighting must be currently qualified to use SCBA.
 - 3. All members who are or could be exposed to IDLH atmospheres during fire suppression operations and/or training exercises shall use SCBA. This includes, but not limited to:
 - a. All interior structural firefighting operations
 - b. Interior and/or exterior exposure to smoke or other products of combustion
 - 4. SCBA or SAR shall be used by members exposed, or potentially exposed, to IDLH atmospheres at all types of incidents or training exercises including, but not limited to:

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

- a. Oxygen deficient atmospheres
 - b. Carbon monoxide incidents
 - c. Confined space rescue operations
 - d. Hazardous materials incidents
5. Members operating in the vicinity of known or potential IDLH atmospheres, who may be required to enter the IDLH area, shall wear SCBA or have SCBA or SAR available for immediate donning and use.
 6. Air purifying respirators (filter masks) may be used to provide respiratory protection in situations where SCBA use is not required. This includes, but is not limited to:
 - a. Protection from asbestos particles during salvage, overhaul, and fire investigation
 - b. Certain hazardous materials incidents
 - c. Dust producing activities
 7. Air purifying respirators shall not be used in areas that are or have the potential to become IDLH or oxygen deficient atmospheres.
 8. The particular filter media (filter or chemical canister) to be utilized must be selected for the specific application.

B. Training Policy

1. All members who are expected to perform interior fire suppression operations and all members who are expected, or may reasonably be expected, to operate at emergency incidents in IDLH areas that involve respiratory hazards shall be qualified to use SCBA.
2. Members shall not use air purifying respirators in hazardous atmospheres or at emergency incidents unless they have been trained and qualified to use the specific type and model of respirator.
3. The initial qualification to use respirator requires:
 - a. Medical evaluation
 - b. Fit Testing
 - c. Training
 - d. Demonstration of proficiency
4. Members must qualify annually to use air purifying respirators. Qualification requires:
 - a. Annual refresher training
 - b. Fit test
 - c. Demonstration of proficiency
5. The Baltimore County Fire Department shall maintain the records of members who are qualified to use each type of respirator.

C. Availability

1. An adequate number of approved SCBA shall be provided on each fire suppression vehicle for crew members who are expected to perform interior fire suppression operations and/or may reasonably be expected to operate in an IDLH atmosphere.
2. At the discretion of the Fire Chief, additional SCBAs may be provided to ensure that one is available for each member. This includes extra SCBAs provided for:

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

- a. Staff and command vehicles
 - b. Special use vehicles
 - c. Training
 - d. Replacement of units that are out of service for maintenance or repairs
3. At least one spare air cylinder shall be carried on each fire apparatus for each SCBA assigned to that vehicle. Additional spare air cylinders and/or refilling capabilities shall be provided for long duration incidents.
 4. Respirators carried on apparatus for the use of crew members shall be secured in brackets and be stored in a manner that protects the regulator openings and the facepiece from damage and contamination by road dirt, dust, or weather conditions. Additional respirators shall be stored in enclosed compartments and/or carrying cases.

Section 5: Respirator Selection

- A. The approved standard respirator used by the Baltimore County Fire Service for fire suppression and other emergency operations shall be the MSA self-contained breathing apparatus, Model G-1. This unit may be used with 30-minute to 60-minute rated air cylinders.
- B. Only Baltimore County approved Supplied Air Respirators (airline breathing apparatus) may be used in IDLH or potential IDLH atmospheres. Supplied Air Respirators are reserved for special applications requiring long duration and/or reduced weight and bulk, including confined space rescue and hazardous materials incidents. These units shall only be used by members who have been trained in their use and who have demonstrated proficiency.
- C. The use of other respirators may be authorized, in writing, by the Fire Chief or his/her designee and be based on a detailed review of the specific situation and the alternatives that are available.

Section 6: Medical Evaluation

A. Initial Evaluation

1. Each member will be required to complete the OSHA 1910.134 Respirator Medical Evaluation Questionnaire that will be evaluated by the LHCP, or its agent; or, an initial medical examination by the LHCP, or its agent, that obtains the same information as the OSHA 1910.134 Respirator Medical Evaluation Questionnaire before being authorized to use a respirator.
2. The LHCP, or its agent, shall issue a written recommendation that the member is medically qualified to use a respirator and to engage in emergency operations before the member shall be permitted to be fit tested or to use a respirator in a hazardous environment.
3. A confidential medical file shall be maintained for each member under the control of the LHCP and will include the LHCP's recommendation for respirator use. A copy of the LHCP's recommendation will be provided to the member. The member will have the opportunity to discuss the recommendation with the LHCP.
4. Due to the nature of emergency operations, members must obtain the approval from the LHCP for unrestricted SCBA use before being authorized to perform fire suppression or other emergency activities that require respiratory protection.

B. Re-evaluation

1. Members shall be re-evaluated for respirator use by the LHCP if:

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

- a. The member reports medical signs or symptoms relating to his/her ability to use a respirator to a supervisor or to the LHCP.
 - b. Responses to items in the medical questionnaire indicate the need for re-evaluation.
 - c. The supervisor has reason to believe that the member requires further medical evaluation or requires a member to be re-evaluated for any other reason.
 - d. There is significant change in the member's work conditions related to respirator use.
2. Members who are scheduled for a full physical examination annually by the LHCP shall also have their status for respirator use reviewed at that time.

C. Confidentiality of Records

1. The questionnaire is a confidential medical record and the responses shall only be reviewed by the LHCP or a qualified medical professional working under the direction of the Baltimore County Government. If the need for a medical re-evaluation is identified, the member will be evaluated by the LHCP. The Fire Chief will be notified, and the member's authorization to use a respirator will be evaluated on a case by case basis until the medical re-evaluation has been completed.

Section 7: Fit Testing

A. Test Requirements

1. After approval by the LHCP, each member shall successfully complete a quantitative Fit test in accordance with Appendix A of 29 CFR 1910.134 before being authorized to use SCBA or other respirators in a hazardous or potentially hazardous atmosphere.
2. Fit testing shall be conducted as part of the initial training program and for all respirator training programs by individuals who have been trained and are qualified to use the Fit testing apparatus. The Fit test records will be forwarded to and maintained by the Baltimore County Fire Department Air Administrator.
3. Additional Fit testing may be required if:
 - a. The member reports changes in his/her physical condition or problems maintaining a seal during respirator use.
 - b. Recommended by a supervisor or the LHCP
 - c. A new or different type of facepiece is to be used by the member.
4. Members with physician documented dermatological conditions (as indicated in Section 7.B.3.b.) are required to complete initial and annual fit tests by a BA Technician. Appointments for Fit tests with the BA Shop will be requested by the Company Commander through the OIC of Logistics.
 - a. The member will be required to conduct the Fit test with the growth intact, which shall not exceed two days growth.
 - b. Members who have not previously completed Fit testing with intact growth will be required to obtain an updated Fit test as described in Section 7.A.4.a.
 - c. After three unsuccessful fit tests, the member will be referred to the Safety Office for follow up.

B. Use Requirements

1. Members shall only use the type and size of facepiece that was used when completing the Fit test.
2. Each member will be provided an individual facepiece which shall only be used by the issued member.
3. Members with facial hair

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

- a. Members who have a beard or facial hair (more than two days growth) that impairs the sealing surface of the facepiece and could interfere with the operation of the unit, shall not be permitted to staff a position that requires the use of respiratory protection at emergency incidents, or in IDLH or potentially IDLH atmospheres.
 - b. Members with dermatological conditions that prevent daily shaving must provide annual medical documentation by the treating physician, to include the medical necessity, through the chain of command to the Safety Office.
 - i. Members should discuss the use of SCBA respirators and any changes to the OSHA Respirator Medical Evaluation Questionnaire that may impact the member's ability to wear SCBA with the treating physician.
 - ii. Additional Fit testing may be required as outlined in Section 7, A, 3 of this SOP
 - c. Members with physician documented dermatological conditions that require more than two days growth may be referred to the LHCP for re-evaluation as respirator use shall not be permitted for members who exceed two days growth.
 - d. All growth must be natural. Excluding permitted mustaches, members are not permitted to partially trim or shave any facial hair in such manner as to give a sculpted appearance.
4. Nothing worn shall be allowed to enter or pass through the area where the respirator facepiece is designed to seal with the face, regardless of any specific Fit test measurement that can be obtained. Members who need eyewear inserts shall be provided them after the department receives a current eye prescription to include the pupillary distance. The eye prescription can be no older than two years at time of request.
 5. Before entering a hazardous atmosphere, members will perform a self-check of the facepiece seal when donning the SCBA.

Section 8: Training

A. Initial Training

1. All members who are expected to perform fire suppression operations and/or other emergency activities shall be trained and certified in the use of SCBA. Training and certification shall occur prior to being authorized to participate in emergency incidents, training exercises, or other activities that involve respiratory hazards.
2. Members who are expected to use other types of air purifying respirators shall be trained in the use of that specific equipment and demonstrated proficiency before being authorized to use it.
3. The initial training shall ensure that the member is thoroughly familiar with the respirator and has used it in a non-hazardous environment. The initial training shall address:
 - a. Why the respirator is necessary and how improper Fit, use, or maintenance may compromise its protection.
 - b. Capabilities and limitations of the respirator.
 - c. Inspection, donning, doffing, seal checking, and normal use of the respirator.
 - d. Emergency procedures, including situations that involve malfunction of the respirator, maintenance, and storage procedures.
 - e. Recognition of medical signs and symptoms that may limit or prevent effective use of the respirator.
 - f. The general requirements of 29 CFR 1910.134, Respiratory Protection.

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

4. Each member will demonstrate the proper procedures for:

- a. User inspection of the respirator
- b. Donning of the respirator, including the seal check
- c. Confident in use of the respirator
- d. Emergency procedures
- e. Doffing, cleaning, and maintenance of the respirator

B. Annual Refresher Training

1. Each member who is authorized to use SCBA or other respirators shall participate in an annual refresher training and re-qualification program. The refresher training shall ensure the member is able to meet the objectives listed for initial training and provide any new information that is required. Each member will also demonstrate the same skills as required for initial training program.

C. Training Records

1. The Fire Director/Battalion/Division Chief of the Fire-Rescue Academy will maintain the training records of all members who have been initially trained, certified to use respirators, and the records of annual refresher training.
2. Company Commanders (Career and Volunteer) shall ensure that all career and volunteer members maintain their qualifications to use respirators.

Section 9: Maintenance and Inspection

A. Inspection

1. Respirators shall be maintained in good working order and in a clean and sanitary condition. Units that require maintenance or repairs shall be removed from service and tagged to prevent inadvertent use.
2. Regular inspections of respirators shall be conducted in accordance with the following schedule:
 - a. SCBA carried on in-service apparatus for the regular use of crew members shall be checked daily.
 - b. SCBA and spare air cylinders carried on apparatus, including reserve apparatus, command and staff vehicles, shall be checked weekly.
 - c. SCBA reserved for training and spare units shall be checked before each use and before being placed in regular service.
 - d. Other types of respirators shall be checked weekly and before each use.
 - e. All respirators shall be checked after each use, after cleaning and servicing, and before being placed back in service.
3. Respirator inspections shall follow the manufacturer's recommended procedures. Regular user inspections of SCBA shall include verification that:
 - a. The air cylinder is full. Cylinders shall be refilled if the pressure is found to be below 90 % of the rated capacity (4050 psi for a 4500 psi SCBA).
 - b. The regulator, low pressure alarm, and integrated pass device function properly.
 - c. All parts are in operable condition.
 - d. The unit is clean and ready for use.

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

B. Cleaning and Sanitizing

1. Following the manufacturer's instructions, respirators shall be cleaned and sanitized after each use or when the need for cleaning is identified.

C. Function Testing

1. Each SCBA unit shall be thoroughly inspected and flow tested annually by a qualified technician, following the manufacturer's recommended procedures. Also, units shall be flow tested after major maintenance or repairs are conducted and before being returned to service.
2. Maintenance, inspection, and flow test records for each SCBA unit shall be maintained by the Baltimore County Fire Department Breathing Apparatus Technician with a copy annually to the Air Administrator.

D. Maintenance and Repairs

1. Maintenance and repairs shall only be performed by members who have been trained and certified by the Baltimore County Fire Department to perform such operations on the specific make and model of respirators.
2. A maintenance and inspection record for each respirator shall be maintained at the Breathing Apparatus Repair Shop.

E. Air Quality

1. Breathing air compressors, air storage systems, and refill stations shall be regularly inspected and maintained in compliance with the manufacturer's recommendation. The Air Administrator is responsible for ensuring that all such systems are properly inspected and maintained.
2. Compressed gaseous breathing air for SCBA cylinders shall meet the requirements of ANSI/CGA g-7.1, 1989, Commodity Specification for Air, with a minimum air quality of Grade D.
3. Air produced by each of the Department's compressor and refill systems shall be tested at least quarterly by an independent laboratory to ensure that it meets the required specification. The test results shall be forwarded to and maintained by the Breathing Apparatus Technician with a copy to the Air Administrator.
4. A certificate of compliance, certifying that the air has been analyzed by a reputable testing agency and complies with the required specification shall accompany air obtained from other sources. These certificates shall be maintained at the location where the air is stored, until it is expended, then forwarded to the Breathing Apparatus Technician with a copy to the Air Administrator.
5. Breathing Apparatus Technician shall maintain a record of each respirator noting the date of acquisition and assignment, annual inspections and function tests, modifications, overhaul and repairs, with a copy to the Air Administrator.
6. Breathing Apparatus Technician shall also maintain records for each breathing air refill system, including compressors, filters, air storage cylinders and refill stations. This record shall track maintenance, inspection, repairs, and modifications to the system.

S.O.P. #: 400-27A

SUBJECT: RESPIRATORY PROTECTION PROGRAM

Section 10: Program Evaluation

- A. The Air Administrator shall annually review the effectiveness of the Respiratory Protection Program and provide a written report to the Fire Chief. This review shall include:
 - 1. An assessment of compliance with the program requirements.
 - 2. An analysis of reports of respiratory injuries and exposures.
 - 3. A review of changes to applicable regulations and consensus standards.
 - 4. Advances in respiratory protection technology.
- B. The Air Administrator shall periodically develop and issue updates to this Respiratory Protection Program and to related procedures and practices.