

WEISMAN CHILDREN'S REHABILITATION HOSPITAL (WCRH)
INFECTION CONTROL MANUAL

SUBJECT: Respiratory Protection Plan
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Respiratory Protection Plan
Weisman Children's Rehabilitation Hospital


Respirator Program Administrator (RPA)

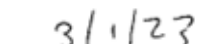

Date Reviewed

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1.0 Purpose and Applicability

It is the policy of **Weisman Children's Rehabilitation Hospital (WCRH)** to protect the health and safety of its employees by (1) eliminating respiratory infectious exposures where feasible; (2) using engineering and administrative controls to minimize these exposures that cannot be eliminated; and (3) using respiratory protection and other personal protective equipment when the frequency and duration of exposures to infectious organisms cannot be substantially reduced or eliminated.

The purpose of this **respiratory protection program (RPP)** is to maximize the protection afforded by respirators when they must be used. It establishes the procedures necessary to meet the regulatory requirements described in **OSHA's [Respiratory Protection standard \(29 CFR 1910.134\)](#)** and **New Jersey regulatory requirements**.

*For this facility, a **Respirator** is **defined** as a device worn over the nose and mouth to protect the wearer from infectious organism in the air. Respirators must be certified by NIOSH for the purpose for which they are used.*

This RPP applies to all employees, contractors, medical staff, volunteers, visitors and others who enter the facility and are required to wear respiratory protection per WCRH policy.

2.0 Responsibilities

2.1 Respirator Program Administrator

The **Infection Control professional** has been designated as the **respirator program administrator (RPA)**. The RPA has received appropriate training and is knowledgeable about the requirements of the OSHA Respiratory Protection standard, state regulations, and all elements of the respiratory protection program that need to be implemented to be effective. **WCRH administration** has the ultimate responsibility for all aspects of this program and has given the Infection Control nurse full authority to make the necessary decisions to ensure its success. This authority includes, but is not limited to, conducting hazard assessments for selecting appropriate respiratory protection, purchasing the necessary equipment and supplies, and developing and implementing the policies and procedures described in the written RPP.

Specifically, the RPA or other staff in conjunction with the RPA will, in accordance with state regulation and OSHA's [Respiratory Protection standard \(29 CFR 1910.134\)](#):

- Maintain knowledge and updated Infection Control plan for organisms, novel or established, that are known or suspected of transmission to others via respiratory droplet or airborne particles.
- Conduct a hazard assessment and select the appropriate level of respiratory protection for each task or job title with potential exposure to aerosol transmission

and record this information in the “Respirator Assignments by Task or Location” in Appendix A of this RPP.

- Develop and monitor respirator maintenance procedures, if applicable.
- Coordinate the purchase, maintenance, repair, and replacement of respirators.
- Routinely evaluate the effectiveness of the RPP, with employee input, and make any necessary changes to the program.
- Provide or arrange for annual training on the use and limitations of respirators.
- Ensure that medical evaluations are provided.
- Ensure that annual respirator fit testing is provided.
- Maintain records of respirator training, medical clearance, and fit testing as required by [29 CFR 1910.134](#) and [29 CFR 1910.1020](#).
- Maintain a copy of this written RPP and program evaluations, and ensure that they are readily accessible to anyone in the program.
- Review and update the RPP at least annually.

2.2 Supervisors

Supervisors of employees included in the RPP will:

- Participate in the hazard assessment by evaluating all potential exposures to respiratory secretions, including exposure to aerosol transmissible disease pathogens, and communicating this information to the RPA.
- In consultation with the Infection Control professional, Identify employees and/or tasks for which respirators may be required and communicate this information to the RPA.
- Be responsible for ensuring that employees in their units or job classification follow the procedures outlined in the RPP. Schedule employees for medical evaluations, training, and fit testing and ensure that they are allowed to attend these appointments during work hours.

2.3 Employees in the Program

Employees assigned to jobs/tasks requiring the use of a respirator will:

- Complete the required questionnaire for medical clearance and participate in a medical examination if necessary.
- Adhere to hospital policies on facial hair and respirator seal protection.
- Attend annual training and respirator fit testing as required in the RPP.
- Use, maintain, and dispose of respirators properly in accord with training and the procedures in the RPP.

3.0 Respirator Selection

3.1 infectious Exposure or Hazard Assessment

The RPA will select the types of respirators to be used by hospital staff based on aerosol hazards and respiratory secretion exposure to which employees may be exposed and in accord with OSHA regulations and Centers for Disease Control and Prevention (CDC), Healthcare Infection Control Practices Advisory Committee (HICPAC), and other public health guidelines. With input from the respirator user, the RPA and supervisor will conduct an infectious exposure or hazard assessment for each task, procedure, or work area with the potential for airborne or droplet infectious contamination. The infectious exposure or hazard assessment will include the following as needed:

- Identification of potential infectious exposures to airborne or respiratory droplets for employees involved in patient care.
- A review of work processes to determine levels of potential infectious exposure for all tasks and locations.

3.2 NIOSH-Certified Equipment

All respiratory protective equipment shall be approved by the National Institute for Occupational Safety and Health (NIOSH) for the configuration and environment in which it is going to be used. The NIOSH Certified Equipment List is found at the following Internet address: www.cdc.gov/niosh/npptl/topics/respirators/cel.

At WCRH, the NIOSH-Certified N95 mask, which requires a medical clearance questionnaire and fit testing, is issued for use. Other respiratory protection available is the procedure or surgical mask which are not respirators (refer to droplet precaution policy).

The following lists **respiratory protection equipment definitions**:

- **Air-purifying respirators (APR)** are respirators with a filter, canister, or cartridge that removes specific air contaminants from the ambient air by passing through an air-purifying element. APRs must have been tested and approved by NIOSH for use in specific types of contaminated atmospheres. These respirators do not supply oxygen and therefore cannot be used to enter an atmosphere that is oxygen-deficient.
- o **Filtering face-piece respirators (FFR)** are disposable, negative-pressure, air purifying respirators where an integral part of the face-piece or the entire face-piece is made of filtering material. These respirators are designed to be used once and then properly disposed of. However, a FFR may be reused by the same user, under some circumstances, as long as the respirator has not been obviously soiled or damaged (See discussion of specific conditions in which FFR reuse may be acceptable in section 8.1). An N95 FFR has a filter efficiency of 95% and is not resistant to oil, while a P100 FFR has a filter efficiency of 99.97% and has a strong resistance to oil. Filters with other

combinations of filtration efficiency and oil resistance, “N”, “R” or “P”, categories are available.

- **Half mask elastomeric respirators** are reusable air-purifying respirators that fit over the nose and mouth. They are made of rubber or silicone with attached cartridges or filters for removal of gases, vapors, or dusts.
- **N95 respirator** is a generally used term for a half mask negative pressure air-purifying respirator with NIOSH-approved N95 filters or filter material (i.e., includes N95 filtering face-piece respirator or equivalent protection).
- **Full face-piece elastomeric respirators** are reusable air-purifying respirators that cover the face from the forehead to the chin. They are made of rubber or silicone with a clear plastic lens and have attached cartridges or filters for removal of gases, vapors, or dusts.
- **Powered air-purifying respirators (PAPR)** are air-purifying respirators that use a blower to force ambient air through air-purifying elements and into the respirator face-piece, helmet, or hood.
- **Air-supplying respirators** (also known as atmosphere-supplying respirators) have a source of breathing air that is independent from the work area and supplied to the wearer’s face-piece. These include two main types:
 - Supplied-air respirators (SARs) are connected to a free-standing cylinder of breathing air, an air compressor, or a system piping breathing air through the building.
 - Self-contained breathing apparatus (SCBA) are usually equipped with a full face-piece and have a tank of breathing air worn on the back of the user, and escape respirators which have a small supply of air designed to last a short period of time to allow the user to leave the hazardous area. Air-supplying respirators will not be used for routine healthcare procedures, but may be used by emergency responders.

3.3 Assignment of Respirators by Organism Transmission (Airborne or Droplet) or Task and Location

The RPA will use Infection Control Policy on Transmission-Based Precautions as well as the infectious hazard assessment to assign appropriate types of respirators or masks for use by specific types of personnel during specific procedures or in specific areas of the hospital. These assignments are listed in Appendix A of this RPP.

3.4 Updating the Infectious Hazard Assessment

The RPA will revise and update the infectious hazard assessment any time an employee or supervisor identifies or anticipates a new exposure or changes to existing exposures. Any employee who believes that respiratory protection is needed during a particular activity must contact his or her supervisor or the RPA. The supervisor must contact the

RPA whenever respiratory protection is requested. The RPA will assess the potential hazard with the employee and supervisor. If it is determined that respiratory protection is needed, all elements of this program will be in effect for those tasks and the program will be updated accordingly.

3.5 Voluntary Use of Respirators

When the use of a respirator is not required by hospital Infection Control policies and the RPA has determined that its use is not necessary to protect the health of the employee, an employee may still request to use a respirator voluntarily.

4.0 Medical Evaluation (refer to WCRH IC Policy #601)

Before being assigned to work in an area where respirators are required, each employee will complete the **medical clearance questionnaire in Appendix C** of this RPP and deliver it to the RPA. *Any other questionnaire may also be used, as long as it includes the same information as the questionnaire provided in [Appendix C of the OSHA Respiratory Protection standard](#).*

An additional medical evaluation is required when:

- The employee reports medical signs or symptoms that are related to the ability to use a respirator.
- A **physician or other licensed healthcare professional (PLHCP)**, supervisor, or the RPA requests a reevaluation.
- Observations made during fit testing or program evaluation indicate a need for reevaluation (e.g., the employee experiences claustrophobia or difficulty breathing during the fit test).
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, or temperature) that may result in a substantial increase in the physiological burden placed on an employee wearing a respirator.

Employees may also speak directly with the PLHCP if they have questions. The PLHCP will be provided with a copy of the RPP, information from the RPA about the type of respiratory protection to be used by employees, duration and frequency of respirator use, expected physical effort, other protective equipment worn, and any expected extremes of temperature or humidity.

The PLHCP will review completed questionnaires and make a medical determination as to whether the employee can wear a respirator safely. The PLHCP may make this determination based on the questionnaire alone, but may also require a physical examination of the employee and any tests, consultations, or procedures the PLHCP deems are necessary. The PLHCP will provide a written recommendation to the employer, which may clear the employee for all respirator use, or may specify restrictions or limitations on use, such as the type of respirator that may be worn, the duration that it

may be worn, and the acceptable level of exertion while wearing the respirator. A copy of this written determination shall also be provided by the PLHCP to the employee.

Medical evaluations will be performed by a physician or other licensed health care professional (PLHCP) at WCRH by the occupational employee health service, or another provider of your choice as long as the evaluations are kept medically confidential, conducted by an individual licensed in your state to perform such evaluations, and are provided at no cost to the employee. To ensure the confidentiality of medical information, the medical evaluation should not be conducted by the employee's immediate supervisor and others in the employee's direct line of authority.

Employees whose work activities require the use of respiratory protective equipment shall receive medical clearance prior to the use of a respirator and prior to being fit tested for a respirator.

5.0 Fit Testing (refer to WCRH IC Policy #604)

Before an employee is required to use any tight-fitting face-piece respirator including an N95 mask (anything except a PAPR with loose-fitting face-piece, hood, or helmet that does not rely upon a tight-fitting face-piece-to-face seal), she/he will be fit tested by *trained personnel*.

At least 15 minutes per person will be needed to show the employee how to put the respirator on, position it, and assess its comfort, perform the user seal check, and complete the fit testing. Providing these instructions during fit testing is considered a review and may not constitute the subject's formal training on respirator use.

Ensure fit testing is performed with the same make, model, style, and size of respirator to be used. Employees who use tight-fitting respirators are not permitted to have facial hair that interferes with the face-piece seal or valve function.

All employees who must wear respiratory protection shall receive medical clearance before fit testing is performed or the respirator is worn.

Fit tests will be provided at the time of initial assignment and annually thereafter.

Additional fit tests will be provided whenever the employee experiences or the supervisor or RPA observes physical changes that could affect respirator fit. These changes include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

Employees who will be using only a PAPR with loose-fitting face-piece, hood, or helmet do not need to be fit tested.

Any employee who cannot be successfully fit tested with a tight-fitting respirator may be assigned a PAPR with a loose-fitting face-piece, hood, or helmet for all tasks requiring a respirator. ***Per WCRH policy, employees are required to be clean-shaven where the respirator seals to the face or reassign employees who can't wear tight-fitting respirators to areas without exposure.***

Employees may be offered a selection of several models and sizes of respirators, if available, from which they may choose the one that correctly fits and is most acceptable/comfortable.

A **qualitative fit test** may be used for all wearers of half mask APRs, including filtering face-piece respirators with N95 or P100 filters and elastomeric APRs. The qualitative test will follow the protocol **for saccharine or Bitrex® solutions** found in [Appendix A of the OSHA Respiratory Protection standard](#) (29 CFR 1910.134) and in Appendix D of this RPP.

Another available test is the **quantitative** ambient aerosol condensation nuclei counter (CNC) fit testing protocol and can be used to replace the qualitative test.

Refer to WCRH Infection Control Manual for Qualitative Fit Testing Policy #601.

6.0 Training

Annual respirator training will be provided for all employees covered by this program. The training will include the following:

- The general requirements of the OSHA Respiratory Protection standard.
- The specific circumstances under which respirators are to be used.
- Infectious Respiratory hazards to which employees are potentially exposed during routine and emergency situations.
- Why the respirator is necessary and how proper fit, usage, and maintenance can ensure the protective effect of the respirator as well as how improper fit, usage or maintenance can compromise the protective effect of the respirator.
- The limitations and capabilities of the respirators that will be used.
- How to effectively use the respirators, including emergency situations and situations in which the respirator malfunctions.
- How to inspect, put on, remove, use, and check the seals of the respirator (for tight-fitting respirators such as N95 filtering face-piece respirators).
- The procedures outlined in this program for maintenance, storage, and cleaning or disposal of respirators. Employees who are issued PAPRs shall be instructed in procedures for charging and maintaining the batteries, and for checking the air flow rate.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- How and when to decontaminate (or safely dispose of) a respirator that has been contaminated with chemicals or hazardous/infectious biological materials.

Training shall be provided at the time of initial assignment to respirator use, but before actual use, and annually thereafter.

Additional training will be provided when there is a change in the type of respiratory protection used, or when inadequacies in the employee's knowledge or use of the respirator indicate that he or she has not retained the requisite understanding or skill.

The employee will also receive **training during the fit testing** procedure that will provide an opportunity to handle the respirator, have it fitted properly, test its face-piece-to-face seal, wear it in normal air to familiarize themselves with the respirator, and finally to wear it in a test atmosphere. Every respirator wearer will receive fitting instructions, including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to perform a user seal check according to the manufacturer's instructions (see Appendix E of this RPP). ***[Generally, the hands-on training provided during fit testing does not meet the requirements of the standard and a separate training session will be necessary. Appendix E of this RPP currently contains mandatory Appendix B-1 of the Respiratory Protection standard on User Seal Check Procedures. Manufacturers of filtering face-piece respirators often provide their own recommended procedures for user seal checks. Insert copies of the applicable respirator manufacturers' instructions for user seal checks in Appendix D of the RPP.]***

Employees will be given the opportunity during training, annual retraining and throughout the year to provide feedback on the effectiveness of the program and suggestions for its improvement.

7.0 Respirator Use

Employees will follow procedures for proper use of their respirators under conditions specified by this program and in accord with the training they receive on the use of each particular model or type of respirator. The appropriate types of respirators to be used and the exposure conditions are listed in the respirator selection chart in Appendix A of this RPP.

Respirators relying on a tight face-piece-to-face seal must not be worn when conditions prevent a good seal. Such conditions may be a beard, long mustache, sideburns, or even razor stubble as well as scars, other facial deformities, piercings, and temple pieces on glasses. In addition, the absence of one or both dentures can seriously affect the fit of a face-piece.

Employees and supervisors are expected to be diligent in observing practices pertaining to ensuring the safe use of respirators. To ensure proper protection, the wearer will perform a user seal check, in accord with manufacturer's instructions and the training provided at the time of fit testing, each time he or she puts on a tight-fitting respirator. Employees who wear corrective glasses or other personal protective equipment must wear these during their fit testing to ensure that it does not interfere with the face-piece seal.

When respirators with cartridges are used, the RPA shall determine a cartridge change schedule, which will be included in Appendix A. Odor or taste may not be used as the

primary basis for determining the useful life of a cartridge for gases or vapors. In addition to the manufacturer's recommendations, the [NIOSH Respirator Selection Logic](#) and [Federal OSHA Respirator e-Tool](#) can aid in the development of a change schedule for cartridges. **When filtering face-piece respirators are used, respirators should be discarded after each use or sooner if breathing becomes difficult or if the respirator is damaged, soiled, or contaminated.**

Employees must leave the respirator use area:

- To adjust their respirator if the respirator is not fitting correctly or impeding their ability to work.
- To wash their face if the respirator is causing discomfort or rash.
- To change the respirator, filters, cartridges, or canister elements.
- To inspect the respirator if it stops functioning as intended, such as detection of vapor or gas breakthrough, changes in breathing resistance or leakage of the face-piece (e.g., fogging of eyeglasses).

8.0 Storage, Reuse, Maintenance and Care of Respirators

8.1 Storage and Reuse

Reusable respirators will be stored in a manner to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

When caring for infectious patients, **disposable filtering face-piece respirators will be discarded** after each use (i.e., patient encounter). It should be noted that Tuberculosis is not transmitted via contact and, therefore, reuse by the same wearer in the care of the same patient is acceptable as long as the filtering face-piece respirator is not damaged or soiled. The respirator must be discarded when it is no longer in its original working condition, whether that condition results from contamination, structural defects, or wear. Disposable filtering face-piece respirators that will be reused in patient care areas should be stored in a breathable container such as a paper bag labeled with the user's name, as per IC policy #601.

Currently not in use at WCRH: **Reusable elastomeric respirators** that are assigned to individual users will be cleaned and disinfected/sterilized after use and stored at room temperature in a clean, dry environment that is protected from damage and exposure to contaminants as per the manufacturer's instructions.

Currently not in use at WCRH: **PAPRs** will be cleaned and stored in a designated area after use and will be provided to employees upon request for use during aerosol-generating procedures being conducted on patients with suspected or confirmed airborne infectious disease or for use by individuals who are unable to wear a respirator with a tight-fitting face-piece. PAPRs must be stored at room temperature in a dry area that is protected from exposure to contaminants as per the manufacturer's instructions.

8.2 Inspection, Maintenance and Repairs

All respirators will be inspected by the user prior to each use. Inspections should include a check of:

- Condition of the various parts including, but not limited to, the face-piece, head straps, valves, and cartridges, canisters, or filters.
- All rubber or plastic parts, for pliability and signs of deterioration.
- PAPR connecting tubes or hoses, air flow, and batteries.

Any defective respirators shall be removed from service. **Defective disposable respirators will be discarded and replaced.** Defective reusable respirators will be turned in to the Infection Control nurse for repair, adjustment, or disposal.

WCRH administration will designate a person responsible for charging and maintaining PAPR pumps, filters, and batteries when they are stored or not in use.

Filters on reusable particulate respirators will be changed by the wearer whenever it becomes difficult to breathe.

If there is use of respirators with chemical cartridges, a schedule for changing cartridges and process of removal, cleaning/disinfection/sterilization, and storage will be established.

For respirators maintained for emergency use, WCRH administration must:

- Keep respirators accessible to the work area.
- Store respirators in such a manner as to be clearly marked for emergency use.
- Store respirators in accordance with any applicable manufacturer instructions.
- Inspect respirators at least monthly and in accordance with the manufacturer's recommendations.
- Check for proper function before and after each use.
- Certify the respirator with documentation of date of inspection, inspector name/signature, findings, remedial action taken if necessary, and serial number.
- Provide certification information on a tag or label kept with the respirator or included in inspection reports stored as paper or electronic files.

8.3 Cleaning and Disinfection

Currently, not in use at WCRH: Reusable respirators will be cleaned with mild soap and warm water and air dried before storing in a plastic bag for reuse, as described in Appendix F of this RPP (which is mandatory [Appendix B-2 of the Respiratory Protection standard](#)). ***Note: Follow manufacturer instructions for PAPR cleaning/disinfection/sterilization.***

Reusable respirators issued for the exclusive use of an employee will be cleaned and disinfected by the user as often as necessary to maintain a sanitary condition.

Reusable respirators used in fit testing and training will be cleaned and disinfected after each use.

9.0 Program Evaluation

The RPA will conduct a periodic evaluation of the RPP to ensure that all aspects of the program meet the requirements of the OSHA Respiratory Protection standard and that the RPP is being implemented effectively to protect employees from respiratory hazards. This evaluation will be done **annually**.

Program evaluation will include, but is not limited to:

- A review of the written Respiratory Protection Plan with updating as needed.
- Completion of a program evaluation checklist based on observations of workplace practices.
- A review of feedback obtained from employees (to include respirator fit, selection, use, and maintenance issues) that will be collected during the annual training session.

Record of revisions will be kept on file with the written program. Any procedural changes that are implemented as a result of program evaluation will be communicated to the employees and reinforced by their supervisors.

10.0 Recordkeeping

The RPA will ensure that the following records are maintained:

- Personnel medical records such as medical clearance to wear a respirator shall be retained by the Infection Control professional and stored as part of a confidential medical record. Medical clearance records must be made available in accord with the OSHA Access to Employee Exposure and Medical Records standard (29 CFR 1910.1020), and maintained for a minimum of thirty (30) years after an employee's separation or termination.
- Documentation of training and fit testing will be kept by the Infection Control professional until the next training or fit test.
A copy of this RPP and records of program evaluations and revisions shall be kept by the Infection Control nurse and stored in the IC office and made available to all affected employees, their representatives, and representatives of OSHA upon request.

References:

<https://www.osha.gov/Publications/OSHA3767.pdf#page59> Retrieved October 2020

RPP Appendix A: Respirator Assignments by Task or Location
[Adapted for tasks and exposures in WCRH]

Task or Location	Potential Exposure	Respiratory Protection	Employees Included
Performing aerosol-generating procedures on patients suspected or confirmed with a disease requiring Airborne Precautions or present when such procedures are performed [<i>see HICPAC 2007 or other public health guidance for lists of diseases</i>], including: {Sputum induction} {Bronchoscopy} {Aerosolized administration of medications} {Pulmonary function testing} {Other clinical procedures that may aerosolize infectious agents}	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<i>Physicians, Respiratory Therapists, Registered Nurses, Licensed Practical Nurses</i>
Performing aerosol-generating procedures on patients suspected or confirmed with influenza or SARS-CoV-2 cases or present during such procedures.	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<i>Physicians, Respiratory Therapists, Registered Nurses, Licensed Practical Nurses</i>
Entry into airborne infection isolation room or other area occupied by patients suspected or confirmed with a disease requiring Airborne Precautions.	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<i>Physicians, Respiratory Therapists, Registered Nurses, Licensed Practical Nurses, Nursing Assistants, Rehab Staff</i>
Performing, or present during, routine patient care and support operations on a patient suspected or confirmed with a disease requiring Airborne Precautions.	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<i>Physicians, Respiratory Therapists, Registered Nurses, Licensed</i>

Task or Location	Potential Exposure	Respiratory Protection	Employees Included
			<i>Practical Nurses, Nursing Assistants, Rehab Staff</i>
Cleaning/decontaminating an area occupied by a patient suspected or confirmed with a disease requiring Airborne Precautions, or cleaning/decontaminating such an area after a patient has left but before the space has been adequately ventilated.	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<i>Physicians, Respiratory Therapists, Registered Nurses, Licensed Practical Nurses Environmental Services, Nursing Assistants, Rehab Staff</i>

RPP Appendix B: Information for Voluntary Users

Appendix D to Sec. 1910.134: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

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 your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. 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.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designated 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.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

RPP Appendix C: Medical Clearance Questionnaires

Appendix C to Sec. 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2, do not require a medical examination.

To the employee:

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

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:
3. Your age (to nearest year):
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 healthcare professional who reviews this questionnaire (include the Area Code):
9. The best time to phone you at this number:
10. Has your employer told you how to contact the healthcare 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. ___ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
 - b. ___ Other type (for example, half- or full-face-piece 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):

Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle “yes” or “no”).

YESNO

- | | | |
|---|--------------------------|--------------------------|
| 1. Do you <i>currently</i> smoke tobacco, or have you smoked tobacco in the last month? | ☐ | ☐ |
| 2. Have you <i>ever had</i> any of the following conditions? | ☐ | ☐ |
| a. Seizures | ☐ | ☐ |
| 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 <i>ever had</i> any of the following pulmonary or lung problems? | ☐ | ☐ |
| a. Asbestosis | ☐ | ☐ |
| b. Asthma | ☐ | ☐ |

YESNO

- | | | |
|---|--------------------------|--------------------------|
| 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've been told about | ☐ | ☐ |
| 4. Do you <i>currently</i> 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 your 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 | ☐ | ☐ |
| k. Wheezing | ☐ | ☐ |

- l. Wheezing that interferes with your 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. Stroke ☐ ☐

 - 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've 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 two 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 ☐ ☐

YESNO

-
- c. Blood pressure ☐ ☐
- d. Seizures ☐ ☐
8. If you've used a respirator, have you *ever had* any of the following problems? ☐ ☐
(If you've never used a respirator, check the following space and go to question 9. ☐)
- 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 ☐ ☐
9. Would you like to talk to the healthcare professional who will review this questionnaire about your answers to this questionnaire? ☐ ☐

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

-
10. Have you *ever* lost vision in either eye (temporarily or permanently)? ☐ ☐
11. Do you *currently* have any of the following vision problems? ☐ ☐
- a. Wear contact lenses ☐ ☐
- b. Wear glasses ☐ ☐
- c. Color blind ☐ ☐
- d. Any other eye or vision problem ☐ ☐
12. Have you *ever had* an injury to your ears, including a broken eardrum? ☐ ☐
13. Do you *currently* have any of the following hearing problems? ☐ ☐
- a. Difficulty hearing ☐ ☐
- b. Wear a hearing aid ☐ ☐
- c. Any other hearing or ear problem ☐ ☐

-
14. Have you *ever had* a back injury? ☐ ☐
15. Do you *currently* have any of the following musculoskeletal problems? ☐ ☐
- a. Weakness in any of your arms, hands, legs, or feet ☐ ☐
- b. Back pain ☐ ☐
- c. Difficulty fully moving your arms and legs ☐ ☐
- d. Pain and stiffness when you lean forward or backward at the waist ☐ ☐
- e. Difficulty fully moving your head up or down ☐ ☐
- f. Difficulty fully moving your head side to side ☐ ☐
- g. Difficulty bending at your knees ☐ ☐
- h. Difficulty squatting to the ground ☐ ☐
- i. Climbing a flight of stairs or a ladder carrying more than 25 lbs. ☐ ☐

YESNO

- j. Any other muscle or skeletal problem that interferes with using a respirator

☐ ☐

RPP Appendix D: Selected Fit Test Protocols

[The protocols for qualitative fit testing with saccharin and Bitrex®, and the quantitative fit testing using the ambient aerosol condensation nuclei counter (CNC) protocol are included.]

Appendix A to Sec.1910.134: Fit Testing Procedures (Mandatory)

Part I. OSHA-Accepted Fit Test Protocols

A. Fit Testing Procedures--General Requirements.

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

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

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

8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another face-piece shall be selected and retested if the test subject fails the user seal check tests.

9. The test shall not be conducted if there is any hair growth between the skin and the face-piece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.

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

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which would interfere with respirator fit.

14. Test Exercises.

- (a) Employers must perform the following test exercises for all fit testing methods prescribed in this appendix, except for the CNP quantitative fit testing protocol and the CNP REDON quantitative fit testing protocol. For these two protocols, employers must ensure that the test subjects (i.e., employees) perform the exercise procedure specified in Part I.C.4(b) of this appendix for the CNP quantitative fit testing protocol, or the exercise procedure described in

Part I.C.(b) of this appendix for the CNP REDON quantitative fit-testing protocol. For the remaining fit testing methods, employers must ensure that employees perform the test exercises in the appropriate test environment in the following manner:

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

Rainbow Passage

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

- (6) Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT.)
- (7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
- (8) Normal breathing. Same as exercise (1).

(b) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

B. Qualitative Fit Test (QLFT) Protocols

1. General

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

2. Isomayl Acetate Protocol (omitted - rarely used)

3. Irritant Smoke (omitted - rarely used)

4. Saccharin Solution Aerosol Protocol

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

- (a) 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 to subsection 3. (a): 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 get thoroughly rinsed in water, shaken dry, and refilled at least each morning and afternoon or at least every four hours.

(b) Saccharin solution aerosol fit test procedure.

(1) The test subject may not eat, drink (except for 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 appendix. 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 section I.A.14. of this appendix.
- (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.

5. Bitrex® (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol.

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

(a) Taste Threshold Screening.

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

- (1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An

enclosure substantially similar to the 3M hood assembly, parts #14 and #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.

(b) Bitrex® Solution Aerosol Fit Test Procedure.

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

C. Quantitative Protocols (QNFT)

1. General

- (a) The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.

(b) The employer shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

2. Generated Aerosol Quantitative Fit Testing Protocol (omitted-not used)

3. Ambient Aerosol Condensation Nuclei Counter (CNC) Quantitative Fit Testing Protocol

(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) as per the manufacturer's instruction.

(2) Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.

(3) Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.

(4) Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same model respirator, or another model of respirator.

(5) Follow the manufacturer's instructions for operating the Portacount and proceed with the test.

(6) The test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.

(7) After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

(b) Portacount Test Instrument.

(1) The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.

(2) Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this Appendix.

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

- 4. Controlled Negative Pressure (CNP) Quantitative Fit Test Protocol - (omitted - not used)**
- 5. Controlled Negative Pressure (CNP) REDON Quantitative Fit Testing Protocol - (omitted - not used)**

RPP Appendix E: User Seal Check Procedures

Appendix B-1. to Sec. 1910.134: 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.

I. Face-piece Positive and/or Negative Pressure Checks.

A. Positive pressure check. Close off the exhalation valve and exhale gently into the face-piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face-piece without any evidence of outward leakage of air at the seal. 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.

B. 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 face-piece 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 face-piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

II. 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.

RPP Appendix F: Respirator Cleaning Procedures

Appendix B-2. to Sec. 1910.134: Respirator Cleaning Procedures (Mandatory)

These procedures are general in nature. As an alternative, use the cleaning recommendations provided by the manufacturer of the respirators used at WCRH, 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.

I. Procedures for Cleaning Respirators.

- A. Remove filters, cartridges, or canisters. Disassemble face-pieces 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 deg. C [110 deg. 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 deg. C [110 deg. 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 deg. C (110 deg. 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 deg. C (110 deg. 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 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face-pieces 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 face-piece, replacing filters, cartridges, and canisters where necessary.
- H. Test the respirator to ensure that all components work properly.