NFPA 1404

Standard for Fire Service Respiratory Protection Training

2002 Edition

NFPA, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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Fire Service Respiratory Protection Training

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This edition of NFPA 1404, *Standard for Fire Service Respiratory Protection Training*, was prepared by the Technical Committee on Fire Service Training and acted on by NFPA at its November Association Technical Meeting held November 10–14, 2001, in Dallas, TX. It was issued by the Standards Council on January 11, 2002, with an effective date of January 31, 2002, and supersedes all previous editions.

This edition of NFPA 1404 was approved as an American National Standard on January 31, 2002.

Origin and Development of NFPA 1404

The first edition of NFPA 1404, *Standard for a Fire Department Self-Contained Breathing Apparatus Program*, was developed in response to a perceived need and was published in 1989. The Technical Committee on Fire Service Training recognized that there were no standards on a fire department program for self-contained breathing apparatus (SCBA) and that the lack of guidance in areas such as training, maintenance, and SCBA program evaluation could cause serious problems for the fire service. At that time it was the hope of the technical committee that the void has been filled in a practical and reasonable manner.

The 1996 revised edition of NFPA 1404 was the result of efforts by the Technical Committee to update and provide a more user-friendly document.

A few years after the release of the 1996 edition, the Committee appointed a Task Group to review the content and make recommendations to the full Committee concerning the functionality of the document. As a result of that review, the Task Group suggested a general updating of the document.

In the same time frame, broad questions regarding other fire service standards resulted in the need for clarification of some issues of responsibility related to the subject of self-contained breathing apparatus in NFPA 1404.

The Fire Service Training Committee previously included a wide coverage of the subject of SCBA in NFPA 1404 because there was a void of coverage elsewhere when NFPA 1404 was first developed. Subsequently, however, the Standards Council reassigned the "use" of SCBA to the Fire Service Occupational Safety Committee and NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program.* At the same time the Council assigned "selection, care, and maintenance" and "respiratory breathing air quality" of SCBA to the Technical Committee on Respiratory Protection, which was developing NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA).*

The Standards Council appointed a Task Group to oversee the separation of these aspects of SCBA during the current revision cycle for each affected document. As a result, some SCBA subject areas previously covered in NFPA 1404 have been moved to NFPA 1500 (e.g., requirements for respiratory programs, fit-testing, and use of SCBA) and NFPA 1852 (e.g., selection, care, and maintenance), while NFPA 1404 concentrates on respiratory protection training. With these changes, the title of NFPA 1404 has now been changed to *Standard for Fire Service Respiratory Protection Training,* and the scope has been changed to cover the minimum requirements for the training component of the respiratory protection program found in NFPA 1500.

In Memoriam, September 11, 2001

We pay tribute to the 343 members of FDNY who gave their lives to save civilian victims on September 11, 2001, at the World Trade Center. They are true American heroes in death, but they were also American heroes in life. We will keep them in our memory and in our hearts. They are the embodiment of courage, bravery, and dedication. May they rest in peace.

Technical Committee on Fire Service Training

William E. Peterson, *Chair*
Plano Fire Department, TX [E]
Rep. International Fire Marshals Association

Roger W. Bassett, R. W. Bassett & Associates, IL [SE]
John Martin Best, Reedy Creek Improvement District, FL [E]
Donald T. Brady, Symtron Systems Inc., NJ [M]
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Rep. VFIS
Jack L. Cottet, Utica National Insurance Company, NY [I]
Nicholas J. Cricenti, Jr., SFC Engineering Partnership, Inc., NH [SE]
William E. Glover, High Temperature Linings (HTL), VA [U]
David C. Grupp, Kemper Insurance Companies, IL [I]
George Hall, U.S. Air Force—HQ AFCESA, FL [U]
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Larry D. Hughes, North Carolina Department of Insurance, NC [E]
James G. Kellam, Jr., Virginia Beach Fire Department, VA [U]
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Kent W. Koelz, Palm Beach Fire/Rescue Department, FL [E]
Cortez Lawrence, Auburn Public Safety Department, AL [E]
Roger M. LeBoeuf, Elliott, LeBoeuf & Associates, VA [SE]
Robert A. Lincoln, Jr., Nassau County Fire Service Academy, NY [U]
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Francis T. May, Fire Facilities Inc., IL [M]
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Thomas C. Quillin, Tallahassee Fire Department, FL [U]
Rodney D. Reid, Severns, Reid & Associates, Inc., IL [SE]
Michael T. Richardson, Bullard, KY [M]
Daniel N. Rossos, City of Portland Fire Bureau, OR [E]
James B. Straseske, Illinois Fire Service Institute, IL [U]
Phil Welch, Gaston College, NC [U]
Samuel L. Wilkin, Broward County Fire Rescue, FL [SE]

Alternates

Carl Goodson, Fire Protection Publications, OK [M]
(Vot. Alt. to IFSTA Rep.)
Steven J. Williamson, Symtron Systems Inc., NJ [M]
(Alt. to D. T. Brady)

Nonvoting

Edward W. Bent, Sacramento, CA

Jerry W. Laughlin, NFPA Staff Liaison

Committee Scope: This Committee shall have primary responsibility for documents on all fire service training techniques, operations, and procedures to develop maximum efficiency and proper utilization of available personnel. Such activities can include training guides for fire prevention, fire suppression, and other missions for which the fire service has responsibility.

This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, Annex B lists the complete title and edition of the source documents for both mandatory and nonmandatory extracts. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. Requests for interpretations or revisions of extracted text shall be sent to the appropriate technical committee.

Information on referenced publications can be found in Chapter 2 and Annex B.

Chapter 1 Administration

1.1* Scope. This standard shall contain minimum requirements for the training component of the Respiratory Protection Program found in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program.*

1.2* Purpose. The purpose of this standard shall be to specify the minimum requirements for respiratory protection training for the emergency response organization, including safety procedures for those involved in fire suppression, rescue, and related activities in a toxic or contaminated environment.

1.2.1 The respiratory protection training program shall establish written operational policies and reinforce those policies through comprehensive training.

1.2.2 This standard shall be used to support the requirement of 3.3.1 of NFPA 1001, *Standard for Fire Fighter Professional Qualifications.*

1.2.3 The goal of achievement of these objectives shall be to help prevent accidents, injuries, and exposure to harmful environments and to help to develop an awareness of the critical importance of a respiratory protection program to the health and welfare of personnel who work in hazardous atmospheres.

1.2.4 It shall be possible to achieve many of the performance objectives of this standard in a variety of ways.

1.3 Application.

1.3.1* These requirements shall be applicable to organizations providing fire suppression, fire training, rescue and respiratory protection equipment training, and other emergency services including public, military, and private fire departments and fire brigades that respond off-site.

1.3.2 The use of self-contained breathing apparatus (SCBA) by fire fighters shall always be 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 initial overhaul (salvage) operations, or under other immediate emergency conditions involving spills or releases of chemicals or other toxic materials.

1.3.3 Therefore, fire fighters shall be trained to use positive pressure SCBA with a minimum service life of 30 minutes anytime an IDLH atmosphere is possible.

1.3.4 Nothing herein shall be intended to restrict any authority having jurisdiction from exceeding these minimum requirements.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications,* 1997 edition.

NFPA 1041, *Standard for Fire Service Instructor Professional Qualifications,* 2002 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* 2002 edition.

NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians,* 2000 edition.

NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus,* 2002 edition.

2.3 Other Publications.

2.3.1 U.S. Government Publication. U.S. Government Printing Office, Washington, DC 20402.

Title 42, *Code of Federal Regulations,* Part 84.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not included, common usage of the terms shall apply.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). The organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.4 Shall. Indicates a mandatory requirement.

3.2.5 Should. Indicates a recommendation or that which is advised but not required.

3.3 General Definitions.

3.3.1* Air-Purifying Respirator (APR). A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminates by passing ambient air through the air-purifying element.

3.3.2 Closed-Circuit SCBA. See 3.3.28 Self-Contained Breathing Apparatus (SCBA).

3.3.3* Confined Space. An area large enough and so configured that a member can bodily enter and perform assigned work but which has limited or restricted means for entry and exit and is not designed for continuous human occupancy. [**1500:**3.3]

3.3.4 Contaminant. A harmful, irritating, or nuisance material foreign to the normal atmosphere. [**1500**:3.3]

3.3.5 Corrective Lens. A lens designed to fit the specifications of the wearer's individual corrective prescription.

3.3.6 Exhalation Valve. A device that allows exhaled air to leave a facepiece and prevents outside air from entering through the valve.

3.3.7* Facepiece. The component of a respirator that covers the wearer's nose, mouth, and eyes.

3.3.8* Fire Department. An organization providing rescue, fire suppression, emergency medical services, hazardous materials operations, special operations, and related activities. [**1500:**3.3]

3.3.9 Fire Service. Career or volunteer service groups that are organized and trained for the prevention and control of loss of life and property from any fire or disaster.

3.3.10 Gas. The state of matter characterized by complete molecular mobility and unlimited expansion; used synonymously with the term *vapor.* [**68:**3.3]

3.3.11* Hazardous Atmosphere. Any atmosphere that is oxygen deficient or that contains a toxic or disease-producing contaminant. [**1500:**3.3]

3.3.12 Immediately Dangerous to Life or Health (IDLH). Any condition that would do one of the following: (a) Pose an immediate or delayed threat to life; (b) Cause irreversible adverse health effects; (c) Interfere with an individual's ability to escape unaided from a hazardous environment. [**1670:**1.3]

3.3.13 Live Fire. Any unconfined open flame or device that can propagate fire to the building or other combustible materials. [**1403:**1.4]

3.3.14 Maintenance. Work, including, but not limited to, repair, replacement, and service, performed to ensure that equipment operates properly. [**10:**1.3]

3.3.15* Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. [**1500:**3.3]

3.3.16 NIOSH. National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services.

3.3.17* NIOSH Approved. Tested and certified by the National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health and Human Services.

3.3.18 Open-Circuit SCBA. See 3.3.28 Self-Contained Breathing Apparatus (SCBA).

3.3.19 OSHA. The Occupational Safety and Health Administration of the U.S. Department of Labor. [**55:**1.3]

3.3.20 Overhaul. A fire fighting term involving the process of final extinguishment after the main body of a fire has been knocked down. All traces of fire must be extinguished at this time. [**402:**1.4]

3.3.21 Qualified Person. A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems related to the subject matter, the work, or the project. [**1500:**3.3]

3.3.22* Recruit. An individual who has passed beyond the candidate level and who has actively commenced duties as a member of the organization.

3.3.23 Respiratory Hazard. Any exposure to products of combustion, superheated atmospheres, toxic gases, vapors, or dust, or potentially explosive or oxygen-deficient atmospheres, or any condition that creates a hazard to the respiratory system.

3.3.24* Respiratory Protection Equipment (RPE). Devices that are designed to protect the respiratory system against exposure to gases, vapors, or particulates.

3.3.25 Respiratory Protection Program. A systematic and comprehensive program of training in the use and maintenance of respiratory protection devices and related equipment.

3.3.26 Sanitize. The removal of dirt and the inhibiting of the action of agents that cause infection or disease.

3.3.27 SCBA. Acronym for Self-Contained Breathing Apparatus. [**1982:**1.3]

3.3.28 Self-Contained Breathing Apparatus (SCBA). A respirator worn by the user that supplies a respirable atmosphere, that is either carried in or generated by the apparatus, and that is independent of the ambient environment. [**1981:**3.1]

3.3.28.1 Closed-Circuit SCBA. A recirculation-type SCBA in which the exhaled gas is rebreathed by the wearer after the carbon dioxide has been removed from the exhalation and after the oxygen content within the system has been restored from sources such as compressed breathing gas, chemical oxygen, and liquid oxygen. [**1981:**1.3]

3.3.28.2 Open-Circuit SCBA. An SCBA in which exhalation is vented to the atmosphere and not rebreathed. There are two types of open-circuit SCBA: negative pressure or demand type and positive pressure or pressure demand type. [**1981:**1.4]

3.3.29 Smoke. The airborne solid and liquid particulates and gases evolved when a material undergoes pyrolysis or combustion, together with the quantity of air that is entrained or otherwise mixed into the mass. [**318:**1.5.2]

3.3.30 Standard Operating Procedures. Written instructions that document and define the manner in which activities should be conducted.

3.3.31 Supplied-Air Respirator (SAR) or Air-Line Respirator. An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Chapter 4 Provisions of Respiratory Protection Equipment Used in Training

4.1 Inventory and Allocation of Respiratory Protection Equipment (RPE).

4.1.1 SCBA shall be available at the training site to provide one unit for each member who could be exposed to respiratory hazards.

4.1.2 At least one reserve SCBA shall be available at the training site for each 10 SCBA in use to provide for replacement if a failure occurs during training evolutions.

4.1.3* A reserve air supply shall be provided by use of reserve cylinders or by an on-scene refill capability, or both, during training evolutions.

4.1.4 All respiratory protection equipment shall be stored in accordance with Section 6.3 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus*.

4.2 Selection and Use of SCBA in Training.

4.2.1 SCBA used by the authority having jurisdiction for training shall meet the requirements of Section 4.3 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus*.

4.2.2 SCBA used in training exercises shall be of the type and manufacture employed by the authority having jurisdiction.

4.2.3* Training policies shall be established by the authority having jurisdiction regulating the use of SCBA equipped with an Emergency Breathing Support System (EBSS) commonly known as "buddy" or rescue breathing devices.

4.3 Selection and Use of Supplied-Air Respirators (SAR) in Training. SAR units used in training shall be of the type and manufacture employed by the authority having jurisdiction.

4.4 Selection and Use of Full-Facepiece Air-Purifying Respirators (FFAPR) in Training. FFAPR units used in training shall be of the type and manufacture employed by the authority having jurisdiction.

Chapter 5 Respiratory Protection Training Component

5.1 Coordinated Administrative Policies.

5.1.1 The authority having jurisdiction shall adopt and maintain a respiratory protection program that meets the requirements of Section 7.3 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

5.1.2 The authority having jurisdiction shall conduct ongoing respiratory protection training that meets the requirements of this standard.

5.1.3 Respiratory protection training shall be conducted according to written standard operating procedures.

5.1.4* The authority having jurisdiction shall establish and enforce written standard operating procedures for training in the use of respiratory protection equipment that shall include the following:

(1) When respiratory protection equipment is to be used
(2) When to exit due to reduced air supply
(3) Emergency evacuation procedures
(4) Procedures for insuring proper facepiece fit
(5) Cleaning of respiratory protection equipment components

5.1.5 The authority having jurisdiction shall provide respiratory protection equipment for each member at the training site who could be exposed to respiratory hazards.

5.1.6 The authority having jurisdiction shall establish written training policies for respiratory protection.

5.1.7* Training policies shall include, but shall not be limited to the following:

(1) *Identification of the various types of respiratory protection equipment
(2) Responsibilities of members to obtain and maintain proper facepiece fit
(3) Responsibilities of members for proper cleaning and maintenance
(4) *Identification of the 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
(7) Limitations of respiratory protection devices

5.1.8 The members of the authority having jurisdiction shall be trained on the procedures for inspection, maintenance, repair, and testing of respiratory protection equipment in accordance with Chapter 7 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus*.

5.2 Requirements of the Respiratory Protection Training Component. The authority having jurisdiction shall ensure that each employee can demonstrate knowledge of the following:

(1) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
(2) What the limitations and capabilities of the respirator are
(3) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
(4) How to inspect, don and doff, use, and check the seals of the respirator
(5) What the procedures are for maintenance and storage of the respirator
(6) How to recognize medical signs and symptoms that can limit or prevent the effective use of respirators
(7) General requirements of Section 5.2

Chapter 6 Respiratory Protection Training

6.1 Recruit Training.

6.1.1* 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 by instructors that have been trained and certified by a SCBA manufacturer or authorized distributor.

6.1.2* Records of all respiratory protection training shall be maintained, including training of personnel involved in maintenance of such equipment, in accordance with Section 4.3 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus*.

6.1.3* Minimum performance standards shall be established by NFPA 1001, *Standard for Fire Fighter Professional Qualifications,* and the authority having jurisdiction for donning respiratory protection equipment.

6.1.4* Fit-testing procedures as provided in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* shall be required for all recruits who are expected to use a tight-fitting facepiece respirator, including SCBA, SAR units, and FFAPRs that use a full facepiece, prior to training in contaminated atmospheres.

6.1.5 Prior to initial training, members shall be examined and certified by a physician as being medically and physically fit in accordance with the following:

(1) NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*
(2) NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians*
(3) Physical fitness requirements developed and validated by the authority having jurisdiction for entry level personnel

6.2 Annual Member Re-Training and Certification.

6.2.1 Re-training shall be administered annually and when the following situations occur:

(1) Changes in the workplace or the type of respirator render the previous training obsolete
(2) Inadequacies in the members' knowledge or use of the respirator indicate that the member has not retained the requisite understanding or skill
(3) Any other situation arises in which re-training appears necessary to ensure safe respirator use

6.2.2 The respiratory protection training program shall provide members with annual training concerning the following:

(1) Safely donning and doffing SCBA, SAR, and FFAPR
(2) Uses and limitations of respiratory protection equipment
(3) Consequences of an improper fit or poor maintenance impacting the protection being provided
(4) How to perform seal checks
(5) How to recognize medical signs and symptoms that can impact use of respirators
(6) How to inspect the respirator before use
(7) Procedures for maintenance and storage
(8) Individual limitations of members who could be required to use an SCBA, SAR, or FFAPR

6.3 Respiratory Protection Training Safety.

6.3.1 Smoke produced from live fire shall be prohibited in SCBA training sessions.

6.3.2 The authority having jurisdiction shall provide members with the most current information available concerning the correct operation of their respiratory protection equipment, its limitations and capabilities, and relevant information concerning why and how proper fitting is important to the safety of the user.

6.3.3 Standard operating procedures shall be written concerning the correct operation of respiratory protection equipment during training.

6.3.4 Members shall demonstrate knowledge of correct procedures and practices through an evaluation process that is established by the authority having jurisdiction.

6.3.5 Instruction on the common reasons for the breakdown of procedures or equipment that could 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

6.3.6* Members required to wear respiratory protection equipment in conjunction with specialized protection equipment in training activities (e.g., proximity suits or totally encapsulated suits) shall be evaluated for physical and emotional stresses associated with these specialized applications.

6.3.7 The authority having jurisdiction shall be responsible for establishing a written training component that provides members with training in the use and 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.

6.3.8 The program shall provide a means of evaluating member performance in the use of respiratory protection equipment and member knowledge of the respiratory equipment used.

6.3.9 Respiratory protection training shall be conducted as an ongoing training program.

6.4 Ability to Act Properly in Simulated Emergencies.

6.4.1 The authority having jurisdiction shall provide a means for evaluating a member's ability to don and doff respiratory protection under simulated emergency incidents.

6.4.2* The authority having jurisdiction shall provide a means for evaluating its members in the use and operation of respiratory protection equipment under simulated emergency incidents.

6.4.3 Members shall demonstrate an ability to operate under simulated emergency incident conditions.

6.5 Requirements for the Progression of Training.

6.5.1 Recruit training shall include the identification of SCBA, SAR, and FFAPR components, terminology, and equipment specifications through the following:

(1) Operation of SCBA, SAR units, and FFAPR, 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 respiratory protection
(5) Comprehension of organizational policies and procedures concerning safety procedures, 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

6.5.2* Training shall be conducted in a sequential format with a logical progression towards achieving specific goals, including the following:

(1) Establishing policies by the authority having jurisdiction
(2) Requiring theoretical understanding of respiratory protection
(3) Developing practical skills

6.6 Recognizing Hazards.

6.6.1 The training program of the authority having jurisdiction shall evaluate the ability of personnel to identify the following:

(1) Hazardous environments that require the use of respiratory protection
(2) Primary gases produced by combustion
(3) Primary characteristics of gases that are present or generated by processes other than combustion
(4)*Any toxic gases that are unique to the particular authority having jurisdiction resulting from manufacturing or industrial processes
(5) Shipping labels of hazardous materials

6.6.2 Fire department members shall be trained to handle problems related to the following situations that can be encountered during the use of respiratory protection equipment:

(1)*Low temperatures
(2)*High temperatures
(3)*Rapid temperature changes
(4)*Use of communications equipment
(5)*Confined spaces
(6)*Use of corrective lenses
(7)*Face-to-facepiece 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
(12)*Overhaul

6.7 Specialized Training on SCBA.

6.7.1 Understanding the Components of SCBA. The training program of the authority having jurisdiction shall evaluate the ability of members to perform the following skills:

(1) Identify the components of facepieces, regulators, harnesses, and cylinders used by the authority having jurisdiction
(2) Demonstrate the operation of the SCBA used by the authority having jurisdiction
(3) Describe the operation of the SCBA used by the authority having jurisdiction
(4)*Describe the potential incompatibility of different makes and models of SCBA

6.7.2 Understanding the Safety Features and Limitations of SCBA. The training program of the authority having jurisdiction shall evaluate the ability of members to perform the following skills:

(1)*Describe the operational principles of warning devices required on a SCBA
(2) Identify the limitations of the SCBA used by the authority having jurisdiction
(3)*Describe the limitations of the SCBA's ability to protect the body from absorption of toxins through the skin
(4) Describe the procedures to be utilized if unintentionally submerged in water while wearing a SCBA
(5) Demonstrate the possible means of communications when wearing a SCBA
(6) Describe the emergency bypass operation
(7) Describe how to recognize medical signs and symptoms that could prevent the effective use of respirators

6.7.3 Donning and Doffing SCBA. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Techniques for donning and doffing all types of SCBA used by the authority having jurisdiction while wearing the full protective clothing used by the authority having jurisdiction
(2) That a proper face-to-facepiece seal has been achieved by using the seal check

6.7.4 Practical Application in SCBA Training. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Knowledge of the components of respiratory protection
(2)*Use of all types of SCBA utilized by the authority having jurisdiction under conditions of obscured visibility
(3)*Emergency operations that are required when a SCBA fails
(4)*Emergency techniques using a SCBA to assist other members, conserve air, and show restrictions in use of bypass valves
(5) Use of a SCBA in limited or confined spaces
(6) Proper cleaning and sanitizing of the facepiece

6.8 Specialized Training in the Use of a SAR.

6.8.1 Understanding the Components of a SAR. The training program of the authority having jurisdiction shall evaluate the ability of members to perform the following skills:

(1) Describe the air source, air hose limitations, and NIOSH-approved inlet pressure gauge range
(2) Identify the components of facepieces, regulators, harnesses, manifold system, and cylinders or compressors used by the authority having jurisdiction
(3) Describe the operation of the SAR used by the authority having jurisdiction
(4) Describe the limitations of the escape cylinder
(5)*Describe the potential incompatibility of different makes and models of SAR units
(6) Describe proper procedures for inspection, cleaning, and storage of SAR units

6.8.2 Understanding the Safety Features and Limitations of a SAR. The training program of the authority having jurisdiction shall evaluate the ability of members to perform the following skills:

(1)*Describe the operational principles of an emergency escape cylinder required on a SAR when used in IDLH atmospheres
(2) Identify the limitations of the SAR used by the authority having jurisdiction
(3)*Describe the limitations of the SAR's ability to protect the body from absorption of toxins through the skin
(4) Describe the possible means of communications when wearing a SAR
(5) Describe the prohibition in using compressed oxygen with a SAR system

(6) Describe how to recognize medical signs and symptoms that could prevent the effective use of a SAR

6.8.3 Donning and Doffing SAR. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Proper techniques for donning and doffing all types of SAR used by the authority having jurisdiction while wearing the full protective clothing
(2) That a proper face-to-facepiece seal has been achieved by using the seal check
(3)*Proper methods for tending SAR air hoses

6.8.4 Practical Application in SAR Training. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Knowledge of the components of the SAR system
(2) Understanding that the use of SAR is prohibited for fire fighting
(3)*Use of SAR utilized by the authority having jurisdiction under conditions of obscured visibility
(4)*Emergency operations that are required when the SAR fails
(5) Use of SAR when using hazardous materials personal protective equipment if utilized by the authority having jurisdiction
(6) Use of SAR in limited or confined spaces
(7) Proper cleaning and sanitizing of the facepiece

6.9 Specialized Training in the Use of FFAPRs.

6.9.1 Understanding the Components of FFAPR Units. The training program of the authority having jurisdiction shall evaluate the ability of members to perform the following skills:

(1) Identify the components of facepieces, canisters, and cartridges used by the authority having jurisdiction
(2) Describe the operation of the FFAPR used by the authority having jurisdiction
(3)*Describe the limitations of the FFAPR
(4) Demonstrate the operation of the FFAPR used by the authority having jurisdiction
(5) Describe how a selected FFAPR must be appropriate for the chemical state and physical form of the contaminate
(6)*Determine when to replace canisters and cartridge units
(7) Demonstrate proper procedures for inspection, cleaning, and storage of FFAPR

6.9.2 Understanding the Safety Features and Limitations of FFAPR. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Describe the operational principles of the FFAPR
(2) Identify the limitations of the FFAPR used by the authority having jurisdiction
(3)*Describe the limitations of the FFAPR's ability to protect the body from absorption of toxins through the skin
(4) Describe the procedures for determining canister and cartridge selection by color-coded as well as NIOSH-approved labeling
(5) Understand labels are not to be removed from canisters or cartridges
(6) Understand that the use of FFAPR is prohibited for fire fighting
(7)*Describe the limitations of FFAPR in fire ground activities

6.9.3 Donning and Doffing FFAPR. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Proper techniques for donning and doffing all types of FFAPR used by the authority having jurisdiction while wearing the full protective clothing
(2) That a proper face-to-facepiece seal has been achieved

6.9.4 Practical Application in FFAPR Training. The training program of the authority having jurisdiction shall evaluate the ability of members to demonstrate the following:

(1) Knowledge of the components of respiratory protection
(2) Limits of communications when wearing the FFAPR
(3) Use of FFAPR utilized by the authority having jurisdiction under conditions of obscured visibility
(4) Correct selection and installation of canisters and cartridges for a given situation
(5) Proper method of donning and doffing the FFAPR
(6) The positive pressure and the negative pressure face-to-facepiece leak test
(7) Use of FFAPR in limited or confined spaces
(8) Proper cleaning and sanitizing

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

6.11 Maintenance and Testing. Training in the maintenance and testing of respiratory protection equipment shall be in accordance with the provisions of Chapter 7 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.*

6.12 Manufacturer's Instructions. Training for maintenance and testing of SAR and FFAPR shall be in accordance with the manufacturer's instructions for the units provided.

6.13 Inspection. The authority having jurisdiction's training program shall evaluate the ability of members to demonstrate the following:

(1) Procedure for conducting routine and post-incident inspections of a SCBA, SAR, and FFAPR
(2) Thorough inspection and test of the SCBA, SAR, and FFAPR
(3) Procedure for reporting defective SCBA, SAR, and FFAPR units

Chapter 7 In-Service Inspection of Respiratory Protection Equipment Used in Training

7.1 SCBA Service Checks.

7.1.1 SCBA service checks shall be conducted in accordance with 7.1.2 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.*

7.1.2 Closed-circuit SCBA used in training shall be inspected at frequencies determined by the authority having jurisdiction in accordance with the manufacturer's recommendations but at no less than weekly intervals.

7.1.3 Closed-circuit SCBA shall be checked before and after each use in accordance with the manufacturer's recommendations.

7.2 SAR Unit Service Checks.

7.2.1 Inspection, maintenance, and repair records shall be maintained for SAR units used in training as required in Chapter 4 of this standard.

7.2.2 All training SAR units used in emergency situations shall be inspected at least monthly in accordance with the manufacturer's instructions and shall be checked for proper function before and after each use.

7.2.3 All SAR units used in training shall be operated in accordance with the manufacturer's instructions.

7.2.4* The SAR unit shall consist of an emergency-escape air cylinder and a pressure-demand-only facepiece when used in an IDLH atmosphere.

7.3 FFAPR Service Checks.

7.3.1 Inspection, maintenance, and repair records for FFAPR use in training shall be maintained as required in Chapter 6 of this standard.

7.3.2 The FFAPR used for training shall be thoroughly inspected upon receipt and prior to each use.

7.3.3 The FFAPR used for training shall be tested for leaks prior to each use in accordance with the manufacturer's instructions.

Chapter 8 Maintenance

8.1 User Maintenance.

8.1.1* All maintenance and repairs on respiratory protection equipment used for training shall be conducted by qualified persons in accordance with NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.*

8.1.2 Annual inspection and servicing of SCBA and SAR systems used in training shall be conducted by qualified personnel and whenever an operational problem is reported.

8.1.2.1 Inspections and servicing of SCBA shall be performed in accordance with NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.* Inspection of SAR units shall be in accordance with manufacturer's instructions for the unit in service.

8.1.3 Cleaning and sanitizing of SCBA training units shall be conducted in accordance with Section 6.1 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.*

8.1.4 SAR units and FFAPR training units shall be cleaned and sanitized as specified in the manufacturer's instructions.

8.1.5 Fire fighters, or other designated and trained personnel, shall clean and sanitize each SCBA, SAR unit, and FFAPR after each training session use or upon their return to the fire station.

8.1.5.1 SCBA units shall be cleaned and disinfected in accordance with Chapter 6 of NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.*

8.1.5.2 SAR and FFAPR units shall be cleaned and disinfected in accordance with the manufacturer's instructions.

8.1.5.3 The entire device shall be cleaned, filter cartridges replaced if appropriate, and the facepiece and breathing tube shall be sanitized.

Chapter 9 Breathing Air for Respiratory Protection Training

9.1 Air Quality Control. Air for respiratory protection training taken from the regular production of a compressor and storage system shall meet the testing and quality requirements of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program.*

9.2 Recharging Air Cylinders Used in Training.

9.2.1 Air cylinders used in training shall be inspected and filled in accordance with the provisions of Chapter 7 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program.*

9.2.2 Air cylinders shall be filled only by personnel who have been trained on the procedures and equipment.

9.2.3 The operating procedures and safety precautions shall be posted in a conspicuous location at the fill station.

Chapter 10 Respiratory Protection Training Evaluation

10.1 Annual Evaluation.

10.1.1 Members shall be re-evaluated annually in accordance with 6.7.4 to determine their proficiency while using respiratory protection.

10.2 Review and Revise. The authority having jurisdiction shall review the organization's respiratory protection training component annually and revise this component, where necessary, to ensure continuity with the authority having jurisdiction's respiratory protection program.

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.1 In addition to this standard, other components of the Respiratory Protection Program are contained in NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus*, and NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians.*

A.1.2 Organizations that train with or use respiratory protection equipment need to recognize their responsibility for the safety and welfare of personnel. A part of this responsibility is the development and implementation of a comprehensive respiratory protection program. This standard can also assist an organization with the development of a respiratory protection program that meets the requirements of OSHA 29 CFR 1910.134; 29 CFR 1910.156; NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*; NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians*;

and NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus*.

A.1.3.1 It also should be noted that, unlike industrial users of respiratory protective devices who consider respirators as a secondary defense against breathing hazards and engineering controls as the primary means, the fire service depends on positive pressure SCBA as the first and only means of respiratory protection during live fire training evolutions. Positive pressure ventilation will help reduce the level of hazard but will not be a substitute for the use of SCBA.

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.3.1 Air-Purifying Respirator (APR). For purposes of this standard, all air-purifying respirators are considered to be full-facepiece.

A.3.3.3 Confined Space. Additionally, a confined space is further defined as having one or more of the following characteristics:

(1) The area contains or has a potential to contain a hazardous atmosphere, including an oxygen-deficient atmosphere.
(2) The area contains a material with a potential to engulf a member.
(3) The area has an internal configuration such that a member could be trapped by inwardly converging walls or a floor that slopes downward and tapers to a small cross section.
(4) The area contains any other recognized serious hazard.

A.3.3.7 Facepiece. It is designed to make a gastight or particle-tight fit with the face and includes the headbands, exhalation valves, and other necessary components required to connect it to a respirable gas source.

A.3.3.8 Fire Department. The term *fire department* should include any public, governmental, private, industrial, or military organization engaging in this type of activity.

A.3.3.11 Hazardous Atmosphere. A hazardous atmosphere can be immediately dangerous to life and health.

A.3.3.15 Member. A fire department member can be a full-time or part-time employee or a paid or unpaid volunteer, can occupy any position or rank within the fire department, and can engage in emergency operations.

A.3.3.17 NIOSH Approved. In accordance with the requirements of 42 CFR 84.

A.3.3.22 Recruit. As defined by NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

A.3.3.24 Respiratory Protection Equipment (RPE). Examples are filter respirators, chemical cartridge or canister respirators, air-line respirators, powered air-purifying respirators, and self-contained breathing apparatus.

A.4.1.3 The intent of this paragraph is to prevent unsafe or lowered air pressures in breathing air cylinders for the express purpose of extending the number of training evolutions that are performed in hazardous atmospheres.

A.4.2.3 Several manufacturers of SCBA currently market "buddy" or rescue breathing devices as a component of their SCBA. NIOSH has no guidelines and does not test or certify respirators when being used to give or receive emergency breathing support. However, OSHA 29 CFR 1910.156(f)(1)(iii) states, "Approved self-contained breathing apparatus may be equipped with either a 'buddy-breathing' device or a quick disconnect valve, even if these devices are not certified by NIOSH. If these accessories are used, they shall not cause damage to the apparatus, or restrict the air flow of the apparatus, or obstruct the normal operations of the apparatus."

Until and unless NIOSH approves an auxiliary device for buddy breathing, the practice of buddy breathing is not endorsed in any way by this committee. The practice of passing the SCBA facepiece back and forth between two users is considered unsafe because highly toxic air contaminants can enter the facepiece during the exchange of the facepiece.

A.5.1.4 Paragraph 7.3.2 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, provides specific information on when a SCBA is to be used.

A.5.1.7 One role of any training program is to generate acceptance of operational evolutions for coordination and skill. The use of proper procedures and the dispelling of false notions concerning the use and application of respiratory protection equipment are equally important. The state of the art in today's fire-fighting environment demands a commitment by each authority having jurisdiction to ensure maximum acceptance in the use of respiratory protection equipment.

A.5.1.7(1) The authority having jurisdiction is responsible for providing respirators that are applicable and suitable for the purpose intended.

A.5.1.7(4) Members should be instructed in the variables that affect the duration of available air supply. Such factors as physical conditioning, physical exertion, and emotional stability all influence the duration of the air supply.

A.5.1.7(5) Members should be thoroughly familiar with the "point of no return" theory to prevent entrance into hazardous areas that are located beyond safe margins. The time necessary for entry, work, and exit from a hostile environment should be considered for each member, since it varies among

individuals. The factors that help determine the point of no return are as follows:

(1) Entry point
(2) Physical condition
(3) Size of the individual
(4) Work being performed
(5) Environment where the work is being performed
(6) Amount of air available when entering the environment
(7) Other stresses (e.g., people trapped, difficult access, outside temperatures)
(8) Type of protective clothing used
(9) Training

It is important to determine two points of air consumption relevant to the point of no return: the point from the start of the operation until the warning alarm operates, and the time it takes to consume the remainder of the air available. These two points can help determine the individual's point of no return.

A.6.1.1 This paragraph does not prohibit the use of manufacturers' representatives to provide training related to their products.

A.6.1.2 A method of maintaining the information deemed appropriate by the authority having jurisdiction concerning respiratory protection recruit training should be developed. This could vary from entries in the station log to specialized individual, company, or departmental records. *(See NFPA 1401, Recommended Practice for Fire Service Training Reports and Records.)*

A.6.1.3 The minimum level of performance recommended by this standard is for a member wearing full protective clothing to be capable of donning respiratory protection equipment and to be fully operational within 60 seconds. This timed performance should begin with the member standing in full protective clothing with the respiratory protection equipment placed on the ground and should stop when the member is properly attired in full protective clothing and is properly wearing fully operational respiratory protection equipment. The respiratory protection equipment cylinder valve should be in the closed position before starting the performance. It is understood that members normally do not don SCBA by first picking it up off the ground; however, this procedure is used in this document to set a performance standard. It is recommended that additional performance standards be established by each authority having jurisdiction based upon the manner in which it stores or carries its SCBA or SAR units. For example, if SCBA or SAR units are carried on apparatus in cases, a performance standard should be established for the removal and donning of the units from the cases.

A.6.1.4 Training for general respirator familiarization can be done before the recruit has been fit-tested, provided each recruit has met the medical and physical fitness requirements and provided that they are not exposed to any hazardous atmosphere.

A.6.3.6 Significant increases in blood pressure and respiratory rates, unusual signs of fatigue, and claustrophobic tendencies are factors that could disqualify members from performing these activities.

A.6.4.2 Although all aspects of the physical and emotional stresses an emergency scene creates cannot be fully duplicated during training exercises, many of these aspects can be simulated.

The more stresses that are duplicated, the more beneficial the training. Furthermore, the student's performance can be evaluated more accurately. These simulations should take into consideration varying situations during which the student can be required to wear an SCBA or SAR unit, such as where using a fully encapsulating suit or FFAPR during hazardous materials incidents or overhauling operations.

A.6.5.2 The first level of instruction normally takes place in a classroom setting, allowing the student to become thoroughly familiar with respiratory protection equipment by actual "hands-on" training. This allows the instructor to use various testing and evaluation methods to determine a student's level of comprehension. Manipulative skills are best learned and retained by using the actual SCBA, SAR, or FFAPR as soon as possible after the classroom instruction.

The second level of respiratory protection training should allow the student to operate the equipment while performing various emergency response tasks, so the student becomes familiar with the unit and becomes confident with its use. This training should take place in a setting that can be safely controlled by the instructor and should be pertinent to the tasks being performed. The use of a training maze is one alternative application for this level of training and builds confidence in the student.

The third level of training should allow the student to operate with SCBA, SAR, or FFAPR under simulated emergency conditions. Up to this point, the student should have demonstrated his or her ability to identify, operate, and use the assigned respiratory protection equipment in performing various manipulative emergency scene tasks. When the student has successfully demonstrated the ability to perform emergency scene tasks, he or she is ready to perform these same tasks under simulated emergency conditions. The student should be allowed to demonstrate his or her ability to perform under emergency conditions by operating under various simulated emergency conditions during this level of training. Such training can include conducting tasks while wearing hazardous material suits and other job-related tasks required by the authority having jurisdiction. The facility or area for conducting this type of training should allow the instructor to maintain student safety and provide for the proper evaluation of the student's performance.

A.6.6.1(4) Management representatives from various companies in the response district, as well as information from prefire planning visits, are helpful in identifying features unique to the jurisdiction.

A.6.6.2(1) The major problems in the use of full facepieces at low temperatures are poor visibility and freezing of exhalation valves. All full facepieces are designed so that the incoming fresh air sweeps over the inside of the lens to reduce fogging. Antifogging compounds can be permitted to be used to coat the inside of some lenses to prevent fogging in temperatures as low as 0°C (32°F). Below 0°C (32°F), a nosecup usually is needed to inhibit fogging of the lens. Full facepieces are available with nosecups that direct the warm, moist, exhaled air through the exhalation valve without contacting the lens.

At very low temperatures, the exhalation valve can collect moisture and freeze in the open position, allowing the wearer to breathe contaminated air, or in the closed position, preventing normal exhalation. Where SCBA or SAR units are used in low temperatures, they should be used according to the manufacturer's instructions and under the conditions for which they are approved by NIOSH.

High-pressure connections on SCBA can leak because of metal contraction at low temperatures. These connections should be tightened enough to prevent leakage but not be so tight that they break when the temperature returns to normal. In temperatures below 0°C (32°F), moisture contained in breathing air can condense in the breathing circuits and freeze, rendering the device inoperable. If water spraying from the discharging fire lines comes in contact with the regulator housing or valve assemblies, it can freeze, forming an ice coating that can render the device inoperable. This is especially true if the ice coating covers the atmospheric pressure ports on the regulator, thereby preventing its proper operation.

Other problems that could occur in SCBA exposed to below-freezing temperatures for any length of time (e.g., SCBA in storage), depending on the make and model, are as follows:

(1) Emptying of the air cylinder due to leakage at cylinder and valve connections
(2) Shattering of the facepiece lens if bumped or dropped
(3) Rigidity and inflexibility of rubber parts (e.g., the breathing tube or facepiece), affecting facepiece fit and head movement
(4) Any leaks around all connections
(5) Difficulty in operating control valves (e.g., main, bypass, and cylinder)
(6) Failure of the low-pressure alarm to operate

All members should be trained to be aware of these problems and should know how to correct them.

SAR air-supplying hoses have various temperature limitations for low and high temperatures. Refer to manufacturer's instructions for operational limitations.

A.6.6.2(2) A member in areas of high ambient or radiant temperature is under stress. Although the SCBA, together with a helmet and protective clothing, affords some protection against the heated atmosphere, members should know their own limitations as well as the limitations of the protective clothing and equipment. Members should be trained to recognize the warning signs of extremely high temperatures that might not be obvious while they are breathing somewhat cooler air from the SCBA.

SAR air-supplying hoses have various high temperature limitations. Refer to manufacturer's limitations for high temperatures. SARs are not suitable for fire-fighting operations.

A.6.6.2(3) Problems arise where SCBA are subjected to rapid changes in temperatures on the fireground. This is particularly true where a single-lens facepiece is used. The large lens on some makes is subject to distortions caused by rapid temperature changes or by high air temperatures alone, causing leakage around the lens mounting or the face-to-facepiece seal, or both. Such a situation is more likely to occur in areas where extremely cold climatic conditions are encountered but can also occur even during warm weather when the devices are taken into the extremely high temperatures encountered on the fireground. All members should be trained to know these limitations and corrective procedures in the event such conditions occur.

A.6.6.2(4) Voice communication while wearing a respirator is necessary to perform specific tasks during emergency scene operations. Although a respirator facepiece distorts the voice to some extent, the respirator's exhalation valve usually provides a pathway for some speech transmission over short distances in relatively quiet areas. Understanding the limitations of communications and use of devices to enhance communications is extremely important. Where necessary, communications through hand signals should be practiced.

Where a walkie-talkie radio transmitter is used, speech transmission is often distorted when the walkie-talkie microphone is held near the exhalation valve. Holding the microphone firmly against the facepiece lens usually allows a clearer transmission without the voice distortion created by the operation of the exhalation valve. An even clearer transmission is possible for walkie-talkies in a leather case if the perforated leather over the microphone is cut out and a thin layer of foam rubber is cemented around the edge of the hole in the leather. The hole over the microphone then can be held securely against the facepiece lens for clearer voice transmission.

A.6.6.2(5) All confined spaces should be considered to be immediately dangerous to life or health (IDLH) unless proven otherwise. No member should be permitted to enter a confined space for fire-fighting operations, including emergency rescue operations, without wearing an SCBA or SAR. Confined spaces include, but are not limited to, wells, cisterns, holds of ships, tunnels, subway tunnels, basements, subbasements, pits, windowless buildings, and other such spaces where oxygen deficiency or hazardous airborne materials, or both, can be present. Users of SCBA or SARs entering such spaces are required to work in teams of two or more and should maintain some form of contact with a person wearing an SCBA who is located in a safe atmosphere and who, in an emergency, is capable of performing the necessary rescue operations. Such contact can be maintained by voice communication, visual communication, lifeline communication, radio communication, or other acceptable means of communication. The same requirement should apply to members entering and operating in any hazardous area at the scene of a fire, including smoke-filled rooms or areas of a building.

A.6.6.2(6) If a member wears corrective glasses or goggles or other personal protective equipment, the authority having jurisdiction should ensure that such equipment is worn in a manner that does not interfere with the face-to-facepiece seal.

A.6.6.2(7) The authority having jurisdiction should not permit respirators with tight-fitting facepieces to be worn by members who have facial hair that comes between the sealing surface of the facepiece and the face or that interferes with the valve function, or any condition that interferes with the face-to-facepiece seal or valve function.

A.6.6.2(8) Some airborne contaminants are extremely irritating to the skin (e.g., ammonia and hydrochloric acid), while others are capable of being absorbed through the skin and into the bloodstream with serious, possibly fatal, results. Hydrogen cyanide and many of the organic phosphate pesticides, such as thiophosphate insecticide and tetraethyl pyrophosphate (TEPP), can penetrate unbroken skin. Respiratory protection equipment does not afford complete protection against these contaminants. If such materials are encountered or suspected, an effective full-body covering suit of impermeable materials should be worn with the SCBA or SAR as specified in NFPA 49, *Hazardous Chemicals Data.* (Note: Although NFPA 49 has been officially withdrawn from the *National Fire Codes®*, the information is still available in NFPA's *Fire Protection Guide to Hazardous Materials.*)

A.6.6.2(9) The SCBA, SAR, and FFAPR do not protect the skin or the entire body against ionizing radiation from air-