FEBRUARY 2025

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 user with breathing air from a source independent of the ambient atmosphere. This 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

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

UNC 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. Planning and recommending programs that adhere to all applicable federal, state and local laws and regulations pertaining to environmental health and safety.
2. Assisting supervisors with implementing environmental health and safety programs in their areas.
3. Curtailing or stopping work that poses a clear and imminent danger to the health or safety of the University community.
4. Periodically reviewing the program and updating it as needed to ensure compliance with all applicable federal and state regulations.

C. Departmental Management

Management is responsible for:

1. Planning and developing budget requests for departmental safety programs.
2. Developing safety procedures, work practices, and safe working areas for all those under their supervision.
3. Supporting safety and health as a model to those they supervise.
4. Supplying appropriate equipment and training.
5. Enforcing environmental health and safety regulations by invoking disciplinary action or administrative sanctions.

D. Employees

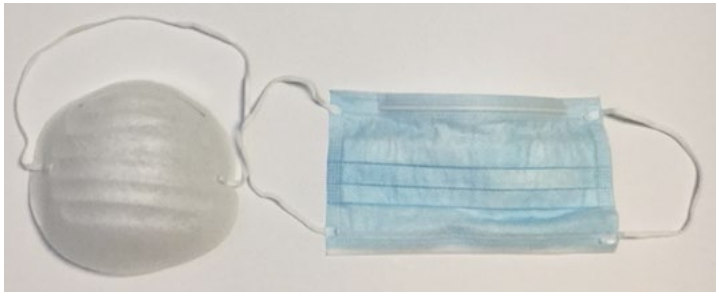
Every UNC Charlotte employee is responsible for conducting himself/herself in accordance with this program. All employees shall:

1. Adhere to all safety programs, procedures, and practices while performing his/her duties in a safe manner.
2. Notifying your immediate supervisor of unsafe working conditions, potential hazards and accidents as soon as possible.

V. Hazard Assessment and Respirator Selection

A. Hazard assessments will be conducted in cooperation with the Environmental Health and Safety Office and the department supervisor/manager to identify the need for and proper selection of respirators. The “Respiratory Protection Decision Tree” maybe used as part of the hazard assessment and selection process (see Appendix B-3). Consideration is given to comfort and fit of respirators as part of the selection process. Required respirators are provided; employees do not procure their own respirators.

1. Nuisance Masks are generally not “tight fitting” as they do not form a seal with the wearer’s face, and therefore, are not classified as respirators. These masks do not cause appreciable resistance to breathing, and therefore, do not require medical evaluation or fit testing prior to use.



2. Filtering Facepiece Respirators (Types N, P, or R are generally tight fitting, National Institute for Occupational Safety Health (NIOSH) approved, and have increased air flow resistance. These respirators remove particles from the inhaled airstream of the wearer and are usually discarded after use. They are divided into classes based on filtration capabilities. The classes include N (not resistant to oil), R (somewhat resistant to oil), and P (strongly resistant to oil), which are available at 95%, 99%, and 100% filtration efficiency levels. For this reason, employees who are required to wear tight fitting facepiece respirators must complete medical evaluation, fit testing and training.

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



4. Powered Air-Purifying Respirators (PAPR) respirators are positive pressure battery-powered devices that use a blower to pull air through attached filters (for particles) or cartridges for (gasses or vapors) to clean it before delivering it to the breathing zone of the wearer. A PAPR may have a tight-fitting half or full facepiece or a loose-fitting facepiece, hood, or helmet. The loose fitting PAPR does require medical evaluation and training; however, it does not require fit testing. However, the tight-fitting PAPR requires medical evaluation, fit testing and training.


5. Supplied Air Respirators (SAR) are divided into two types, Self-Contained Breathing Apparatus (SCBA) where the air tank is carried by the user, and the Air Line Respirator, where the air supply is some distance from the user and is supplied to the facepiece by an air-line hose. These respirators should only be worn after a medical evaluation, fit testing and training.

VI. Medical Evaluation

A. Prior to wearing a respirator in the workplace, the employee shall be provided a medical evaluation to determine the employee's ability to use a respirator. The EHS office should be contacted to ensure medical evaluations are administered confidentially, at no cost to the employee, during normal working hours, and in a manner that the employee understands.

B. UNC Charlotte has identified a PLHCP to perform medical evaluations using a medical questionnaire or an initial medical examination. UNC Charlotte has also provided the PLHCP with a copy of our Respiratory Protection program.

C. Employees authorized to participate 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.
5. Temperature and humidity extremes that may be encountered.

D. The attending PLHCP will review the respirator medical evaluation questionnaire. If the employee provides a positive answer to any question among questions 1 through 8 in Section Two of the Respiratory Medical Evaluation Questionnaire they will be scheduled for a medical examination.

E. The PLHCP will provide a written recommendation regarding the employee's ability to use a respirator. The written recommendation will include:

1. Any limitations on respirator use related to medical condition of employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator.
2. The need, if any, for follow-up medical evaluations.
3. A statement that the PLHC has provided the employee with a copy of the PLHCP's written recommendation.

F. If the respirator is negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, UNC Charlotte will provide a loose-fitting PAPR or alternative safety measure if the PLHCP's medical evaluation finds that the employee can use such a respirator. If a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then UNC Charlotte will no longer provide a loose-fitting PAPR.

G. 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. Information from the respiratory protection program, including observations are made during fit testing and/or program evaluations that indicates a need for employee reevaluation.
4. A change occurs in the workplace conditions that may result in a substantial increase in the physiological burden placed on the employee.

VII. Respirator 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. Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting facepiece (Appendix B-1), the employee must be fit tested with the same make, model, style, and size of respirator that will be used.

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 A) using isoamyl acetate (banana oil), saccharin solution, denatonium benzoate (Bitrex™), or stannic chloride (irritant smoke). After a successful fit test, EHS shall notify the employee.

D. Fit testing must be repeated annually. 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 facepiece seal.
3. Dental changes, such as the removal of multiple teeth or the fitting of dentures.
4. Reconstructive or cosmetic surgery.

VIII. Training

A. A qualified EHS representative or a qualified designee shall instruct each employee prior to their first respirator use and annually thereafter. The training shall include:

1. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the effectiveness of the respirator.
2. What the limitations and capabilities of the respirators are.
3. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
4. Instruction in procedures for inspection, donning and removal, checking the fit and seals, and in the wearing of the respirator.
5. Explanation of the procedures for maintenance and storage of the respirator.
6. Instruction on how to deal with emergency situations involving the use of respirators or with respirator malfunctions.
7. The respiratory protection program general requirements.

B. Retraining shall be administered annually and when the following situations occur:

1. Changes in the workplace or the type of respirator invalidates previous training
2. Inadequacies in the employee knowledge of respirators

3. Any situation arising in which retraining appears necessary to ensure safe respirator use.

IX. 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 your supervisor 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 facepiece seal.
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-to-face piece seal is not broken.

C. If any problems occur (i.e., respirator malfunction, fatigue, anxiety, contaminant breakthrough, increased effort needed to breathe), the employee should immediately exit the area, remove the respirator, and notify their supervisor.

D. Air-Purifying Half-Face, Air-Purifying Full-Face and 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.
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-to-facepiece 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.

E. Voluntary Use of Respirators

1. Voluntary use of filtering facepiece respirators is allowed after submission of the voluntary usage form (see Appendix D) to EHS. In general, employees may be provided with filtering facepiece respirators to use in areas that have been determined to be non-hazardous.
2. Voluntary usage of an air-purifying half-face, air purifying full-face and/or other high protection level respiratory personal protective equipment (PPE) is not allowed. Employees must complete the medical evaluation, fit testing, and training before usage.
3. Voluntarily used respirators must be properly cleaned, stored and maintained, so as not to pose a hazard to the user.

X. Breathing Air Quality and Use

UNC Charlotte does not allow employees to use atmosphere-supplying respirators (supplied-air or SCBA).

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 employee to whom the respirator is assigned. All respirators used in routine situations shall be inspected before each use and during cleaning Appendix B-2). All respirators maintained for use in emergency situations shall be inspected at least monthly and for proper function before and after each use. Emergency escape-only respirators shall be inspected before being carried into the workplace for use. All SCBA shall be inspected monthly. Respirators shall be inspected in accordance with the manufacturer's guidelines at a minimum including the following:

    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.
    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. Cleaning procedures can be found in Appendix B-2. 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.
d. Respirators used in fit-testing and training shall be cleaned and disinfected after each use.

2. Respirators will be cleaned following 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.

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. Respirators that fail inspection are required to be 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. Alternatively, the respirator could be replaced.

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.

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.

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

UNC Charlotte 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 atmosphere-supplying respirators that will allow for safe entry into IDLH atmospheres if necessary.

XIV. Program Review

EHS will conduct program reviews to ensure the written program is being implemented properly. The review will include consultation with employees to determine program effectiveness and to identify any problems.

XV. 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 EHS.

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. Access to 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. 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. 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

3. A written copy of the current respiratory protection program will be retained.

Appendices

Appendix A Fit Testing Procedures

A. Fit Testing Procedures – General Requirements

EHS or a qualified designee 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 as 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.

6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the respirator several times and to adjust the straps each time to become adept at setting proper tension on the straps.

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

    a. Position of the mask on the nose
    b. Room for eye protection
    c. Room to talk
    d. Position of mask on face and cheeks

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

    a. Chin properly placed;
    b. Adequate strap tension, not overly tightened;
    c. Fit across nose bridge;
    d. Respirator of proper size to span distance from nose to chin;
    e. Tendency of respirator to slip;
    f. Self-observation in mirror to evaluate fit and respirator position.

9. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks or those recommended by the respirator manufacturer (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.

10. 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.

11. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a PLHCP, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.

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

13. 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.

14. 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.

15. Test Exercises. 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:

a. Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
b. Deep breathing. In a normal standing position, the test subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
c. Turning head side to side. Standing in place, the test 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.
d. Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The test subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
e. Talking. The test 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.

f. Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
g. 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.
h. Normal breathing. Same as exercise (A)(1).

1) 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. UNC Charlotte or qualified designee 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. UNC Charlotte 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.

3. 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™.

    a. During threshold screening as well as during fit testing, test 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.
    b. The test enclosure shall have a 3/4-inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
    c. 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 test subject is instructed to report when he/she detects a bitter taste.
    d. 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.

e. The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex™ to 100 ml of 5% salt (NaCl) solution in distilled water.
f. 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.
g. 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.
h. 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.
i. 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.
j. The test conductor will take note of the number of squeezes required to solicit a taste response.
k. 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.
l. If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.
m. Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
n. 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.

4. Bitrex™ Solution Aerosol Fit Test Procedure

a. The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
b. The fit test enclosure shall have a ¾ inch (1.9 cm) hole in front of the test subject’s nose and mouth area to accommodate the nebulizer nozzle.

c. The test subject shall don the enclosure while wearing the respirator selected. The respirator shall be properly adjusted and equipped with any type particulate filter(s).
d. 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.
e. 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.
f. 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™.
g. 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.
h. After generating the aerosol, the test subject shall be instructed to perform the test exercises.
i. Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).
j. 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.
k. 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

1. General

a. The following quantitative fit testing procedures have been demonstrated to be acceptable when using:

1) 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;
2) Ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit;
3) Controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

b. UNC Charlotte or qualified designee 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.
c. UNC Charlotte or qualified designee 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-face air-purifying respirator and a minimum fit factor pass level of at least 500 is required for a full-facepiece negative pressure air-purifying 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 test subject 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. The 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:

i. Chin properly placed;
ii. Adequate strap tension, not overly tightened;

iii. Fit across nose bridge;
iv. Respirator of proper size to span distance from nose to chin;
v. Tendency of the respirator to slip;
vi. Self-observation in a mirror to evaluate fit and respirator position.

4) Have the person wearing the respirator do a user seal check (Appendix B-1). 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 listed in the fit testing procedures.
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.

Modified Ambient Aerosol Condensation Nuclei Counter (CNC) Quantitative Testing Protocol for Full-Facepiece and Halk-Mask Elastomeric Respirators

Table A-1 - Modified Ambient Aerosal CNC Quantitative Fit Testing Protocol for Full Facepiece and Half-Mask Elastomeric Respirators

Exercises[1]	Exercise procedure	Measurement procedure
Bending Over	The test subject shall bend at the waist, as if going to touch his/her toes for 50 seconds and inhale 2 times at the bottom[2]	A 20 second ambient sample, followed by a 30 second mask sample.
Jogging-in-Place	The test subject shall jog in place comfortably for 30 seconds	A 30 second mask sample.
Head Side-to-Side	The test subject shall stand in place, slowly turning his/her head from side to side for 30 seconds and inhale 2 times at each extreme[2]	A 30 second mask sample.
Head Up-and-Down	The test subject shall stand in place, slowly moving his/her head up and down for 39 seconds and inhale 2 times at each extreme[2]	A 30 second mask sample followed by a 9 second ambient sample.

Modified Ambient Aerosol Condensation Nuclei Counter (CNC) Quantitative Fit Testing Protocol for Filtering Facepiece Respirators

Table A-2 - Modified Ambient Aerosal CNC Quantitative Fit Testing Protocol for Filtering Facepiece Respirators

Exercises[1]	Exercise procedure	Measurement procedure
Bending Over	The test subject shall bend at the waist, as if going to touch his/her toes for 50 seconds and inhale 2 times at the bottom[2]	A 20 second ambient sample, followed by a 30 second mask sample.
Talking	The test subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor for 30 seconds. He/she will either read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song	A 30 second mask sample.
Head Side-to-Side	The test subject shall stand in place, slowly turning his/her head from side to side for 30 seconds and inhale 2 times at each extreme[2]	A 30 second mask sample.
Head Up-and-Down	The test subject shall stand in place, slowly moving his/her head up and down for 39 seconds and inhale 2 times at each extreme[2]	A 30 second mask sample followed by a 9 second ambient sample.

Appendix B-1 UNC Charlotte User Seal Check Procedures (Mandatory)

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

A. Facepiece Positive and/or Negative Pressure Checks

1. Positive pressure check

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

2. Negative pressure check

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

B. Manufacturer's Recommended User Seal Check Procedures

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

Appendix B-2 Respirator Cleaning Procedures (Mandatory)

These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in appendix B-2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

Procedures for Cleaning Respirators

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

C. Rinse components thoroughly in clean, warm (43 °C [110 °F] maximum), preferably running water. 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); or

    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 iodide/100 cc of 45% alcohol) to one liter of water at 43 °C (110 °F); or

    3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

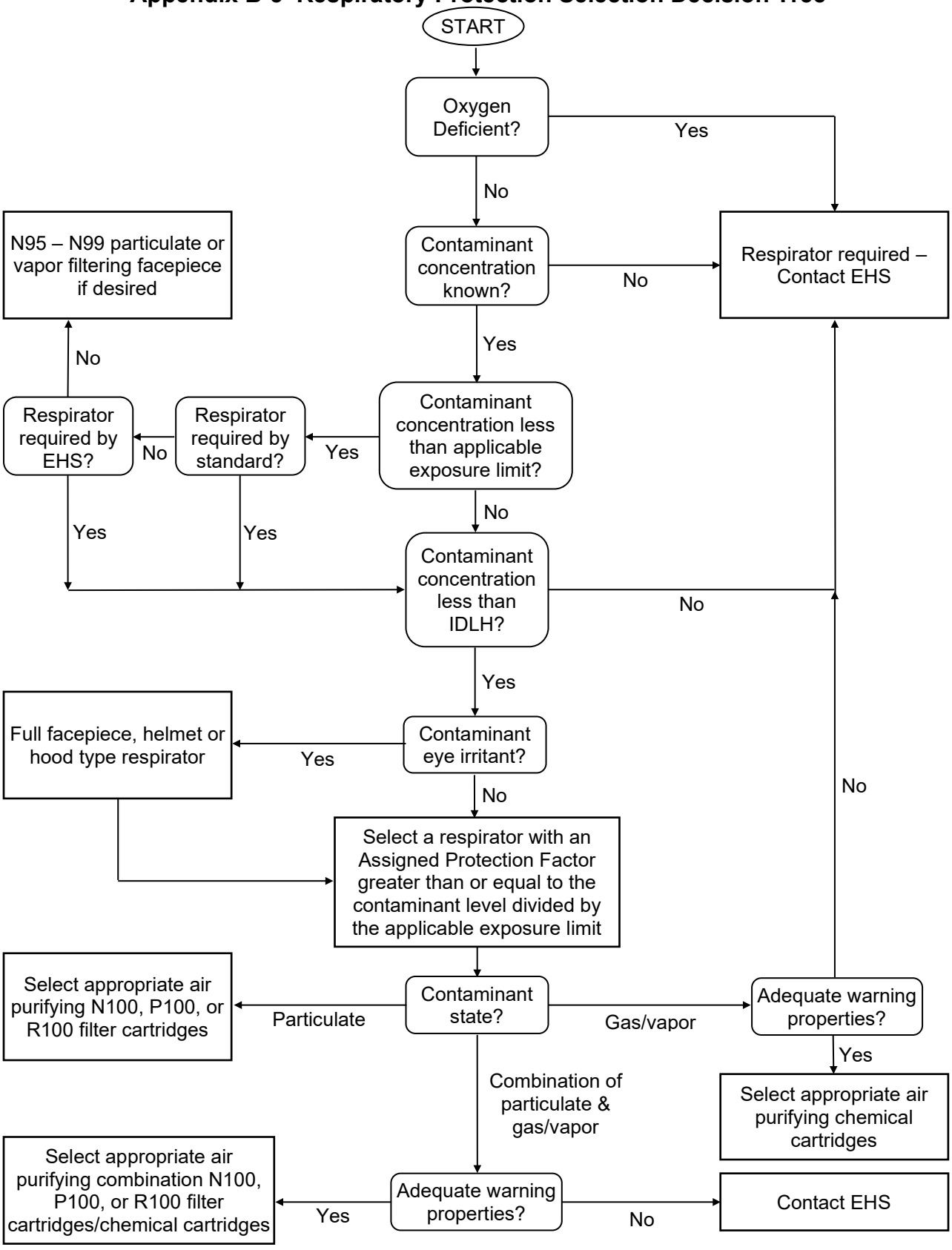
E. Rinse components thoroughly in clean, warm (43 °C [110 °F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of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

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.

Appendix B-3 Respiratory Protection Selection Decision Tree



Appendix C UNC Charlotte Respirator Medical Evaluation Questionnaire

The primary method the respirator medical evaluation questionnaire is completed is online through a third-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 third-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 while using it?		
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 <u>full-facepiece respirator or a self-contained breathing apparatus (SCBA)</u>.

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 <u>voluntary</u>.

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°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 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