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UNC CHARLOTTE

Environmental Health and Safety

RESPIRATORY PROTECTION PROGRAM

UNC CHARLOTTE
9201 UNIVERSITY CITY BLVD., CHARLOTTE, NC
28223

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I. Purpose

The purpose of this written program is to assure compliance with Occupational Safety and Health Administration (OSHA) Respiratory Protection Standard (29 CFR 1910.134) and the appropriate respirator is selected and provided to employees. It is the goal of UNC Charlotte to use engineering controls as the primary method for protecting employees, and work practice controls as a secondary method. However, when additional protection is necessary, the appropriate respirator will be worn.

II. Scope

This program applies to all UNC Charlotte employees who are required to wear a respirator to perform assigned duties. Information is also provided for any employee who voluntarily wears a respirator when one is not required.

III. Definitions

A. 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

B. 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

C. 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

D. 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

E. 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

F. Employee exposure

Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection

G. Escape-only respirator

A respirator intended to be used only for emergency exit

H. Filter or air purifying element

A component used in respirators to remove solid or liquid aerosols from the inspired air

I. Filtering facepiece (N95 – N99)

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

J. 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

K. Fit test

The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual

L. High efficiency particulate air (HEPA) filter

A filter that is at least 99.97% 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

M. 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

N. Loose-fitting facepiece

A respiratory inlet covering that is designed to form a partial seal with the face

O. 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

P. Oxygen deficient atmosphere

An atmosphere with an oxygen content below 19.5% by volume

Q. 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

R. Positive pressure respirator

A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator

S. 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

T. 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

U. 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

V. Quantitative fit test (QNFT)

An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator

W. Respiratory inlet covering

The 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

X. Self-contained breathing apparatus (SCBA)

An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user

Y. Service life

The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer

Z. 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

AA. Tight-fitting facepiece

A respiratory inlet covering that forms a complete seal with the face

BB. User seal check

An action conducted by the respirator user to determine if the respirator is properly seated to the face

IV. Program Responsibilities

A. Executive Leadership

The University of North Carolina at Charlotte has legal responsibility for compliance with the occupational safety and health standards.

B. Program Administrator

The Environmental Health and Safety Office (EHS) is responsible for:

1. Developing, implementing, administering and reviewing the Respiratory Protection Program;
2. Evaluating respiratory hazards;

3. Providing guidance on the selection, purchase, use, maintenance and storage of respirators;
4. Coordinating medical surveillance for program participants;
5. Providing fit testing to respiratory users.

C. Affected Departmental Management

Affected Departmental Management is responsible for implementing the Respiratory Protection Program by:

1. Being familiar with University policies and programs which pertain to his or her job duties and work areas;
2. Identifying respiratory hazards and contacting EHS for risk assessment consultation;
3. Ensuring all employees that are enrolled in the respiratory protection program complete medical surveillance, fit testing and training;
4. Enforcing the Respiratory Protection Program safety requirements;
5. Allocating or securing funds for respiratory equipment and medical exams as needed.

D. Affected Employees

Employees must wear respiratory protection, and therefore participate in the respiratory protection program, when any of the following conditions or circumstances applies:

1. Performing jobs during which workers are specifically required by state or federal regulation to wear respiratory protection;
2. Participating in activities which produce airborne contaminants above OSHA permissible exposure limits that cannot be controlled adequately by engineering methods;
3. Working in atmospheres containing airborne contaminants which could reasonably be expected to exceed permissible or recommended exposure limits;
4. Working in an atmosphere which is, may be, or may become oxygen deficient;

5. When protection from bio-aerosols, such as tuberculosis and influenza, is mandatory for healthcare workers and first responders.

UNC Charlotte employees who are required to wear a respirator to perform their assigned duties shall:

1. Understand and comply with the Respiratory Protection Program requirements.
2. Wear, store, clean and maintain the respirator that they were fitted for during their fit testing;
3. Report any defects in the equipment or any respiratory usage symptoms of illness to his or her supervisor;
4. Follow both oral and written instructions from his or her supervisor;
5. Request information and training when unsure if respiratory protection is necessary.

V. Medical Surveillance

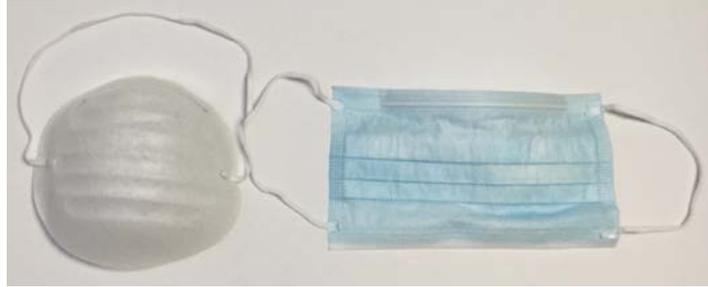
- A. Prior to being fitted for a respirator, the individual's medical status shall be evaluated by a PLHCP to determine if they are physically able to safely use a respirator. Initial medical evaluations shall be provided at no cost to the employee during normal working hours.
- B. Individuals participating in the program must complete a respirator medical evaluation questionnaire, which will be reviewed by a PLHCP. In addition to the respirator medical evaluation questionnaire, the attending PLHCP shall be provided the following information:
 1. The type and weight of the respirator to be used by the employee;
 2. The duration and frequency of respirator use;
 3. The expected physical work effort;
 4. Additional protective clothing and equipment to be worn; and
 5. Temperature and humidity extremes that may be encountered.
- C. The attending PLHCP will review the respirator medical evaluation questionnaire, additional information and the results of the physical exam,

when applicable, and decide if, in their opinion, the individual can safely wear a respirator.

- D. Follow-up medical evaluations will be provided to participants of the Respiratory Protection Program who provide a positive response to any question among questions 1 through 8 in Section Two of the Respiratory Medical Evaluation Questionnaire or whose initial medical examination demonstrates the need for follow-up medical examination.
- E. Additional medical evaluations will be provided if:
 - 1. An employee reports medical signs or symptoms that are related to the ability to use the respirator;
 - 2. A Physician or other Licensed Health Care Professional (PLHCP), supervisor, or the respirator program administrator determines an employee needs to be reevaluated;
 - 3. A change occurs in the workplace conditions that may result in a substantial increase in the physiological burden placed on the employee.
- F. Those individuals who fail to meet any medical clearance criteria established by the attending physician may not participate in the University Respiratory Protection Program, will not be issued a respirator and may not utilize a respirator during their employment at the University.

VI. Respiratory Protection Equipment

- A. EHS will evaluate respiratory hazards in the workplace, identifying relevant workplace and user factors, and assist supervisors in the selection of appropriate respirators. EHS personnel may use the “Respiratory Protection Decision Tree” in the selection process (see Appendix B). Please contact the EHS office before selecting and making any respirator available.
 - 1. **Nuisance Masks and Medical/Surgical Masks** are generally not “tight fitting” as they do not form a seal with the wearer’s face, and therefore, do not require fit testing. These masks do not cause appreciable resistance to breathing, and therefore, do not require medical clearance prior to disbursement. Supervisors may procure and distribute nuisance and medical/surgical masks upon request.



2. **Filtering Facepieces/Respirators** (N95 – N99 Respirator) are generally tight fitting, National Institute Occupational Safety Health (NIOSH) approved and have increased air flow resistance. For this reason, employees who are required to wear tight fitting facepiece respirators must follow the guidelines for medical evaluation, fit testing and training.



3. **Air-Purifying Respirators** (Half-Face and Full-Face Respirators) are tight fitting, NIOSH approved and have increased air flow resistance. These respirators should only be worn after a medical evaluation, fit testing and training. Respirators shall be equipped with appropriate filters and/or cartridges to protect against the specific hazard(s) required.



4. **Powered Air-Purifying Respirators** (PAPR), **Supplied Air Respirators** (SAR), and other specialized respirators may be obtained under the guidance of EHS. Please contact EHS for assistance prior to selection or purchase.



VII. Voluntary Use of Respirators

- A. Employees and students, at their request, may be provided with filtering facepiece respirators to use in areas that have been determined to be non-hazardous. In addition, employees and students may supply their own filtering facepiece respirators for use in non-hazardous situations. Voluntary respirator use is when an individual is not required to wear a respirator, but desires to do so. Employees and students must fill out and submit a voluntary usage form (see Appendix D) to the EHS office before voluntarily using a filtering facepiece respirator.
- B. Voluntary usage of an air-purifying half-face, air purifying full-face and/or other high protection level respiratory PPE requires full medical evaluation, fit testing, training and EHS approval before usage.
- C. Voluntarily used respirators must be properly cleaned, stored and maintained, so as not to pose a hazard to the user.

VIII. Respirator Fitting and Fit Testing

- A. Fit testing is a procedure used to determine how well a respirator “fits”; that is, whether the respirator forms a good seal to the wearer’s face. If a good face-to-facepiece seal is not achieved, this may allow the respirator to leak. Since only tight-fitting respirators rely on this seal, they are the only type of respirator for which fit testing is valid.
- B. Fit testing is provided by EHS, or another qualified provider, to ensure an initial acceptable seal. Individuals with facial hair or stubble that interferes with the seal of the respirator may not be fit tested until the facial hair is removed.
- C. As a primary method, the TSI PortaCount quantitative fit testing machine and associated software shall be used to conduct quantitative fit testing on applicable personnel, including filtering facepiece respirator users in mandatory usage situations. As a secondary method, qualitative fit testing will be performed in accordance with OSHA accepted fit test protocols (Appendix C) using isoamyl acetate (banana oil), saccharin solution,

denatonium benzoate (Bitrex™), or stannic chloride (irritant smoke). After a successful fit test, the EHS office shall notify the employee.

- D. Fit testing must be repeated annually or semiannually as required by specific OSHA standards (e.g. asbestos, acrylonitrile, lead, benzene or formaldehyde). EHS, or another qualified provider, shall conduct additional fit testing whenever there is a change in an employee's physical condition that could affect respirator fit.
- E. In addition, individuals must be re-tested if any of the following conditions occur:
 - 1. An obvious change in body weight;
 - 2. Facial scarring in the area of the face piece seal;
 - 3. Dental changes, such as the removal of multiple teeth or the fitting of dentures; or
 - 4. Reconstructive or cosmetic surgery.

IX. Training

- A. A qualified EHS representative or a qualified designee shall instruct each employee prior to their first respirator use and annually thereafter. Retraining shall be required immediately if any changes in the workplace or the type of respirator invalidates previous training, inadequacies in the employee knowledge of respirators, or any situation arising in which retraining appears necessary to ensure safe respirator use. The education and training in the use of respirators shall include:
 - 1. A complete description of the respirator selection process and the reason for the selection of the specific equipment issued;
 - 2. The nature, extent, and effects of respiratory hazards to which the employee may be exposed as required under the Hazard Communication standard (29 CFR 1910.1200);
 - 3. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the effectiveness of the respirator;
 - 4. An explanation of the operation, limitations, and capabilities of the selected respirator(s);
 - 5. Instruction in procedures for inspection, donning and removal, checking the fit and seals, and in the wearing of the respirator,

including sufficient practice to enable the employee to become thoroughly familiar with, confident, and effective in performing these tasks;

6. Explanation of the procedures for maintenance and storage of the respirator;
7. Instruction on how to deal with emergency situations involving the use of respirators or with respirator malfunctions, and;
8. The contents of the OSHA Respiratory Protection standard and of the written respiratory protection program, its location and availability.

X. Use of Respirators

- A. All personnel required to wear a respirator shall guard the respirator against damage at all times. If a respirator malfunction occurs, leave the area, remove the respirator and contact EHS to arrange appropriate repairs. Employees are to inform their supervisor of any change in their medical or physical status that may impede the ability to safely wear a respirator.
- B. When using any tight-fitting respirator, including but not limited to filtering facepiece respirator and air-purifying half-face respirator, the wearer must:
 1. Use only in the atmospheres specified during respirator selection;
 2. Be certain that glasses or goggles are worn in such a manner that they do not interfere with the seal of the facepiece;
 3. Be clean-shaven in the area of the respirator seal;
 4. Leave the area if any contaminant odors are detected through the respirator, or if breathing becomes difficult;
 5. Leave the respirator use area to wash their faces and respirator facepieces as necessary to prevent skin irritation associated with respirator use;
 6. Perform job tasks with caution to ensure that the face-piece to face seal is not broken.
- C. If any problems occur (i.e., respirator malfunction, fatigue, anxiety, contaminant breakthrough, increased effort needed to breathe, etc.), employees should immediately exit the area, remove the respirator, and notify their supervisor and the EHS office.

D. Air-Purifying Half-Face, Air-Purifying Full-Face and Powered Air-Purifying (PAPR) Respirators

1. Air-purifying respirators are equipped with filters and/or cartridges that remove contaminants from the air as the wearer breathes. Since air-purifying respirators do not supply air, they must not be used in oxygen-deficient or Immediate Danger to Life and Health (IDLH) atmospheres. In addition, they cannot be used to protect against chemicals with poor olfactory (odor) warning properties. Air-purifying respirators must only be used for protection from the specific agent or agents listed on the color-coded canisters or filters. Program participants must describe the environment in which they intend to use the respirator so that EHS will choose the appropriate canisters or filters for the application.

2. When using a negative pressure air-purifying half-face or air-purifying full-face respirator, the wearer must:
 - a) Follow the manufacturer guidelines;
 - b) Use the respirator only in the atmospheres specified during the selection process;
 - c) Install the appropriate cartridges/filters;
 - d) Don and adjust the respirator as trained in the fitting session;
 - e) Perform a Positive Pressure Check
 - (1) Close off the exhalation valve and exhale gently into the facepiece. The face seal is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
 - f) Perform a Negative Pressure Check

- (1) Close off the inlet opening of the filter or cartridge(s) by covering with the palm of the hand(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the seal of the respirator is considered satisfactory.
- g) Leave the respirator use area immediately to change the filter elements whenever they detect the warning properties of the contaminant or a change in breathing resistance.

XI. Maintenance and Care of Respirators

A. Inspection for Defects

- 1. The ongoing maintenance of the respirators themselves is an essential part of the Respiratory Protection Program. Primary responsibility for maintaining a given respirator in clean and serviceable condition lies with the program participant to whom the respirator is assigned. EHS will assist individuals by inspecting the respirator at the annual fit test and by recommending replacement parts as needed. Respirator inspection shall include at a minimum:
 - a) Checking facepiece for excessive dirt, cracks, tears or holes, distortion, cracked or loose-fitting lenses;
 - b) Checking head straps for breaks or tears, loss of elasticity, broken or malfunctioning buckles;
 - c) Checking inhalation and exhalation valves for missing valves, detergent residue, dust particles or dirt on valve or valve seat, cracks tears or distortion in the valve or the valve seat, or missing exhalation valve cover;
 - d) Checking filters or canisters for appropriateness to the hazard, missing or worn gaskets, cracks or dents in filter housing or expired date; and
 - e) Checking hoses for cracks or holes and missing or lose clamps.

2. When a respirator is utilized for protection against gases or vapors, the respirator filters or cartridges should be replaced if contaminant odor is detected (breakthrough) or breathing resistance increases noticeably.

B. Cleaning

1. Respirators shall be cleaned according to the following schedule:

- a) Routinely used respirators issued for the exclusive use of an employee shall be cleaned and disinfected after each day's use;
- b) Routinely used respirators issued to more than one employee shall be cleaned and disinfected after each use;
- c) Respirators maintained for emergency use shall be cleaned and disinfected after each use; and
- d) Respirators used in fit-testing and training shall be cleaned and disinfected after each use.

2. Respirators will be cleaned by the manufacturer guidelines or in the following manner:

- a) Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- b) Wash components in 43°C (110°F) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- c) Rinse components thoroughly in clean, warm 43°C (110°F), preferably running water and drain.
- d) When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

- (1) Hypochlorite solution (50 PPM of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43°C (110°F);
 - (2) Aqueous solution of iodine (50 PPM iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodine/100 cc of 45% alcohol) to one liter of water at 43°C (110°F);
 - (3) Other commercially available cleansers of equivalent disinfectant quality when used as directed, unless the respirator manufacturer recommends against their use.
- e) Rinse components thoroughly in clean, warm 43°C (110°F), preferably running water. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
 - f) Components should be hand-dried with a clean lint-free cloth or air-dried.
 - g) Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
 - h) Test the respirator to ensure that all components work properly.
3. PAPRs and SARs should be cleaned following the manufacturers recommendations.

C. Storage

1. All respirators shall be stored in accordance with manufacturer specifications. As a standard guideline, all respirators should be stored in a manner that protects them from damage, dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals. In locations where weathering, contamination, or deterioration of the respirator could occur, respirators shall be stored in compartments built to protect them. Respirators shall be packed or stored to prevent deformation of the facepiece or exhalation valve.

D. Repairs

1. The employer shall ensure that respirators that fail inspection are removed from service and repaired or adjusted. Repairs or adjustments to respirators are to be made only by personnel appropriately trained to perform such operations, using parts designed for the respirator. No repairs shall be performed that are outside the manufacturer's recommendations concerning the type and extent of repairs that can be performed.

XII. Filter and Cartridge Replacement

- A. Air-purifying respirators used for particulate control require filter or cartridge change out when air flow through the filter or cartridge(s) is restricted in such a manner as to increase breathing effort of person wearing respirator.
- B. Air-purifying respirators used for protection against chemical contamination must be replaced as necessary. Change schedules are based on type of contaminant, concentration of contaminant, temperature and humidity. Please contact the EHS Department for filter cartridge replacement guidelines.
- C. Filters and cartridges that are expired according to the manufacturer may not be used. For when to replace filters or cartridges, please refer to the manufacturer's guidelines or contact the EHS office.

XIII. Potential Immediately Dangerous to Life and Health (IDLH) Atmospheres

- A. University personnel are prohibited from entering an atmosphere that is suspected for being oxygen-deficient, oxygen-enriched, or has unknown or potentially IDLH concentrations of a hazardous chemical. Charlotte Fire Department personnel are equipped with SCBA or SAR equipment that will allow for safe entry into IDLH atmospheres if necessary. The following recognized conditions have the capability to present IDLH atmospheres on campus:
 1. The release of refrigerants from chiller units in various campus facilities can produce IDLH atmospheres. Mechanical rooms in various campus facilities are equipped with air conditioning chiller units that use refrigerants. If a large quantity of refrigerant is released from a chiller unit an IDLH atmosphere can be produced within the mechanical room due to oxygen displacement. Refrigerants are heavier than air and can settle out in low lying areas such as sumps and pits. Mechanical rooms with chiller equipment are equipped with refrigerant detection alarm devices to warn entrants of hazardous atmospheric conditions due to refrigerant release.

- a) University employees and contractors are not permitted to enter the mechanical rooms when the refrigerant alarm is sounding unless the unit is being tested or serviced and it is known that there is no refrigerant release or leak. Charlotte Fire Department personnel that are equipped with a SCBA or SAR may enter an oxygen deficient atmosphere if conditions require entry.
2. Manholes and other confined spaces can contain oxygen deficient or hazardous atmospheres, such as hydrogen sulfide and carbon monoxide, if not properly ventilated prior to entry. UNC Charlotte personnel and contractors are required to ventilate confined spaces prior to entry if atmospheric conditions are shown to be hazardous by a multi-gas meter or equivalent equipment. The confined space must be tested in a stratified method to show that the entire space has safe oxygen levels and is free from hazardous atmospheric constituents throughout its entirety. Confined space entry procedures must be followed to enter any permit required confined space.

XIV. Record Keeping

A. Respiratory Protection Program

1. The responsible supervisor who has an employee included in the Respiratory Protection Program must have access to the UNC Charlotte Respiratory Protection Program. The document is available on the EHS website and in hardcopy by request to the EHS office.

B. Medical Evaluation

1. Records of the medical evaluations required by this program must be retained and made available in accordance with OSHA 29 CFR 1910.1020. These records will be maintained by the EHS Office for the duration of the employee's employment with UNC Charlotte and for 30 years afterward.

C. Physician's Certification for Respirator Use

1. The only information the PLHCP may provide to the Program Administrator and the employee's responsible supervisor is a written recommendation regarding the employee's ability to use a respirator.
2. Responsible supervisors must obtain copy of the medical Certification for Respirator use and provide a copy to the Program Administrator prior to fit testing and training.

D. Fit Test and Training Records

1. A fit test and training record will be established of all qualitative and quantitative fit tests administered to an employee. EHS will send a copy of the fit test/training record with the employee, or through Campus Mail, to the employee's responsible supervisor. These records will be maintained for respirator users until the next fit test is administered.
2. Fit Test records will include the following information:
 - a) Name and identification number of the employee tested
 - b) Type of fit test performed
 - c) Specific make, model, style and size of respirator
 - d) Date of test
 - e) Pass/Fail results for qualitative fit tests or fit factor and a copy of the print-out for quantitative fit tests

APPENDICES

APPENDIX A – UNC Charlotte Respirator Medical Evaluation Questionnaire

The primary method the respirator medical evaluation questionnaire is completed is online through a 3rd party vendor, which is reviewed by a healthcare professional with the vendor.

The secondary method the respirator medical evaluation questionnaire is completed is physically completing a hardcopy of the questionnaire. This method may be used when employees are going to a 3rd party vendor for a physical evaluation, which the physical questionnaire should be taken to the on-site appointment.

To UNC Charlotte:

Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Can you read (circle one): YES / NO

UNC Charlotte must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, the questionnaire should be enclosed in a sealed envelope. EHS or supervisors must not look at or review questionnaire responses.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____
2. Your name: _____
4. Sex (circle one): Male/Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____
9. The best time to phone you at this number: _____
10. Has UNC Charlotte told you how to contact the health care professional who will review this questionnaire (circle one): YES / NO

11. Check the type of respirator you will use (you can check more than one category):

- a. _____ N95/99, R95/99 or P95/99 respirator (filtering facepiece, non-cartridge type only).
- b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one):

YES / NO

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

Part A. Section 2 (Mandatory)

Questions 1 through 9 must be answered by every employee who has been selected to use any type of respirator (Check “yes” or “no”).

	YES	NO
1. Do you currently smoke tobacco, or have you smoked tobacco in the past month?		
2. Have you ever had any of the following conditions?		
a. Seizures (fits)		
b. Diabetes (sugar disease)		
c. Allergic reactions that interfere with your breathing		
d. Claustrophobia (fear of closed-in places)		
e. Trouble smelling odors		
3. Have you ever had any of the following pulmonary or lung problems?		
a. Asbestosis		
b. Asthma		
c. Chronic Bronchitis		
d. Emphysema		
e. Pneumonia		
f. Tuberculosis		
g. Silicosis		
h. Pneumothorax (collapsed lung)		
i. Lung cancer		
j. Broken ribs		
k. Any chest injuries or surgeries		
l. Any other lung problem that you have been told about		
4. Do you currently have any of the following symptoms of pulmonary or lung illness?		
a. Shortness of breath		
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline		
c. Shortness of breath when walking with other people at an ordinary pace on level ground		
d. Have to stop for breath when walking at your own pace on level ground		
e. Shortness of breath when washing or dressing yourself		
f. Shortness of breath that interferes with you job		
g. Coughing that produces phlegm (thick sputum)		
h. Coughing that wakes you early in the morning		
i. Coughing that occurs mostly when you are lying down		
j. Coughing up blood in the last month		

	YES	NO
k. Wheezing		
l. Wheezing that interferes with you job		
m. Chest pain when you breathe deeply		
n. Any other symptoms that you think may be related to lung problems		
5. Have you ever had any of the following cardiovascular or heart problems?		
a. Heart attack		
b. Stoke		
c. Angina		
d. Heart Failure		
e. Swelling in your legs or feet (not caused by walking)		
f. Heart arrhythmia (heart beating irregularly)		
g. High blood pressure		
h. Any other heart problem that you have been told about		
6. Have you ever had any of the following cardiovascular or heart symptoms?		
a. Frequent pain or tightness in your chest		
b. Pain or tightness in your chest during physical activity		
c. Pain or tightness in your chest that interferes with your job		
d. In the past 2 years, have you noticed your heart skipping or missing a beat		
e. Heartburn or indigestion that is not related to eating		
f. Any other symptoms that you think may be related to heart or circulation problems		
7. Do you currently take medication for any of the following problems?		
a. Breathing or lung problems		
b. Heart trouble		
c. Blood pressure		
d. Seizures (fits)		
8. Have you used a respirator before? (If no skip to question 10)		
9. If you have used a respirator, have you ever had any of the following problems?		
a. Eye irritation		
b. Skin allergies or rashes		
c. Anxiety		
d. General weakness or fatigue		
e. Any other problem that interferes with your use of a respirator		

	YES	NO
10. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire		

Employee Signature: _____

Date: _____

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA).

For employees who have been selected to use other types of respirators such as N95 and N99 class respirators, answering questions 10 through 15 below is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently)? YES / NO
11. Do you currently have any of the following vision problems?
- a. Wear contact lenses: YES / NO
 - b. Wear glasses: YES / NO
 - c. Color blind: YES / NO
 - d. Any other eye or vision problem: YES / NO
12. Have you ever had an injury to your ears, including a broken ear drum? YES / NO
13. Do you currently have any of the following hearing problems?
- a. Difficulty hearing: YES / NO
 - b. Wear a hearing aid: YES / NO
 - c. Any other hearing or ear problem: YES / NO
14. Have you ever had a back injury? YES / NO
15. Do you currently have any of the following musculoskeletal problems?
- a. Weakness in any of your arms, hands, legs, or feet: YES / NO
 - b. Back pain: YES / NO
 - c. Difficulty fully moving your arms and legs: YES / NO
 - d. Pain or stiffness when you lean forward or backward at the waist: YES / NO
 - e. Difficulty fully moving your head up or down: YES / NO
 - f. Difficulty fully moving your head side to side: YES / NO
 - g. Difficulty bending at your knees: YES / NO
 - h. Difficulty squatting to the ground: YES / NO
 - i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: YES / NO
 - j. Any other muscle or skeletal problem that interferes with using a respirator: YES / NO

Part B (Optional)

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

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen? YES / NO

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions? YES / NO

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals? YES / NO

If "yes," name the chemicals if you know them: _____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below?

- | | |
|---|----------|
| a. Asbestos: | YES / NO |
| b. Silica (e.g., in sandblasting): | YES / NO |
| c. Tungsten/cobalt (e.g., grinding or welding this material): | YES / NO |
| d. Beryllium: | YES / NO |
| e. Aluminum: | YES / NO |
| f. Coal (for example, mining): | YES / NO |
| g. Iron: | YES / NO |
| h. Tin: | YES / NO |
| i. Dusty environments: | YES / NO |
| j. Any other hazardous exposures: | YES / NO |

If "YES," describe these exposures: _____

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

5. List your previous occupations: _____

6. List your current and previous hobbies: _____

7. Have you been in the military services? YES / NO

If "YES," were you exposed to biological or chemical agents (either in training or combat): YES / NO

8. Have you ever worked on a HAZMAT team? YES / NO

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): YES / NO

If "YES," name the medications if you know them: _____

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

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

12. During the period you are using the respirator(s), is your work effort:
- a. Light (less than 200 kcal per hour): YES / NO

If "yes," how long does this period last during the average shift:
_____ hrs. _____ mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

- b. Moderate (200 to 350 kcal per hour): YES / NO

If "yes," how long does this period last during the average shift:
_____ hrs. _____ mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring

a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. Heavy (above 350 kcal per hour): YES / NO

If "yes," how long does this period last during the average shift:
_____ hrs. _____ mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator? YES / NO

If "yes," describe this protective clothing and/or equipment: _____

14. Will you be working under hot conditions (temperature exceeding 77 deg. F)? YES / NO

15. Will you be working under humid conditions? YES / NO

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

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

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

Name of the first toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the second toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the third toxic substance: _____

Estimated maximum exposure level per shift: _____

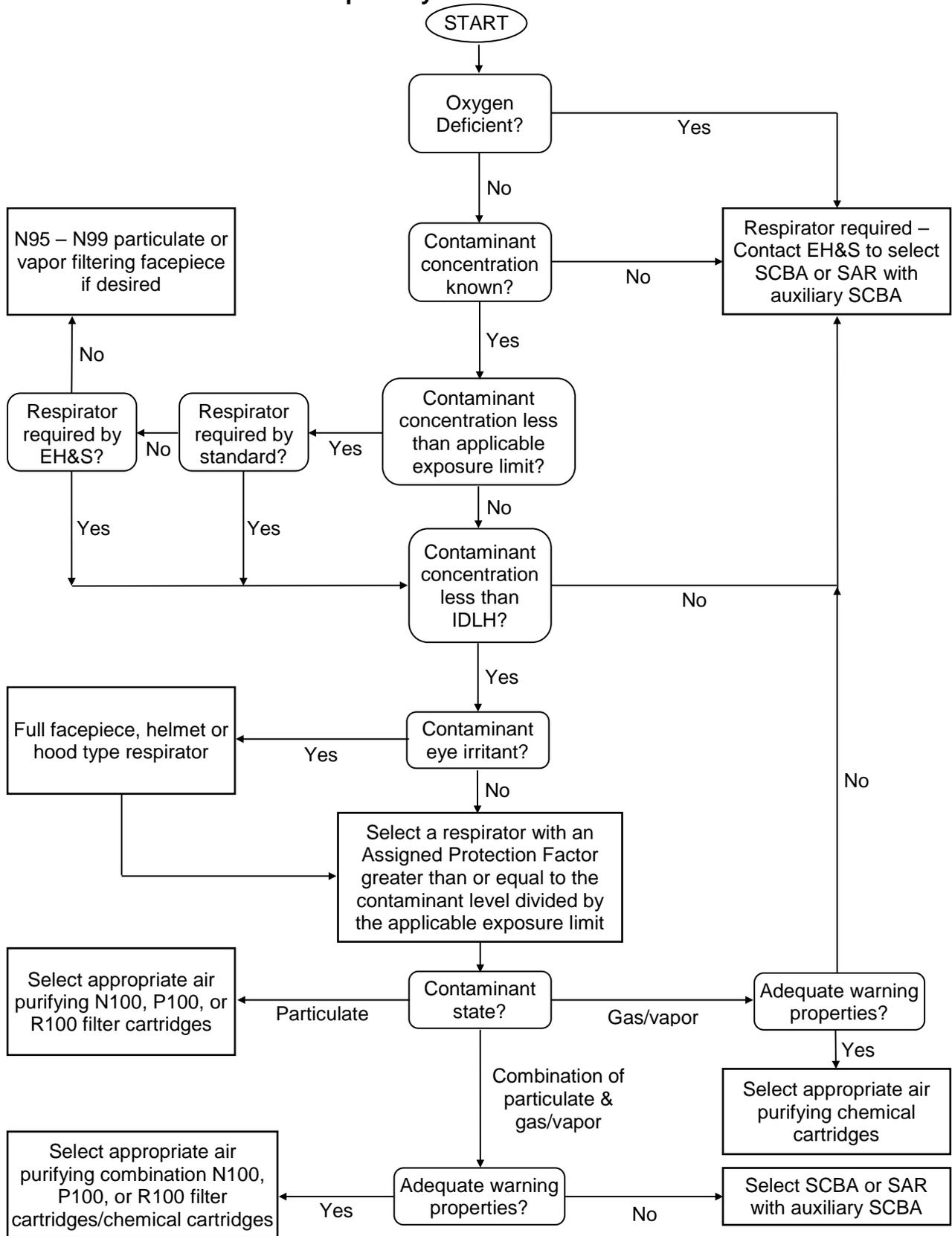
Duration of exposure per shift: _____

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

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

Source: Occupational Safety and Health Administration (2003). Respiratory Protection. *Occupational Safety and Health Standards for General Industry* [On-Line]. www.osha.gov

APPENDIX B – Respiratory Protection Selection Decision Tree



APPENDIX C – Fit Testing Procedures

Fit Testing Procedures -- General Requirements

The employer shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods, 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. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
 - (a) Position of the mask on the nose
 - (b) Room for eye protection
 - (c) Room to talk
 - (d) Position of mask on face and cheeks

7. The following criteria shall be used to help determine the adequacy of the respirator fit:
 - (a) Chin properly placed;
 - (b) Adequate strap tension, not overly tightened;
 - (c) Fit across nose bridge;
 - (d) Respirator of proper size to span distance from nose to chin;
 - (e) Tendency of respirator to slip;
 - (f) Self-observation in mirror to evaluate fit and respirator position.
8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.
9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.
10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.
11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.
12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.
13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

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

- (1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
- (2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- (3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
- (4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- (5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

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

- (6) Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
- (7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
- (8) Normal breathing. Same as exercise (1). (b) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

B. Qualitative Fit Test (QLFT) Protocols

1. General

- (a) The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
- (b) The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Bitrex™ (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol

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

(a) Taste Threshold Screening.

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

- (1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.
- (2) The test enclosure shall have a $\frac{3}{4}$ inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
- (3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his or her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a bitter taste
- (4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the Threshold Check Solution into the enclosure. This Nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

- (5) The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex™ to 100 ml of 5% salt (NaCl) solution in distilled water.
 - (6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.
 - (7) An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex™ can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
 - (8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex™ is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
 - (9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex™ is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
 - (10) The test conductor will take note of the number of squeezes required to solicit a taste response.
 - (11) If the Bitrex™ is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex™ and may not perform the Bitrex™ fit test.
 - (12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.
 - (13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
 - (14) The nebulizer shall be thoroughly rinsed in water, shaken to dry, and refilled at least each morning and afternoon or at least every four hours.
- (b) Bitrex™ Solution Aerosol Fit Test Procedure
- (1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
 - (2) The fit test uses the same enclosure as that described in 4. (a) above.

- (3) The test subject shall don the enclosure while wearing the respirator selected according to section I. A. of this appendix. The respirator shall be properly adjusted and equipped with any type particulate filter(s).
- (4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.
- (5) The fit test solution is prepared by adding 337.5 mg of Bitrex™ to 200 ml of a 5% salt (NaCl) solution in warm water.
- (6) As before, the test subject shall breathe through his or her slightly open mouth with tongue extended, and be instructed to report if he/she tastes the bitter taste of Bitrex™ .
- (7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of the fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test.
- (8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.
- (9) Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).
- (10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of Bitrex™ is detected. If the test subject does not report tasting the Bitrex™, the test is passed.
- (11) If the taste of Bitrex™ is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

C. Quantitative Fit Test (QNFT) Protocols

The following quantitative fit testing procedures have been demonstrated to be acceptable: Quantitative fit testing using a non-hazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; Quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; Quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

1. General

- (a) 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.
 - (b) 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.
2. Ambient aerosol condensation nuclei counter (CNC) PortaCount 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 prior to the conduct of the screening test.

(a) 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 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 the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; 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 appendix.
- (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.

(b) 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 Appendix.
- (3) A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

APPENDIX D – UNC Charlotte Filtering Facepiece Voluntary Use

Employees who wish to voluntarily wear a filtering facepiece respirator where they are not required to do so, must read this document, complete the information, and follow the guidelines set-forth in this document. The completed form is to be sent to EHS via interdepartmental mail, fax (704-687-5302), email (EHSoffice@uncc.edu), or physical delivery.

Filtering facepieces are the only type of respirator that an employee may voluntarily use. Air-purifying respirators, such as half-face and full-face, are tight-fitting and require medical evaluation, training and fit testing. Higher forms of respiratory protection devices require additional EHS approval.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. Sometimes, workers may wear filtering facepieces to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. Filtering facepieces provide no assistance when used in conditions that are oxygen deficient or are Immediately Dangerous to Life and Health (IDLH). If a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker.

Additionally, there is an added burden placed on the user's respiratory system because they are pulling the air through filter media, which collects the contaminants of concern while purifying the air. Users with reduced or weakened respiratory capacity should seek medical approval prior to voluntarily using a respirator.

When using a filtering facepiece, you should do the following:

1. Read and follow all instructions provided by the manufacturer on use, maintenance, cleaning, care, and warnings regarding the filtering facepiece's capabilities and limitations.
2. Choose a filtering facepiece that is certified to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) certifies respirators. A label or statement of NIOSH certification should appear on the filtering facepiece or its packaging.
3. Keep track of your respirator so that you do not use someone else's respirator by mistake.
4. Do not wear the filtering facepiece in areas with contaminants that it is not designed to protect against. For example, a filtering facepiece will not protect you against gases, vapors and the non-particulate components of fumes, mists, fogs, smoke and sprays.

By signing below, I acknowledge that I have read the above information and understand the requirements of voluntarily wearing a filtering facepiece.

Reason for using filtering facepiece (describe nature of work, specific location, type of dust)

Employee First Name (printed)

Employee Last Name (printed)

UNCC ID Number

Employee's Job Title

Department

Supervisor

Employee Signature

Signature Date