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COMDTINST M6260.2D
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COMMANDANT INSTRUCTION M6260.2D

Subj: TECHNICAL GUIDE: PRACTICES FOR RESPIRATORY PROTECTION

Ref: (a) 29 CFR 1910.134, Respiratory Protection
(b) Safety and Environmental Health Manual, COMDTINST M5100.47(series)
(c) Naval Engineering Manual, COMDTINST M9000.6(series)
(d) Marine Safety Manual, Vol I, Administration and Management, COMDTINST M16000.6(series)
(e) Maritime Law Enforcement Manual, COMDTINST M16247.1(series) (NOTAL)
(f) Weapons of Mass Destruction and Catastrophic Hazardous Material Releases, COMDTINST 3400.3(series) (NOTAL)
(g) Medical Manual, COMDTINST M6000.1(series)

1. PURPOSE. This Manual provides technical information necessary for the safe use of respiratory protection devices and requirements for administering the respiratory protection program. Intended users are units with work environments or activities where respiratory protection is required.

2. ACTION. Area and district commanders; commanders, maintenance and logistics commands; commanding officers of headquarters units; and chief of offices and special staff divisions at Headquarters shall ensure compliance with the provisions of this Manual. For units within the chain of command of a group, the group commander shall be responsible for the implementation and administration of the respiratory protection program.

3. DIRECTIVES AFFECTED. Technical Guide: Practices for Respiratory Protection, COMDTINST M6260.2C, is canceled.

4. DISCUSSION. Proper selection, use, and care of respiratory protective devices used in hazardous environments are essential to protecting the health of Coast Guard personnel using these devices. The requirements of this Manual reflect Coast Guard responsibility under the Occupational Safety and Health Act (reference (a)). This Manual represents significant changes to Coast Guard

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respiratory protection polices to reflect changes in Federal and consensus safety and health standards. References (b) through (f) are other Coast Guard manuals that include references to respirator use. Chapter 12 of reference (g) includes information on the medical evaluation of respirator users.

5. SCOPE. This Manual applies to all operations (including those aboard vessels and in non-Coast Guard work environments) where respiratory equipment is necessary to protect Coast Guard personnel from hazardous environments. Excluded are:

   a. Respirators, such as Biopaks, that are used only by the National Strike Force. Manufacturer's guidance for use and maintenance must be strictly followed and all personnel must be medically qualified to wear the respirator.

   b. Underwater breathing systems.

   c. Aircraft oxygen systems.

   d. Protection against military munitions.

   e. Oxygen Breathing Apparatus (OBA) used for firefighting onboard vessels. (reference (c)).

   f. Emergency Escape Breathing Devices (EEBDs) used for emergency escape from an area that has become dangerous due to a respiratory hazard (references (c) through (f)).

6. RESPONSIBILITIES.

   a. Responsibilities for employees, supervisors, and Respiratory Protection Coordinators are found in Chapter 2.

   b. Units.

      (1) Units Attached to a Group. Group Commanders shall determine if the requirements of this Manual are applicable to units within the group by following the guidance provided in Chapter 1.

      (2) Other Units. Commanding Officers shall determine if the requirements of this Manual are applicable to their units by following the guidance provided in Chapter 1.

   c. Group Commanders or Commanding Officers shall:

      (1) Designate a person responsible for coordinating the respiratory protection program. See Chapter 2.

      (2) Ensure that the other requirements of this Manual are implemented.

d. Commander (kse), Maintenance and Logistics Commands and detached Safety and Environmental Health Officers (SEHOs) shall:

(1) Assist units in determining if the requirements of this Manual are applicable.

(2) During the regular safety and environmental health surveys conducted IAW the provisions of reference (b):

(a) Identify the need for respiratory protection and the type of respirator required at units;

(b) Identify personnel in the Occupational Medical Surveillance and Evaluation Program (OMSEP) who should also be medically evaluated for respirator use; and

(c) Evaluate unit respiratory protection programs to ensure all the required program elements of Chapter 1 are incorporated.

(3) Assist units with respirator selection.

(4) Assist units in meeting respiratory protection program training and fit-testing requirements.

(5) For cartridge respirators without end of service life indicators, develop unit level change-out schedules. Industrial hygienists and GS-0018 series Safety and Occupational Health Professionals may also develop cartridge change-out schedules

(6) Provide other assistance to units as requested.

7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. Environmental considerations were examined in the development of this directive and have been determined to be not applicable.

8. FORMS/REPORTS. None.

/s/
PAUL J. HIGGINS
Director of Health and Safety

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CHAPTER 1 DETERMINING REQUIRED PROGRAM ELEMENTS

A. Requirements. The primary means of controlling airborne exposures to harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures. See chapter 4 of reference (b) for guidance on control of occupational exposures to airborne hazards. When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this manual. The following are the required program elements for establishing and implementing a respiratory protection program.

1. Unit Operations Requiring a Respiratory Protection Program. Units shall identify unit operations requiring respiratory protection using one of the following:

   a. From the report of the most recent safety and environmental health audit or inspection.

   b. From Commandant, Maintenance and Logistics Command (MLC), or district instructions requiring respiratory protection during certain operations.

   c. By requesting assistance from MLC (kse) or a detached Safety and Environmental Health Officer (SEHO).

   d. Guidelines from the product or tool manufacturer or material safety data sheet (MSDS).

2. Unit Operations Not Requiring a Respiratory Protection Program. If respirators are not required or not used voluntarily during work operations at the unit, then the requirements of this manual are not applicable to the unit.

3. Unit Respiratory Protection Program. Units having personnel who use respirators are required to implement a written respiratory protection program containing the following program elements:

   a. Appoint a Respiratory Protection Program Coordinator (RPC). See Chapter 2.

   b. Establish a written unit respiratory protection program. This instruction, with enclosures (8) – (11) completed with unit-specific information, can be used as the unit instruction.

      (1) Enclosures (8) and (9) can be filled out with the assistance of MLC (kse) or a detached SEHO.

(2) Enclosure (10) must be completed by MLC (kse), a detached SEHO, a unit or contracted industrial hygienist, or a GS-0018 series Safety and Occupational Health Professional. The enclosure will be completed based on objective data (actual sampling or modeling) that will ensure that cartridges are changed before the end of their service life.

(3) Enclosure (11) can be completed during an assist visit by MLC (kse) or a detached SEHO or by the unit if more than 12 months elapses between MLC (kse) visits.

c. Fit-test all respirator users. (Enclosure (1))

d. Provide annual training for respirator users. See Chapter 2.

e. Establish a respirator maintenance program and ensure proper hygiene procedures are followed. See Chapters 6 and 7.

f. Ensure that respirator users are medically evaluated prior to fit testing. See Chapter 8.

g. Establish/maintain the required documentation. See Chapter 9.

CHAPTER 2 RESPONSIBILITY AND ACCOUNTABILITY FOR A RESPIRATORY PROTECTION PROGRAM

A. Discussion. When respiratory protection is required to be used at a unit or voluntary use of respirators is allowed, the unit will implement a respiratory protection program. This chapter provides guidance on the structure of the program at the unit level.

B. Program Responsibilities. Commanding officers and officers' in-charge shall implement a respiratory protection program and appoint a unit Respiratory Protection Program Coordinator (RPC) who will be responsible for coordinating and administering the program. The command shall ensure that assigned personnel have the necessary training to manage the program. All training shall be documented and maintained by the unit.

1. Respiratory Protection Program Coordinator (RPC) Responsibilities. MLC (kse) personnel will provide assistance in carrying out these responsibilities:

   a. Administer the unit Respiratory Protection Program.

   b. Ensure that the correct respirator is selected in accordance with the procedures in chapter 4 of this instruction and properly used to protect against a hazard.

   c. Ensure personnel are medically qualified to wear selected respirator. See Chapter 8.

   d. Ensure personnel are fit tested for the selected respirator (Enclosure (1)).

   e. Ensure that cartridge change-out schedules are followed (Enclosure (10)).

   f. Ensure that air used for self contained and supplied air systems is tested at least quarterly to ensure it meets breathing air standards (Enclosure (4)).

   g. Periodically observe and evaluate the actual use of respirators by unit personnel.

   h. Ensure that unit personnel receive respiratory protection training. Hands-on training will be provided to those personnel required to wear respiratory protection (paragraph C, below).

   i. Ensure that a program review of the unit respiratory protection program is conducted at least annually and is properly documented. Update unit instruction whenever there are changes in operations or exposures that will alter respirator use.

   j. Ensure that the other program elements of chapter 1 are implemented.

2. Supervisor Responsibilities.

a. Assure proper use of respirators during operations or activities where required to prevent hazardous exposures.

b. Assure respirators are maintained in accordance with the requirements of this manual.

c. Report to the unit RPC situations that may require use of a respirator so that the correct respirator is selected.

d. Ensure personnel receive respiratory protection training.

e. Ensure fit-testing, training and medical evaluation are all successfully completed prior to respirator use.

3. Employee Responsibilities.

a. Use respiratory protection in accordance with instructions and training received.

b. Inspect respirators before use and during cleaning and immediately report any malfunction to the supervisor.

c. Conduct positive and negative fit checks of respiratory equipment prior to use.

d. Report to the supervisor situations that may require respirator use and those in which respirators are not being used as required.

e. Clean and maintain respirators as directed.

C. Training.

1. The unit RPC shall be trained. Unit Safety Coordinator, Intro to Environmental Health, and Safety and Occupational Health Coordinator courses provide recipients with the skills necessary to carry out the duties of a unit RPC. This training is conducted on a periodic basis and the course schedule is announced annually in Class Convening Schedule for Coast Guard Class "A" and "C" Resident and Exportable Training Classes, COMDTNOTE 1540. Safety and Environmental Health Officers (SEHO) are available to assist in training unit RPCs. Commercial training sources also offer courses that will provide RPCs with the skills needed to coordinate a respiratory protection program. Contact MLC (kse) for additional information and scheduling of these courses. At a minimum, training for RPCs must contain the following:

a. How to assess a worksite for respiratory protection.

b. Procedures for selecting a respirator.

c. How to properly conduct a fit test.

d. Procedures for proper use of respirators.

e. Regulatory content of this instruction

f. All items listed in paragraph C.2., below.

2. Unit personnel required to wear a respirator shall receive training prior to respirator use and annual refresher training. At a minimum, respirator users shall demonstrate knowledge of the following:

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

b. Limitations and capabilities of the respirator.

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

d. How to properly clean, disinfect, store, inspect, and maintain respirators.

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

g. How to identify respiratory hazards during emergency situations

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

i. Training on the unit's site-specific written respiratory protection program.

3. If a unit member is found to be in violation of the written respiratory protection program, the unit member will be removed from the area requiring respiratory protection and not allowed to use a respirator until retraining has occurred.

D. Voluntary Use of Respirators. If unit personnel voluntarily request to use a respirator when one is not required for a particular operation, and the unit determines that such respirator use will not in itself create a hazard, the unit may include the employee in the respiratory protection program. Units having employees voluntarily in the respirator protection program must ensure that the employee complies with all requirements of this manual, unless the voluntarily used respirator is a filtering facepiece. If a filtering

facepiece respirator (dust mask) is used on a strictly voluntary basis, enrollment in the respiratory protection program is not required. A copy of Enclosure (12) must be provided to anyone using a filtering facepiece respirator on a voluntary basis.

CHAPTER 3 TYPES AND SOURCES OF RESPIRATORS

A. Introduction. This chapter describes various types and categories of respirators.

B. Discussion. There are two basic types of respirators: air-purifying and atmosphere-supplying.

1. Air-Purifying Respirator. Air-purifying respirators do not have a separate air source. These respirators draw ambient air across a filter or purifying cartridge before the air enters the facepiece. This type of respirator shall never be used in oxygen deficient atmospheres, atmospheres that are immediately dangerous to life or health (IDLH), or with chemicals that do not have good warning properties.

2. Atmosphere-Supplying Respirators. Atmosphere-supplying respirators supply the respirator user with breathing air from a source independent of the ambient atmosphere. Examples of atmosphere-supplying respirators are supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

a. SAR or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user. Normally, this includes the use of an air pump or compressor and air-line hose.

b. SCBA means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

c. Oxygen Breathing Apparatus (OBA). OBAs are SCBAs in which the breathing oxygen is produced by chemicals carried in a canister. OBAs are only used for shipboard fire fighting. Their operation and use are covered by reference (c). OBAs are being phased out and replaced with conventional SCBAs.

d. Emergency Escape Breathing Devices (EEBDs). EEBDs supply a source of breathing air to allow personnel to escape from an environment that has become dangerous due to a respiratory hazard. EEBDs shall never be used for entry into a hazardous environment. This type of device is sometimes referred to as an emergency escape breathing apparatus (EEBA) or an emergency escape respirator. Operation and use of EEBDs is found in reference (c) for shipboard use, reference (d) for marine safety use, reference (e) for law enforcement use, and reference (f) for use related to weapons of mass destruction and catastrophic hazardous material releases.

3. Atmosphere-supplying respirators can be further defined by the air flow supplied. There are two categories: positive pressure and negative pressure.
a. Positive Pressure.

1) Pressure-Demand Respirators. A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the face piece by inhalation.

2) Continuous Flow. A positive pressure atmosphere-supplying respirator that has a continuous stream of air flowing into the facepiece at all times.

b. Negative Pressure. (Tight Fitting) - Means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator. Coast Guard policy prohibits the use of this type of air-supplied respirator (demand mode).

C. Approved Respirators. With the exception of OBAs specified for use aboard cutters, Coast Guard personnel will only use National Institute of Occupational Health and Safety (NIOSH) certified respirators.

D. Additional Information. See enclosure (5) for additional features for respiratory protective devices, filters, and cartridges.

CHAPTER 4 SELECTION OF RESPIRATORS

A. Introduction. Selection and proper use of an appropriate respirator are the most critical elements of a respiratory protection program. Failure to select the appropriate respirator or to use it incorrectly will give the user a false sense of security and may lead to serious injury or possibly even death. All respirators used by Coast Guard personnel shall be NIOSH-certified.

B. Respirator Selection.

1. Procedure. Respirators shall be selected as follows:

a. As designated in the report of the most recent safety and environmental health inspection or audit of the unit; or

b. As designated by Commandant, MLC, or district instructions requiring specific respirators during certain work operations; or

c. By requesting assistance from MLC (kse) or detached SEHO.

d. As designated by product or tool manufacturer or MSDS guidelines.

2. Selection Based on Hazards and Work Operations. Respirators must be selected on the basis of the hazards to which employees are exposed. The following factors shall be considered when selecting a respirator:

a. Adequate oxygen concentration (minimum of 19.5 % for air purifying respirators).

b. Physical, chemical, and toxicological properties of the contaminant(s) involved.

a. Airborne concentration of the contaminant(s).

b. Nature of the work operation. Powered Air Purifying Respirators (PAPRs) have a limited battery life that must be considered when selecting them for use.

c. Commandant directives applicable to specific hazards.

d. Warning properties and odor threshold of the contaminant(s). If there are no warning properties in a concentration above the established exposure limit, an atmosphere-supplying respirator is required unless a cartridge change-out schedule has been developed or the cartridge has an end of service life indicator (ESLI).

e. Immediately Dangerous to Life and Health (IDLH) concentration for the contaminant(s). Air purifying respirators are not allowed for use in IDLH atmospheres.

f. Occupational exposure limit for the contaminant(s) (reference (b)).

g. Length of time per work shift the respirator will be worn.

CHAPTER 5 RESPIRATOR FIT-TESTING

A. Introduction. Respirators do not work properly unless they fit the wearer. The quality of the respirator fit is determined by the seal where the respirator meets the wearer's face. Matching the wearer's facial features to the appropriate respirator size and style is critical. Most manufacturers provide several respirator styles in two or three sizes. Procedures for matching the appropriate respirator size and style to each user and testing the respirator seal are described in this chapter.

B. Requirements.

1. Prior to fit testing a respirator, personnel must be trained and medically cleared to wear a respirator.

2. Prior to an employee being required to use any respirator with a tight-fitting facepiece (includes filtering facepiece, unless exclusively for voluntary use), the employee must be fit tested with the same make, model, style, and size of respirator that will be used. Fit testing shall be repeated annually and any time a new make, model, style, or size of respirator is used.

3. Quantitative fit testing (QNFT) is the preferred method of fit testing. This method requires specialized equipment and must be performed under the direction of a Coast Guard SEHO, industrial hygienist, or a properly trained safety and occupational health professional. Qualitative fit testing (QLFT) is an acceptable alternative if the required fit factor is 100 or less. QLFT must be performed using the isoamyl acetate (banana oil), saccharin solution or Bitrex™ (Denatonium Benzoate) methods described in enclosure (1). Irritant smoke (Stannic Chloride) is not authorized for fit testing procedures. The results of the fit test shall be used to select a respirator that provides an acceptable fit.

4. Fit testing of all tight-fitting facepiece respirators will be conducted in the negative pressure mode. This includes respirators that will be used in a positive pressure or pressure-demand mode.

5. QNFT or QLFT shall be done on an annual basis or whenever the wearer's facial features have changed sufficiently to reduce the quality of fit. Such changes include obvious changes in body weight, facial scarring, extensive dental work or cosmetic surgery. Fit testing may be required more often if stipulated by other Coast Guard or Federal regulations.

6. Respirators shall not be fit-tested or used when conditions prevent a good face seal. Such conditions include facial hair in the facepiece sealing area and temple pieces of eyeglasses. Employees with these conditions shall not be fit-tested until the condition is corrected. This may require removal of the interfering condition, use of a respirator that does not require a face seal such as an air supplied hood or shroud (if allowed by the operation/exposure), or disqualifying the individual

from wearing a respirator. Employees shall not perform work operations requiring the use of a tight fitting facepiece respirator until a successful fit-test is performed. The corrected condition used during the fit testing must be in place during use of the respirator.

C. Procedures. Enclosure (1) describes all fit testing procedures.

D. Documentation. Enclosure (3), or a locally generated document that includes the same information, will be used to document fit testing results. For QNFT, a printed record that contains the same information is sufficient for documentation.

CHAPTER 6 RESPIRATOR CLEANING, INSPECTION, MAINTENANCE, AND STORAGE

A. Introduction. Cleaning and maintenance of respirators are integral parts of the overall respiratory protection program. Wearing a dirty, poorly maintained or malfunctioning respirator can be more dangerous than not wearing a respirator at all. Workers wearing defective devices think they are protected when, in reality, they are not. Emergency escape and rescue devices are particularly vulnerable to poor maintenance since they generally are used infrequently. Serious injury or death can result from wearing a defective device during emergency escape or rescue.

B. Disposable Respirators. If only disposable respirators are used at a unit, a cleaning and maintenance program is not required. Disposable respirators shall be discarded when dirty, when breathing becomes difficult, when odors or tastes are detected when wearing the respirator, or as directed by the SEHO or unit RPC. In some circumstances, the disposed respirator may be considered a hazardous waste.

C. Cleaning. Cleaning is required after each use if multiple personnel use the same respirator(s). If a respirator is issued for the exclusive use of an individual, cleaning must be conducted as often as necessary to keep the respirator in a clean and sanitary condition. The following procedure must be used for cleaning respirators:

1. Remove filters and/or cartridges. Disassemble facepieces by removing speaking diaphragms and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

2. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

3. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.

4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

   a. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter (approximately 20 drops) of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,

   b. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,

c. Commercially available cleansers of equivalent disinfectant quality when recommended by the respirator manufacturer.

5. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

6. Components should be hand-dried with a clean lint-free cloth or air-dried in a clean environment on a clean surface.

7. Reassemble facepiece.

8. Test the respirator to ensure that all components work properly.

D. Inspection. Respirators used for routine and emergency operations shall be inspected, using the methods described below.

1. Inspection of Air-Purifying Respirators. Respirators must be inspected before each use and during cleaning. It is particularly important to inspect infrequently used respirators prior to each use.

a. Examine the facepiece for:

1) Excessive dirt

2) Cracks, tears, holes, physical distortion of shape from improper storage, or other damage.

3) Inflexibility of facepiece.

4) Cracked or badly scratched lenses on full facepieces.

5) Incorrectly mounted clips.

6) Cracked or broken air-purifying element holder(s), badly worn threads or missing gasket(s).

b. Examine the head straps or head harness for:

1) Breaks.

2) Loss of elasticity.

3) Broken or malfunctioning buckles and attachments.

4) Excessively worn serrations on head harness of full-face respirators that might permit slippage.

c. Examine the exhalation valve for the following after removing its cover:

1) Foreign material under the valve seat (e.g., detergent residue, dust particles or human hair).

2) Cracks, tears, or distortion in the valve material.

3) Improper insertion of the valve body in the facepiece.

4) Cracks, breaks or chips in the valve body, particularly in the sealing surface.

5) Missing or defective valve cover.

6) Proper installation of the valve in the valve body.

d. Examine the air-purifying element for:

1) Appropriate cartridge or filter for the hazard.

2) Cartridge or filter manufacturer that matches the facepiece manufacturer.

3) Proper installation, loose connections, missing or worn gasket or cross-threading of the cartridge or filter holder on the facepiece.

4) Expired shelf-life date on the cartridge.

5) Cracks or dents on the outside casing of the filter or cartridge

e. If the device has a corrugated breathing tube, examine it for:

1) Broken or missing end connectors.

2) Missing or loose hose clamps.

3) Deterioration, determined by stretching the tube and looking for cracks and by sealing ends and blowing gently into hose to check for leaks.

4) Cuts, tears, and punctures.

2. Inspection of Supplied Air Respirators. Before and after use, the user shall:

a. If the device has a tight-fitting facepiece, use the procedures outlined under air-purifying respirators, except those pertaining to the air-purifying element.

b. If the device is a hood, helmet, blouse or full suit, use the following procedures:

1) Examine the hood, blouse or full suit for rips and tears.

2) Examine the protective headgear for general condition with emphasis on the suspension inside the headgear.

3) Examine the protective face shield for cracks or breaks or impaired vision.

4) Make sure the protective screen is intact and secured correctly over the face shield of abrasive blasting hoods and blouses.

c. Examine the air supply systems for:

1) Integrity and good condition of air supply lines and hoses (including attachment and end fittings) and that the hose lines are certified for use in supplied air systems.

2) Correct operation and condition of all regulators.

3) Air pressure (psi) and volume (cfm) compatibility with the air supplied respirator used. This is especially important when using air pumps (e.g. Rhine Air Pump). Many breathing air respirators are designed to work at higher pressures and are not compatible with the low pressure (less than 15 psi) air pumps.

4) Proper function of the high temperature and carbon monoxide alarms. If an oil-lubricated compressor is used, it must be equipped with a high temperature alarm, a carbon monoxide monitor, or both. If equipped with a carbon monoxide monitor, the monitor shall be calibrated in accordance with manufacturer's guidance. This requirement is not applicable if an oil-less air pump system is used for supplied air.

5) Fitting that is incompatible with other air systems (i.e., supplied air fitting should not be compatible with air used for pneumatic tools or other non-respirator uses).

d. Confirm documentation of testing for Grade D breathing air (enclosure (4)). Testing for Grade D air must be conducted every six months. If the compressor only has a high-temperature alarm (no carbon monoxide monitor), the air must be tested quarterly for carbon monoxide. The air must also be tested after any overhaul or if contamination is suspected. If an oil-less air pump system is used for supplied air, the air pump must be placed in a clean, uncontaminated atmosphere when in use and filters must be replaced according to manufacturer's guidance, but testing of the air is not required.

3. Inspection of Self Contained Breathing Apparatus (SCBA). Before and after use, the user shall:

a. Use the procedures outlined under air-purifying respirators, except those pertaining to the air-purifying elements.

b. Confirm documentation of testing for Grade D breathing air (enclosure (4)) for the filling source of the tanks, including if filled at an outside source. Testing for Grade D breathing air must be conducted on a semi-annual basis. Testing should also be conducted after a system overhaul or anytime contamination is suspected. If a compressor or filling system has only a high-temperature alarm (no carbon monoxide monitor), the air must be tested quarterly for carbon monoxide.

c. Examine the air supply systems for:

1) Integrity and good condition of air supply lines and hoses (including attachment and end fittings).

2) Correct operation and condition of all respirators.

d. Determine that the high-pressure cylinder of compressed air is fully charged.

e. On closed-circuit SCBA (OBAs), ensure that a fresh oxygen generating canister is installed. (OBAs are only authorized for fire fighting aboard Coast Guard cutters.)

f. On open-circuit SCBA, ensure the cylinder is fully charged. All SCBAs are required to have a warning device that indicates when the 25% level is reached.

g. Ensure compressed breathing air cylinders are hydrostatically tested in accordance with the following, unless manufacturer's instructions require a more frequent testing: Steel or aluminum cylinders – every five years; aluminum/fiberglass wrapped cylinders – every three years. Any wrapped

cylinders over 15 years old from the date of manufacture are prohibited from use and shall be discarded appropriately.

h. More specific inspection guidance can be found in NFPA No. FSP-57 (NOTAL).

i. For guidance regarding OBA's, see Naval Ships Technical Manual 077-3.3.

4. Inspection of Emergency Use Respirators. Respirators used for emergency use only (including emergency escape and rescue devices) shall be inspected at least monthly using the appropriate method listed above or using the manufacturer's guidance. Emergency escape respirators that are carried for use (such as those used by Marine Inspectors) shall be inspected prior to being carried for use. The following inspection information shall be maintained on a tag or label kept with the respirator: the date the inspection was performed, the name and signature of the person who made the inspection, the findings of the inspection, required remedial action, and a serial number or other means of identifying the inspected respirator. Preventive maintenance system (PMS) requirements for emergency use respirators supercede the inspection requirements of this instruction.

E. Maintenance and Repair.

1. Only replacement parts of the same manufacture shall be used. Do not interchange replacement parts between different brands or manufacturers. Doing so will invalidate the NIOSH approval of the respirator.

2. The RPC, or person trained by the RPC, shall maintain and repair air purifying respirators.

3. Only personnel trained and certified by the manufacture may perform maintenance or repair SCBA equipment.

F. Storage.

1. Respirators shall be stored in a dry location away from direct sunlight and free of chemical contaminants.

2. Respirators shall be sealed in a clean plastic bag.

3. Respirators shall not be stacked.

4. When storing a respirator, ensure the exhalation valve is undistorted.

5. Air-purifying respirators used for non-routine or emergency use shall be stored in a separate storage cabinet that is readily accessible. The storage cabinet shall be marked for its intended use.

6. SCBA's shall be stored in a chest or wall-mounted case or other manner approved by the manufacturer. The location of the SCBA storage shall be clearly marked.

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CHAPTER 7 RESPIRATOR GENERAL USE REQUIREMENTS

A. Introduction. This chapter describes various issues that must be addressed to ensure the effectiveness of a respirator, and prevent contamination of the respirator user.

B. Requirements.

1. Facepiece seal protection.

a. Unit members with facial hair that comes between the sealing surface of the facepiece and the face, or that interferes with valve function, shall not wear tight-fitting facepiece respirators.

b. Unit members that have conditions that interfere with the face-to-facepiece seal or valve function shall not wear tight-fitting facepiece respirators.

c. Respirator users shall perform a seal check each time they put on the respirator (Enclosure (3)) and before entering a hazardous environment.

2. Hygiene Requirements. When respirator users leave the respirator use area, they shall wash their faces and the respirator facepiece. This will help to prevent eye or skin irritation associated with respirator use.

3. Use of Contact Lenses. Wearing contact lenses with respiratory protection is permitted.

4. Respirator Malfunction. For any malfunction of a respirator, the respirator wearer should inform his or her supervisor that the respirator no longer functions as intended, leave the hazardous environment, and go to a designated safe area to repair the respirator. Malfunctions include sensing the contaminant (e.g., eye or lung irritation or smelling an odor), difficulty breathing, or other discomfort caused by respirator wear. The supervisor must ensure that the employee receives needed parts to safely use the respirator, is provided with a new respirator of the same model, size and manufacturer, or is satisfactorily fit tested and provided with a different respirator before reentry into the contaminated atmosphere. If it is determined that cartridge breakthrough occurred, and it occurred prior to the pre-determined cartridge change-out schedule, the unit RPC shall contact the office that developed the change-out schedule to reevaluate the schedule.

5. Filter and Cartridges Labels. Units shall ensure that all filters and cartridges used in the workplace are labeled with the NIOSH approval label and that the label is not removed and remains legible. Respirators should also be properly color coded (enclosure (5)) and be from the same manufacturer as the facepiece.

6. End-of-service-life indicator (ESLI). An ESLI is a system that warns the respirator user of the approaching end of adequate respiratory protection; for example, that the sorbent is approaching saturation or is no longer effective. Respirators or cartridges must have an ESLI or a cartridge change out schedule must be developed (Chapter 1, A.3.b.(2)).

CHAPTER 8 MEDICAL MONITORING

A. Discussion. Wearing a respirator makes breathing more difficult and may, for some people, add a physiological burden large enough to be a hazard to their health.

B. Requirements.

1. All personnel whose job requires them to routinely wear a respirator shall be medically evaluated for respirator usage prior to fit testing and periodically thereafter. Users shall be medically evaluated in the following manner:

   a. If enrolled in the Occupational Medical Surveillance and Evaluation Program (OMSEP), the user will be evaluated for respirator usage as part of their OMSEP physical, unless the examining licensed healthcare provider requires more frequent evaluation or if a medical condition occurs that could affect respirator use.

   b. If the user is not enrolled in OMSEP, the user shall be evaluated for respirator usage during routine physicals or at least every five years. More frequent respirator evaluations may be conducted if indicated by the examining licensed health care provider or if a medical condition occurs that could affect respirator use.

2. Records of medical evaluations required by this section must be retained.

3. The following are the minimal requirements for the medical evaluation of respirator users:

   a. Members required to use a respirator shall fill out the medical questionnaire found in enclosure (6) and forward it to a licensed health care professional (LHCP) (e.g., physician, physician assistant, nurse practitioner) for review.

   b. The medical questionnaire shall be administered with confidentiality and sealed in an envelope immediately afterwards to be sent to the reviewing LHCP.

   c. A follow-up medical examination will be provided for an employee who gives any positive response to questions 1 through 8 in Part A, Section 2 of the medical questionnaire, whose initial medical examination demonstrates the need for a follow-up medical examination, or as otherwise requested by the LHCP reviewing the questionnaire. A Health Service Technician, under the direction of the LHCP, may also perform the follow-up medical exams.

   d. Unit members shall have the opportunity to discuss the questionnaire and/or examination results with the reviewing LHCP.

4. The examining LHCP shall make medical record entries based on the requirements of chapter 12 of reference (g), indicating whether the individual is able to wear a respirator in the performance of their work. Any limitations on respirator use shall also be documented. Enclosure (7) or a similar document will be used to provide documentation of a medical evaluation to the RPC. The RPC must maintain this documentation for each respirator user at the unit.

5. Medical evaluations shall be repeated if a member shows signs or symptoms of overexposure or if questions arise as to the member's ability to wear a respirator. (e.g., if an employee is diagnosed with a heart condition, they shall be reassessed by a medical provider as to their ability to wear a respirator.)

CHAPTER 9 PROGRAM EVALUATION

A. Discussion. This section requires units to conduct an evaluation of the workplace to ensure that a respiratory protection program is being properly implemented, and consult unit members to ensure that they are using the respirators properly and not experiencing any problems with respirator use.

B. Requirements. Unit RPCs shall conduct an annual respiratory protection program evaluation to ensure that unit members are using respirators properly and that the current program covers personnel protection from operations and exposures at the unit. If a Risk Assessment Survey is conducted by the MLC or detached SEHO, the survey can take the place of the unit program evaluation for that year as long as the survey report includes an evaluation of the respiratory protection program. The evaluation shall include the following:

1. Date of evaluation.

2. Effectiveness of the written program and that unit members are following the requirements. Quiz respirator users on program requirements such as proper selection, cleaning, inspection, storage and use of respirators.

3. That unit members perform seal checks prior to respirator use.

4. That proper respirators and cartridges/filters are available and used for conditions encountered.

5. That proper respirator cleaning, maintenance and storage procedures are being followed.

6. That all deficiencies are corrected.

7. A summary of the evaluation findings. A copy shall be provided to the unit commander. The original copy of the evaluation findings shall be filed for review during command inspections.

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CHAPTER 10 DOCUMENTATION AND RECORD KEEPING

A. Discussion. The following summarizes documentation and recordkeeping requirements contained in this document as required by Federal Law.

	TYPE OF RECORD	DOCUMENTATION REQUIRED	MINIMUM FREQUENCY
1.	Written Unit Respiratory Program	This instruction, with enclosures (8) – (11) completed with unit-specific information, can be used as the unit instruction.	Initially and reviewed annually
2.	Risk Assessment Survey	Safety and Environmental Health survey or assessment report documenting activities requiring respiratory protection, type of respirator, etc.	Periodically IAW MLC schedule
3.	Fit-Testing	Individuals fit-tested, date, type/model and size of respirator, fit-test procedure used, pass/fail results, and fit tester's name (Enclosure (3)).	Initially and annually thereafter
4.	List of Respirator Wearers	Maintain a list of required and voluntary respirator wearers (Enclosure (8))	Continuous
5.	Medical Evaluation	Physician's statement that individual is able to wear respirator (Enclosure (7)).	Initially and as indicated in Chapter 8.
6.	Training	Subject matter covered, name of individuals trained, date training provided, signature of individual trained, and trainer's name.	Initially and annually thereafter
7.	Analysis of Breathing Air (for airline respirators and SCBAs)	Results of tests for % oxygen, water, hydrocarbons, carbon monoxide, odor, carbon dioxide, and name and location of source used to test breathing air.	Semi-Annually or quarterly (depends on installed alarms)
8.	Breathing Air Compressor Inspection	Records denoting proper operation of high temperature and/or carbon monoxide (CO) alarm, including calibration of the CO monitor	Quarterly
9.	List of IDLH locations	Maintain a list of IDLH locations at the unit (Enclosure (9))	Review Annually
10.	List of Cartridge Change-out Schedules	Maintain a list of cartridge change-out schedules that have been developed by the SEHO (Enclosure (10))	Review Annually
11.	Emergency Use Respirator Monthly Inspection	Inspector, date, time, condition, identified discrepancies, corrective action taken.	Monthly
12.	Program Evaluation	Date of evaluation. Findings documented and forward to unit command and a copy filed for future inspections. (Enclosure (11))	Annually

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FIT TESTING PROTOCOLS

A. The following procedures are taken from Appendix A of reference (a). Unit RPCs shall either follow the procedures below or request assistance in completing respirator fit testing from MLC (kse).

1. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface.

2. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

3. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.

4. The test subject shall be informed that they are being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

5. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.

6. All acceptable facepieces are to be noted in case the one selected proves unable to fit test. The most acceptable mask shall be donned and worn at least five minutes (with cartridges attached) to assess comfort. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.

7. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

   a. Position of the mask on the nose.

   b. Room for eye protection (for ½ face respirators).

   c. Ability to talk.

   d. Position of mask on face and cheeks.

8. The following criteria shall be used to help determine the adequacy of the respirator fit:

   a. Chin properly placed.

   b. Adequate strap tension, not overly tightened.

   c. Fit across nose bridge.

   d. Respirator of proper size to span distance from nose to chin.

   e. Tendency of respirator to slip.

   f. Self-observation in mirror to evaluate fit and respirator position.

9. The test subject shall conduct a user seal check, using the negative and positive pressure seal checks described in enclosure (3). Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on their face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be reevaluated by a licensed health care professional to determine if the test subject can safely wear a respirator while performing their duties. Avoid fit testing if the test subject has a cold or other illness that may alter smell abilities.

11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn at least 5 continuous minutes before the start of the fit test.

13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use and could interfere with the respirator fit. Any other type of apparel that interferes with the respirator fit shall be altered or removed.

14. Test Exercises.

   a. The following test exercises are to be performed for all fit testing methods prescribed in this enclosure. The test subject shall perform the following exercises for one minute each in the test environment:

1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.

3) Turning head side to side. Standing in place, the subject shall slowly turn their head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

4) Moving head up and down. Standing in place, the subject shall slowly move their head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).

5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

6) Grimace. The test subject shall grimace by smiling or frowning (This applies only to qualitative fit testing; it is not performed for quantitative fit testing).

7) Bending over. The test subject shall bend at the waist as if they were to touch their toes. Jogging in place shall be substituted for this exercise in those test environments that use a shroud-type containment that does not allow for bending over at the waist.

8) Normal breathing. Same as test exercise 1).

b. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has

become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

B. Qualitative Fit Test (QLFT) Protocols.

1. General

a. Ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that the test equipment is in proper working order.

b. Ensure that the QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Isoamyl Acetate (banana oil) Protocol

Note: Isoamyl acetate is flammable. Bulk containers must be stored in flammable storage lockers according to the unit's hazardous material instruction. The material safety data sheet must be reviewed prior to use. Ampoules of isoamyl acetate may be used and must be stored according to manufacturers instruction.

a. Odor Threshold Screening Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.

1) Three 1-liter glass jars with metal lids are required.

2) Odor-free water (e.g., distilled or spring water) at approximately 25 deg. C (77 deg. F) shall be used for the solutions.

3) The isoamyl acetate (IAA) (also known at isopentyl acetate or banana oil) stock solution is prepared by adding 1 ml of pure IAA to 800 ml of odor-free water in a 1 liter jar, closing the lid and shaking for 30 seconds. A new solution shall be prepared at least weekly.

4) The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.

5) The odor test solution is prepared in a second jar by placing 0.4 ml of the stock solution into 500 ml of odor-free water using a clean dropper or pipette. The solution shall be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA

concentration above the liquid may reach equilibrium. This solution shall be used for only one day.

6) A test blank shall be prepared in a third jar by adding 500 cc of odor-free water.

7) The odor test and test blank jar lids shall be labeled (e.g., 1 and 2) for jar identification. Labels shall be placed on the lids so they can be periodically peeled off and switched to maintain the integrity of the test.

8) The following instruction shall be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."

9) The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

10) If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.

11) If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

b. <u>Isoamyl Acetate Fit Test</u>

1) The fit test chamber shall be a clear 55-gallon drum liner, or similar purchased fit test chamber, suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a chamber may be constructed using plastic sheeting. The inside top center of the chamber shall have a small hook attached.

2) Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.

3) After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.

4) A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.

5) Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampoule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.

6) Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.

7) If at any time during the test the subject detects the banana-like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.

8) If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure (described in steps 1 through 7, above). The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait at least 5 minutes before retesting. Odor sensitivity will usually have returned by this time.

9) If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber to ensure they are able to smell the IAA in the test chamber. If they are unable to smell the IAA, the odor sensitivity and test procedures must be repeated.

10) When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing plastic bag to keep the test area from being contaminated.

3. Saccharin Solution Aerosol Protocol. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

a. Taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin. If the test subject eats or drinks something sweet before the screening test, they may be unable to taste the weak saccharin solution and must wait at least 15 minutes prior to threshold screening.

1) During threshold screening, as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least a clear front portion and that allows free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

2) The test enclosure shall have a 3/4-inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.

4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

5) The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b)(5) below) in 100 ml of distilled water. Some manufacturers sell pre-mixed check solutions.

6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand.

7) Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.

8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.

9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.

10) The test conductor will take note of the number of squeezes required to solicit a taste response.

11) If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test.

12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

14) The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least every morning and afternoon or after four hours during continuous use.

b. Saccharin solution aerosol fit test procedure.

1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

2) The fit test uses the same enclosure described in paragraph 3.a.

3) The test subject shall don the enclosure while wearing the respirator selected in section A of this appendix. The respirator shall be properly adjusted and equipped with a particulate filter(s).

4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the threshold check solution nebulizer.

5) The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water or using a pre-mixed test solution.

6) As before, the test subject shall breathe through the slightly open mouth with tongue extended, and report if they taste the sweet taste of saccharin.

7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.

8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section A.14. of this enclosure.

9) Every 30 seconds the aerosol concentration shall be replenished using one half the original number of squeezes used initially (e.g., 5, 10 or 15).

10) The test subject shall indicate at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.

11) If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

12) Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.

13) If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber to ensure they are able to taste the saccharine in the test chamber. If they are unable to taste the saccharine, the taste threshold screening and test procedures must be repeated.

4. Bitrex™ (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol. The Bitrex™ (Denatonium benzoate) solution aerosol QLFT protocol uses the published saccharin test protocol because that protocol is widely accepted. Bitrex is routinely used as a taste aversion agent in household liquids which children should not be drinking and is endorsed by the American Medical Association, the National Safety Council, and the American Association of Poison Control Centers. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

a. Taste Threshold Screening. The Bitrex taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of Bitrex.

1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

2) The test enclosure shall have a ¾-inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his or her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a bitter taste

4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. This Nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

5) The threshold check solution is prepared by adding 13.5 milligrams of Bitrex to 100 ml of 5% salt (NaCl) solution in distilled water or by using a premixed solution.

6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.

7) An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.

8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.

9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.

10) The test conductor will take note of the number of squeezes required to solicit a taste response.

11) If the Bitrex is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex and may not perform the Bitrex fit test.

12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

14) The nebulizer shall be thoroughly rinsed in water, shaken to dry, and refilled at least each morning and afternoon or after four hours during continuous use.

b. Bitrex Solution Aerosol Fit Test Procedure.

1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

2) The fit test uses the same enclosure as that described in 4.a.1).

3) The test subject shall don the enclosure while wearing the respirator selected according to section I. A. of this appendix. The respirator shall be properly adjusted and equipped with any type particulate filter(s).

4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.

5) The fit test solution is prepared by adding 337.5 mg of Bitrex to 200 ml of a 5% salt (NaCl) solution in warm water or using a premixed solution

6) As before, the test subject shall breathe through his or her slightly open mouth with tongue extended, and be instructed to report if he/she tastes the bitter taste of Bitrex.

7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of the fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test.

8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section A.14. of this enclosure.

9) Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).

10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of Bitrex is detected. If the test subject does not report tasting the Bitrex, the test is passed.

11) If the taste of Bitrex is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

12) If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber to ensure

they are able to taste the Bitrex in the test chamber. If they are unable to taste the Bitrex, the taste threshold screening and test procedures must be repeated.

C. Quantitative Fit Testing (QNFT).

1. Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing equipment (Portacount™) shall be used for quantitative fit testing.

2. Persons administering quantitative fit testing must be able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that the test equipment is in proper working order.

3. Quantitative fit testing equipment shall be kept clean, and maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

4. Follow the first 13 steps listed in paragraph A of this enclosure for the selection of a respirator. CNC quantitative fit testing requires a probe or filter adapter to sample inside the mask. Ensure a probed mask or filter adapter is available for all respirators available for selection by the test subject. When performing the positive and negative seal checks, the sampling line must be crimped closed in order to avoid air pressure leak during either of these pressure checks.

5. Follow manufacturer’s directions in conducting quantitative fit testing. The test exercises listed in paragraph A.14.a., or similar exercises identified by the manufacturer, shall be used during the fit test process.

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USER SEAL CHECK PROCEDURES

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed below, or the respirator manufacturer's recommended user seal check method, shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests. For filtering facepiece respirators (dust masks), follow manufacturer's instructions for seal checks.

A. Positive pressure check. Close off the exhalation valve with palm of the hand and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators, this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering the opening with the palm of the hand(s) and inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

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QUALITATIVE FIT-TEST DOCUMENTATION

For each respirator fit testing, the following information must be retained by the command: name of individual and date fit-tested; respirator manufacturer, model, and size; and results of respirator fit-test. This information shall be retained as long as the individual is at the command. The information may be collected on the form shown below or in an equivalent format that contains the same data.

Date: _____

Name: _____

Respirator Brand And Model	Fullface	½ Face	Size S	Size M	Size L	Respirator Fit Yes	Respirator Fit No
_____	_____	_____	___	___	___	___	___
_____	_____	_____	___	___	___	___	___
_____	_____	_____	___	___	___	___	___
_____	_____	_____	___	___	___	___	___
_____	_____	_____	___	___	___	___	___

Person Conducting Fit Test: _____

Organization: _____ Title: _____

Type of Fit Test: _____ Banana Oil _____ Saccharin

_____ Bitrex _____ Other: _____

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BREATHING AIR QUALITY FOR SUPPLIED AIR RESPIRATORS AND SELF-CONTAINED BREATHING APPARATUS

A. Air Quality. Breathing air shall be of high purity and shall at least meet the requirements of Grade D breathing air as described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, as specified below. Air from all sources must be tested at least every six months. If a compressor or filling system has only a high temperature alarm (no carbon monoxide alarm), air must be tested quarterly for carbon monoxide. Air testing is not required for non oil-lubricated (oil-less) compressors or air pumps.

1. Requirements.

   a. Oxygen content (v/v) of 19.5 – 23.5 %.

   Note: Oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

   b. Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less.

   c. Carbon monoxide (CO) content of 10 ppm or less.

   d. Carbon dioxide content of 1,000 ppm or less.

   e. Lack of noticeable odor.

2. Cylinders. Cylinders used to supply breathing air to respirators shall meet the following requirements:

   a. Cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR Part 173 and Part 178).

   b. Cylinders of purchased breathing air must have a certificate of analysis from the supplier that states the breathing air meets the requirements for Grade D breathing air.

   c. Moisture content in the cylinder does not exceed a dew point of –50 degrees F (-45.6 degrees C) at 1 atmosphere pressure.

3. Compressors and Air Pumps. Compressors and air pumps used to supply breathing air to respirators (e.g., air line respirators used on cutters) shall be constructed and situated so as to:

a. Prevent entry of contaminated air into the air-supply system. The unit shall be placed in a clean, uncontaminated environment when in use. Post a sign at the intakes of permanent systems to ensure vehicles or other items/processes that could contaminate the air are not allowed in the area of the intakes. Construct a similar sign for portable units to be placed in the vicinity of the compressor or air pump used for airline respirators.

b. Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 degrees C) below the ambient temperature.

c. Have suitable in-line air-purifying sorbent beds and/or filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions. Have a tag containing the most recent change date and the signature of the person authorized by the unit to perform the change. The tag shall be maintained at the compressor or pump.

d. For oil-lubricated compressors, the employer shall use a high-temperature or carbon monoxide monitor alarm, or both, to monitor carbon monoxide levels. If equipped, the carbon monoxide monitor must be calibrated in accordance with manufacturer's instructions.

e. The unit shall ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

f. The unit shall use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR Part 84.

RESPIRATOR FEATURES

A. Assigned Protection Factors (APF). APF means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the unit implements a continuing, effective respiratory protection program as specified by reference (a) and this instruction. For example, if a respirator has an APF of 10, then the respirator should protect the employee in contaminant levels 10 times the occupational exposure limit.

Respirator Type	APF
Filtering Facepiece	5*
Air Purifying ½ mask	10
Air Purifying full face	50
PAPR – ½ mask	50
PAPR – full face	100
PAPR – helmet/hood	25
PAPR – loose-fitting facepiece	25
SAR – continuous flow – ½ mask	50
SAR – continuous flow – full face	250
SAR – continuous flow – helmet/hood	25
SAR – continuous flow – loose-fitting facepiece	25
SAR – pressure demand – ½ mask	50
SAR – pressure demand – full face	1000
SCBA – pressure demand – full facepiece	10,000
SCBA – pressure demand – helmet/hood	10,000

* Filtering facepiece respirators are not authorized for asbestos.

PAPR = Powered Air Purifying Respirator

SAR = Supplied Air Respirator

SCBA = Self Contained Breathing Apparatus

B. Color Coding of Air-Purifying Cartridges. The following list is a general guideline for determining what contaminants a filter will protect against. Some manufactures may vary their color coding, so always check with the manufacture to ensure the correct filter is being used.

- White - Acid Gas
- White w/Green Stripe - Hydrocyanic Gases
- White w/Yellow Stripe - Chlorine Gases
- Black - Organic Vapor

- Blue (rare usage) - Carbon Monoxide
- Yellow - Acid Gases/Organic Vapors
- Green - Ammonia/Methylamine Gas
- Brown (rare usage) - Acid Gases, Organic Vapors, and Ammonia
- Red - Acid Gases, Ammonia, CO, and Organic Vapor
- Orange - Dusts, Fumes, and Mists (except radioactive)
- Purple/Magenta - Radioactive Materials and High Efficiency P-100 (except tritium and noble gases)
- Any color plus ½ inch Gray or Orange stripe - Aerosols (dusts, fumes, mists, fogs, smokes) in combination with other gases or vapors
- Green with ½ inch White Stripe near bottom - Acid Gas and Ammonia Gas
- Yellow with ½ inch Blue Stripe near the bottom - Hydrocyanic Acid Gas and Chloropicrin Vapor

C. 42 CFR Part 84 Filter Designation.

Designation	Efficiency	Use*
N100	99.97%	Solid and water-based particulates only (Not oil-resistant)
N99	99%	
N95	95%	
R100	99.97%	Any particulate – one shift only for oily particles (oil resistant)
R99	99%	
R95	95%	
P100	99.97%	Any particulate (oil proof)
P99	99%	
P95	95%	

*Follow manufacturers recommendations for service life for all respirators/cartridges.

Respirator Medical Evaluation Questionnaire

Your supervisor must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your supervisor (or anyone in the chain of command) must not look at or review your answers.

Part A. Section 1.

1. Today's date:_____
2. Your name:_____
3. Your age (to nearest year):_____
4. Your sex (circle one): Male / Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title/rate:_____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): ····· Yes No
11. Check the type of respirator you will use (you can check more than one category):
    a. _____ N, R, or P disposable respirator (filter-mask, non- cartridge type only).
    b. _____ Cartridge-type respirator (filter-mask with any type of cartridges).
    c. _____ Powered Air Purifying Respirator
    d. _____ Supplied Air Respirator
    e. _____ Self Contained Breathing Apparatus
    f. _____ Other type of respirator. Describe:_____
12. Have you ever/previously worn a respirator (circle one): ····· Yes No
    If "yes," what type(s):_____

Part A. Section 2. (please circle "yes" or "no").

1. Do you **currently** smoke tobacco, or have you smoked tobacco in the last month: ····· Yes No
2. Have you **ever had** any of the following conditions?
    a. Seizures (fits): ····· Yes No
    b. Diabetes (sugar disease): ····· Yes No
    c. Allergic reactions that interfere with your breathing: ····· Yes No
    d. Claustrophobia (fear of closed-in places): ····· Yes No
    e. Trouble smelling odors: ····· Yes No

3. Have you **ever had** any of the following pulmonary or lung problems?
   a. Asbestosis: ····· Yes No
   b. Asthma: ····· Yes No
   c. Chronic bronchitis: ····· Yes No
   d. Emphysema: ····· Yes No
   e. Pneumonia: ····· Yes No
   f. Tuberculosis: ····· Yes No
   g. Silicosis: ····· Yes No
   h. Pneumothorax (collapsed lung): ····· Yes No
   i. Lung cancer: ····· Yes No
   j. Broken ribs: ····· Yes No
   k. Any chest injuries or surgeries: ····· Yes No
   l. Any other lung problem that you've been told about: ····· Yes No
4. Do you **currently** have any of the following symptoms of pulmonary or lung illness?
   a. Shortness of breath: ····· Yes No
   b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: ····· Yes No
   c. Shortness of breath when walking with other people at an ordinary pace on level ground: ····· Yes No
   d. Have to stop for breath when walking at your own pace on level ground: ····· Yes No
   e. Shortness of breath when washing or dressing yourself: ····· Yes No
   f. Shortness of breath that interferes with your job: ····· Yes No
   g. Coughing that produces phlegm (thick sputum): ····· Yes No
   h. Coughing that wakes you early in the morning: ····· Yes No
   i. Coughing that occurs mostly when you are lying down: ····· Yes No
   j. Coughing up blood in the last month: ····· Yes No
   k. Wheezing: ····· Yes No
   l. Wheezing that interferes with your job: ····· Yes No
   m. Chest pain when you breathe deeply: ····· Yes No
   n. Any other symptoms that you think may be related to lung problems: ····· Yes No
5. Have you **ever had** any of the following cardiovascular or heart problems?
   a. Heart attack: ····· Yes No
   b. Stroke: ····· Yes No
   c. Angina: ····· Yes No
   d. Heart failure: ····· Yes No
   e. Swelling in your legs or feet (not caused by walking): ····· Yes No
   f. Heart arrhythmia (heart beating irregularly): ····· Yes No
   g. High blood pressure: ····· Yes No
   h. Any other heart problem that you've been told about: ····· Yes No

6. Have you **ever had** any of the following cardiovascular or heart symptoms?
   a. Frequent pain or tightness in your chest: ····· Yes No
   b. Pain or tightness in your chest during physical activity: ····· Yes No
   c. Pain or tightness in your chest that interferes with your job: ····· Yes No
   d. In the past two years, have you noticed your heart skipping or missing a beat: ····· Yes No
   e. Heartburn or indigestion that is not related to eating: ····· Yes No
   f. Any other symptoms that you think may be related to heart or circulation problems: ····· Yes No
7. Do you **currently** take medication for any of the following problems?
   a. Breathing or lung problems: ····· Yes No
   b. Heart trouble: ····· Yes No
   c. Blood pressure: ····· Yes No
   d. Seizures (fits): ····· Yes No
8. If you've used a respirator, have you **ever had** any of the following problems? (If you've never used a respirator, check the following space and go to question 9:____)
   a. Eye irritation: ····· Yes No
   b. Skin allergies or rashes: ····· Yes No
   c. Anxiety: ····· Yes No
   d. General weakness or fatigue: ····· Yes No
   e. Any other problem that interferes with your use of a respirator: ····· Yes No
9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: ····· Yes No
10. Have you **ever lost** vision in either eye (temporarily or permanently): ····· Yes No
11. Do you **currently** have any of the following vision problems?
   a. Wear contact lenses: ····· Yes No
   b. Wear glasses: ····· Yes No
   c. Color blind: ····· Yes No
   d. Any other eye or vision problem: ····· Yes No
12. Have you **ever had** an injury to your ears, including a broken ear drum: ····· Yes No
13. Do you **currently** have any of the following hearing problems?
   a. Difficulty hearing: ····· Yes No
   b. Wear a hearing aid: ····· Yes No
   c. Any other hearing or ear problem: ····· Yes No
14. Have you **ever had** a back injury: ····· Yes No

15. Do you **currently** have any of the following musculoskeletal problems?
    a. Weakness in any of your arms, hands, legs, or feet: ····· Yes No
    b. Back pain: ····· Yes No
    c. Difficulty fully moving your arms and legs: ····· Yes No
    d. Pain or stiffness when you lean forward or backward at the waist: ····· Yes No
    e. Difficulty fully moving your head up or down: ····· Yes No
    f. Difficulty fully moving your head side to side: ····· Yes No
    g. Difficulty bending at your knees: ····· Yes No
    h. Difficulty squatting to the ground: ····· Yes No
    i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: ····· Yes No
    j. Any other muscle or skeletal problem that interferes with using a respirator: ····· Yes No

Part B. Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: ····· Yes No
   If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: ····· Yes No
2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: ····· Yes No
   If "yes," name the chemicals if you know them:_____
   _____
   _____
3. Have you ever worked with any of the materials, or under any of the conditions, listed below:
    a. Asbestos: ····· Yes No
    b. Silica (**e.g.**, in sandblasting): ····· Yes No
    c. Tungsten/cobalt (e.g., grinding or welding this material): ····· Yes No
    d. Beryllium: ····· Yes No
    e. Aluminum: ····· Yes No
    f. Coal (for example, mining): ····· Yes No
    g. Iron: ····· Yes No
    h. Tin: ····· Yes No
    i. Dusty environments: ····· Yes No
    j. Any other hazardous exposures: ····· Yes No

   If "yes," describe these exposures:_____
   _____
   _____
4. List any second jobs or side businesses you have:_____
   _____
5. List your previous occupations:_____
   _____

6. List your current and previous hobbies:_____
_____

7. Have you been in the military services? ····· Yes No
If "yes," were you exposed to biological or chemical agents (either in training or combat): ····· Yes No

8. Have you ever worked on a HAZMAT team? ····· Yes No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): ····· Yes No
If "yes," name the medications if you know them:_____

10. Will you be using any of the following items with your respirator(s)?
    a. HEPA Filters: ····· Yes No
    b. Canisters (for example, gas masks): ····· Yes No
    c. Cartridges: ····· Yes No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:
    a. Escape only (no rescue): ····· Yes No
    b. Emergency rescue only: ····· Yes No
    c. Less than 5 hours **per week:** ····· Yes No
    d. Less than 2 hours **per day:** ····· Yes No
    e. 2 to 4 hours per day: ····· Yes No
    f. Over 4 hours per day: ····· Yes No

12. During the period you are using the respirator(s), is your work effort:
    a. **Light** (less than 200 kcal per hour): ····· Yes No

    If "yes," how long does this period last during the average shift:_____hrs._____mins.
    Examples of a light work effort are **sitting** while writing, typing, drafting, or performing light assembly work; or **standing** while operating a drill press (1-3 lbs.) or controlling machines.

    b. **Moderate** (200 to 350 kcal per hour): ····· Yes No

    If "yes," how long does this period last during the average shift:_____hrs._____mins.
    Examples of moderate work effort are **sitting** while nailing or filing; **driving** a truck or bus in urban traffic; **standing** while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; **walking** on a level surface about 2 mph or down a 5-degree grade about 3 mph; or **pushing** a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

    c. **Heavy** (above 350 kcal per hour): ····· Yes No

    If "yes," how long does this period last during the average shift:_____hrs._____mins.
    Examples of heavy work are **lifting** a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; **shoveling; standing** while bricklaying or chipping castings; **walking** up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: ····· Yes No
If "yes," describe this protective clothing and/or equipment:_____
_____

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): ····· Yes No

15. Will you be working under humid conditions: ····· Yes No

16. Describe the work you'll be doing while you're using your respirator(s):_____
_____
_____

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases): _____
_____
_____

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

    Name of the first toxic substance:_____

    Estimated maximum exposure level per shift:_____

    Duration of exposure per shift:_____

    Name of the second toxic substance:_____

    Estimated maximum exposure level per shift:_____

    Duration of exposure per shift:_____

    Name of the third toxic substance:_____

    Estimated maximum exposure level per shift:_____

    Duration of exposure per shift:_____

    The name of any other toxic substances that you'll be exposed to while using your respirator:

    _____

    _____

    _____

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):_____

    _____

    _____

RESPIRATOR QUALIFICATION INFORMATION

The following member has received a medical evaluation concerning the use of following type of respirator:

_____ N, R, or P disposable respirator (filtering facepiece, non- cartridge type only).
_____ Cartridge-type respirator (filter-mask with any type of cartridges).
_____ Powered Air Purifying Respirator
_____ Supplied Air Respirator
_____ Self Contained Breathing Apparatus
_____ Other type of respirator. Describe:_____ _____

The member HAS / HAS NOT (circle one) been found to be physically able to wear these indicated respirators:

Name:_____

Limitations on respirator use and need for follow-up exam (if any):_____
_____
_____
_____

I have provided the member with a copy of written recommendations regarding their medical qualification to wear the respirator specified above.

_____ _____
Medical Officer or LHCP (signature & stamp) Date of evaluation

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Required and Voluntary Respirator Users

Required or Voluntary	User Name	Respirator Type	Location/Job Task

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IDLH Locations

Possible Emergency Locations	**Actions to take if Emergency Occurs**

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Cartridge Change-Out Schedules

Respirator manufacturer and model	**Cartridge type/model**	**Operation where respirator is used**	**Frequency of Cartridge Change**	**Information used to determine schedule and basis for reliance on this data**

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Documentation of Annual Respiratory Protection Program Evaluation

Typed or Printed name of person who performed the evaluation	**Signature of person who performed evaluation**	**Date of evaluation**

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INFORMATION FOR EMPLOYEES USING FILTERING FACEPIECE RESPIRATORS WHEN NOT REQUIRED (VOLUNTARY USE)

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and follow all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.