Respirator Protection Program

Purpose & Scope

The purpose of the Respiratory Protection Program is to protect employees against harmful dusts, fogs, fumes, mist, gases smoke, sprays, bio-aerosols, vapors and airborne organisms using engineering controls, administrative controls, and/or personal protective equipment (PPE). This program **ONLY** covers elastomeric half & full facepiece respirators (APR), filtering facepiece respirators (N95) and powered air-purifying respirators (PAPR). It does **NOT** cover supplied-air respirators (SAR), self-contained breathing apparatus (SCBA), and combination respirators. See section titled "Types of Respiratory Protection" for examples. In addition, FSU employees are prohibited from entering or working in areas where there is or potentially is an immediately dangerous to life or health (IDLH) atmosphere. This program applies to specific faculty and staff that encounter or potentially encounter respiratory hazards.

Program Statement

It is a best practice of Fayetteville State University that exposure to hazardous chemicals be controlled through engineered design when feasible. When adequate protection can be achieved only using respiratory equipment, such equipment shall be properly selected, used, and maintained.

Each site shall follow a respirator program which ensures that:

- A list of tasks for which respirators are required is developed, specifying the specific type of respirators to be used.
- Consultation is made with the EHS Officer / Professional to ensure proper selection of respirators.
- Employees are annually trained in the proper use of respirators.
- Each employee undergoes a health evaluation before wearing a respirator.
- Fit testing is performed annually or when changes are identified.
- No impediment (e.g. facial hair) is permitted to interfere with proper respirator fit.

This program is intended to ensure that respiratory protection equipment and procedures are uniform and effective for all Fayetteville State University sites.

Definitions

Air Purifying Respirator – A type of respirator with an air-purifying filter, cartridge or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

- Negative Pressure Respirators – A respirator that fits tightly to the face, where ambient air is drawn through the air purifying element by the pressure of the inhalation of the wearer, creating a lower air pressure inside the face piece then the outside air.

- Positive Pressure Air Purifying Respirator (PAPR) – A respirator where ambient air is drawn through the air purifying element by a motor or similar device and pumped into the face piece, creating a greater air pressure inside the face piece than the outside air.

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

Exposure – The potential or actual exposure to a concentration of an airborne contaminant/pathogen that would occur if the employee is not wearing respiratory protection.

Filter – A component used in respirators to remove solid or liquid aerosol from inspired air.

Filtering Face Piece – A negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.

Fit Test: A protocol to qualitatively evaluate the fit of a tight-fitting respirator on an individual.

High Efficiency Particulate Air (HEPA) Filter – A filter that is at least 99.97% effective in removing monodisperse particles of 0.3 microns in diameter and is NIOSH approved less than 42 CFR Part 84.

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

Immediately Dangerous to Life and 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 the environment. For the purposes of this policy, potential oxygen deficient atmospheres are IDLH.

Loose Fitting Face Piece – A respiratory inlet covering that is designed to form a partial seal with the face.

N-95 – The N95-level respirator is a 95% particulate respirator. It is used for solid and non-oil-based particles. Applications include grinding, sanding, bagging, and general processing of various minerals and other substances that do not contain oil or vapors.

Particulates – Air contaminants which are in solid or liquid states, such as dusts, fumes, mists, or fibers.

Parts Per Million (PPM) - A measurement of the parts of an air contaminant per million parts of air.

Permissible Exposure Limit (PEL) – The maximum concentration of an air contaminant to which a worker is allowed to be exposed, in accordance with the stated exposure limits in 29 CFR Part 1910 Subpart Z.

Physician or Other Licensed Health Care Professional (PLHCP) – An individual who's legally permitted scope of practice to provide some or all the health care services required for medical clearance in compliance with the OSHA respiratory protection standard.

Respirator Inlet Covering – That portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a face piece, helmet, hood, suit, or mouthpiece respirator with hose clamp.

Threshold limit value (TLV) – The value of a chemical substance is a level to which it is believed a worker can be exposed day after day for a working lifetime without adverse health effects.

Tight Fitting Face Piece – A respiratory inlet covering that forms a complete seal with the face.

User Seal Check – An action conducted by the respirator user to determine if the respirator is properly seated to the face.

Roles & Responsibilities

EHS Officer/Professional is responsible for the following:

- Monitor compliance for this program.
- Provide training for affected employees.
- Provide respirator fit testing or schedule it with an outside certified contractor.
- Evaluate the effectiveness of the program.
- Review fit test and medical evaluation records.
- Notify affected FSU faculty and staff whenever a new procedure/policy change is introduced and provide additional training on the equipment. Initial training is done during the issuance of equipment to staff and is renewed by affected staff each year.
- Identifying task/environment requiring the use of a respirator including but not limited to the following:
  1 Prepare and maintain a list of all areas, jobs, or job tasks for which respirators are required.
  2 Airborne Precautions.
  3 Concentrations of air contaminants may be at or greater than the Permissible Exposure Limits established by 29 CFR 1910 Subpart Z.
  4 Oxygen content of less than 19.5% or greater than 23.5%.
- See that the following is complete and maintain documentation
  1 Medical Surveillance.
  The screening will be done by a medical questionnaire (Attachment 4) to screen for pertinent medical conditions. The Employee Health Physician will review for approval of respirator use. Screening results will be used to identify workers who need more extensive evaluation, which will be ordered as indicated by the reviewing physician.
  2 Competency validation.
  3 Provide a copy of the standard to include attachment 5

Manager/Supervisor is responsible for the following:

- Ensures that designated employees complete required training prior to wearing a respirator.
- Notifies the EHS Officer / Professional when new hazards are introduced that may impact respiratory protection requirements.
- Provide appropriate respirators (shall be labeled as approved by NIOSH) and filtering media for task that require the use of a respirator.

Employees are responsible for the following:

- Comply with department or site-specific policies on respirator use.
- No employee shall don or use a respirator of any kind for the performance of job duties unless all the requirements of the appropriate respirator program have been met.
- Participate in medical clearance procedures, training sessions, tests for competency validation, and fit tests.
- Perform a seal check prior respirator use (See attachment 2)
- Inspect their reusable respirators before each use, and clean and disinfect after each use according to procedures for reusable respirators. (See attachment 3)
- Ensure that respirators are not being worn when there is a physical impediment to continuous contact between the sealing surface of the respirator and the wearer's face. Such impediments may be temple pieces on glasses, absence of dentures, a skull cap that projects under the face piece or other as specified in OSHA Standard 1910.134.
- Respirators will be used, maintained, cleaned, and stored away from contamination in a clean, sanitary place; and on a flat surface in a sealed container. Avoid extreme temperatures. Do not hang respirator by its straps and disinfect it in accordance with manufacturer's recommendations if reusable. (See attachment 3)
- Be clean shaven at all times when the respirator is worn. (Unless the respirator is a powered positive pressure air purifying or air supplying respirator with no tight-fitting facial seal.)
- Avoid any inhalation hazard, which includes exposure to oxygen deficient atmospheres as well as exposure to air contaminants in concentrations exceeding OSHA permissible exposure limits (PEL) or threshold limit values (TLV).
- Report any significant changes or problems to their supervisor.
- Not reuse a contaminated N95 respirator and dispose of it properly.

Contractors are responsible for the following:

- All contractors hired at FSU shall have their own written Respiratory Protection Program that fulfills all regulatory requirements or follows the guidance in this program.

Implementation

Program Administrator

The EHS Officer / Professional will be designated as the program administrator who is qualified by appropriate training or experience that is proportionate with the complexity of the program to oversee and conduct the required evaluations of program effectiveness.

Voluntary Use

If an employee wants to wear a respirator, they must:

- Obtain permission from the EHS Officer / Professional.

- Read and follow the information contained in this program.

- Read and sign Attachment 5 for voluntary use.
- Inspect the respirator before each use.
- Report any significant changes or problems to the supervisor.

The employee must do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning, care, and warnings regarding the reusable respirator's limitations.
- A label of statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label of statement of certification should appear on the respirator or respirator packaging. It will tell the user what the respirator is designed for and how much it will protect the user.

Do not wear the respirator into atmospheres containing contaminants for which the respirator is not designed, for example, a respirator designed to filter dust particles will not protect the employee against gases, vapors, or very small solid particles of fumes or smoke.

Program Evaluation

Program evaluation will be conducted to ensure compliance and contain at a minimum the following elements:

- Respiratory fit (including the ability to use the respirator without interfering with effective workplace performance)
- Appropriate respirator selection for the hazards to which the employee is exposed
- Proper respirator use under the workplace conditions the employee encounters
- Proper respirator maintenance

Basic Respiratory Protection Safety Procedures

- Only authorized and trained employees may use respirators. Those employees may use only the respirator that they have been trained on and properly fitted to use.
- Only physically qualified employees may be trained and authorized to use respirators. A pre-authorization and annual certification by a qualified physician will be required and maintained. Any changes in an employee's health or physical characteristics will be reported to the EHS Officer / Professional and will be evaluated by a qualified physician.

- Only the proper prescribed respirator or SCBA may be used for the job or work environment. Air-purifying respirators may be worn in work environments when oxygen levels are 19.5 percent to 23.5 percent and when the appropriate cartridge, (as determined by the manufacturer and approved by NIOSH), for the known hazardous substance is used.

- Employees working in environments where a sudden release of a hazardous substance is likely will wear an appropriate respirator for that hazardous substance.

- All employees are required to perform a seal check to ensure the respirator is functioning properly prior entering the contaminated space.

- All respirators will be located in a clean, convenient, and sanitary location. (See attachment 3)

- Management will establish and maintain surveillance of jobs and work place conditions and degree of employee exposure or stress to maintain the proper procedures and to provide the necessary respiratory protection equipment (RPE).

- Management will establish and maintain safe operating procedures for the safe use of RPE with strict enforcement and disciplinary action for failure to follow all general and specific safety rules.

TYPES OF RESPIRATORY PROTECTION

Elastomeric Half Facepiece Respirators are reusable and have replaceable cartridges or filters. They cover the nose and mouth and provide protection against gases, vapors, or particles when equipped with the appropriate cartridge or filter.

Elastomeric Full Facepiece Respirators are reusable and have replaceable canisters, cartridges, or filters. The facepiece covers the face and eyes, which offers eye protection.

Filtering Facepiece Respirators are disposable half facepiece respirators that filter out particles such as dusts, mists, and fumes. They do NOT provide protection against gases and vapors.

Powered Air-Purifying Respirators (PAPRs) have a battery-powered blower that pulls air through attached filters, canisters, or cartridges. They provide protection against gases, vapors, or particles, when equipped with the appropriate cartridge, canister, or filter. Loose-fitting PAPRs do not require fit testing and can be used with facial hair.

Supplied-Air Respirators are connected to a separate source that supplies clean, compressed air through a hose. They can be lightweight and used while working for long hours in environments not immediately dangerous to life and health (IDLH).

Self-Contained Breathing Apparatus (SCBAs) are used for entry into or escape from environments considered to be IDLH. They contain their own breathing air supply and can be either open circuit or closed circuit.

Combination Respirators can be either a supplied-air/SCBA respirator or supplied-air/air-purifying respirator. The SCBA type has a self-contained air supply if primary airline fails and can be used in IDLH environments. The air-purifying type offers protection using both a supplied-air hose & an air-purifying component and cannot be used for entry into IDLH environments.

CDC NIOSH
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

September 2019

Selection of Respirators

Fayetteville State University has evaluated the respiratory hazard(s) in each workplace, identified relevant workplace and user factors and has based respirator selection on these factors. Also included are estimates of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. All selected respirators are NIOSH certified.

*At the moment, no workplace respiratory hazards have been identified. When they are, industrial hygiene sampling will take place and results posted here.

Filter Classifications – These classifications are marked on the filter or filter package

N-Series: Not Oil Resistant

- Approved for non-oil particulate contaminants
- Examples: dust, fumes, mists not containing oil

R-Series: Oil Resistant

- Approved for all particulate contaminants, including those containing oil
- Examples: dusts, mists, fumes
- Time restriction of 8 hours when oils are present

P-Series: Oil Proof

- Approved for all particulate contaminants including those containing oil
- Examples: dust, fumes, mists
- See Manufacturer's time use restrictions on packaging

Respirators for IDLH atmospheres

Employees are not authorized to work in IDLH atmospheres.

Respirators for atmospheres that are not IDLH

- The respirators selected shall be adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements. The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

Identification of Filters & Cartridges

All filters and cartridges shall be labeled, and color coded with the NIOSH approval label. The user shall ensure that the label is not removed and remains legible.

Respirator Filter & Canister Replacement

An important part of the Respiratory Protection Program includes identifying the useful life of cartridges and filters used on air-purifying respirators. Each filter and cartridge shall be equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or

If there is no ESLI appropriate for the conditions, a change schedule for canisters and cartridges based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life shall be implemented.

Filter & Cartridge Change Schedule

Stock of spare filters and cartridges shall be maintained to allow immediate change when required or desired by the employee.

Cartridges and filters shall be changed based on the most limiting factor below:

- Prior to expiration date
- Manufactures recommendations for the specific use and environment
- After each use (CARTRIDGE ONLY)
- When requested by employee
- When contaminant odor is detected
- When restriction to air flow has occurred as evidence by increase effort by user to breathe normally
- When discoloring of the filter media is evident (FILTER ONLY)

Cartridges and filters shall remain in their original sealed packages until needed for immediate use.

Respiratory Protection Schedule by Job and Working Condition

The university maintains a Respiratory Protection Schedule by job and working condition. This schedule is provided to each authorized and trained employee. The schedule provides the following information:

- Job/Working Conditions
- Work Location
- Hazards Present

- Type of Respirator
- Type of Filter/Canister Required
- Location of Respirator
- Filter/Cartridge change out schedule

The schedule will be reviewed and updated at least annually and whenever any changes are made in the work environments, machinery, equipment, or processes or if different respirator models are introduced or existing models are removed.

***At the moment, no workplace respiratory hazards have been identified. When they are, the Respiratory Protection Schedule will be posted here.**

Permanent respirator schedule assignments are:

Each person who engages in welding will have their own university provided dust-mist-fume filter APR. This respirator will be worn during all welding operations.

Physical and Medical Qualifications

Records of medical evaluations must be retained and made available in accordance with 29 CFR 1910.1020.

Medical Evaluation Required

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. The university provides a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

Medical Evaluation Procedures

The employee will be provided a medical questionnaire (Attachment 4) by the EHS Officer / Professional

Follow-up Medical Examination

The company shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions in Part B of the questionnaire or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the Physician deems necessary to make a final determination.

Administration of the Medical Questionnaire and Examinations

The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be

administered in a manner that ensures that the employee understands its content. The company shall provide the employee an opportunity to discuss the questionnaire and examination results with the Physician.

Supplemental Information for the Physician

The following information must be provided to the Physician before they make a recommendation concerning an employee's ability to use a respirator.

- The type and weight of the respirator to be used by the employee
- The duration and frequency of respirator use
- The expected physical work effort
- Additional protective clothing and equipment to be worn
- Temperature and humidity extremes that may be encountered
- Any supplemental information provided previously to the Physician regarding an employee need not be provided for a subsequent medical evaluation if the information and the Physician remain the same.

The university will provide the contracted Physician with a copy of the written respiratory protection program and a copy of the OSHA Standard 29 CFR 1910.134.

Medical Determination

In determining the employee's ability to use a respirator, FSU shall obtain a written recommendation regarding the employee's ability to use the respirator from the Physician. The recommendation shall provide only the following information:

- Any limitations on respirator use related to the medical condition of the 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
- The need, if any, for follow-up medical evaluations
- A statement that the Physician has provided the employee with a copy of the physician's written recommendation
- If the respirator is a negative pressure respirator and the Physician finds a medical condition that may place the employee's health at increased risk if the respirator is used, FSU shall provide an APR if the Physician'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 FSU is no longer required to provide an APR.

Additional Medical Evaluations

At a minimum, FSU shall provide additional medical evaluations that comply with the requirements of this section if:

- An employee reports medical signs or symptoms that are related to the ability to use a respirator
- A physician, supervisor, or the EHS Officer / Professional informs FSU that an employee needs to be reevaluated.
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation.
- A change occurs in workplace conditions (physical work effort, protective clothing, temperature, etc.) that may result in a substantial increase in the physiological burden placed on an employee.

Respirator Fit Testing

- The EHS Officer / Professional will be responsible for completing the "Fit Testing" initially, and annually or sooner if the employee has a significant change in weight or any change in facial structure. The qualitative fit testing method will be used by the department.
- An employee may be required to use any respirator with a negative or positive pressure tight-fitting face piece; the employee must be fit tested with the same make, model, style, and size of respirator that will be used.
- An employee using a tight-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.
- Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function must be removed.

Fit testing documentation (See attachment 1) will include:

- The name or identification of the employee tested.
- Type of fit test performed.
- Specific make, model, style and size of respirator tested.
- Date of test.
- Pass or fail results of fit test.

Fit testing is to include:

- Show the employee the proper way to don a respirator, proper positioning, strap tension and determining if there is an acceptable fit.

- When assessing comfort, ask about:
  1. Position on the nose
  2. Room for eye protection (have them put on eye protection if applicable)
  3. Room to talk
  4. Position on face and cheeks

- Determining adequacy of respirator fit by checking:
  1. Chin placement
  2. Strap tension
  3. Fit across nose and face
  4. Size of the respirator – goes from nose to chin
     Have employee move head up and down and side to side while taking slow, deep breaths in order to seat the mask on face. Employee conducts a user seal check in accordance with manufacturer's recommendations.

- Fit testing exercises
  1. Normal breathing – one minute
  2. Deep breathing – one minute (slow deep breaths in order not to hyperventilate)
  3. Turn head from side to side – inhale at each side – one minute
  4. Move head up and down – inhale in the up position – one minute
  5. Talk – one minute
  6. Bend over – at waist, pretend touching toes, or jogging in place – one minute
  7. Normal breathing – one minute

Respirator Operations and Use

Respirators will only be used following the respiratory protection safety procedures established in this program. The operations and use manuals for each type of respirator will be maintained by the EHS Officer / Professional and be available to all qualified users.

Surveillance by the direct supervisor shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, FSU shall reevaluate the continued effectiveness of the respirator.

For continued protection of respirator users, the following general use rules apply:

- Users shall not remove respirators while in a hazardous environment

- Respirators are to be stored in sealed containers out of harmful atmospheres

- Store respirators away from heat and moisture

- Store respirators such that the sealing area does not become distorted or warped

- Store respirators such that the face piece is protected

Face Piece Seal Protection

FSU does not permit respirators with tight-fitting face pieces to be worn by employees who have:

- Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function

- Any condition that interferes with the face-to-face piece seal or valve function

If an employee wears corrective glasses or goggles or other personal protective equipment, FSU shall ensure that such equipment is worn in a manner that does not interfere with the seal of the face piece to the face of the user.

Continuing Effectiveness of Respirators

FSU shall ensure that employees leave the respirator use area:

- To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use

- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece

- To replace the respirator or the filter, cartridge, or canister elements

Cleaning and Disinfecting

FSU shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. FSU shall ensure that respirators are cleaned and disinfected in accordance with attachment 3.

The respirators shall be cleaned and disinfected when:

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

- Respirators used in fit testing and training shall be cleaned and disinfected after each use

Cleaning and storage of respirators assigned to specific employees is the responsibility of the employee.

Respirator Inspection

All respirators/SCBAs, both available for “General Use” and those on “Permanent Check-out”, will be inspected after each use and at least monthly. Should any defects be noted, the respirator/SCBA will be taken to the EHS Officer / Professional. Damaged respirators will be repaired or replaced.

Respirators shall be inspected as follows:

- All respirators used in routine situations shall be inspected before each use and during cleaning

Respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters, or filters

- Check elastomeric parts for pliability and signs of deterioration

Respirator Storage

Respirators are to be stored as follows:

- All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the face piece and exhalation valve.

Repair of Respirators

Respirators that fail an inspection or are otherwise found to be defective will be removed from service to be discarded, repaired, or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator

- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed

Information & Training

To ensure the proper and safe use of an air-purifying respirator, training for each wearer will be conducted initially and annually and will include the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator

- Limitations and capabilities of the respirator

- How to inspect, put on and remove, use, and check the seals of the respirator

- What the procedures are for maintenance and storage of the respirator

- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators

- The general requirements of this program

Retraining shall be conducted annually and when:

- Changes in the workplace or the type of respirator render previous training obsolete
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill
- Other situation arises in which retraining appears necessary to ensure safe respirator use

Training will be conducted by the EHS Officer / Professional or outside contractor who has adequate knowledge of OSHA requirements. Training is divided into the following sections:

Classroom Instruction

- Overview of FSU's Respiratory Protection Program & OSHA Standard
- Respiratory Protection Safety Procedures
- Respirator Selection, Operation and Use
- Why the respirator is necessary
- How improper fit, usage, or maintenance can compromise the protective effect
- Limitations and capabilities of the respirator
- How to inspect, put on and remove, use, and check the seals of the respirator
- What the procedures are for maintenance and storage of the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- Change out schedule and procedure for air purifying respirators (APR)

Fit Testing

- For each type and model of respirator used.

Hands-on Respirator Training

- Respirator Inspection, Fit Check, Cleaning, Sanitizing, and Storage
- Recordkeeping

Recordkeeping

The **EHS Officer / Professional** will:

- Retain written information regarding medical evaluations, fit testing, and the respirator program.
- Provide respirator protection training and be responsible for maintaining training records. Records will include names of the individuals trained, type training, date of training, and name of the trainer.
- Conduct Job Hazard Analyses and be responsible for maintaining records of those analyses. Records include the identity of the workplace or activity evaluated, the name of the person(s) certifying that the evaluation has been performed, and the date(s) of the JHA.

Annual Review

The Respiratory Protection Program will be reviewed by the **EHS Officer / Professional**. The annual review will include current training and any documents associated with this program. When new tasks, procedures, and/or positions are added or modified/revised which affect respiratory protection, the Respiratory Protection Program will be updated immediately to reflect these changes.

Fit Testing Procedures

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

- 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.

- 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.

- 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.

- 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.

- 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. 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.

- 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:
  1. Position of the mask on the nose
  2. Room for eye protection
  3. Room to talk
  4. Position of mask on face and cheeks

- The following criteria shall be used to help determine the adequacy of the respirator fit:
  1. Chin properly placed;
  2. Adequate strap tension, not overly tightened;
  3. Fit across nose bridge;
  4. Respirator of proper size to span distance from nose to chin;
  5. Tendency of respirator to slip;
  6. Self-observation in mirror to evaluate fit and respirator position.

- The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in attachment 2 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in attachment 2. 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.

- 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.

- 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.

- 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.

- 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.

- 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.

- Test Exercises.
  1. FSU must perform the following test exercises for all fit testing methods prescribed in this attachment. FSU shall ensure that the test exercises are performed in the appropriate 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 subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
     c 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.
     d 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).
     e Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can count backward from 100 or recite a memorized poem or song.

Qualitative Fit Test (QLFT) Protocols

General

- FSU shall ensure that EHS Officer / Professional 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.

- The EHS Officer / Professional shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

Isoamyl Acetate Protocol

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

- Odor Threshold Screening

  Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.

  1. Three 1 liter glass jars with metal lids are required.
  2. Odor-free water (e.g., distilled or spring water) at approximately 25 °C (77 °F) shall be used for the solutions.
  3. The isoamyl acetate (IAA) (also known at isopentyl acetate) stock solution is prepared by adding 1 ml of pure IAA to 800 ml of odor-free water in a 1 liter jar, closing the lid and shaking for 30 seconds. A new solution shall be prepared at least weekly.
  4. The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.
  5. The odor test solution is prepared in a second jar by placing 0.4 ml of the stock solution into 500 ml of odor-free water using a clean dropper or pipette. The solution shall be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution shall be used for only one day.
  6. A test blank shall be prepared in a third jar by adding 500 cc of odor-free water.
  7. The odor test and test blank jar lids shall be labeled (e.g., 1 and 2) for jar identification. Labels shall be placed on the lids so that they can be peeled off periodically and switched to maintain the integrity of the test.
  8. The following instruction shall be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): “The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil.”
  9. The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

10. If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.
11. If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

- Isoamyl Acetate Fit Test
  1. The fit test chamber shall be a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a similar chamber shall be constructed using plastic sheeting. The inside top center of the chamber shall have a small hook attached.
  2. Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.
  3. After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.
  4. A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.
  5. Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.
  6. Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.
  7. If at any time during the test, the subject detects the banana-like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.
  8. If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described in (b) (1) through (7) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait at least 5 minutes before retesting. Odor sensitivity will usually have returned by this time.
  9. If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber.
  10. When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing plastic bag to keep the test area from being contaminated.

Saccharin Solution Aerosol Protocol

The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

- Taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.
  1. During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear and that allows free movements of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.
  2. The test enclosure shall have a 3⁄4 -inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
  3. The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.
  4. Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.
  5. The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b)(5) below) in 100 ml of distilled water.
  6. To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand.
  7. Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
  8. If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
  9. If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
  10. The test conductor will take note of the number of squeezes required to solicit a taste response.
  11. If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test. Note: If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.
  12. If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

13. Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
14. The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least each morning and afternoon or at least every four hours.

- Saccharin solution aerosol fit test procedure.
  1. The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
  2. The fit test uses the same enclosure described in 3. (a) above.
  3. The test subject shall don the enclosure while wearing the respirator selected in section I. A. of this attachment. The respirator shall be properly adjusted and equipped with a particulate filter(s).
  4. A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.
  5. The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.
  6. As before, the test subject shall breathe through the slightly open mouth with tongue extended, and report if he/she tastes the sweet taste of saccharin.
  7. The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.
  8. After generating the aerosol, the test subject shall be instructed to perform the exercises in this attachment.
  9. Every 30 seconds the aerosol concentration shall be replenished using one half the original number of squeezes used initially (e.g., 5, 10 or 15).
  10. The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.
  11. If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).
  12. Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.

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.

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

1. During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.
2. The test enclosure shall have a 3⁄4 inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
3. The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his or her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a bitter taste.
4. Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the Threshold Check Solution into the enclosure. This Nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.
5. The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex to 100 ml of 5% salt (NaCl) solution in distilled water.
6. To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.
7. An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
8. If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
9. If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
10. The test conductor will take note of the number of squeezes required to solicit a taste response.
11. If the Bitrex is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex and may not perform the Bitrex fit test.
12. If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.
13. Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
14. The nebulizer shall be thoroughly rinsed in water, shaken to dry, and refilled at least each morning and afternoon or at least every four hours.

- 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 this attachment. 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 this attachment.
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).

Irritant Smoke (Stannic Chloride) Protocol

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

- General Requirements and Precautions
  1. The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
  2. Only stannic chloride smoke tubes shall be used for this protocol.
  3. No form of test enclosure or hood for the test subject shall be used.
  4. The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
  5. The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

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

1. The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
2. The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
3. The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

- Irritant Smoke Fit Test Procedure
  1. The person being fit tested shall don the respirator without assistance and perform the required user seal check(s)
  2. The test subject shall be instructed to keep his/her eyes closed.
  3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the faceseal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
  4. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
  5. The exercises identified in this attachment shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
  6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
  7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
  8. If a response is produced during this second sensitivity check, then the fit test is passed.

Revised: 8/28/20

RESPIRATOR FIT TEST RECORD

Date:_____

Fit testing conducted in compliance with OSHA Standard 1910.134(F). ☐
If other local, state or federal regulations apply (such as MSHA), you may list them here:
_____

Name of Fit Tester: _____

Signature: _____

Type of OSHA accepted fit test protocol used: (Qualitative): ___Saccharin ___Bitrex™ ___Isoamyl Acetate ___Irritant Smoke

(Quantitative): Portacount Model #_____ Occupational Health Dynamic Model #:_____

Name (please print)	Signature	Respirator Fit Tested (Make, Model, Style, Size)	Fit Test Pass	Fit Test Fail	Could not be fit tested due to:
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

Comments: _____

_____

User Seal Check Procedures

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 attachment, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative fit tests.

Facepiece Positive and/or Negative Pressure Checks

- 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.

- 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.

Manufacturer's Recommended User Seal Check Procedures

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

Respirator Cleaning Procedures

These procedures are provided for FSU use when cleaning respirators.

Procedures for Cleaning Respirators

- 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.

- 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.

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

- 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.

- 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.

- Components should be hand-dried with a clean lint-free cloth or air-dried.

- Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

- Test the respirator to ensure that all components work properly.

FAYETTEVILLE STATE UNIVERSITY

Part A. Section 1. (Mandatory) Every employee who has been selected to use any type of respirator (please print) must provide the following information.

Today's date _____

Name _____ Job Title _____

Age _____ Male ◯ Female ◯ Height ____ (ft) __ __ (in) Weight ____ (lbs)

Phone Number: Home: _____ Work: _____

Have your employer told you how to contact the health care professional who will review this questionnaire (Select one): Yes ◯ NO ◯

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

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

b ___ Other type

☐ Half-face ☐ Powered-air purifier

☐ Full-facepiece type. ☐ Supplied-air

☐ Self-contained breathing apparatus

Have you worn a respirator(Select One): Yes ◯ NO ◯

Namelf ``yes,'' what type(s): _____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who hasbeenselected to use any type of respirator (please select ``yes'' or ``no'').

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month

2. Have you ever had any of the following conditions?

Seizures (fits) Yes ◯ NO ◯

Diabetes (sugar disease) Yes ◯ NO ◯

Allergic reactions that interfere with your breathing Yes ◯ NO ◯

Claustrophobia (fear of closed-in places) Yes ◯ NO ◯

Trouble smelling odors Yes ◯ NO ◯

3. Have you ever had any of the following pulmonary or lung problems?

Asbestosis Yes ◯ NO ◯

Asthma Yes ◯ NO ◯

Chronic bronchitis: Yes ◯ NO ◯

Emphysema: Yes ◯ NO ◯

Pneumonia Yes ◯ NO ◯

Tuberculosis Yes ◯ NO ◯

Silicosis Yes ◯ NO ◯

Pneumothorax (collapsed lung) Yes ◯ NO ◯

Lung cancer Yes ◯ NO ◯

Broken ribs: Yes ◯ NO ◯

Any chest injuries or surgeries: Yes ◯ NO ◯

Any other lung problem that you've been told about: Yes ◯ NO ◯

4. Do you currently have any of the following symptoms of pulmonary or lung illness?

Shortness of breath:	Yes ◯ NO ◯
Shortness of breath when walking fast on level ground or walking up a slight hill/incline	Yes ◯ NO ◯
Shortness of breath when walking with other people at an ordinary pace on level ground:	Yes ◯ NO ◯
Have to stop for breath when walking at your own pace on level ground:	Yes ◯ NO ◯
Shortness of breath when washing or dressing yourself:	Yes ◯ NO ◯
Shortness of breath that interferes with your job:	Yes ◯ NO ◯
Coughing that produces phlegm (thick sputum):	Yes ◯ NO ◯
Coughing that wakes you early in the morning:	Yes ◯ NO ◯
Coughing that occurs mostly when you are lying down:	Yes ◯ NO ◯
Coughing up blood in the last month:	Yes ◯ NO ◯
Wheezing:	Yes ◯ NO ◯
Wheezing that interferes with your job:	Yes ◯ NO ◯
Chest pain when you breathe deeply:	Yes ◯ NO ◯
Any other symptoms that you think may be related to lung	Yes ◯ NO ◯

5. Have you ever had any of the following cardiovascular or heart problems?

Heart attack	Yes ◯ NO ◯
Stroke:	Yes ◯ NO ◯
Angina:	Yes ◯ NO ◯
Heart Failure:	Yes ◯ NO ◯
Swelling in your legs or feet (not caused by walking):	Yes ◯ NO ◯
Heart arrhythmia (heart beating irregularly):	Yes ◯ NO ◯
High blood pressure:	Yes ◯ NO ◯
Any other heart problem that you've been told about:	Yes ◯ NO ◯

6. Have you ever head any of the following cardiovascular or heart symptoms?

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

7. Do you currently take medication for any of the following problems?

Breathing or lung problems:	Yes ◯ NO ◯
Heart trouble:	Yes ◯ NO ◯
Blood Pressure:	Yes ◯ NO ◯
Seizures(fits)::	Yes ◯ NO ◯

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used arespirator, check the following space and go to question 9) Yes ◯ NO ◯

Eye irritation:	Yes ◯ NO ◯
Skin allergies or rashes:	Yes ◯ NO ◯
Anxiety:	Yes ◯ NO ◯
General weakness or fatigue:	Yes ◯ NO ◯
Any other problem that interferes with your use of a respirator:	Yes ◯ NO ◯

9. Would you like to talk to the health care professional who will review this questionnaire aboutyouranswers to this questionnaire: Yes ◯ NO ◯

Questions 10-15 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 othertypes of respirators, answering these questions 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 visionproblems?

Wear glasses: Yes ◯ NO ◯
Wear contact lenses: Yes ◯ NO ◯
Color blind: Yes ◯ NO ◯
Any other eye or vision problem: Yes ◯ NO ◯

12. Have you ever had an injury to your ears, including a broken ear drum: Yes ◯ NO ◯

13. Do you currently have any of the following hearing problems?

Difficulty hearing: Yes ◯ NO ◯
Wear a hearing aid: Yes ◯ NO ◯
Any other hearing or ear problem: Yes ◯ NO ◯

14. Have you ever had a back injury: Yes ◯ NO ◯

15. Do you currently have any of the following musculoskeletal problems?

Weakness in any of your arms, hands, legs, or feet: Yes ◯ NO ◯
Back pain: Yes ◯ NO ◯
Difficulty fully moving your arms and legs: Yes ◯ NO ◯
Pain or stiffness when you lean forward or backward at the waist: Yes ◯ NO ◯
Difficulty fully moving your head up or down: Yes ◯ NO ◯
Difficulty fully moving your head side to side: Yes ◯ NO ◯
Difficulty bending at your knees: Yes ◯ NO ◯
Difficulty squatting to the ground: Yes ◯ NO ◯
Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes ◯ NO ◯
Any other muscle or skeletal problem that interferes with using a respirator: Yes ◯ NO ◯

Part B 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:

Substance/Conditions Description of exposure (only if answer is yes) _____

Asbestos Yes ◯ NO ◯
Silica (e.g., in sandblasting) Yes ◯ NO ◯
Tungsten/cobalt (e.g., grinding or welding this material) Yes ◯ NO ◯
Beryllium: Yes ◯ NO ◯
Aluminum Yes ◯ NO ◯

Coal (for example, mining) Yes ◯ NO ◯
Iron: Yes ◯ NO ◯
Tin: Yes ◯ NO ◯
Dusty environments: Yes ◯ NO ◯
Any other hazardous exposures: Yes ◯ NO ◯

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 t he 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) (select "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:

Light (less than 200 kcal per hour): Yes ◯ NO ◯	If "yes," average time/shift: _____ Hours _____ 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	
Moderate (200 to 350 kcal per hour): Yes ◯ NO ◯	If "yes," average time/shift: _____ Hours _____ 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.	
Heavy (above 350 kcal per hour): Yes ◯ NO ◯	If "yes," average time/shift: _____ Hours _____ 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 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): _____

To the best of my knowledge, the information I have provided is true and accurate.

_____ _____

Employee Name **Date**

_____

Employee Signature

TO BE COMPLETED BY THE EXAMINER/REVIEWER:

Respirator Clearance

(select one box , and provide comments as appropriate)

This employee has been found to be physically able to use the following (check each [ ] that applies):

- ☐ Single use, filter mask (four attachment points)
- ☐ Half-faced cartridge-type, negative pressure
- ☐ Full-faced cartridge-type respirator, negative pressure
- ☐ Half-faced powered cartridge-type (PAPR)
- ☐ Full-faced powered cartridge-type (PAPR)
- ☐ Self-contained breathing apparatus (SCBA)
- ☐ Hood/helmet powered cartridge-type (PAPR)
- ☐ Half-faced/Full-faced/Hood/Helmet (NOT positive pressure)

When wearing a respirator, the employee has been informed to limit activity level1 to the following (check one [ ]):

- ☐ Mild Exertion
- ☐ Moderate Exertion
- ☐ Heavy Exertion (No specified limitations)

Other limitations needed (if any) when wearing a respirator:

_____

Circle one:

This respirator clearance expires

This respirator clearance expires **1** ◯ **2** ◯ **3** ◯ years from the date below. (*If not marked, clearance expires in 1 year*)

☐ ***This employee has been found to be physically NOT able to use a respirator***

☐ ***There is insufficient information to make a determination at this time***

The following additional tests, or medical information, will be required in order to make a determination regarding the safe use of a respirator by this employee (*If a physical examination is required to make a determination, please use the MSP form*)

_____

☐ ***The mandatory questionnaire has been reviewed, and the employee has been found to be physically able to use a respirator.***

☐ ***The mandatory questionnaire has been reviewed but there is insufficient information to make a determination at this time.***

The following additional tests, or medical information, will be required in order to make a determination regarding the safe use of a respirator by this employee (*If a physical examination is required to make a determination, please use the MSP form*)

_____

Reviewer's Name (Print) **Reviewer's Signature** **Date:**

1 Light/Mild exertion (2-3 METS)= negligible lifting, extended walking (flat surface), extended standing, writing
Moderate exertion (4-5 METS) = lifting 10lbs (5 or more lifts/min), fast walking (4mph), gardening/digging, pushing, pulling
Heavy exertion (5-10 METS) = jogging (10 minute mile), chopping wood, climbing hills, life-saving activities, firefighting,

FAYETTEVILLE STATE UNIVERSITY

Voluntary Use of a Respirator

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. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If you are provided a respirator for your voluntary use from FSU, or if provide your own, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.

- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

I have read and understand this information.

_____	_____	_____
Employee Signature	Printed Name	Date