

Respiratory Protection	S.O.P. 5F		Page 1 of 17
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STANDARD OPERATING PROCEDURE			

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I. SCOPE & PURPOSE

- A. The purpose of this policy and procedure is to ensure compliance with 29 CFR 1910.134 respiratory Protection Standard, (part 1926) Construction, (part 1918) Longshoring, (part 1917) Marine Terminal, (part 1915) Shipyards and to establish requirements to protect the health and safety of B.I.S.T. employees.
- B. These procedures shall be followed wherever there is a respiratory hazard in the workplace. A respiratory hazard is any chemical or particulate in such form or quantity, which may be inhaled and may cause adverse health effects to exposed or potentially exposed employees. The Policy applies to all personnel.

II. RELATED PROCEDURES AND RESOURCES

- A. S.O.P. 2A, Project Safety Management Duties and Responsibilities
- B. S.O.P. 2C, Project Hazard Control
- C. S.O.P. 3F, Welding and Cutting
- D. S.O.P. 3G, Personal Protective Equipment

- E. S.O.P. 5E, Nuisance Dust, MMMF, Regulated Chemical Control
- F. S.O.P. 5G, Hazard Communication
- G. S.O.P. 7A, Abrasive Blasting
- H. S.O.P. 8A, Asbestos Abatement Procedures
- I. S.O.P. 8C, Lead Abatement Procedures
- J. Appendix Attachment Form 5F.1a, Respirator Fit Test Verification
- L. Appendix Attachment Form 5F.1b, Respirator Selection Flow Chart
- M. Appendix Attachment Form 5F.1c, Respirator Protection Factors
- N. Respiratory Protection Field Training Module
- O. Personal Protective Equipment Field Training Module
- P. 29 CFR 1910.134, Respiratory Protection and Appendices
- Q. 42 CFR 84, Approval of Respiratory Protective Devices
- R. ANSI Z88.2, Respiratory Protection

III. PERSONNEL RESPONSIBILITIES

- A. Safety Director
 - 1. The Safety Director shall be Program Administrator.
 - 2. The Safety Director shall be solely responsible for all facets of the program and shall have full authority to make necessary decisions to ensure success of this program. His authority includes:
 - a. Hiring personnel
 - b. Purchasing equipment necessary to implement and operate the program.
 - 3. The Safety Director will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions.
 - 4. The Safety Director shall oversee the Respiratory Protection Program and conduct periodic evaluations to ensure program effectiveness.
- B. Supervisor
 - 1. The supervisor shall review and understand the procedure implementation and its related procedures.
 - 2. The supervisor shall report deficiencies and suggest improvements to the program administrator.
- C. Employee
 - 1. The employee shall comply and participate in all components of this procedure, report deficiencies and suggest improvements.

IV. PROCEDURE FOR THE SELECTION OF RESPIRATORS IN THE WORKPLACE

- A. In order to provide employees with the correct respirator for the job the following procedures must be followed.
 - 1. Evaluate the respiratory exposure(s) in the work place and identify relevant workplace and user factors. Contact your safety representative or current respiratory selection guide.
 - 2. The Company has made the decision to primarily utilize 3M respirators

for its employees. However, if the employee cannot select a 3M respirator model and size so that the respirator is acceptable to, and correctly fits, the user, filter and/or cartridge/canisters the employee shall be able to select from a sufficient number of other respirator models to facilitate a proper fit.

- B. Identification of Filters, Cartridges and Canisters
1. All filters, cartridges and canisters used in the workplace shall be labeled and color coded with the NIOSH approved label and the label is not to be removed, obscured or defaced.
 - a. The employee shall be notified during formal training that in the event they discover illegible labels they should be immediately reported to the supervisor and replaced.
 2. Gases
 - a. Where cartridge/canister for air purifying respirators are used in non-IDLH environments, are used to protect against gases/vapors, and End-of-Service-Indicators “ESLI” are not utilized on the cartridges/canisters, objective information shall be used to remove the cartridges/canisters from service.
 3. Particulates
 - a. To filter/remove the most difficult size particle, filters have three different levels of efficiency. Filter efficiencies are rated at one of the following, 95%, 99% or 99.97%.
 - b. Respirators to be used on the jobsite must meet the following filter requirements:
 1. **N designation** - shall not be used where oil aerosols are generated. This filter is restricted to use in those atmospheres free of oil aerosols. They may be used for any solid or liquid airborne particulate hazard that does not contain oil.
 2. **R designation** - shall be used for only one shift when oil is present. The filter is intended for removal of any particle including oil-based liquid aerosol. They may be used for any solid or liquid airborne particulate hazard.
 3. **P designation** - shall be used for more than one-work shift or as according to manufacturer’s recommendations. They may be used for removal of any particle including oil-based liquid aerosols.

V. PROCEDURE FOR MEDICAL EVALUATION

- A. Prior to fit testing and/or using a respirator all employees must be medically evaluated by a Physician or a Licensed Health Care Professional (PLHCP).
- B. The company has negotiated with and provided the necessary information to various medical facilities within its normal area of operations. These medical facilities have been authorized to provide medical evaluations for B.I.S.T. personnel. Refer to appendix form 2B.1c.2 Employee Tracking Form Key for the

names, locations, contacts and phone numbers of the authorized medical facilities.

C. The Supervisor, along with the Project Manager and Program Administrator will select a medical facility, unless otherwise provided by the Company, based on the following criteria:

1. Location: Is the facility in close proximity to the project?
2. Capabilities: Does the facility have the capability to perform Medical Evaluations based on OSHA's standard for respiratory protection?
3. Cost: Has a cost comparison been performed?
4. The facility selected must be provided with supplemental information to assist the PLHCP in making a recommendation concerning an employee's ability to use a respirator. A "Respirator Medical Clearance" shall be provided by the PHLCP prior to the employee being set-up for a fit test.
5. The employee shall be provided with a sufficient amount of time and with confidentiality to complete a Medical Questionnaire. The PHLCP, if requested, may provide assistance to the employee.
7. The completed questionnaire shall be used by the selected PLHCP to assist in evaluating the employee's ability to wear a respirator.
8. Follow-up medical examinations shall be authorized in the event the PHLCP makes the request.
9. Contact between the employee and the PHLCP may be in-person or via telephone.

D. Additional Medical Evaluation

1. Additional medical evaluations shall be provided as follows:
 - a. An Employee reports medical symptoms that are related to ability to use respirators.
 - b. A PLHCP, the Supervisor, or the Program Administrator determines an employee needs to be reevaluated.
 - c. Information from the respiratory protection program indicates a need for reevaluation.
 - d. A change in workplace conditions that result in a substantial increase in physiological burden.
 - e. At an interval not to exceed one year since most recent evaluation.

VI. REQUIREMENTS FOR CONDUCTING FIT TEST

A. General Requirements

1. Fit tests must be performed at the following times:
 - a. Prior to initial use of a respirator.
 - b. Whenever a different respirator face-piece (size, style, model, or make) is used.
 - c. At least annually.
 - d. When the employee's changes in physical condition may affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in

body weight.

NOTE: The Company utilizes third parties to provide for respiratory qualifications and/or Quantitative fit testing. The procedures below are to be used by authorized Company personnel when performing “In-House” or “Field” fit tests.

2. Before an employee shall be required to use any respirator with a negative or positive pressure tight-fitting face-piece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used on the job.
3. Respirators shall be fitted properly and shall be tested for their face piece-to-face seal.

NOTE: You are testing the face-to-face seals. You are not testing the filter! You must make certain that you have selected the correct filter for the respirator during the Fit Test. For example, when performing an Irritant Smoke Test put a HEPA filter on the respirator. When fit testing dust masks, the taste test (saccharin test) should be used.

4. The employee shall be allowed to pick the most acceptable respirator from a sufficient number of models and sizes.
 5. Fit Test Conductor must follow procedures outlined in Section VI, Procedure for Performing Qualitative Fit Test and must choose and follow the appropriate procedure for performing Face-to-Face Seal Test (“Smoke Test” Or “Taste Test”) when fit testing for dust masks, half-face respirators, and supplied air respirators and PAPR while in the negative pressure mode.
 6. Fit Test Conductor must follow procedures outlined in Section X, Procedures for Conducting Quantitative Fit Test when fit testing SCBA Respirators.
 7. The employee must pass an appropriate qualitative fit test or quantitative fit test for each type of respirator he/she is required to wear prior to being allowed to wear it.
 8. If after passing a fit test, the employee subsequently notifies the supervisor that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator face-piece and shall be retested.
- B. Requirements for Person Administering Fit Test (Fit Test Conductor)
1. The Fit Test Conductor shall be designated as such after he/she has been instructed by the Safety Department on the selection process of respirators, the correct method of testing respirators for adequate fit, and how to perform a “fit test”.

VII. PROCEDURE FOR PERFORMING A QUALITATIVE FIT TEST

- A. Examine employee(s) for facial hair, such as stubble, beard growth, mustache, or

- sideburns that may interfere with the skin and face piece-sealing surface.
- B. Inform the employee if the selection of 3M respirators are not comfortable and do not fit properly that a selection of other respirators will be made available to choose from to ensure comfort and adequate protection are obtained.
 - C. Inform the employees that they are expected to let you know if they find the fit of the respirator unacceptable at any time during the fit test and that they will be allowed to select another respirator and be retested.
 - D. Describe to the employee(s) the fit test procedures, the employee's responsibilities, and exercises he or she will be required to perform.
 - E. Show employee(s) how to put on and remove the respirators. Refer to instructions that accompany the respirator. Instructions shall include at least the following:
 - 1. How to position respirator on face.
 - 2. How to set strap tension.
 - 3. How to determine an acceptable fit (See section G, Comfort Fit).
 - 4. Instruct the employee to choose the size or make that provides an acceptable /comfortable fit, by holding each respirator up to his/her face to eliminate those that are too big or too small.
 - F. Instruct the employee to don the chosen respirator and any other safety equipment that may be worn during actual respirator use, which could interfere with respirator fit.
 - G. Comfort Fit - Allow the employee to wear his/her chosen respirator for at least five minutes to assess comfort. Help the employee assess the comfort and adequacy of the respirator fit with a review of the following points while observing fit in a mirror:
 - 1. Position of mask on the nose.
 - 2. Does respirator allow room for eye protection?
 - 3. Does employee have room to talk?
 - 4. Position of mask on face and cheeks.
 - 5. Chin properly placed.
 - 6. Adequate strap tension, but not overly tightened.
 - 7. The fit across the nose bridge.
 - 8. Respirator of proper size to span distance from nose to chin.
 - 9. Tendency of respirator to slip.
 - H. Instruct the employee to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking a few slow deep breaths.
 - I. Instruct employee to conduct positive and negative, pressure seal checks as described below:
 - 1. Positive Pressure Check
 - a. Close off the exhalation valve with palm of hand, or by some other means. Some respirators require the wearer to first remove the exhalation valve cover before closing off the valve and then replacing the cover after each test.
 - b. Exhale gently into the face piece.
 - c. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece, without any evidence of outward leakage of air at the seal.

- d. If outward leakage of air is detected, the employee shall select another face piece and start the fit test over again.
2. Negative Pressure Check
 - a. 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) with thin latex or nitrile glove.
 - b. Inhale gently, so that the face piece collapses slightly, and hold your breath for ten seconds.
 - c. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.
 - d. If inward leakage of air is detected, the employee shall select another face piece and start the fit test over again.
- J. Perform appropriate fit test as outlined in “Smoke Test, Section VII” or “Taste Test, Section VII of this procedure.
- K. Exercise Procedures: The employee shall perform the following exercises utilizing the following parameters:
 1. The respirator shall not be adjusted once the fit test exercises begin. Any adjustments void the test, and the fit test must be repeated.
 2. Each test exercise shall be performed for one minute.
 - a. **Normal breathing** - In a normal standing position, without talking, the employee shall breathe normally.
 - b. **Deep breathing** - In a normal standing position, the employee shall breathe slowly and deeply, taking caution so as not to hyperventilate.
 - c. **Turning head side to side** - Standing in place, the employee 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.
 - d. **Moving head up and down** - Standing in place, the subject shall slowly move his/her head up and down The employee shall be instructed to inhale in the up position and the down position
 - e. **Talking** - The employee shall talk out loud slowly and loud enough to be heard clearly by the Fit Tester. The employee can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or sing.
 - f. **Bending over** - The employee shall bend at the waist as if he were to touch his toes. Jogging in place shall be substituted for this exercise in those tests that limit the ability of the employee to bend.
 - g. **Normal breathing** - Question the employee about the comfort of the respirator upon completion of the exercises Try another size, make, or model if necessary.
 3. Respirator Fit Test Verification Appendix Attachment Form, 5F.1a.
 - a. Print the employee’s name and social security number on the certification line.

- b. Place a check in the appropriate block (Yes or No) for the 10 questions/statements under the “Fit Testing Procedures” section.
- c. Check the appropriate box for the model of respirator; if “Other” is checked, fill in the Model and Name of the Manufacturer. Check the appropriate Size and Type of Fit Test and write in the TC# for cartridge, if applicable.
- d. Check the type of Test Reagent (Irritant Smoke or Saccharin) being used for the Qualitative Fit Test and answer the questions by checking either yes or no.
- e. Check whether the employee passes each fit test exercise by placing a check in the appropriate box.
- f. Have the employee sign the form and date of the test.
- g. Test Conductor signs the form along with his/her social security number and date.

VIII. PROCEDURE FOR “SMOKE TEST” METHOD OF FIT TESTING

- A. Supplies for Fit Testing using Irritant Smoke for High Efficiency Particulate Air (HEPA) Filter.
 1. 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. No form of test enclosure or hood is allowed.
 2. Selection of respirators with high efficiency particulate air (HEPA) or P100 series filters
 3. Irritant Smoke (Stannic Chloride) Test Kit
 - a. Squeeze bulb
 - b. Sufficient quantities of smoke tubes
 - c. A device to aid in removal of the tips off ends of smoke tube.
 - d. A short piece of tubing to prevent injury from the jagged end of the smoke tube.
 4. MSDS of Irritant Smoke.
 5. Fit Test Verification Forms, Appendix Attachment Form 5F.1a
 6. Mirror.
- B. Instructions for Test Operator to Perform “Smoke Test” on Employee
 1. Break both ends of smoke tube and attach one end of the smoke tube to squeeze bulb. Cover the other end with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
 2. Instruct the employee to keep his eyes closed. Employee should not have respirator on at this time.

CAUTION: The test substances are irritants to the eyes, skin, and mucous membranes. Therefore, the employee should keep his eyes closed during testing.

3. Perform a Sensitivity Screening Check. Allow the employee 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 can detect the irritating properties of the smoke. The employee must

demonstrate his ability to detect a weak concentration of the irritant smoke, otherwise this method of fit testing cannot be used.

4. Test Face piece-to-Face Seal
 - a. Instruct employee to put on respirator and perform Positive and Negative fit test.
 - b. Expose employee to irritant smoke while he is standing or sitting still.
 - i. Direct a stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the squeeze bulb.
 - ii. Begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask.
 - iii. Gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
 - c. If the employee has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
 - d. The exercises are identified in section (VII)(L). The employee shall perform exercise procedures while the respirator seal is being continually challenged by the smoke and directed around the perimeter of the respirator at a distance of six inches.
 - e. If the employee reports detecting the irritant smoke at any time, the test is failed. The employee must repeat the entire sensitivity check and fit test procedure.
5. Second Sensitivity Screening Test. Each employee passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check.
 - a. Instruct employee to remove respirator.
 - b. Use the same smoke tube used during the fit test.
 - c. Allow employee to smell a weak concentration of the irritant smoke.
 - d. Failure to evoke a response shall void the test.
 - e. If a response is produced during this second check, then the fit test is passed.

IX. PROCEDURE FOR "TASTE TEST" METHOD OF FIT TESTING

- A. Supplies for Fit Testing Using Taste Test for Particulate Filter (Dust Mask)
 1. Selection of respirators.
 2. Saccharin Solution Aerosol
 3. An enclosure similar to 3M hood assembly, parts # FT 14 and # FT 15
 4. 2 DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent
 5. Fit Test Verification Forms, Appendix Attachment Form 5G.1a
 6. Mirror
- B. Instructions for Test Operator to Perform "Taste Test" on Employee.
 1. Perform the "Taste Test" only after the employee has not eaten, drank (except plain water), chewed gum or used tobacco products for 15

- minutes, to avoid the masking of the saccharin taste.
2. Instruct the employee to put on the enclosure (3M Hood Assembly).
 3. Perform a Taste Threshold Screening Check. Allow the employee to smell a weak concentration of the Saccharin before the respirator is donned to determine if he can detect the taste of saccharin.
 - a. Instruct the employee to breathe through his mouth, while it is slightly open with tongue extended, during this Taste Threshold Screening Check.
 - b. Instruct the employee to report when he detects a sweet taste.
 - c. Rapidly spray the Sensitivity Solution 10 times into the enclosure with the nebulizer directed away from the nose and mouth of the employee.
 - d. If the employee reports tasting the saccharin during the first 10 squeezes, the taste threshold test is complete Denote 10 squeezes on Fit Test Verification Form.
 - e. If the first response is negative, squeeze 10 more times.
 - f. If the employee reports tasting the saccharin, the taste threshold test is complete Denote 20 squeezes on Fit Test Verification Form.
 - g. If the second response is negative, squeeze 10 more times.
 - h. If the employee reports tasting the saccharin, the taste threshold test is complete Denote 30 squeezes on Fit Test Verification Form.
 - i. If the saccharin is not tasted after 30 squeezes, the employee is unable to taste saccharin and may not perform the fit test. Contact the Safety department for further instructions if someone other than Safety performs the test.
 - j. Ask the employee that has passed this screening to take note of the taste for reference in the fit test.
 - k. Thoroughly rinse the nebulizer in water and shake dry.
 4. Test Face piece-to-Face Seal (Fit Test)
 - a. Instruct employee to put on respirator and perform Positive and Negative fit test.
 - b. Put hood back over the employee's head.
 - c. Instruct employee to breathe with his mouth slightly open with tongue extended and to report when he tastes the saccharin.
 - d. Rapidly spray the nebulizer with Fit Test Solution into the hood as many times as denoted during the screening test, I.e., 10, 20, or 30 sprays.
 - e. If the employee does not detect the saccharin, instruct him to perform the exercises described in Section (VII)(L), Exercise Procedures.
 - f. Every 30 seconds re-spray into the hood using half the number of sprays initially required.
 - g. If the employee does not report tasting the saccharin by the end of the exercises he has passed the fit test.
 - h. 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 and fit testing).

NOTE: The nebulizer has a tendency to clog during use; the test operator must make periodic checks to ensure it is not clogged. If clogging is found at the end of the test, the test is invalid.

X. REQUIREMENTS FOR RESPIRATOR MAINTENANCE AND CARE

- A. General Requirements for Cleaning and Disinfecting of Respirators
 - 1. Respirators shall be kept clean, sanitary and in good working order.
 - 2. All respirators shall be cleaned and disinfected by each employee or “designated cleaner” at the following intervals:
 - a. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary, but at least once a week, to be maintained in sanitary condition.
 - b. Respirators issued to more than one employee shall be cleaned and disinfected after each use to ensure the respirator is clean for the next employee.
 - c. Respirators maintained for emergency use shall be cleaned after each use.
 - d. Respirators used in fit testing and training shall be cleaned and disinfected after each use.
 - B. General Requirements for Storage of Respirators
 - 1. All respirators, including emergency respirators, shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. They shall be packed or stored to prevent deformation of the face-piece and exhalation valve. They shall also be kept accessible to the work area.
 - a. Storage of respirators is outlined further in the Respiratory Protection Field Training Program.
 - b. Respirators assigned to only one employee shall be stored, designated and marked with impermeable ink, and at a minimum the marking shall consist of the designated employees first and last name.
- NOTE:** In the event other storage is unavailable (i.e., lockers) at a minimum an impermeable “Zip-lock bag” or equivalent bag shall be provided and labeled as denoted at (X)(B)(1)(b) in this section. The bag used shall be large enough so as to not create deformation of the respirator and shall be capable of being sealed. Additional requirements include those designated at (X)(B)(1).
- C. General Requirements for Inspection of Respirators
 - 1. Respirators shall be inspected at the following intervals and shall be inspected as outlined in the Respiratory Protection Field Training Program.
 - a. All respirators used in routine situations shall be inspected before each use and during cleaning.
 - b. All respirators used on an as needed basis, i.e., PAPR systems shall

- be inspected prior to each use and at the time of return to the tool room.
- c. All respirators maintained for use in emergency situations shall be inspected at least monthly and/or in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use.
 - d. Emergency escape-only respirators shall be inspected before being carried into the workplace.
- D. General Requirements for Repair of Respirators
- 1. Respirators that fail an inspection or are otherwise found to be defective shall be red tagged "NOT FOR USE", and removed from service. They shall be discarded, repaired or adjusted in accordance with the following procedures:
 - a. Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH- approved parts designed for the respirator.
 - b. Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.
 - c. Reducing and admissions valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

XI. PROCEDURE FOR PERFORMING A QUANTITATIVE FIT TEST

- A. Refer to procedure for Medical Evaluation, section (V). Only company approved medical facilities shall be authorized to administer Quantitative Fit Test.

XII. PROCEDURE FOR MAINTENANCE AND CARE OF RESPIRATORS

- A. Cleaning Respirators
 - 1. Remove filters, cartridges, or canisters.
 - 2. Disassemble face pieces by removing exhalation valve assembly and inhalation valves. Discard or repair any defective parts.
 - 3. Wash face piece and accessories in warm soapy water. Gently scrub with a brush as necessary.
 - 4. Rinse parts thoroughly in clean water.
 - 5. Air dry in a clean place or wipe dry with a lint less cloth.
 - 6. Reassemble respirator.
 - 7. Place Respirator in plastic bag and store it in proper location.
- B. Disinfecting Respirators
 - 1. Immerse the respirator body for two minutes in a chlorine solution of ¼ cup bleach to 1 gallon of water.
 - 2. Rinse thoroughly in clean water.
 - 3. Air dry in a clean place or wipe dry with a lint less cloth.

CAUTION: Immersion times have to be limited to minimize damage to the respirator. The solutions can age rubber and rust metal parts. Caution must be taken to thoroughly rinse the respirator after cleaning and disinfections to prevent dermatitis.

C. Proper Storage of Respirators

1. Storage procedures that can be used to protect respirators against dusts, chemicals, and moisture include:
 - a. Plastic bags capable of being sealed.
 - b. Plastic containers with tight-fitting lid.
 - c. Cans with tight-fitting lids.

NOTE: Pack or store the respirator so that the face piece and exhalation valves will rest in a normal position. Do not hang the respirator by its straps. This is to ensure that proper function will not be impaired by the distortion of the respirator or its straps.

D. Inspection of Respirators

1. Disposable Respirators
 - a. Check for holes in the filter or damage to sorbet such as loose charcoal granules.
 - b. Check straps for elasticity and deterioration.
 - c. Check metal nose clip for rust or deterioration.
2. Air Purifying Respirators
 - a. Check rubber face piece for dirt, pliability of rubber, deterioration, and tears or holes.
 - b. Check straps for breaks, tears, loss of elasticity, broken attachment snaps and proper tightness.
 - c. Check valves for holes, warp age, cracks and dirt.
 - d. Check filters, cartridges and canisters for dents corrosion and expiration dates. Check protection afforded by canister and its limitations.
3. Atmosphere-Supplying Respirators
 - a. Check appropriate items listed under Air Purifying Respirators.
 - b. Check hood, helmet, blouse or suit for cracks and tears, torn seams and abrasions. Check integrity of headgear suspensions.
 - c. Check a face shield for cracks or breaks, abrasions or distortions that would interfere with vision.
 - d. Check abrasive blasting protective screen for integrity and condition. Check that screen fits in designated place.
 - e. Check air supply system for air quality, breaks or kinks in supply hoses and detachable coupling attachments, tightness of connectors and manufacturer's recommendation concerning the proper setting of regulators and valves. Check coupling that is compatible with other couplings used at the site.
4. Self-contained Breathing Apparatus
 - a. Check the face piece and breathing hose for integrity as described above for Atmosphere-Supplying Respirators.

- b. Check the integrity and air or oxygen pressure for the cylinder. Also, check integrity of the regulator, harness assembly, and all straps and buckles.
- c. Ensure that the regulator and warning devices (end-of-service alarm) function properly.

XIII. REQUIREMENTS FOR RESPIRATORY TRAINING

- A. General Training Requirements and Information
 - 1. Training will be provided annually or more often if necessary (e.g., when an employee demonstrates a lack of knowledge or understanding) and shall include:
 - a. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the equipment;
 - b. Limitations and capabilities of the respirator;
 - c. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
 - d. How to inspect, put on, remove, use, and check the seals of the respirator;
 - e. Procedures for maintenance and storage of the respirator;
 - f. Recognition of the medical signs and symptoms that may limit or prevent the effective use of respirators;
 - g. The general requirements of the OSHA standard 29 CFR 1910.134.
 - h. Training will be conducted in a manner that is clearly understandable to the employee (e.g.; Field Training in Respiratory Protection).
 - i. Training will be given prior to work assignment in which the employee may be required to use respiratory protection equipment.
 - 2. Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations.
 - 3. Training and information for employees using respiratory protection when it is not required under the OSHA standard will be conducted for all employees who choose to use respiratory equipment. Minimum training will include the following topics:
 - a. Review of specific manufacturer's equipment instructions for use, care, maintenance, cleaning and care, and limitations.
 - b. Selection of respiratory equipment suitable for the job based on equipment identification labels, etc.
 - c. Use of respiratory equipment is limited to conditions and atmospheres for which they are designed.
 - d. Employees who have been issued or bring their own individual respirator for use on the job should ensure they only use their equipment.

XIV. PROCEDURE FOR RESPIRATORY TRAINING

- A. All newly hired employees are required complete and pass the New Employee Orientation prior to assignment.
- B. All employees shall receive Respiratory refresher training at least annually through the Field Training Program.

XV. PROGRAM EVALUATION

- A. Respirator Program Effectiveness
 - 1. Job sites will be periodically audited by the safety department and/or site supervision on:
 - a. The effectiveness of the respirator being used;
 - b. Any changes to work conditions and/or;
 - c. Environment changes that may influence the effectiveness of the respirator will be addressed and corrective measures taken.
 - d. Individual employees shall be selected at random and interviewed for the Evaluation of Employee's Training
- B. In evaluating if the Company has properly trained employees, consider the following:
 - 1. When observing employees to determine whether he/she wears the respirator as it was originally intended, all of the following should be considered:
 - a. The respirator and all functional parts including straps must be in place and worn in the appropriate positions.
 - b. All straps must be secure and properly adjusted.
 - c. There must be no modifications to the respirator or straps, i.e., replacing the straps with string or rubber bands indicates an ineffective respirator.
 - 2. Determine whether the respirator's capabilities and limitations have been discussed. Essential topics requiring explanation include:
 - a. An identification of contaminants or contaminant types against which the respirator is designed to afford protection.
 - b. Limitations on the service life of the cartridge, canister, or filter, which is used.
 - c. Warning properties of the contaminants.
 - 3. How the employee maintains and cares for the respirator.

XVI. REQUIREMENTS FOR RESPIRATORY RECORDKEEPING

- A. This section establishes guidelines for record retention regarding medical evaluations, fit testing, and the respirator program. The information will facilitate employee involvement in the respirator program and assist in program evaluation.
- B. Medical evaluations required by this section will be made available in accordance with 29CFR 1910.1020.

- C. Records of all qualitative and quantitative fit tests administered to affected employees will be kept at least until the next fit test is performed. The record of such tests will include:
 - 1. The name and social security number of the employee tested,
 - 2. The type of test being performed;
 - 3. The specific make, model, style, and size of respirator tested;
 - 4. Date of test;
 - 5. The pass/fail results for QLFT's or the fit factor and strip chart recording or other recording of the test results for QNFT's.
- D. A written copy of the company respiratory protection program, S.O.P. 5F.
- E. The written program and written materials required by this S.O.P. will be retained and made available to selected employees and to the Assistant Secretary or designee for examination and copying.

XVII. PROCEDURES FOR IDLH ATMOSPHERES

- A. Feasible measures shall be taken into consideration to eliminate an IDLH atmosphere through engineering controls.
- B. When not feasible and an IDLH atmosphere must be entered; the appropriate supplied air system shall be utilized with the use of a 5-minute "Escape Pak".

XVIII. BREATHING AIR QUALITY AND USE

- A. Compressed Oxygen Cylinders
 - 1. Compressed or liquid oxygen shall meet the specifications for the United States Pharmacopoeia (USP) details in breathing oxygen.
 - 2. Compressed oxygen shall not be used for any respirator that previously used compressed air.
 - 3. Cylinders used in supplying breathing air shall:
 - a. Be tested and maintained as per DOT 49 CFR 173 and 178.
 - b. A certificate of analysis shall be obtained from the supplier that denotes the breathing air meets the requirement for Grade D breathing air.
 - c. All Bottled Compressed Breathing Air will be tested by the vendor, Plant, or Company Personnel for oxygen content prior to use.
 - d. Testing will be documented in project logs reflecting time and source of testing.
- B. Compressors used to supply Breathing Air:
 - 1. Compressors shall be located so intake is positioned to prevent entry of contaminated air into the air-supply system.
 - 2. A tag, containing the signature of the person authorized to change the in-line air-purifying sorbet beds and filters with the date of the latest change, shall be maintained on the compressor.
 - 3. Non-oil lubricated compressors shall not exceed carbon monoxide levels greater than 10 p.p.m.

4. Use of non-oil lubricated compressors shall abide by the following:
 - a. Positioned in locations known to be free from contaminants;
 - b. Have frequent or continuous monitoring;
 - c. Have carbon monoxide filters; and/or
 - d. High temperature alarms or shut off devices.
5. Oil lubricated compressors shall have high temperature and/or carbon monoxide (Co) alarms.

NOTE: If only high temp alarms are used, the air supply shall be monitored at sufficient intervals

6. All breathing air couplings shall be incompatible with those of non-respirable air or other gases used at the jobsite to prevent mixing of non-respirable gases.

XIX. EMERGENCY USE RESPIRATORS

- A. The Safety department or their equally qualified designee shall conduct inspections of emergency use respirators monthly.
- B. Records of Inspections shall be sent to the Safety Department.
- C. The Safety department, jobsite and/or job file shall maintain files of inspections for a minimum of three years.
- D. The employee shall inspect the respirator prior to entrance into any potential emergency use.
- E. Defective respirators shall be returned and replaced immediately by the Supervisor.
- F. Defective respirators shall be immediately labeled with an “Out of Service Tag” and removed from service.

Respirator Selection Flow Chart

