1.0 POLICY

It is the Company's policy to prevent employee exposure to atmospheric contaminants such as harmful dusts, fumes, mists, gases, smoke, spray or vapors in excess of published acceptable Occupational Exposure Levels (OEL). When such exposures cannot be controlled by engineering or administrative controls, respiratory protection shall be used.

2.0 PURPOSE

This policy shall serve as the Company's written Respiratory Protection Policy. This policy is intended to provide guidelines that will ensure employees are adequately protected from respiratory hazards in the work environment. This policy is written to comply with the Occupational Safety and Health Administration (OSHA) standard on respiratory protection — 29 CFR 1910.134.

3.0 DEFINITIONS

3.1 **Air-purifying respirator:** A respirator with an air-purifying filter, cartridge or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

3.2 **Atmosphere-supplying respirator:** A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

3.3 **Canister or cartridge:** A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

3.4 **Demand respirator:** An atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

3.5 **Emergency situation:** Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

3.6 **Employee exposure:** Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

3.7 **End-of-Service-Life Indicator (ESLI):** A system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

3.8 **Escape-only respirator:** A respirator intended to be used only for emergency exit.

3.9 **Filter or air purifying element:** A component used in respirators to remove solid or liquid aerosols from the inspired air.

3.10 **Filtering facepiece (dust mask):** A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

3.11 **Fit factor:** A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

3.12 **Fit test:** The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also qualitative fit test and quantitative fit test.)

3.13 **Helmet:** A rigid respiratory inlet covering that also provides head protection against impact and penetration.

3.14 **High Efficiency Particulate Air (HEPA) filter:** A filter that is at least 99.97 percent efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100 and P100 filters.

3.15 **Hood:** A respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

3.16 **Incipient response:** The control or extinguishment of a fire in the initial or beginning stage, using portable fire extinguishers or small hose lines without the need for personal protective equipment. Interior fires that can be approached and extinguished without the need of a self-contained breathing apparatus and without turnout gear will be considered incipient in nature.

3.17 **Immediately Dangerous to Life or Health (IDLH):** An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

3.18 **Incipient fire fighting:** Fire fighting that involves the control or extinguishment of a fire in the initial or beginning stage, using portable fire extinguishers or small hose lines without the need for personal protective equipment. In indoor situations, incipient is defined as extinguishment of a fire without the need for a self-contained breathing apparatus or turnout gear.

3.19 **Interior structural firefighting:** The physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See OSHA Standard 29 CFR 1910.155, Fire Protection.)

3.20 **Loose-fitting facepiece:** A respiratory inlet covering that is designed to form a partial seal with the face.

3.21 **Negative pressure respirator (tight fitting):** A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

3.22 **Oxygen deficient atmosphere:** An atmosphere with an oxygen content below 19.5 percent by volume.

3.23 **Physician or Other Licensed Health Care Professional (PLHCP):** An individual whose legally permitted scope of practice (i.e., license, registration or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of reference 6.1.

3.24 **Positive pressure respirator:** A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

3.25 **Powered Air-Purifying Respirator (PAPR):** An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

3.26 **Pressure demand respirator:** A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

3.27 **Qualitative Fit Test (QLFT):** A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

3.28 **Quantitative Fit Test (QNFT):** An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

3.29 **Respiratory inlet covering:** That portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit or a mouthpiece respirator with nose clamp.

3.30 **Self-Contained Breathing Apparatus (SCBA):** An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

3.31 **Service life:** The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

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

3.33 **Tight-fitting facepiece:** A respiratory inlet covering that forms a complete seal with the face.

3.34 **User seal check:** An action conducted by the respirator user to determine if the respirator is properly seated to the face.

4.0 RESPONSIBILITIES

4.1 Senior Manager

The Company's site manager is responsible for the implementation and maintenance of, and compliance with, the Respiratory Protection Program. Responsibilities include:

4.1.1 Ensure compliance with the provisions of this written program.

4.1.2 Ensure the employees required to wear respirators maintain their qualifications and require their attendance at medical evaluations, fit tests and training within the required time frame.

4.1.3 Be knowledgeable in the application and use of all respiratory protective equipment in their areas of responsibility and ensure employees properly wear, maintain, clean, disinfect and store respiratory equipment.

4.1.4 Ensure that personal respirators are assigned to employees whose jobs require the routine use of respirators as outlined in Standard Operating Procedures (SOPs) or other site operating instructions.

4.1.5 Ensure each employee has appropriate equipment for non-routine tasks.

4.1.6 Ensure that inspections take place as specified in this policy and that deficiencies are identified and corrected.

4.2 Safety Coordinator (or his or her designee)

The safety coordinator will conduct compliance audits at least annually. (See **Attachment A.**) The audit results will be reported to the senior manager. The safety coordinator, or his or her designee, is the Respiratory Protection Program Administrator (RPPA). The RPPA will:

4.2.1 Provide technical support and training materials for initial and annual refresher respirator training courses as well as ensure fit testing for employees who have received medical clearance for respirator use.

4.2.2 Review worksite-specific procedures that will be used to determine the jobs that require respiratory protection as well as the types of respirators that are required for normal operations.

4.2.3 Evaluate the effectiveness of this written program by periodically consulting with employees who use respirators as well as by including respirator use in the annual site audits of the Respiratory Protection Program. (See **Attachment A.**)

4.2.4 Maintain fit testing, training and inspection records, as well as certificates of analysis from breathing air supply vendors for each batch of cylinders filled. Verify that the certificate of analysis meets requirements of Grade D Breathing air as specified in **Attachment B**.

4.2.5 Provide an updated list of approved respiratory protective equipment and a list of inventory and re-order limits for respirators, cartridges and filters on a periodic basis. A list of approved respiratory protection equipment is provided in **Attachment B**.

4.2.6 Ensure respiratory equipment is repaired to manufacturers' specifications.

4.2.7 Provide the Physician or other Licensed Health Care Professional (PLHCP) with required documentation concerning the employee's ability to wear a respirator. Information will include:

- Type and weight range of respirators used at the site.
- Estimated duration and frequency of use for respiratory equipment.
- Estimate of the physical work effort while using respiratory equipment, including confined space.
- Additional protective clothing and equipment while using respiratory equipment.
- Atmospheric extremes including temperature and humidity ranges while wearing respiratory protection.
- Copy of this policy.

4.3 Physician or other Licensed Health Care Professional (PLHCP)

4.3.1 The PLHCP is responsible for ensuring that medical determinations are completed initially and then at least annually on employees who are in the Respiratory Protection Program. *If employees are members of the site Emergency Response Team (ERT), they shall have medical evaluations to determine whether or not they are medically able to perform work while wearing respiratory protective equipment. The Company does not have emergency responders or an ERT.*

4.3.2 The PLHCP will maintain records of the medical evaluation results and will inform employees' supervisors as well as the RPPA whether or not individual employees are medically cleared to be fit tested and to use respiratory protection. ***(Note: The RPPA must receive written approval from the PLHCP before fit testing.)***

4.3.3 The PLHCP will review the medical questionnaire (**Attachment C**) and supplemental information provided by the RPPA.

4.4 Supervisors will:

4.4.1 Ensure that the requirements of this program are followed including: proper uses of respiratory equipment, providing sufficient time to clean and disinfect respiratory equipment, and ensuring respiratory equipment is properly stored.

4.4.2 Ensure that inspections are performed as specified in this policy and that any deficiencies identified during inspections are corrected.

Note: Inspections will ensure that respiratory protective equipment is well maintained. Any equipment that does not pass inspection shall be tagged "Not For Service." Tagged equipment will be taken out of service until properly repaired or replaced.

4.4.3 Ensure that employees properly wear and use respiratory equipment as specified by this policy.

4.4.4 Ensure that employees required to wear tight fitting facepiece respiratory equipment do not have any facial hair, or other interferences with the face-to-facepiece seal or valve function.

4.4.5 Ensure that each employee required to wear respiratory equipment attends annual training and fit testing. Any employee who is not fit tested within the past 12 months of his or her last fit test will not be allowed to wear respiratory equipment or perform any tasks or jobs that require respiratory equipment.

4.5 Employees:

4.5.1 Are required to properly use, inspect, clean, disinfect, dry, maintain and store their respirators following the procedures outlined in this program and in annual training.

4.5.2 Complete a medical questionnaire, **Attachment C**, as required.

4.5.3 Perform a positive and negative pressure fit check before entering a respirator-required area.

4.5.4 Be clean shaven in the area of the face that would interfere with a face-to-face shield seal or the valve function of all tight-fitting facepieces.

5.0 GUIDELINES

5.1 Respirator Selection

5.1.1 The RPPA will ensure that appropriate respiratory protection is selected from among those approved and certified by the National Institute for Occupational Safety and Health

(NIOSH). **Attachment B** provides a list of the respiratory protection equipment approved for use by the Company.

5.1.2 The selection of respiratory equipment shall be based on:

- Nature of the hazardous operation or process.
- Type of respiratory hazard.
- Period of time for which respiratory protection must be worn.
- Job tasks of the employees.
- Functional capabilities and limitations of the respirators.

5.1.3 For air purifying respirators, filters will be selected based on the need for protection from specific airborne contaminants. Each filter is assigned a protection factor based on filtering efficiency a particular particle size and the filter's ability to withstand breakdown in the presence of oil. Table 2 lists the types of filters and their respective efficiencies.

Table 1: Filter Types

Filter Type	Efficiency (%)
N100	99.7
N99	99
N95	95
R100	99.7
R99	99
R95	95
P100	99.7
P99	99
P95	95

N = Not resistant to oil; R = Resistant to oil; P = Oil Proof

5.2 Medical Determination

5.2.1 All Company employees and contractors shall be medically qualified to wear respiratory protection. Under no circumstances will respiratory protection be permitted to be used without prior medical approval.

5.2.1.1 Supporting Information

Employees will consider this information when determining medical approval for use of respiratory protection:

- Type and weight range of respirators used at the site
- Estimated duration and frequency of use for respiratory equipment
- Estimate of the physical work effort while using respiratory equipment, including confined space
- Additional protective clothing and equipment while using respiratory equipment
- Atmospheric extremes including temperature and humidity ranges while wearing respiratory protection

- Duties and requirements contained in this policy

5.4 Corrective Lenses and Contact Lenses

5.4.1 Eyeglasses with temple bars shall not be worn with full face respirators. If it is necessary for individuals to wear corrective eye wear with a full face respirator, a spectacle kit as specified by the manufacturer will be issued to the employee.

5.4.2 Contact lenses will be permitted for use by the Company. Any employee or contractor wearing contact lenses shall inform their supervisors and the site RPPA.

5.6 Fit Test Requirements

5.6.1 Protocol for Tight-Fitting Respirators

Employees and contractors shall take and pass an OSHA-approved protocol respirator fit test before approval to use respiratory protection. At a minimum, fit tests shall be conducted annually thereafter. Fit testing for the Company's employees will be either a quantitative fit test (QNFT) using the TSI Port-a-count instrument or a qualitative fit test (QLFT) using irritant smoke protocol (**Attachment D**). The RPPA will complete and file the "Fit Test Report" form for the appropriate method. Fit test records will be maintained for two years in the employee's training file maintained in the administrative building by the safety coordinator.

5.6.2 Frequency of Fit Test

Fit tests shall be conducted less than annually in the event an employee shows obvious change in body weight, has facial scarring, dental or cosmetic surgery to the face, or upon request by the supervisor, employee, RPPA or PLHCP.

5.6.3 Facepieces to Be Fit Tested

Fit tests shall be conducted on each style, type and size of respirator a employee will be required to use, including supplied air respirator facepieces.

5.6.4 Fit Factors

- Passing fit factors for qualitative fit tests shall be 10 or less.
- Passing fit factors for quantitative fit tests shall be 50 for full-face respirators.

5.6.5 Assigned Protection Factors

5.6.5.1 Respirators fit tested using the OSHA-approved QLFT method will have a maximum protection factor of up to 10 times the OEL for full-face respirators.

5.6.5.2 Respirators fit tested using the OSHA-approved QNFT method will have a maximum protection factor of up to 50 times the OEL for full-face respirators.

5.7 Fit Checks

A check will be conducted by the respirator wearer each time the respirator is donned and before entering the respiratory-required area. Fit checks will be conducted to determine if the respirator is properly seated to the face by following the procedures recommended by the manufacturer or by

using procedures for both negative-pressure fit check and positive-pressure fit check (**Attachment E**).

5.8 Respirator Inspection/Maintenance/Cleaning/Storage

5.8.1 Respirator Inspections

5.8.1.1 Air Purifying Respirators

Employees shall inspect all routinely used air purifying respirators before and after each use:

- Check the facepiece for dirt, cracks, inflexibility, deterioration, worn threads, missing gaskets and badly scratched lenses in the face plate (if applicable).
- Check the head straps for breaks, loss of elasticity, broken buckles and snaps.
- Check the exhalation valve for foreign materials, cracks, tears and improper installation.
- Check the inhalation valves for improper cartridges, loose connections, worn gaskets and other deterioration. In addition, check the cartridges for expired shelf life.
- Check to make sure the correct type of cartridge is selected for the job/task.

5.8.2 Cleaning

Respirators issued for the exclusive use of one worker, and which are routinely used throughout the work day, must be cleaned daily or more often as necessary. Respirators that are used by a number of employees must be cleaned and disinfected following each individual use. Cleaning procedures are outlined in **Attachment F**.

5.8.3 Respirator Storage

All respirators will be stored in a convenient, clean and sanitary location. Respirators should be stored in a manner that protects them against dust, harmful chemicals, sunlight, excessive heat or cold, and moisture. The respirator should be stored in a manner such that the facepiece and exhalation valves will rest in a normal position. The respirator should not be hung by its straps or any other method that will impair its normal function.

5.8.4 Repair

Respirators that fail an inspection or are otherwise found to be defective must be tagged and removed from service. Failed respirators will be returned to the RPPA. Only employees trained to perform such operations can make repairs to respirators. Any repairs to respirators used at the Company's site will be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed. Reducing and admission valves on supplied air respirator regulators and alarms will only be adjusted or repaired by the manufacturer or a technician trained by the manufacturer. Contact the RPPA to arrange for repairs by the manufacturer and/or its approved representative.

5.9 Filters

5.9.1 Filter Change Schedule.

<<Insert your company's Filter Change Out Schedule>>

5.11 Training

5.11.1 Training Topics

Before using respiratory protection, and at least annually thereafter, each employee required to wear a respirator will be trained on these topics:

- How to select respiratory equipment
- Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator
- What the limitations and capabilities of the respirators are
- How to use the respirator effectively in emergency and non-emergency situations, including situations in which the respirator malfunctions
- What the procedures are for maintenance and storage of the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- The general requirements of the OSHA Respiratory Protection Standard
- The contents of this written program

5.11.2 The frequency of training may be increased if:

- Changes in the workplace or different types of respirators are introduced to the workplace.
- Noted inadequacies in an employee's knowledge or skill is detected.
- Situations are encountered in which additional training is necessary to ensure safe use.

5.11.3 Training Records

The Respiratory Protection Training Records will be filed with a copy of the individual's examination on the subject matter and kept for two years by the safety coordinator or the department. Computer-Based Training (CBT) records will be maintained electronically by the safety coordinator or department, if used. **Attachment G** is provided for training documentation.

5.12 Program Evaluation

5.12.1 Employee Observations

Routine observations of employees using respiratory protection at the Company's site will be used to determine the effectiveness of this Respiratory Protection Program. The Respiratory Protection Program administrator also welcomes input from employees on information dealing with:

- Fatigue.
- Difficulty breathing with respiratory equipment on.
- Interference with hearing, vision, communication or job performance.
- Restrictions in movement.
- Employees' confidence in the equipment.

5.12.2 Frequency of Respiratory Protection Program Review

The respiratory program will be reviewed when conditions affecting the use of respirators occur. The review will include:

- The effectiveness of the respirator program in achieving proper respirator fit.
- Appropriate use of respiratory protection.
- Inspection of respirators and respiratory equipment to ensure they are maintained in proper condition.

6.0 REFERENCES

6.1 Occupational Safety and Health Administration Standard 29 CFR 1910.134, Respiratory Protection

6.2 Occupational Safety and Health Administration Standard 29 CFR 1910.134, Appendix A, Fit Testing Procedures (mandatory)

6.3 Occupational Safety and Health Administration Standard 29 CFR 1910.134, Appendix B-1, User Seal Checks (mandatory)

6.4 Occupational Safety and Health Administration Standard 29 CFR 1910.134, Appendix B-2, Respirator Cleaning Procedures (mandatory)

6.5 Occupational Safety and Health Administration Standard 29 CFR 1910.134, Appendix C, Respirator Medical Evaluation Questionnaire (mandatory)

6.6 Occupational Safety and Health Administration Standard 29 CFR 1910.134, Appendix D, Information for Employees Using Respirators When Not Required Under the Standard (mandatory)

6.7 Major Requirements of OSHA's Respiratory Protection Standard 29 CFR 1910.134; OSHA Office of Training and Education, March 1998

7.0 ATTACHMENTS

7.1 Attachment A: Annual Respiratory Protection Program Evaluation

7.2 Attachment B: Approved Respiratory Equipment and Breathing Air Requirements

7.3 Attachment C: Respirator Medical Evaluation Questionnaire

7.4 Attachment D: OSHA-Accepted Fit Test Protocols

7.5 Attachment E: Negative and Positive Fit Check

7.6 Attachment F: Cleaning

7.7 Attachment G: Respirator Training Form

8.0 SIGNATURES

_____ _____ _____

ATTACHMENT A
Annual Respiratory Protection Program Evaluation

☐ Negative pressure full-face respirators: randomly select three to five facepieces and inspect for:

- Scratches on facepiece
- Condition of silicon in the sealing surface
- Elasticity of straps
- Tightness of connectors
- Condition of exhalation valve
- Conditions of buckles
- Storage of filters/cartridges
- Verify cartridges are within the manufacturers recommended shelf life date

Notes:

☐ Interview employees on respiratory use.

- Problems with equipment
- Situations in which respirators hinder work assignments
- Any change in physical condition of employees (i.e., weight gain/loss, change in vision, significant dental work or changes in facial features)
- Any issues or concerns with chemical breakthrough, fatigue, difficulty in breathing, etc.

Notes:

☐ Observe an employee using a respirator to perform a work task. Verify:

- Employee is clean shaven
- Proper donning procedures
- Seal check procedures
- Doffing procedures
- Cleaning and storing equipment

Notes:

☐ Interview the site manager on respiratory use.

- Changes in employees' ability to use respiratory protection (i.e., back problems to wear SCBA, performing confined space entry, heat stress, etc.)
- Advise the PLHCP of any changes in employee exposures (increase or decrease)
- Advise the PLHCP of changes in the type and style of respiratory protection
- Advise the PLHCP of changes in working conditions which involve respiratory use (include confined space entry)
- Verify the PLHCP is aware of the current version of the site respiratory protection policy
- Verify all written approvals of medical evaluations are on hand for employee fit testing

Notes:

☐ Training records

- Verify newly hired employees have received respirator training before initial assignment in the plant
- Verify annual training records for all employees in the respirator program
- Review training material and ensure no changes or updates are required

Notes:

☐ Forms and records. Verify these documents are maintained for the current year:

- Current version of the site respirator policy
- Medical approval for each person in the program
- Training records for each employee in the program

Notes:

Date of Review:_____ Signature of Reviewer: _____

ATTACHMENT B
Approved Respiratory Equipment and Breathing Air Requirements

Approved Respiratory Equipment

Only respirators that are approved by the National Institute of Occupational Safety and Health (NIOSH) and the Respiratory Protection Program Administrator (RPPA) shall be used on the Company's site.

Negative Pressure Respirators:

<<List the approved equipment for the company>>

Air Supplied Respirators:

<<List the approved equipment for the company>>

ATTACHMENT C
Respirator Medical Evaluation Questionnaire

<< See OSHA Standard for Current Questionnaire>>

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place convenient to you. To maintain your confidentiality, your employer or supervisor must not look at your answers. Your employer must tell you how to send this questionnaire to the health care professional who will review it.

Part A. Section 1.

Every employee who has been selected to use any type of respirator must provide this information.

Please print your answers.

1. Today's date: _____
2. Your name: _____
3. Your age: _____
4. Sex: Male | Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where the health care professional who reviews this questionnaire can reach you: (_____)_____
9. The best time to call you: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire? Yes | No
11. Check the type of respirator you will use (you can check more than one category):

_____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).

_____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator? Yes | No

If "yes," what type(s): _____

_____

Part A. Section 2.

Every employee who has been selected to use any type of respirator must answer questions 1 through 9 below.

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month? Yes | No
2. Have you ever had any of these conditions?
    - Seizures (fits): Yes | No
    - Diabetes (sugar disease): Yes | No
    - Allergic reactions that interfere with your breathing: Yes | No
    - Claustrophobia (fear of closed-in places): Yes | No
    - Trouble smelling odors: Yes | No
3. Have you ever had any of these pulmonary or lung problems?

- Asbestosis: Yes | No
- Asthma: Yes | No
- Chronic bronchitis: Yes | No
- Emphysema: Yes | No
- Pneumonia: Yes | No
- Tuberculosis: Yes | No
- Silicosis: Yes | No
- Pneumothorax (collapsed lung): Yes | No
- Lung cancer: Yes | No
- Broken ribs: Yes | No
- Any chest injuries or surgeries: Yes | No
- Any other lung problem you've been told about: Yes | No

4. Do you currently have any of these symptoms of pulmonary or lung illness?
    - Shortness of breath: Yes | No
    - Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes | No
    - Shortness of breath when walking with other people at an ordinary pace on level ground: Yes | No
    - Have to stop for breath when walking at your own pace on level ground: Yes | No
    - Shortness of breath when washing or dressing yourself: Yes | No
    - Shortness of breath that interferes with your job: Yes | No
    - Coughing that produces phlegm (thick sputum): Yes | No
    - Coughing that wakes you early in the morning: Yes | No
    - Coughing that occurs mostly when you are lying down: Yes | No
    - Coughing up blood in the last month: Yes | No
    - Wheezing: Yes | No
    - Wheezing that interferes with your job: Yes | No
    - Chest pain when you breathe deeply: Yes | No
    - Any other symptoms that you think may be related to lung problems: Yes | No
5. Have you ever had any of these cardiovascular or heart problems?
    - Heart attack: Yes | No
    - Stroke: Yes | No
    - Angina: Yes | No
    - Heart failure: Yes | No
    - Swelling in your legs or feet (not caused by walking): Yes | No
    - Heart arrhythmia (heart beating irregularly): Yes | No
    - High blood pressure: Yes | No
    - Any other heart problem that you've been told about: Yes | No
6. Have you ever had any of these cardiovascular or heart symptoms?

- Frequent pain or tightness in your chest: Yes | No
- Pain or tightness in your chest during physical activity: Yes | No
- Pain or tightness in your chest that interferes with your job: Yes | No
- In the past two years, have you noticed your heart skipping or missing a beat: Yes | No
- Heartburn or indigestion that is not related to eating: Yes | No
- Any other symptoms that you think may be related to heart or circulation problems: Yes | No

7. Do you currently take medication for any of these problems?
    - Breathing or lung problems: Yes | No
    - Heart trouble: Yes | No
    - Blood pressure: Yes | No
    - Seizures (fits): Yes | No
8. If you've used a respirator, have you ever had any of these problems? (If you've never used a respirator, check this space _____ and go to question 9:)
    - Eye irritation: Yes | No
    - Skin allergies or rashes: Yes | No
    - Anxiety: Yes | No
    - General weakness or fatigue: Yes | No
    - Any other problem that interferes with your use of a respirator: Yes | No
9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire? Yes | No

Every employee who has been selected to use a full-facepiece respirator or self-contained breathing apparatus (SCBA) must answer questions 10 to 15. For employees who have been selected to use other types of respirators, these questions are voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes | No
11. Do you currently have any of these vision problems?
    - Wear contact lenses: Yes | No
    - Wear glasses: Yes | No
    - Color blind: Yes | No
    - Any other eye or vision problem: Yes | No
12. Have you ever had an injury to your ears, including a broken ear drum? Yes | No
13. Do you currently have any of these hearing problems?
    - Difficulty hearing: Yes | No
    - Wear a hearing aid: Yes | No
    - Any other hearing or ear problem: Yes | No
14. Have you ever had a back injury? Yes | No
15. Do you currently have any of these musculoskeletal problems?
    - Weakness in any of your arms, hands, legs or feet: Yes | No

- Back pain: Yes | No
- Difficulty fully moving your arms and legs: Yes | No
- Pain or stiffness when you lean forward or backward at the waist: Yes | No
- Difficulty fully moving your head up or down: Yes | No
- Difficulty fully moving your head side to side: Yes | No
- Difficulty bending your knees: Yes | No
- Difficulty squatting to the ground: Yes | No
- Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes | No
- Any other muscle or skeletal problem that interferes with using a respirator: Yes | No

Part B. Section 1.

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

1. In your present job, are you working at high altitudes (more than 5,000 feet) or in a place that has lower than normal amounts of oxygen? Yes | No
   If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions? Yes | No
2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes or dust), or have you come into skin contact with hazardous chemicals? Yes | No
   If "yes," name the chemicals if you know them:

   _____

   _____
3. Have you ever worked with any of these materials or under any of these conditions:
   - Asbestos: Yes | No
   - Silica (e.g., in sandblasting): Yes | No
   - Tungsten/cobalt (e.g., in grinding or welding): Yes | No
   - Beryllium: Yes | No
   - Aluminum: Yes | No
   - Coal (e.g., in mining): Yes | No
   - Iron: Yes | No
   - Tin: Yes | No
   - Dusty environments: Yes | No
   - Any other hazardous exposures: Yes | No

   If "yes," describe these exposures:

   _____

   _____
4. List any second jobs or side businesses you have:

   _____

5. List your previous occupations:

   _____

   _____

   _____

   _____

   _____

6. List your current and previous hobbies:

   _____

   _____

   _____

7. Have you been in the military services? Yes | No
   If "yes," were you exposed to biological or chemical agents (either in training or combat)? Yes | No
8. Have you ever worked on a HAZMAT team? Yes | No
9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)? Yes | No
   If "yes," name the medications if you know them:

   _____

   _____

10. Will you be using any of these items with your respirator(s)?
    - HEPA filters: Yes | No
    - Canisters (e.g., gas masks): Yes | No
    - Cartridges: Yes | No
11. How often are you expected to use the respirator(s)? (Circle "yes" or "no" for all answers that apply to you.)
    - Escape only (no rescue): Yes | No
    - Emergency rescue only: Yes | No
    - Less than five hours per week: Yes | No
    - Less than two hours per day: Yes | No
    - Two to four hours per day: Yes | No
    - More than four hours per day: Yes | No
12. During the period you are using the respirator(s), is your work effort:
    - Light (less than 200 kcal per hour): Yes | No
      - If "yes," how long does this period last during the average shift? ____ hrs. ____ mins.
      - Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1–3 pounds) or controlling machines.
    - Moderate (200 to 350 kcal per hour): Yes | No
      - If "yes," how long does this period last during the average shift? ____hrs. _____ minutes.

  - Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 pounds) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 pounds) on a level surface.
- Heavy (above 350 kcal per hour): Yes | No
  - If "yes," how long does this period last during the average shift? _____hrs. _____ minutes.
  - Examples of heavy work are lifting a heavy load (about 50 pounds) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 pounds).

13. Will you be wearing protective clothing or equipment (other than the respirator) when you're using your respirator? Yes | No
    If "yes," describe this protective clothing and/or equipment:
    _____
    _____
    _____
14. Will you be working under hot conditions (temperature exceeding 77 degrees Fahrenheit)? Yes | No
15. Will you be working under humid conditions? Yes | No
16. Describe the work you'll be doing while you're using your respirator(s):
    _____
    _____
    _____
17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):
    _____
    _____
    _____
18. Provide the information, if you know it, for each toxic substance you'll be exposed to when you're using your respirator(s):
    - Name of the first toxic substance: _____
      - Estimated maximum exposure level per shift: _____
      - Duration of exposure per shift: _____
    - Name of the second toxic substance: _____
      - Estimated maximum exposure level per shift: _____
      - Duration of exposure per shift: _____
    - Name of the third toxic substance: _____
      - Estimated maximum exposure level per shift: _____

- Duration of exposure per shift: _____

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

  _____

  _____

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

    _____

    _____

ATTACHMENT D
OSHA-Accepted Fit Test Protocols

I. Fit Testing Procedures — General Requirements

A. The employer shall conduct fit testing using these procedures. The requirements in this attachment apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

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. Before 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 or 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 these 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. These 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 reference 6.1 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, he or she 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 his or her 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. Before beginning 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 five 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) These test exercises are to be performed for all fit testing methods prescribed in this attachment, except for the controlled negative pressure (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 this 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 or 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 or 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 or she were to touch his or 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.

II. 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 or 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 or 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 or she can detect it.

III. 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 or her eyes closed.
3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal 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 attachment 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 or 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.

IV. Quantitative Fit Test (QNFT) Protocols

Quantitative fit testing uses ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit.

A. General

1. The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.
2. The employer shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing protocol.

The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing (Portacount™) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator, that allows the probe to sample the air from inside the mask. A probed respirator is required for each make, style, model and size that the employer uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator, and a minimum fit factor pass level of at least 500 is required for a full facepiece negative pressure respirator. The entire screening and testing procedure shall be explained to the test subject before the conduction of the screening test.

B. Portacount Fit Test Requirements

1. Check the respirator to make sure the sampling probe and line are properly attached to the facepiece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test (e.g., NIOSH 42 CFR 84 series 100, series 99, or series 95 particulate filter) per the manufacturer's instruction.
2. Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.
3. Check these conditions for 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 the respirator to slip
   (f) Self-observation in a mirror to evaluate fit and respirator position
4. Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same model respirator or another model of respirator.

5. Follow the manufacturer's instructions for operating the Portacount and proceed with the test.
6. The test subject shall be instructed to perform the exercises in section I. A.14. of this attachment.
7. After the test exercises, 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.

C. Portacount Test Instrument.

1. The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.
2. Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this Attachment.
3. A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain:
   (a) The test subject's name.
   (b) Overall fit factor.
   (c) Make, model, style and size of respirator used.
   (d) Date tested.

ATTACHMENT E
Negative and Positive Fit Check

Negative-Pressure Fit Check

A negative pressure fit check can be used on air purifying and supplied air respirators equipped with tight fitting facepieces. The wearer closes off the inlet valve, by placing the palms of his or her hands over the cartridges/filters, and gently inhales on negative pressure respirators or closes off the air inlet for positive pressure respirators. The facepiece should collapse slightly. If any leaks of air into the respirator are noticed, the fit should be adjusted and this procedure repeated. A hazardous atmosphere should not be entered until a successful check is done.

Positive-Pressure Fit Check

A positive pressure fit check can be used on respirators which contain both an inhalation and exhalation valve. The wearer closes the exhalation valve or tube and exhales gently. The fit of the respirator is considered to be satisfactory if a slight positive pressure can be built up inside the facepiece without the detection of any air leakage.

NOTE: Fit checks are NOT substitutes for fit tests that are required to certify respirator users (i.e., qualitative and quantitative fit tests).

ATTACHMENT F
Cleaning

A commercial disinfectant approved for use on respirators supplied by the safety coordinator must be used. This protocol should be used for cleaning respirators:

- Remove canister, filters, valves, straps and diaphragms from the facepiece.
- Wash facepiece and accessories in warm soapy water.
- Rinse parts thoroughly in clean water.
- Air dry in a clean place or wipe dry with a lint free pad.
- Reassemble and put in proper storage.

Disinfecting procedures recommended by NIOSH:

Immerse the respirator body for two minutes in a 50 ppm solution of chlorine (about 2 ml commercial bleach in 1 liter of water). Rinse thoroughly in clean water and dry.

General use respirators (air line equipment, emergency escape packs) will also be cleaned, disinfected, dried and stored as specified by this policy by the last person to use the respirator.

- Immerse the respirator body for two minutes in an aqueous solution of iodine (about 0.8 ml tincture of iodine in 1 liter of water). (Tincture of iodine is about 7 percent ammonium and potassium iodide, 45 percent alcohol and 48 percent water.) Rinse thoroughly and dry.
- 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 disinfecting to prevent dermatitis.
- An alternative method is to purchase a commercially prepared solution for disinfecting and/or decontamination and follow the directions provided by the manufacturer.
- Use non-abrasive and non-solvent based soap (e.g., dish soap).

ATTACHMENT G
Respirator Training Form

Employee's Name:_____ Social Security No.:_____

Employee's Signature:_____

Job Title:_____ Department:_____

Training Date:_____ Fit-Test Date:_____

These training topics were reviewed in detail during the respirator training class and fit-testing session:

- Purpose of a respirator and principles of how a respirator works
- Nature of hazards and discussion of consequences if respirators are not used
- Application, capabilities and limitations of respirators
- Specific jobs in the plant requiring the use of a respirator
- Principle parts of the respirator and consequences of malfunction
- Demonstration of inspection techniques that each respirator employee will use on the job
- Review of users' responsibility for prior-to-use inspections
- What to do if there is a defect with the respirator
- How to determine if a cartridge, filter or cylinder needs to be changed
- Storage, cleaning and maintenance requirements and procedures
- Demonstration of proper donning and face-to-face piece seal test (at time of fit test)
- Importance of obtaining a good facepiece seal
- Negative pressure/positive pressure fit check (at time of fit test)
- Employee responsibilities as written in the plant Respiratory Protection Program

These types of respirators were reviewed in the training class:

_____ Air Purifying

_____ Dust Mask