

## CHAPTER 15

### RESPIRATORY PROTECTION

#### 1501. Discussion

a. This chapter establishes requirements and responsibilities for an ashore respiratory protection program. Reference 15-1 covers respiratory protection for forces afloat.

b. Many occupational activities expose personnel to air contaminants which can be dangerous, if inhaled. The best means of protecting personnel from exposure to potentially hazardous materials is to eliminate the air contaminant at its source. When elimination of the air contaminant is not possible, the preferred protection method is engineering controls. Activity work center personnel shall use respirators where neither elimination of the air contaminant nor use of engineering controls is wholly effective.

#### 1502. Applicability

a. The provisions of this chapter shall apply where employees are required to wear respiratory protection equipment due to the nature of their work or job.

b. The provisions of this chapter do not apply to:

(1) Contractors. They are responsible for providing their own respiratory protection programs and respiratory protective equipment.

R) (2) Personnel wearing respiratory protection for the sole purpose of protection against airborne radioactive contamination associated with the Naval Nuclear Propulsion Program, which is governed by reference 15-2.

#### 1503. General Requirements

a. Whenever respiratory protection is required, activities shall establish and maintain a respiratory protection program per this chapter and reference 15-3. The commanding officer or officer in charge shall appoint a trained respiratory protection program manager (RPPM) who shall implement program requirements. Section 1512 contains minimum RPPM training requirements.

b. Activities shall provide appropriate equipment to personnel, such as employees, inspectors and visitors who must enter an area where the use of respiratory protection is required. These personnel shall use this equipment regardless of stay time.

c. Activities shall fit test, issue and train personnel to wear respirators and ensure personnel are medically qualified. The only exception is for escape-only respirators. The Navy does not require medical approval for visitors and personnel not assigned to the work areas where activities provide escape-only respirators for potential emergencies. However, they shall be briefed in the use of the escape respirator and shall be escorted at all times by activity personnel who are trained in the use of the respirator and who can guide and assist them in emergencies.

d. The RPPM shall maintain a listing of employees that require respiratory protection and shall authorize those employees to wear respiratory protective equipment. The activity shall provide

appropriate respiratory protection equipment to these individuals.

e. Per reference 15-3,

*"The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:*

*(A) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or*

*(B) Any condition that interferes with the face-to-facepiece seal or valve function.*

*(C) If any employee wears corrective glasses or goggles or other personal protective equipment, the employer shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user."*

f. Activity programs shall only permit the issuance of respiratory protection for:

(1) Workers in areas known to have contaminant levels requiring the use of respiratory protection or in which contaminant levels requiring the use of respiratory protection may create a hazard without warning (e.g., emergency purposes such as hazardous material spill responses)

(2) Workers performing operations documented as an inhalation hazard and workers in the immediate vicinity where operations generate hazardous levels of contaminants

(3) Workers in suspect areas or performing operations suspected of being health hazardous but for which adequate sampling data does not exist

(4) Workers performing operations for which the Occupational Safety and Health Administration (OSHA) requires respiratory protection

(5) Workers performing operations where OSHA permits the employee to choose to use a respirator (i.e., lead)

R) (6) Any other worker for whom the use of respiratory protection is deemed appropriate by the RPPM - for humanitarian or morale use- (voluntary respirator use).

g. Voluntary Respirator Use. When respirators are not required, voluntary use of respiratory protection is allowed if the respirators are issued and controlled by the RPPM and the following criteria are met. Voluntary respirator use is defined/ described in detail in the glossary (see Voluntary Respirator Use).

(A) NIOSH approved filtering facepieces (dust masks) may be issued without medical screening and fit testing. Annually provide respirator users with the information contained in Appendix D of reference 15-3 and the limitations stated on the respirator approval label. Personnel may not supply their own respirators.

(B) For any other voluntary respirator use, elastomeric facepiece respirators will be issued and all elements of the respiratory protection program must be met. NIOSH or NIOSH/MSHA approved respirators must be selected appropriately for the perceived hazard.

(C) Issuance of voluntary use respirators shall not be used as a justification for avoiding further evaluation of health hazards.

#### **1504. Types of Respirators**

The three basic types of respirators are air purifying, supplied-air, and self-contained. Personnel sometimes group supplied-air respirators and self-contained breathing apparatuses together as atmospheric supplying respirators. This instruction lists them separately for clarity. Detailed descriptions of respirators are found in chapter 9 of reference 15-4.

a. Air-Purifying Respirator. These respirators remove air contaminants by filtering, absorbing, adsorbing or chemically reacting with the contaminants as they pass through the respirator canister or cartridge. Personnel shall only use this respirator where adequate oxygen (19.5 to 23.5 percent by volume) is available. This category also includes battery powered air purifying respirators.

**NOTE:**

Authorization for military gas masks, such as the MCU-2A/P, is only for chemical biological and radiological (CBR) warfare, CBR warfare training, and nuclear accidents when used according to DoD 5100.52-M of September 1990 (NOTAL).

b. Supplied-Air Respirators. These respirators provide breathing air independent of the environment. Personnel shall use these respirators when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air-purifying respirator is inadequate.

c. Self-Contained Breathing Apparatus (SCBA). This type of respirator allows the user complete independence from a fixed source of air and offers the greatest degree of protection but is also the most complex. Training and practice in its use and maintenance is essential.

The Navy oxygen breathing apparatus (OBA) is a uniquely designed SCBA respirator. Its only authorized use is for damage control, firefighting operations aboard ships, and during firefighting training ashore.

Shipboard personnel undergoing shore firefighting training are not required to obtain medical qualification or respirator fit testing for SCBAs, including the OBA, prior to reporting for training.

Wearing SCBAs during shipboard firefighting or other emergencies, including ashore training for these emergencies, is military-unique. Therefore, fit-testing and medical surveillance are not required prior to wearing SCBAs for these scenarios.

**1505. Respirator Cartridges and Gas Mask Canisters**

Navy policy no longer permits reliance on odor thresholds and other warning properties as the sole basis for determining that an air-purifying respirator will afford adequate protection against exposure to gas and vapor contaminants.

a. Activities shall:

(1) Implement a change schedule for chemical canisters/cartridges based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. Activities must describe this data, along with the logic for relying on the change schedule, in their respirator programs.

(2) Change chemical canisters/cartridges according to manufacturer's directions, or based on objective data obtained as indicated in reference 15-4.

(3) Identify respirator cartridges and canisters by the information provided on the approval labels in lieu of color coding.

**1506. Breathing Air Requirements**

a. Breathing air or sources of breathing air for supplied air respirators or SCBAs shall meet at least the minimum Grade D breathing air requirements of references 15-3 and 15-5.

b. Activities shall conduct monitoring of the breathing air quality at least quarterly.

**NOTE:**

Monitoring does not apply to ambient air breathing apparatuses.

c. In addition to quarterly air quality monitoring to ensure Grade D breathing air, activities shall equip compressor systems with either-high temperature or continuous carbon monoxide monitor and alarm systems or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the activity shall monitor the air supply at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm. Activities shall equip all new and/or upgraded air compressor systems with continuous carbon monoxide monitor and alarm systems. Calibrate, monitor, and alarm systems on compressors used for supplying breathing air according to the manufacturers instructions.

d. Activities purchasing breathing air from outside sources shall comply with reference 15-3.

**1507. Respirator Selection Considerations**

a. Activities shall only use respirators which are currently approved by the National Institute for Occupational Safety and Health (NIOSH) or NIOSH/Mine Safety and Health Administration (MSHA). References 15-6 and 15-7 provide general respirator selection guidance.

**NOTE:**

Host countries may require respiratory protection that meets standards and certifications they establish for foreign national employees. Where foreign legislation applies, activities shall issue respiratory protection to the employees that meet the host nation criteria.

b. The Defense General Supply Center (DGSC) issues specific national stock numbers (NSNs) for NIOSH or NIOSH/MSHA-approved respirators (see reference 15-8). Specific NSNs are assigned to each manufacturer's approved respirator so that activities are assured they will receive the same respirator each time they order it by its NSN. Activities can order reference 15-8 from DGSC.

c. As a minimum, the RPPM shall consider the following factors to correctly assess the nature of the hazard requiring respiratory protection and the type of respirator to be used:

(1) The current workplace evaluation conducted by the cognizant industrial hygienist

(2) The chemical, physical, and toxicological properties of the contaminant such as:

(a) Warning properties of the contaminant gas or vapor (smell, taste, eye irritation or respiratory irritation)

(b) Whether employees can absorb the contaminant through the skin

(c) Whether any of the contaminants are immediately dangerous to life or health (IDLH) or whether the contaminant would produce injurious effects after prolonged exposure

(3) Concentration of the contaminant in the atmosphere. Where the activity cannot identify, or reasonably estimate the employee exposure, it shall consider the atmosphere to be IDLH.

(4) Permissible exposure limit (PEL) for the contaminant(s)

(5) Whether an oxygen-deficient or oxygen-rich atmosphere exists or may be created

(6) Whether toxic, flammable or explosive by-products are present or may be produced

(7) The nature, extent and frequency of the duties personnel will be performing (e.g., welding, painting, etc.) in the work area

(8) Sorbent efficiency of cartridge or canister

(9) Any possibilities of high heat reaction with sorbent material in the cartridge or canister

(10) Any possibility of shock sensitivity (explosion hazard) of the substances absorbed on the cartridge or canister sorbent

(11) The assigned protection factor or degree of protection provided

The RPPM shall select respiratory protection equipment using the assigned protection factors listed in chapter 9 of reference 15-4.

d. Respirators for Entry into IDLH Atmospheres. Should it become necessary to enter an oxygen deficient atmosphere (<19.5 percent oxygen) or an IDLH atmosphere, personnel shall only use the following types of respirators:

(1) Full facepiece, open circuit; pressure-demand SCBA with an air cylinder rated for at least 30 minutes

(2) Full facepiece, closed circuit; pressure-demand SCBA (the lowest rated service life of these devices is 60 minutes)

(3) A full facepiece combination pressure-demand supplied-air respirator equipped with an auxiliary self contained air supply of 15 minutes to ensure escape from the IDLH area. Personnel shall only use the auxiliary self-contained air supply for egress purposes. If the self-contained air supply (15 minute supply) is insufficient to ensure escape, then personnel must use an SCBA.

e. Firefighting. Full facepiece, pressure demand SCBA approved by NIOSH and meeting National Fire Protection Association (NFPA) requirements that is equipped with an air cylinder rated for at least 30 minutes.

f. Respiratory Protection for Medical Personnel. Medical personnel who wear respirators shall comply with this chapter (and 29 CFR 1910.139 for protection against tuberculosis (TB) until the OSHA TB Standard is issued).

g. For safe entry procedures into IDLH atmospheres, and for interior structural fire fighting, refer to reference 15-3.

#### **1508. Medical Evaluations**

Activities shall not fit test personnel or assign them to work in, or permit them to enter, areas requiring respiratory protection unless they have been medically evaluated per references 15-3 and 15-9.

Shipboard personnel undergoing shore firefighting training are not required to

obtain medical qualification or respirator fit testing for SCBAs, including the OBA, prior to reporting for training.

**1509. Respirator Fit Testing**

a. Fit Testing. Activities shall fit test each individual required to use a respirator with a tight-fitting facepiece, at the time of initial fitting and annually thereafter. Activities shall perform fit testing according to reference 15-3.

R) b. All tight-fitting positive and negative pressure respirators shall be either qualitatively or quantitatively fit tested by activities initially and annually. To wear full face, negative pressure, air purifying respirators in atmospheres up to their assigned protection factor of 50, as required by references 15-10 and 15-11, personnel must be quantitatively fit tested and the respirator must achieve a fit factor of at least 500, which equates to a safety factor of 10.

c. Recordkeeping. The RPPM shall document respirator fit testing and include, make, model, style and size, method of test and test results, strip chart recording or other recording of test results for quantitative fit test, test date and the name of the instructor/fit tester. This information is required to be established and retained per reference 15-3.

**1510. Inspection and Cleaning of Respirators**

Only personnel who have received training through the RPPM shall perform the cleaning, inspection and maintenance of respiratory protective equipment per reference 15-3.

**1511. Respiratory Protection Training**

The activity shall ensure proper respirator use by providing all employees required to use respirators with training per reference 15-3. Activities shall train supervisors, persons issuing respirators and emergency rescue teams per reference 15-6. Activities shall document that training occurs in a manner that is understandable to the respirator wearer and that respirator wearers can demonstrate knowledge of at least the following aspects of respiratory protection:

a. The nature and degree of respiratory hazards

b. Respirator selection based on specific hazards

c. Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator

d. The limitations and capabilities of the respirator

e. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions

f. How to inspect, put on and remove, use and check the seals of the respirator

g. The procedures for maintenance and storage of the respirator

h. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators

i. Wearing contact lenses in contaminated atmospheres with respiratory protection is permitted

j. The general requirements of the respiratory standard.

**1512. RPPM Training**

a. Because of the large variation in quality of respiratory protection training available for RPPMs, and because of the complexity of respiratory protection, the Navy has defined minimum acceptable training for RPPMs.

b. The RPPM shall pass one of the following training courses before activities appoint them as the RPPM:

(1) The OSHA Training Institute Course 222 or 222A

(2) The NIOSH Course 593

(3) The Navy RPPM course, Respiratory Protection Program Management (A-493-0072)

(4) Any respiratory protection course that has at least 32 hours of training including, but not limited to, the topics listed below:

(a) Respiratory hazards

(b) Federal standards applicable to respirators

(c) Minimum respiratory protection program requirements and administration

(d) Respirator types, selection, certification and limitations

(e) Respirator cleaning, maintenance and inspection

(f) Qualitative and quantitative fit testing, including actual laboratory fit testing

(g) Breathing air quality

(h) Medical considerations

(i) Respirator training

(j) Confined spaces/IDLH atmospheres

(k) Special problems in program administration (facial hair, lense fogging, communication)

(l) Standard Operating Procedures.

c. For current respiratory protection information, consult sources such as the Navy Environmental Health Center (NEHC), OSHA and NIOSH home pages.

d. The Navy requires a course certificate from the OSHA, NIOSH or Navy course as proof of training. If employees attend another course, the Navy requires both the course certificate and a course syllabus specifying training topics and number of hours as proof of training.

e. The Navy does not require assistant or alternate RPPMs to comply with section 1512b. Those assisting with respirator program training, fit testing or other program implementation, however, should receive training appropriate to the responsibilities assigned. For example, the RPPM can provide on-the-job training, or the command might require the assistant to complete formal training.

**1513. Responsibilities**

a. Commanders, Commanding Officers and Officers in Charge shall establish a comprehensive respiratory protection program and appoint a qualified RPPM in writing. The Navy encourages small activities with few employees utilizing respirators to negotiate with host commands for RPPM service. As a minimum, commanders shall ensure that the respiratory protection program, provides:

(1) A centrally located facility staffed to maintain and issue respiratory protection equipment. The program shall provide one or more centrally located facilities at an activity depending on its nature and size. Facility personnel shall:

(a) Ensure that activities issue only respirators approved by NIOSH or jointly by NIOSH/MSHA.

(b) Maintain all respiratory protection equipment in a sanitary and serviceable condition.

(c) Store all respiratory protection equipment in a designated clean area.

(2) Written standard operating procedures (SOPs) governing the selection, care, issue and use of respirators. Activities shall develop and post worksite SOPs in the general area. SOPs shall include emergency and rescue guidance, as necessary.

(3) Respiratory protection training per reference 15-3 and section 1511, for all respirator users and their supervisors and personnel who issue and/or maintain respirators

(4) Procedures to ensure that all employees have received medical evalua-

tions required by reference 15-3 and section 1508

(5) A completed appendix 15-A for each employee requiring a medical examination for respirator use

(6) Fit testing per section 1509

(7) Procedures to ensure that all sources of breathing air meet the requirements cited in section 1506

(8) An annual audit of the program by the RPPM

(9) Arrangements for fit testing and respiratory protection program support to ships in port that have a collateral duty safety officer by either the supporting tender, by Navy Environmental and Preventive Medicine Units or by shore support activities (command safety offices or medical activities)

(10) For RPPMs to successfully complete required training.

b. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Ensure the medical qualification requirements of the Respiratory Protection Program agree with reference 15-3. A physician or a nurse practitioner, occupational health nurse, physician's assistant, preventive medicine technician or an independent duty hospital corpsman under the supervision of a physician may conduct the medical evaluation. Reference 15-9 details the required medical evaluation protocols for respirator users. The health care professional must return the completed appendix 15-A containing the medical written recommendation to

the worker and command RPPM. The medical recommendation shall provide the following information:

(a) The worker's ability to wear the respirator

(b) Any limitations on respirator use, or recommendations for a different respirator based on the worker's medical condition or relating to the workplace conditions in which the respirator will be used

(c) The requirement, if any, for the worker to report back to the medical facility for follow-up medical evaluations

(d) A statement that the health care professional has provided the worker with a copy of the written recommendation.

(2) In support of the RPPM, BUMED shall:

(a) Provide RPPMs with an annual written evaluation on the effectiveness of their program based on occupational medicine and industrial hygiene reviews.

(b) Make occupational health professionals available to the RPPM for consultation on all aspects of the Respiratory Protection Program.

(c) Provide activities with direct assistance and service in conducting their training and fit testing programs.

(d) Provide an evaluation of respiratory hazards.

(3) In support of afloat commands, BUMED shall provide fit testing and respiratory protection program support to ships in port that have a collateral duty safety officer by either the supporting tender, by

Navy Environmental and Preventive Medicine Units or by shore support activities (command safety offices or medical activities).

c. Employees shall obtain the respiratory protection equipment selected by the RPPM, and inspect, use and maintain such equipment per the instructions and training received. At a minimum employees shall:

(1) Inspect the respiratory protection equipment before and after each use per reference 15-3, and return the equipment to the central respirator facility when its use is no longer required or when any malfunction is noted.

(2) Perform user seal checks per the manufacturer's instruction or per reference 15-3. If a successful user seal check cannot be performed, the employee will not wear the respirator.

(3) Report any malfunction of the respirator to their immediate supervisor. If the respirator requires repair or replacement, return it to the respirator facility.

(4) Guard against damage to or loss of respiratory protection equipment.

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## Chapter 15

### References

15-1. OPNAVINST 5100.19C of 19 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

15-2. NAVSEA 389-0288, Radiological Controls

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OPNAVINST 5100.23E

15 January 1999

15-3. 29 CFR 1910.134 Respiratory Protection (as amended) (NOTAL)

15-4. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision

15-5. Compressed Gas Association, Inc. Commodity Specification for Air, Pamphlet G-7.1-1989 (American National Standard Commodity Specification for Air, ANSI/CGA G-7.1-1989)

15-6. American National Standards Institute (ANSI), American National Standard, Practices for Respiratory Protection, Z88.2-1992 (NOTAL)

15-7. NIOSH Respirator Decision Logic, NIOSH Publication 87-108, May 1987 (NOTAL)

15-8. Defense General Supply Center (DGSC) Paperless Order Placement System (POPS) Commercial Item Catalog (NOTAL)

15-9. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision

15-10. 29 CFR 1910.1025 Lead, (as amended) (NOTAL)

15-11. 29 CFR 1910.1001 Asbestos, (as amended) (NOTAL)

**FOR OFFICIAL USE ONLY**

**Appendix 15-A  
REQUEST FOR MEDICAL CLEARANCE  
FOR RESPIRATOR USE QUESTIONNAIRE**

EMPLOYEE	SSN	POSITION	
SUPERVISOR	PHONE	CODE	DEPARTMENT

CIRCLE THE TYPE OF RESPIRATOR(S) TO BE USED:

- |                              |  |
|------------------------------|--|
| AIR-SUPPLIED (tight-fitting) | AIR-PURIFYING (powered) (tight-fitting)  |
| AIR-SUPPLIED (hooded)        | AIR-PURIFYING (powered) (hooded)   |
| OPEN-CIRCUIT SCBA            | COMBINATION AIRLINE/SCBA   |
| CLOSED-CIRCUIT SCBA          | AIR-PURIFYING (non-powered): (Specify)   |
|                              | filtering facepiece or elastomeric<br>N, P, R 95, 99, 100<br>Type chemical cartridge _____ |

WORK EFFORT: (CIRCLE ONE)

- Light      Moderate      Heavy      Strenuous

EXTENT OF USAGE: (CIRCLE ONE)

1. On a daily basis
2. Occasionally - but more than once a week
3. Rarely - or for emergency situations only

LENGTH OF AVERAGE WORK DAY IN RESPIRATOR: \_\_\_\_\_

SPECIAL WORK CONDITIONS: (i.e., high places, temperature/humidity extremes, hazardous materials, other protective clothing worn, climbing, etc.)

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**MEDICAL WRITTEN EVALUATION**

1. No restrictions on the respirators circled above
2. Respirator use with some restrictions
3. No respirator use allowed
4. Alternate respirator recommended

Comments/Restrictions \_\_\_\_\_

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Routine Follow-up medical evaluation required: (under 35)(35-45)(over 45)  
 Or due to medical findings return: Date \_\_\_\_\_  
 Employee has been given a copy of this recommendation.

Health care professional's Signature \_\_\_\_\_ Date \_\_\_\_\_

Sections 133, 1071-87, 3012, 5031, and 8012, Title 10  
USC & Exec. Order 9397 (Privacy Act of 1974) Apply