******EXAMPLE******

RESPIRATORY PROTECTION PROGRAM

Ref: (a) 29 CFR 1910.134
(b) MCO 5100.8F
(c) OPNAVINST 5100.23E
(d) ANSI Z88.2-1980

1. **Purpose.** To provide written requirements and guidelines for the Respiratory Protection Program at _____ as required by references (a) through (d).

2. **Background.** OSHA and NAVOSH standards set up permissible exposure limits for airborne concentrations of potentially hazardous dusts, fumes, mists, and vapors to which employees must not be exposed, and direct that, engineering controls be implemented to reduce employee exposure to hazardous substances below these permissible exposure limits. Where engineering controls are not feasible, or while these controls are being instituted, appropriate respirators shall be used to protect the health of the employee, and a respiratory protection program governing the selection, use and maintenance of these respirators shall be established.

3. **Scope**. This instruction applies to all uses of respiratory protection equipment at _____ _____ and at all assigned, attached, and tenant activities occupying facilities under the jurisdiction of the _____.

TABLE 1: REQUIRED RESPIRATOR USE AT _____ BATTALION

Respirator	Operation

4. **Responsibilities**

a. *The Respiratory Protection Manager (RPPM)*. The RPPM is responsible for coordinating all aspects of the Respiratory Protection Program and has full authority to make necessary decisions to ensure the success of the program. He/She shall:

(1) Be adequately trained in all aspects of the RPPM program development, implementation, and execution.

(2) Complete one or more of the following courses before appointment:

(a) OSHA Training Institute Course 222 or 222A.

(b) NIOSH Course 593.

(c) Navy RPPM Course.

(d) Respiratory protection course with at least 32 hours of training which covers: minimum program requirements and administration; respirator types, selection, certification, and limitations; respirator cleaning, maintenance, and inspection; fit-testing; and medical consideration.

(3) Be designated in writing by the commander based on recommendations from the safety manager.

(4) Ensure written standard operation procedures (SOPs) governing the selection, care, issue and use of respirators are available. Work sight SOPs shall be developed for each type respirator and hazard and will be posted in the general area. SOP's shall include emergency and rescue guidance as necessary.

(5) Approve and authorize in writing all purchases of respiratory protective equipment.

(6) Ensure only individuals which have been medically qualified, fit tested, and trained are assigned jobs requiring the use of respirators.

(7) Ensure respiratory protection recommended by the cognizant industrial hygienist is provided to appropriate personnel.

(8) Request the cognizant industrial hygienist to conduct a health hazard evaluation of new or modified work operations to ensure that appropriate respirators are specified.

(9) Ensure each department/workcenter using respiratory protection equipment establishes a central maintenance facility for respirator issue, cleaning, and maintenance.

(10) Ensure personnel assigned to each department's central maintenance facility are adequately trained.

(11) Ensure all respirator users and their supervisors receive annual training.

(12) Ensure all respirator users are scheduled for medical examinations.

(13) Ensure all users of negative pressure respirators are fit-tested annually.

(14) Maintain all records pertaining to respirator training, fit-testing, and employee exposures.

(15) Conduct an annual audit of the respiratory protection program.

b. *The Cognizant Industrial Hygienist (IH).*

(1) Upon request by the Program Manager, provide consultation on all aspects of the Respiratory Protection Program.

(2) Assist in the respirator selection process upon request by the Program Manager.

(3) Upon request by the Program Manager, provide direct assistance and service in the training and fit testing program.

(4) Conduct hazard evaluations of new or modified work operations.

(5) Periodically (in conjunction with the IH survey) provide a written evaluation on the effectiveness of the Respiratory Protection Program.

c. *Each department/workcenter with a respirator central maintenance facility shall*:

(1) Set up an area for respirator issue, storage, and maintenance.

(2) Issue respirators to qualified respirator users only. Each individuals Respirator Protection Program Qualification Card may be used to verify qualification.

(3) Clean, disinfect, inspect, and repair all respirators prior to issue.

(4) Store all respirators in a designated clean area.

(5) Maintain an adequate supply of respirator replacement parts.

d. *Supervisors.*

(1) Ensure only trained, fit-tested and medically qualified personnel are assigned to tasks requiring the use of respirators.

(2) Develop and post SOPs governing the care, issue and use of respirators. Work-site SOPs shall be developed and posted in the general area for each type respirator and hazard. SOPs shall include emergency and rescue and guidance.

(3) Ensure the availability of appropriate respirators and accessories.

(4) Ensure the respirators are properly cleaned, maintained, and stored according to this plan.

(5) Ensure respirators are used as outlined in this instruction and reference (a).

e. *Supply Department*. Purchase only respiratory protection equipment that has been approved and authorized by the Program Manager.

f. *Respirator users.*

(1) Use respirators as outlined in this instruction.

(2) Inspect respirator prior to each use.

(3) Perform respirator face-piece fit check.

(4) Report work-site problems involving the use of respirators to their supervisor.

(5) Clean, inspect, and return respirator to their department/workcenter's central respirator maintenance area upon completion of the task requiring respirators or at the end of the duty shift.

5. **Respirator Selection**

a. The cognizant industrial hygienist will specify respirators in the periodic industrial hygiene survey and upon request by the Program Manager.

b. The results of the most current IH survey are as follows:
****EXAMPLE**** (use your Battalions IH survey)

(1) WBCC Touchup: No air sampling data available. However, WBCC contains isocyanates and so IH recommends the use of half-facepiece APRs with organic vapor cartridges for mixing and brush-applying the paint.

(2) Boat Patching: Air sampling data indicates exposures are low. However, since toluene is a reproductive hazard, IH recommends half-facepiece APRs with organic vapor cartridges for using solvents and applying adhesives for patching Zodiac boats.

(3) Detonating Lead-Lined Charges: Air sampling data indicates consistent over-exposures to lead (not in excess of 10 times the PEL). IH recommends half-facepiece APRs with P100 filters when detonating lead-lined charges.

(4) Carwell Application: Air sampling data indicates over-exposure to oil mist. IH recommends half-facepiece APRs with organic vapor cartridges and P95 paint premist filters.

(5) Paint Booth Operations: Air sampling data indicates the potential for overexposure to paint constituents. IH recommends FF SAR in the pressure demand mode is required for spray paint operations in the booth.

(6) Corrosion Control: No air sampling data is available. However, CARC paint may contain hexavalent chromium and lead and so the IH recommends the use of a half-facepiece APR with N/P100 filters when grinding CARC.

6. **Medical Evaluation.** Employees who are required to wear a respirator must pass a medical exam before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so.

a. The U.S. Naval Hospital Okinawa, Occupational Medicine Department will conduct medical evaluations, as outlined in the guidelines set forth in references (a) and (b), as requested by the Battalion RPPM.

b. These medical examinations shall be done periodically as specified in reference (b).

c. The hospital will update the individuals Respirator Protection Program Qualification Card upon completion of the examination.

d. A list of all Battalion personnel included in the medical surveillance is provided in Table 2 of this program.

e. Users of prescription eye-wear who must wear a full-face respirator shall be fitted with respirator spectacles by the COMNAVMEDCOM optometrist.

f. For information concerning medical examinations for Japanese Nationals (JN's), contact the MCB, Camp Butler Safety Office.

7. **Fit-Testing.** All users of negative-pressure respirators shall be fit-tested in a test atmosphere to ensure proper respirator fit.

a. Employees will be fit-tested:

(1) Prior to being allowed to wear any respirator with a tight fitting facepiece.

(2) Annually.

(3) When there are changes in the employee's physical condition that oculd affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

b. Fit-testing may be conducted by:

(1) The RPPM.

(2) Designated personnel who have been properly trained by the RPPM in fit-testing respirators.

(3) Mr. Ricky Payne of MCB, Camp Butler Safety Office. The Program Manager must contact him to request the fit-testing.

c. Employees will be fit-tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit.

d. The fit-testing method used will be that of the OSHA approved _____ Qualitative Fit Test Protocol of the Respiratory Protection Standard, reference (a). See attachment (1) for the protocol.

e. Individuals with interfering facial hair will not be allowed to use Respiratory Protection Equipment.

8. **Respirator Use.** Respiratory protection is required for the following personnel:

TABLE 2: _____ Battalion Personnel in the RPP			
Name	**Shop**	**Job Description/ Work Procedure**	**Respirator**

a. *General Use Procedures:*

(1) Only respiratory protective equipment authorized by the Program Manager shall be used.

(2) Respirators shall be used as issued. No modifications or substitutions to equipment are permitted.

(3) Respirators shall be used only by the person to whom they are issued.

(4) Respirators with tight-fitting face-pieces shall not be worn by individuals with interfering facial hair.

(5) Respirators shall be inspected by the user before donning.

(6) A respirator fit-check must be performed each time a respirator is donned. Attachment (2) describes the procedure for conducting the fit-check.

(7) If, while using respiratory protection, odor from the work process is detected, difficulty in breathing is encountered or other leakage is suspected, the used shall leave the area without delay. Re-entry shall not be permitted until the problem has been solved by replacing cartridges, restoring air flow, or by other means, as necessary.

(8) When respirators are temporarily removed during breaks in work operations, removal shall be done away from the work area in order to prevent personnel exposure and to keep the inside of the respirator face-piece clean. Respirator shall be protected from contamination prior to re-donning.

(9) Respirators shall be returned to the central maintenance facility of their department after each use.

b. *Emergency Procedures:* In the event of a large (more than 1 gallon) HazMat spill, personnel will immediately evacuate the area and notify the Battalion Safety office. Under no circumstances will the employees assume the

respiratory protection worn for their routine job is adequate protection for cleaning up a HazMat spill.

c. *Respirator Malfunction:*

(1) APR Respirator Malfunction. For any malfunction of an APR (e.g., such as breakthrough, facepiece leakage, or improperly working valve), the respirator wearer should notify his/her supervisor of the problem and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee receives the needed parts to repair the respirator, or is provided with a new respirator.

(2) SAR Respirator Malfunction. All workers wearing SARs will work with a buddy. Buddies hall assist workers who experience an SAR malfunction as follows:

9. **Air Quality**

a. For supplied-air respirators breathing air must be certified Grade D.

10. **Cleaning, Maintenance, Change Schedules and Storage**

Cleaning

a. Respirators used by more than one employee must be cleaned and disinfected before being used by different individuals.

b. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in clean and sanitary condition.

c. SAR are to be cleaned and disinfected after each use.

Note: Attachment (3) gives the procedure for cleaning and disinfecting respirators.

Maintenance

a. Respirator assembly and repair shall be done by trained and qualified personnel.

b. Repair of respirators shall be accomplished with the appropriate parts designated by the respirator manufacturer.

c. No attempt shall be made to replace components or to make adjustments or repairs beyond the manufacturer's recommendations.

Note: An inspection checklist is provided as attachment (4).

Change Schedules

a. Employees wearing APRs shall change the cartridges or filters on their respirators per the manufacturer's recommendation; when they first begin to detect odor through the organic vapor cartridges; or when they experience difficulty breathing (i.e., resistance) while wearing their masks equipped with particulate filters.

Storage

a. Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their respirator as per the provisions of this program and will store their respirator in a plastic bag in their own locker. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.

b. Atmosphere supplying respirators will be stored at _____.

c. The RPPM will store the Battalion's supply of respirators and accessories in their original manufacturer's packaging in his/her office.

Defective Respirators

a. Defective respirators will be taken out of service immediately. The RPPM will either repair the respirator on the spot, take the respirator out of service until it can be repaired, or dispose of the respirator.

11. **Training**

a. Respirator users and their supervisors shall be instructed and trained in the proper use of respirators and their limitations.

b. This training shall include:

(1) Types of hazardous atmospheres and their effects on worker health.

(2) Respirator selection

(3) Respirator use and limitation

(4) Requirements of the Battalion respirator protection program

(5) Procedure for inspection of respirators

(6) Procedure for donning and fit-checking respirators

c. This training shall be provided initially and annually thereafter.

d. The training may be provided by the RPPM or by Mr. Ricky Payne of MCB, Camp Butler Safety Office. The Battalion RPPM can contact Mr. Payne to request quotas.

12. **Program Evaluation.** The RPPM shall:

a. Conduct annual audits of the program

b. Conduct frequent, random inspections of the workplace(s) to ensure that respirators are correctly selected, properly used, in good condition, and worn correctly.

c. Take appropriate actions to correct any problems or discrepancies noted.

Note. A checklist, provided as attachment (5), may be used for the annual audit and periodic workplace evaluations.

13. **Record Keeping.**

a. For each employee in the program, the RPPM must retain copies of the following documentation:

(1) Medical Qualification Card.

(2) Fit-test results.

b. The RPPM must also retain a copy of the current program and the results of the most recent evaluation/audit.

Appendix A to § 1910.134: Fit Testing Procedures (Mandatory)

Part I. OSHA-Accepted Fit Test Protocols

A. Fit Testing Procedures -- General Requirements.

The employer shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods.

1. 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.

2. 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.

3. The test subject shall be informed that he/she is 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.

4. 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.

5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. 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.

6. 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

(c) Room to talk

(d) Position of mask on face and cheeks

7. 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.

8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the 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.

9. 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. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.

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 for at least 5 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 which could interfere with respirator fit.

14. Test Exercises.

(a) The following test exercises are to be performed for all fit testing methods prescribed in this appendix, except for the CNP method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject shall perform exercises, in the test environment, in the following manner:

(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 his/her 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 his/her 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 QNFT testing; it is not performed for QLFT)

(7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist. (8) Normal breathing. Same as exercise (1).

(b) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. 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) The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.

(b) The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Isoamyl Acetate Protocol

Note: This protocol is not appropriate to use for the fit testing of particulate respirators. If used to fit test particulate respirators, the respirator must be equipped with an organic vapor filter.

(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) 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 that they can be peeled off periodically 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) Isoamyl Acetate Fit Test

(1) The fit test chamber shall be a clear 55-gallon drum liner 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 similar chamber shall 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 ampule 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 (b) (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.

(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.

(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 the front portion clear and that allows free movements 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.

(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.

Note to paragraph 3. (a): If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.

(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 each morning and afternoon or at least every four hours.

(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 3. (a) above.

(3) The test subject shall don the enclosure while wearing the respirator selected in section I. 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 screening test solution nebulizer.

(5) The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.

(6) As before, the test subject shall breathe through the slightly open mouth with tongue extended, and report if he/she tastes 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 I. A. 14. of this appendix.

(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 to the test conductor if 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.

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 \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 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.

(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 at least every four hours.

(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) above.

(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.

(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 I. A. 14. of this appendix.

(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).

5. Irritant Smoke (Stannic Chloride) Protocol.

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

(a) General Requirements and Precautions

(1) The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

(2) Only stannic chloride smoke tubes shall be used for this protocol.

(3) No form of test enclosure or hood for the test subject shall be used.

(4) The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

(5) The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

(b) Sensitivity Screening Check.

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

(1) The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

(2) The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.

(3) The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

(c) Irritant Smoke Fit Test Procedure

(1) The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).

(2) The test subject shall be instructed to keep his/her eyes closed.

(3) The test operator shall direct the stream of irritant smoke from the smoke tube toward the faceseal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

(4) If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.

(5) The exercises identified in section I.A. 14. of this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.

(6) If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person

being retested must repeat the entire sensitivity check and fit test procedure.

(7) Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

(8) If a response is produced during this second sensitivity check, then the fit test is passed.

FACEPIECE FIT CHECKS

Each time the respirator is donned, personnel must conduct the following positive and negative fit checks:

1. *Positive pressure check.* Close off the exhalation valve 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.

2. *Negative pressure check.* Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), 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.

3. *Manufacturer's Recommended User Seal Check Procedures*. The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

RESPIRATOR CLEANING INSTRUCTIONS

1. Disassemble respirator, removing any filters, canisters, or cartridges. Discard all used cartridges and filters.

2. Wash the facepiece and associated parts with mild detergent in warm water. Do not use organic solvents.

3. Rinse completely in clean warm water.

4. Wipe the respirator with disinfectant wipes (70% Isopropyl Alcohol) to kill germs.

5. Air dry in a clean uncontaminated area in such a way as to prevent distortion of the facepiece. (Do not hang to dry.)

6. Reassemble and reinspect the respirator and replace any defective parts.

7. Place in a clean dry plastic bag or other air tight container and seal. Zip-lock bags are preferred. Ensure the respirator is completely dry before sealing to prevent mildew.

8. Store flat in a clean, dry, uncontaminated area without crowding which may distort the respirator facepiece.

Notes:

1. Personnel shall not service/repair any respirators for which they have not been specifically trained.

2. No work shall be performed on reducing valves, regulators or alarms of atmosphere-supplying respirators (e.g., air-line respirators and SCBAs). These items shall be returned to the manufacturer for all repairs and adjustments.

RESPIRATOR INSPECTION

1. Air Purifying Respirators

a. Examine the facepiece for:

- Excessive dirt.
- Cracks, tears, holes, inflexibility or physical distortion of shape from improper storage. Stretch elastomeric facepiece material to help identify defects and restore flexibility.
- Cracked or badly scratched lenses in full facepieces.
- Incorrectly mounted full facepiece lenses, or broken or missing mounting clips.
- Cracked or broken air-purifying element holder(s), badly worn threads or missing gasket(s) if required.
- Presence and integrity of speaking diaphragm where required.

b. Examine the head straps or head harness for:

- Presence of correct strap assembly (removal of one strap or substitutions such as shoelaces not permitted).
- Breaks.
- Loss of elasticity or overstretching.
- Broken or malfunctioning buckles and adjusters.
- Excessively worn serrations on head harness, which might permit slippage (full facepiece only).

c. Examine the inhalation and exhalation valves for the following:

- Foreign material, such as detergent residue, dust particles or human hair under the valve.
- Cracks, tears or distortion in the valve material.
- Improper insertion of the valve seat in the facepiece.
- Cracks, breaks, or chips in the valve seat, particularly in the sealing surface.
- Missing or damaged exhalation valve cover.
- Improper installation of the valve in the valve seat.

d. Examine the air-purifying element for:

- Manufacturer (must be same as manufacturer of facepiece).
- Correct cartridge or filter for the hazard.
- Incorrect installation, loose connections, missing or worn gasket or cross threading in the holder.
- Detergent residue or other foreign material under gasket.
- Expired shelf-life date on canister.
- Cracks or dents in the outside case of the filter or cartridge, indicated by the absence of sealing material, tape, foil, etc, over the inlet.

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

- Broken or missing end connectors.
- Missing, loose or damaged hose clamps.
- Deterioration, determined by stretching the tube and looking for cracks.
- Presence of gaskets in end connections where required.

2. Powered Air Purifying Respirators

a. Facepiece type:

- Inspect as in Item 1, above.
- Check condition of battery pack, wires and connections.
- Check air flow following manufacturer's instructions.

b. Hood or helmet type:

- Exmaine the hood and its shroud(s) for rips, tears, and seam integrity.
- Examine the protective headgear, if present, for general condition with emphasis on the suspension inside the headgear.
- Examine the protective face shield, if any, for cracks or breaks or impaired vision.
- Make sure the protective screen is intact and secured correctly over the faceshield of abrasive blasting hoods.
- Inspect air purifying elements and corrugated breathing tubes.

- Check condition of battery pack, wires, and connections.
- Check air flow following manufacturer's instructions.

3. Type C Supplied Air Respirators

a. Inspect facepiece, hood, or helmet using procedures outlined in Items 1 and 2.

b. Examine the air supply system for:

- Integrity and good condition of air supply lines and hoses, including attachment and end fittings.
- Correct operation and condition of regulators or other air flow controls as indicated on approval label.
- Air quality.

4. Type C Supplied Air Respirator/SCBA

a. Inspect the Tupe C portion as described above.

b. Inspect the high pressure cylinder for physical damage, full charge, and current hydrostatic test date.

CHECKLIST FOR RESPIRATORY PROTECTION PROGRAMS

Check to insure your facility has:

A written respiratory protection program that is specific to your workplace and covers the following:

- ❑ Procedures for selecting respirators.
- ❑ Medical evaluation of employees required to wear respirators.
- ❑ Fit testing procedures.
- ❑ Routine use procedures and emergency respirator use procedures.
- ❑ Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and maintaining respirators.
- ❑ Procedures for ensuring adequate air quality for supplied air respirators.
- ❑ Training in respiratory hazards.
- ❑ Training in proper use and maintenance of respirators.
- ❑ Program evaluation procedures.
- ❑ Procedures for ensuring that workers who voluntarily wear respirators comply with the medical evaluation, and cleaning, storing and maintenance requirements of the standard.
- ❑ A Respiratory Protection Program Manager (RPPM) who is qualified to administer the program.
    - ❑ Completed adequate training prior to appointment.
    - ❑ Recommended by Safety Manager.
    - ❑ Designated in writing by the Commander.
- ❑ Updated the written program as necessary to account for changes in the workplace affecting respirator use.
- ❑ Provided equipment, training, and medical evaluations at no cost to employees.
- ❑ Workers using tight-fitting respirators have no conditions, such as facial hair, that would interfere with a face-to-facepiece seal or valve function.
- ❑ Workers perform user seal checks prior to each use of a tight-fitting respirator.
- ❑ There are procedures for conducting ongoing surveillance of the work area for conditions that affect respirator effectiveness, and that when such conditions exist, you take steps to address those situations.
- ❑ Employees are permitted to leave their work area to conduct respirator maintenance, such as washing the facepiece, or to replace respirator parts.

- ❑ Employees do not return to their work area until their respirator has been repaired or replaced in the event of breakthrough, a leak in the facepiece, or a change in breathing resistance.
- ❑ Respiratory hazards in your workplace have been identified and evaluated.
- ❑ Employee exposures that have not been, or cannot be, evaluated are considered IDLH.
- ❑ Respirators are NIOSH certified, and used under the conditions of certification.
- ❑ Respirators are selected based on the workplace hazards evaluated and workplace and user factors affecting respirator performance and reliability.
- ❑ A sufficient number of respirator sizes and models are provided to be acceptable and correctly fit the users.

For IDLH atmospheres:

- ❑ There are procedures for respirator use in IDLH atmospheres and during interior structural firefighting to ensure that: the appropriate number of standby personnel are deployed; standby personnel and employees in the IDLH environment maintain communication; standby personnel are properly trained, equipped, and prepared; you will be notified when standby personnel enter an IDLH atmosphere; and you will respond to this notification.
- ❑ Standby personnel are equipped with a pressure demand or other positive pressure SCBA, or a positive pressure supplied air respirator with an escape SCBA, and appropriate retrieval equipment or other means for rescue.
- ❑ Procedures for interior structural firefighting require that: at least two employees enter the IDLH atmosphere and remain in contact with one another at all times; at least two standby personnel are used; and all firefighting employees use SCBAs.
- ❑ Full facepiece pressure demand SARs with auxiliary SCBA unit or full facepiece pressure demand SCBAs, with a minimum service life of 30 minutes, are provided.
- ❑ Respirators used for escape only are NIOSH certified for the atmosphere in which they will be used.
- ❑ Oxygen deficient atmospheres are considered IDLH.

For Non-IDLH atmospheres:

- ❑ Respirators selected are appropriate for the chemical state and physical form of the contaminant.
- ❑ Air-purifying respirators used for protection against gases and vapors are equipped with ESLIs or a change schedule has been implemented. Air-purifying respirators used for protection against particulates are equipped with NIOSH-certified HEPA filters or other filters certified by NIOSH for particulates under 42 CFR part 84.

MAINTENANCE AND CARE

Cleaning and Disinfecting

- ❑ Respirators are provided that are clean, sanitary, and in good working order.
- ❑ Respirators are cleaned and disinfected using the procedures specified in Appendix B-2 of the standard.
- ❑ Respirators are cleaned and disinfected:
  - ❑ As often as necessary when issued for the exclusive use of one employee.
  - ❑ Before being worn by different individuals.
  - ❑ After each use for emergency use respirators.
  - ❑ After each use for respirator used for fit testing and training.

Storage

- ❑ Respirators are stored to protect them from damage from the elements, and from becoming deformed.
- ❑ Emergency respirators are stored:
  - ❑ To be accessible to the work area.
  - ❑ In appropriately marked compartments.
  - ❑ In accordance with manufacturer's recommendations.

Inspections

- ❑ Routine-use respirators are inspected before each use and during cleaning.
- ❑ SCBAs and emergency respirators are inspected monthly and checked for proper function before and after each use.
- ❑ Emergency escape-only respirators are inspected before being carried into the workplace for use.
- ❑ Inspections include:
  - ❑ Check of respirator function.
  - ❑ Tightness of connections.
  - ❑ Condition of the facepiece, head straps, valves, and cartridges.
  - ❑ Condition of elastomeric parts.

- ❑ For SCBAs, inspection includes checking that cylinders are fully charged, and that regulators and warning devices function properly.
- ❑ Emergency use respirators are certified by documenting the inspection, and by tagging the information either to the respirator or its compartment, or storing it with inspection reports.

Repairs

- ❑ Respirators that have failed inspection are taken out of service.
- ❑ Repairs are made only by trained personnel.
- ❑ Only NIOSH-approved parts are used.
- ❑ Reducing and admission valves, regulators and alarms are adjusted or repaired only byt the manufacturer or a technician trained by the manufacturer.

MEDICAL EVALUATION

- ❑ All employees have been evaluated to determine their ability to wear a respirator prior to being fit tested for or wearing a respirator for the first time in your workplace.
- ❑ A physician or other licensed health care professional (PLHCP) has been identified to perform the medical evaluations.
- ❑ The medical evaluations obtain the information requested in Sections 1 and 2, Part A of Appendix C of the standard, 29 CFR 1910.134.
- ❑ Employees are provided follow-up medical exams if they answer positively to any of questions 1 through 8 in Section 2, Part A of Appendix C, or if their initial medical evaluation reveals that a follow-up exam is needed.
- ❑ Medical evaluations are administered confidentially during normal work hours, and in a manner that is understandable to employees.
- ❑ Employees are provided the opportunity to discuss the medical evaluation results with the PLHCP.
- ❑ The following information is provided to the PLHCP before he or she makes a decision about respirator use:
  - ❑ Type and weight of the respirator.
  - ❑ Duration and frequency of respirator use.
  - ❑ Expected physical work effort.
  - ❑ Additional protective clothing to be worn.
  - ❑ Potential temperature and humidity extremes.
  - ❑ Written copies of the respiratory protection program and the Respiratory Protection standard.
- ❑ Written recommendations are obtained from the PLHCP regarding each employee's ability to wear a respirator, and that the PLHCP has given the employee a copy of these recommendations.

- Employees who are medically unable to wear a negative pressure respirator are provided with a powered air-purifying respirator (PAPR) if they are found by the PLHCP to be medically able to use the PAPR.
- Employees are given additional medical evaluations when:
  - The employee reports symptoms related to his or her ability to use a respirator.
  - The PLHCP, RPPM, or supervisor determines that a medical reevaluation is necessary.
  - Information from the respiratory protection program suggests a need for reevaluation.
  - Workplace conditions have changed in a way that could potentially place an increased burden on the employee's health.

FIT TESTS

- Employees who are using tight fitting respirator facepieces have passed an appropriate fit test prior to being required to use a respirator.
- Fit testing is conducted with the same make, model, and size that the employee will be expected to use at the worksite.
- Fit tests are conducted annually and when different respirator facepieces are to be used.
- Provisions are made to conduct additional fit tests in the event of physical changes in the employee that may affect respirator fit.
- Employees are given the opportunity to select a different respirator facepiece, and be retested, if their respirator fit is unacceptable to them.
- Fit tests are administered using OSHA-accepted QNFT or QLFT protocols.
- QLFT is only used to fit test either PAPRs, SCBAs, or negative pressure APRs that must achieve a fit factor of 100 or less.
- QNFT is used in all situations where a negative pressure respirator is intended to protect workers from contaminant concentrations greater than 10 times the PEL.
- When QNFT is used to fit negative pressure respirator, a minimum fit factor of 100 is achieved for tight-fitting half-facepieces and 500 for full-facepieces.

BREATHING AIR QUALITY AND USE

- Compressed breathing air meets the requirements for Grade D breathing air.
- Compressed oxygen is not used in respirators that have previously used compressed air.
- Oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

- ❑ Breathing air couplings are incompatible with outlets for other gas systems.
- ❑ Breathing gas containers are marked with appropriate NIOSH certification.

Breathing Air Cylinders

- ❑ Cylinders are tested and maintained according to DOT 49 CFR Part 173 and 178.
- ❑ A certificate of analysis for breathing air has been obtained from the supplier.
- ❑ Moisture content in the cylinder does not exceed a dew point of -50°F at 1 atmosphere pressure.

Compressors

- ❑ Are constructed and situated to prevent contaminated air from getting into the system.
- ❑ Are set up to minimize the moisture content.
- ❑ Are equipped with in-line air-purifying sorbent beds and/or filters that are maintained or replaced following manufacturer's instructions.
- ❑ Are tagged with information on the most recent change date of the filter and an authorizing signature.
- ❑ Carbon monoxide does not exceed 10 ppm in the breathing air from compressors that are not oil-lubricated, high-temperature and carbon monoxide alarms are used on oil-lubricated compressors, or that the air is monitored often enough to ensure that carbon monoxide does not exceed 10 ppm if only a high-temperature alarm is used.

TRAINING AND INFORMATION CHECKLIST

- ❑ Why the respirator is necessary and the consequences of improper fit, use, or maintenance.
- ❑ Limitations and capabilities of the respirator.
- ❑ How to effectively use the respirator in emergency situations.
- ❑ How to inspect, put on, remove, use, and check the seals of the respirator.
- ❑ Maintenance and storage procedures.
- ❑ The general requirements of the respirator standard.
- ❑ Training is understandable to employees.
- ❑ Training is provided prior to employee use of a respirator.
- ❑ Retraining is provided annually, upon changes in workplace conditions that affect respirator use. Whenever retraining appears necessary to ensure safe respirator use.

PROGRAM EVALUATION

- ❑ Workplace evaluations are being conducted as necessary to ensure that the written respiratory protection program is being effectively implemented.
- ❑ Employees required to wear respirators are being regularly consulted to asses the employees' views and to identify problems with respirator fit, selection, use and maintenance.
- ❑ Any problems identified during assessments are corrected.

RECORDKEEPING CHECKLIST

- ❑ Records of medical evaluations have been retained.
- ❑ Fit testing records have been retained.
- ❑ Copy of the current respiratory protection program has been retained.
- ❑ Access to these records is provided to affected employees.