

# **Respiratory Protection Program**

## **Kettering Health Network**

**Updated 2/22/2020**

## Table of Contents

<b>1.0</b>	<b>Purpose and Applicability.....</b>	<b>1</b>
<b>2.0</b>	<b>Responsibilities.....</b>	<b>1</b>
	2.1 Respirator Program Administrator .....	1
	2.2 Supervisors.....	2
	2.3 Employees in the Program.....	2
<b>3.0</b>	<b>Respirator Selection.....</b>	<b>2</b>
	3.1 Hazard Assessment .....	2
	3.2 NIOSH-Certified Equipment .....	3
	3.3 Assignment of Respirators by Task and Location .....	4
	3.4 Updating the Hazard Assessment .....	4
	3.5 Voluntary Use of Respirators .....	4
<b>4.0</b>	<b>Medical Evaluation .....</b>	<b>4</b>
<b>5.0</b>	<b>Fit Testing.....</b>	<b>5</b>
<b>6.0</b>	<b>Training .....</b>	<b>6</b>
<b>7.0</b>	<b>Respirator Use .....</b>	<b>7</b>
<b>8.0</b>	<b>Storage, Reuse, Maintenance and Care of Respirators.....</b>	<b>8</b>
	8.1 Storage and Reuse .....	8
	8.2 Inspection, Maintenance and Repairs .....	8
	8.3 Cleaning and Disinfection .....	9
<b>9.0</b>	<b>Program Evaluation.....</b>	<b>9</b>
<b>10.0</b>	<b>Recordkeeping.....</b>	<b>10</b>
	<b>RPP Appendix A: Respirator Assignments by Task or Location .....</b>	<b>11</b>
	<b>RPP Appendix B: Information for Voluntary Users.....</b>	<b>12</b>
	<b>RPP Appendix C: Medical Clearance Questionnaires.....</b>	<b>13</b>
	<b>RPP Appendix D: Selected Fit Test Protocols .....</b>	<b>20</b>
	<b>RPP Appendix E: User Seal Check Procedures.....</b>	<b>28</b>
	<b>RPP Appendix F: Respirator Cleaning Procedures .....</b>	<b>29</b>

## 1.0 Purpose and Applicability

It is the policy of **Kettering Health Network** to protect the health and safety of its employees by (1) eliminating hazardous exposures where feasible; (2) using engineering and administrative controls to minimize hazardous exposures that cannot be eliminated; and (3) using respiratory protection and other personal protective equipment when the frequency and duration of exposures 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 \(29 CFR 1910.134\)](#)

This program applies to all employees and contractors and other individuals performing services onsite at a Kettering Health Network facility (including, but not limited to, residents, interns, students) who are required to wear respiratory protection due to the nature of their work at **Kettering Health Network**<sup>1</sup>. It applies to the use of air-purifying and air-supplying respirators, including filtering facepiece respirators.

At Kettering Health Network Contracted Clinical Care Employees participate in a Pre-Employment Services appointment. At this appointment an OSHA Respirator Questionnaire is completed and reviewed. Contractors are treated like all other employees to verify any past TB exposure (T-Spot or QuantiFERON Gold Testing is performed). Chest X-rays will be ordered upon necessity.

At Kettering Health Network contracted Industrial Employees are held to their own Respiratory Protection Program through close inspection by Facilities Management and Infection Control on each KHN property. All hazardous areas (welding booths, paint booths, medical gasses, sewer gasses, for example) are sampled annually for determination of inhalation risk and proper PPE requirements to meet regulatory protection needs. (See Reports from NJ and Associates for Troy/Piqua, Sycamore/Southview/Kettering Behavioral Health/Grandview/Soin/ Greene/Fort Hamilton and Kettering Medical Center). All new construction or remodel work is assessed for proper mechanical ventilation and filtration at the start of each job and periodically during the project.

## 2.0 Responsibilities

### 2.1 Respirator Program Administrator

The Director of Employee Health 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 and all elements of the respiratory protection program that need to be implemented to be effective. Hospital administration has the ultimate responsibility for all aspects of this program and has given {him/her} 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 OSHA's [Respiratory Protection standard \(29 CFR 1910.134\)](#):

- Conduct a hazard assessment and select the appropriate level of respiratory protection for each task or job title with potential exposure and record this information in the "Respirator Assignments by Task or Location" in Appendix A of this RPP.
- Develop and monitor respirator maintenance procedures.
- Coordinate the purchase, maintenance, repair, and replacement of respirators.

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<sup>1</sup> Where the word "employee" is used in this policy, it is intended to also refer to this broader definition of individuals who are performing services onsite and, due to the nature of their work, are required to wear respiratory protection.

- 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.

## **2.2 Supervisors**

Supervisors of employees included in the RPP will:

- Participate in the hazard assessment by evaluating all potential exposures to respiratory hazards, including exposure to chemicals and aerosol transmissible disease (ATD) pathogens, and communicating this information to the RPA.
- Identify employees and/or tasks for which respirators may be required and communicate this information to the RPA. This will be a shared responsibility with the RPA since the supervisors/directors know the day-to-day jobs/tasks their employees do, but the RPA may have more knowledge about respiratory protection requirements.
- Be responsible for ensuring that employees in their units follow the procedures outlined in the RPP. Schedule employees and students for medical evaluations, training, and fit testing and ensure that they can attend these appointments during work hours.

## **2.3 Employees/Residents/Students 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 Hazard Assessment**

The RPA will select the types of respirators to be used by hospital staff based on the hazards 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 a hazard assessment for each task, procedure, or work area with the potential for airborne contaminants. The hazard assessment will include the following as needed:

- Identification of potential exposures. The most common potential exposure for employees involved in patient care will be pathogens associated with ATDs such as tuberculosis. Maintenance, housekeeping, laboratory, or other staff may have the potential to be exposed to hazardous gases, vapors, hazardous medication, or dusts in addition to ATD pathogens.
- A review of work processes to determine levels of potential exposure for all tasks and locations.
- Quantification or objective determination of potential exposure levels, where possible. This may

not be feasible for ATD pathogens.

### 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](http://www.cdc.gov/niosh/npptl/topics/respirators/cel).

The following definitions apply to equipment that may be issued to employees under this program:

- **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.
- **Filtering facepiece respirators (FFR)** are disposable, negative-pressure, air purifying respirators where an integral part of the facepiece or the entire facepiece 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 facepiece respirator or equivalent protection).
- **Full facepiece 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 facepiece, 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 facepiece. 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 facepiece 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 Task and Location

The RPA will use the hazard assessment to assign appropriate types of respirators 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 Hazard Assessment**

The RPA will revise and update the 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 an 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 a substance-specific OSHA standard, the OSH Act or hospital 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.

Employees using respirators voluntarily will be provided with the information in [Appendix D to 29 CFR 1910.134](#) (Appendix B of this RPP). If they are using a respirator other than a filtering facepiece respirator, they will also be provided initial medical clearance and required to clean, store, and maintain the respirator as per the requirements of this RPP. Employees who choose to voluntarily use respirators should advise their supervisor of the need to be included in the applicable sections of the respirator program. If approved, the employees using a respirator other than a filtering facepiece respirator are required to attend annual training provided to those in the full respirator program, as 29 CFR 1910.134(k)(1)(v) requires training in the procedures for cleaning, maintenance and storage of the respirator. If employees voluntarily using respirators are aware of a change that warrants review of medical clearance or repeat fit testing, they should bring that to the attention of their supervisor.

## **4.0 Medical Evaluation**

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. See Appendix

Medical evaluations will be performed by a physician or LNP (Citran Occupational Health) or other licensed health care professional (PLHCP) at KHN Pre-Employment Services under the defined S.O.P of Citran Occupational Health.

Before being assigned to work in an area where respirators are required, each employee will complete the questionnaire in Appendix C of this RPP and deliver it to Kettering Health Network Pre-Employment Services or Employee Health office. [Appendix C of the OSHA Respiratory Protection standard.](#)]

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.

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 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.

## **5.0 Fit Testing**

Before an employee is required to use any respirator with a tight-fitting facepiece (anything except a PAPR with loose-fitting facepiece, hood, or helmet that does not rely upon a tight-fitting facepiece-to-face seal), she/he will be fit tested by Kettering Health Network Employee Health. Kettering Health Network Employees will be tested with the same make, model, style, and size of respirators to be issued across the network. Employees who use tight-fitting respirators are not permitted to have facial hair that interferes with the facepiece 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 facepiece, 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 facepiece, hood, or helmet for all tasks requiring a respirator.

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

KHN will offer a quantitative ambient aerosol condensation nucleus counter (CNC) fit testing and/or qualitative testing protocol.

KHN Employees (required to use a tight-fitting respirator) and on Leave of Absence during Annual Fit Testing will be required to use a PAPR until they are able to complete their Annual Fit Test upon their return to work. Exceptions/Exemptions requested by employees will be reviewed and may be provided to employees, if appropriate, based on documentation submitted by the employee's treating physician.

## **6.0 Training**

Annual respirator training will be provided for all employees covered by this program. The training will be conducted by KHN Center of Nursing Excellence and Employee Health and will include the following:

- The general requirements of the OSHA Respiratory Protection standard.

- The specific circumstances under which respirators are to be used.
- 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 facepiece 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 facepiece-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

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 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 facepiece-to-face seal must not be worn when conditions prevent a good seal. Such conditions may be a beard, long moustache, 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 facepiece.

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 facepiece 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 facepiece 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 facepiece (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 facepiece 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 if the filtering facepiece 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 facepiece 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.

Reusable elastomeric respirators that are assigned to individual users will be cleaned and disinfected/sterilized after use and stored at room temperature in a dry area that is protected from exposure to hazardous contaminants. KHN employees will adhere to SOP Mask Collection of N-95 Respirator Masks for Reprocessing as per the manufacturer's instructions.

PAPRs will be cleaned and stored on the patient care units, with Sani Wipes, Oxivir Wipes or Oxivir Sray (applied directly from a towel), C-Diff will be cleaned using Fuzion Spray. PAPR's will be stored after use on the unit 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 facepiece. PAPRs must be stored at room temperature in a dry area that is protected from exposure to hazardous 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 facepiece, 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 KHN Materials Management for repair, adjustment, or disposal.

KHN Materials Management is 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 or flow meter testing fails.

Refer to PH-KHN USP800 concerning PPE use for Chemical Protection and PAPR maintenance.

*For respirators maintained for emergency use, KHN Materials Management 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.*
- *Maintain compliance with established Respirator Chemical Cartridge change schedule*  
Combination 99.97% high-efficiency particulate air (HEPA)/organic vapor/acid gas respirator cartridges (also NIOSH-approved)

### **8.3 Cleaning and Disinfection**

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](#))

Reusable respirators issued for the exclusive use of an employee will be cleaned and disinfected 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 program.
- 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.

The RPP will be revised as necessary and records 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:

- Medical records such as medical clearance to wear a respirator shall be retained by Kettering Health Network Employee Health 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 Kettering Health Network Employee Health until the next training or fit test.
- A copy of this RPP and records of program evaluations and revisions shall be kept by Kettering Health Network Employee Health and made available to all affected employees, their representatives, and representatives of OSHA upon request.

Signatures:

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Director of Employee Health

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Director of the Center for Nursing Excellence

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Director of Materials Distribution

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Director of Network Pharmacies

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Director of Safety and Infectious Disease and Prevention

## RPP Appendix A: Respirator Assignments by Task or Location

Task or Location	Potential Exposure	Respiratory Protection	Employees Included
<p>Performing aerosol-generating procedures on patients suspected or confirmed with a disease requiring Airborne Precautions or present when such procedures are performed including but not limited to:</p> <p>{Sputum induction}  {Bronchoscopy}  {Aerosolized administration of medications}  {Pulmonary function testing}</p> <p><b><i>Refer to Network infection control plan.</i></b></p>	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<b><i>See High Risk Area Grid Below</i></b>
Performing aerosol-generating procedures on patients suspected or confirmed with influenza cases or present during such procedures.	Infectious aerosols	Isolation Mask	<b><i>See High Risk Area Grid Below</i></b>
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)	<b><i>See High Risk Area Grid Below</i></b>
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)	<b><i>See High Risk Area Grid Below</i></b>
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)	<b><i>See High Risk Area Grid Below</i></b>
Laboratory operations involving aerosol transmissible disease pathogens [ <a href="#">see HICPAC 2007</a> or other public health guidance] for which the biosafety plan requires respiratory protection	Infectious aerosols	N95 respirator or a more protective respirator (such as a PAPR)	<b><i>See High Risk Area Grid Below</i></b>
Facilities personnel involved in the changing of exhaust ventilation system from patient-care areas. The respiratory hazard of concern is biological agents trapped on the filters	Biological Agents	PAPR	Facilities staff at KMC, GV/SV, Sycamore, Troy/Piqua, Greene, FHH, Soin is excluded as this is contracted to HVAC vendor

Chemical Filters and PAPR's to be placed and maintained for use and distribution:				Hazardous Drugs or Antineoplastic agent classified as Powder/Solution for Inhalation/Aerosol Tx.	PAPR with Combination 99.97% HEPA/Organic Vapor/acid gas respirator cartridges	Emergency/First Receivers/Pharmacy/Oncology Nursing
Campus Site	Pharmacy Name	Floor Location	Cost Center			
FHH	Inpatient Pharmacy	Ground Floor	430060			
FHH	Infusion Pharmacy	Eaton Building 3rd Floor	431060			
SH	Inpatient Pharmacy	Ground Floor	430020			
SV	Inpatient Pharmacy	Ground Floor	430040			
SV	Infusion Pharmacy	MAC Building, Ground Floor	431040			
GMH	Inpatient Pharmacy	1st Floor	430055			
IR	Inpatient Pharmacy	Ground Floor	430050			
IR	Infusion Pharmacy	4th Floor	431130			
TH	Inpatient Pharmacy	2nd Floor	430018			
TH	Infusion Pharmacy	1st Floor POB side	431430			
GV	Inpatient Pharmacy	1st Floor	430030			
KH	Inpatient Pharmacy	Ground Floor	430010			
KCC (Cancer Center)	Infusion Pharmacy	3rd Floor	431030			

## Annual N95 Fit Testing - High Risk Areas

Department	Job Title	Department	Job Title	Department	Job Title	Department	Job Title
Surgery/PACU/GI	RN	Any	Ortho Tech	Inpatient Therapy (OT/PT/ST)	All positions	Nuc Medicine	PET Tech
	Surgical Techs	Imaging Departments in Hosp	CT Tech	Infection Control	All positions		Nuc Med Tech
	HUC/NA		Ultrasound Tech	Environmental Services	All positions		RN
	Providers		Radiology Tech	Endoscopy	All positions		Nuc Med Supervisor
ED	RN		RN	Plant Engineering/Facilities	All positions	Staffing Resource Office	RN
	HUC/NA		3D Tech	Respiratory Therapy	All positions		HUC/NA
	Providers		MRI Tech	Patient Transport	All positions		
ICU	RN	Emergency Medical Service	KTS Paramedic	In-Patient Pharmacy			
	HUC/NA		KTS EMT	Oncology	RN		
	Providers		KTS RN		Hospitalists		
Nursing Units (Critical Care and units w/negative pressure rooms)	RN	Police & Security	Officer	Lab	Clinical Lab Assistant		
	HUC/NA		Officer Specialist				
			Officer Shift Supervisor				
		Medical Residents	All medical residents				

## **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**

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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 of Part A, 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.

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

1. Today's date:
  2. Your name:
  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-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
  12. Have you worn a respirator (circle one): Yes/No                  If "yes," what type(s):

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

	YES	NO
1. Do you <i>currently</i> smoke tobacco, or have you smoked tobacco in the last month?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have you <i>ever had</i> any of the following conditions?	<input type="checkbox"/>	<input type="checkbox"/>
a. Seizures	<input type="checkbox"/>	<input type="checkbox"/>
b. Diabetes (sugar disease)	<input type="checkbox"/>	<input type="checkbox"/>
c. Allergic reactions that interfere with your breathing	<input type="checkbox"/>	<input type="checkbox"/>
d. Claustrophobia (fear of closed-in places)	<input type="checkbox"/>	<input type="checkbox"/>
e. Trouble smelling odors	<input type="checkbox"/>	<input type="checkbox"/>
3. Have you <i>ever had</i> any of the following pulmonary or lung problems?	<input type="checkbox"/>	<input type="checkbox"/>
a. Asbestosis	<input type="checkbox"/>	<input type="checkbox"/>
b. Asthma	<input type="checkbox"/>	<input type="checkbox"/>
c. Chronic bronchitis	<input type="checkbox"/>	<input type="checkbox"/>
d. Emphysema	<input type="checkbox"/>	<input type="checkbox"/>
e. Pneumonia	<input type="checkbox"/>	<input type="checkbox"/>
f. Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>
g. Silicosis	<input type="checkbox"/>	<input type="checkbox"/>
h. Pneumothorax (collapsed lung)	<input type="checkbox"/>	<input type="checkbox"/>
i. Lung cancer	<input type="checkbox"/>	<input type="checkbox"/>
j. Broken ribs	<input type="checkbox"/>	<input type="checkbox"/>
k. Any chest injuries or surgeries	<input type="checkbox"/>	<input type="checkbox"/>
l. Any other lung problem that you've been told about	<input type="checkbox"/>	<input type="checkbox"/>
4. Do you <i>currently</i> have any of the following symptoms of pulmonary or lung illness?	<input type="checkbox"/>	<input type="checkbox"/>
a. Shortness of breath	<input type="checkbox"/>	<input type="checkbox"/>
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline	<input type="checkbox"/>	<input type="checkbox"/>
c. Shortness of breath when walking with other people at an ordinary pace on level ground	<input type="checkbox"/>	<input type="checkbox"/>
d. Have to stop for breath when walking at your own pace on level ground	<input type="checkbox"/>	<input type="checkbox"/>
e. Shortness of breath when washing or dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>



	YES	NO
f. Shortness of breath that interferes with your job	<input type="checkbox"/>	<input type="checkbox"/>
g. Coughing that produces phlegm (thick sputum)	<input type="checkbox"/>	<input type="checkbox"/>
h. Coughing that wakes you early in the morning	<input type="checkbox"/>	<input type="checkbox"/>
i. Coughing that occurs mostly when you are lying down	<input type="checkbox"/>	<input type="checkbox"/>
j. Coughing up blood in the last month	<input type="checkbox"/>	<input type="checkbox"/>
k. Wheezing	<input type="checkbox"/>	<input type="checkbox"/>
l. Wheezing that interferes with your job	<input type="checkbox"/>	<input type="checkbox"/>
m. Chest pain when you breathe deeply	<input type="checkbox"/>	<input type="checkbox"/>
n. Any other symptoms that you think may be related to lung problems	<input type="checkbox"/>	<input type="checkbox"/>
5. Have you <i>ever had</i> any of the following cardiovascular or heart problems?		
a. Heart attack	<input type="checkbox"/>	<input type="checkbox"/>
b. Stroke	<input type="checkbox"/>	<input type="checkbox"/>
c. Angina	<input type="checkbox"/>	<input type="checkbox"/>
d. Heart failure	<input type="checkbox"/>	<input type="checkbox"/>
e. Swelling in your legs or feet (not caused by walking)	<input type="checkbox"/>	<input type="checkbox"/>
f. Heart arrhythmia (heart beating irregularly)	<input type="checkbox"/>	<input type="checkbox"/>
g. High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>
h. Any other heart problem that you've been told about	<input type="checkbox"/>	<input type="checkbox"/>
6. Have you <i>ever had</i> any of the following cardiovascular or heart symptoms?	<input type="checkbox"/>	<input type="checkbox"/>
a. Frequent pain or tightness in your chest	<input type="checkbox"/>	<input type="checkbox"/>
b. Pain or tightness in your chest during physical activity	<input type="checkbox"/>	<input type="checkbox"/>
c. Pain or tightness in your chest that interferes with your job	<input type="checkbox"/>	<input type="checkbox"/>
d. In the past two years, have you noticed your heart skipping or missing a beat	<input type="checkbox"/>	<input type="checkbox"/>
e. Heartburn or indigestion that is not related to eating	<input type="checkbox"/>	<input type="checkbox"/>
f. Any other symptoms that you think may be related to heart or circulation problems	<input type="checkbox"/>	<input type="checkbox"/>
7. Do you <i>currently</i> take medication for any of the following problems?	<input type="checkbox"/>	<input type="checkbox"/>
a. Breathing or lung problems	<input type="checkbox"/>	<input type="checkbox"/>
b. Heart trouble	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
c. Blood pressure	<input type="checkbox"/>	<input type="checkbox"/>
d. Seizures	<input type="checkbox"/>	<input type="checkbox"/>
8. If you've used a respirator, have you <i>ever had</i> any of the following problems? (If you've never used a respirator, check the following space and go to question 9. <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>
a. Eye irritation	<input type="checkbox"/>	<input type="checkbox"/>
b. Skin allergies or rashes	<input type="checkbox"/>	<input type="checkbox"/>
c. Anxiety	<input type="checkbox"/>	<input type="checkbox"/>
d. General weakness or fatigue	<input type="checkbox"/>	<input type="checkbox"/>
e. Any other problem that interferes with your use of a respirator	<input type="checkbox"/>	<input type="checkbox"/>
9. Would you like to talk to the healthcare professional who will review this questionnaire about your answers to this questionnaire?	<input type="checkbox"/>	<input type="checkbox"/>
<p>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.</p>		
10. Have you <i>ever</i> lost vision in either eye (temporarily or permanently)?	<input type="checkbox"/>	<input type="checkbox"/>
11. Do you <i>currently</i> have any of the following vision problems?	<input type="checkbox"/>	<input type="checkbox"/>
a. Wear contact lenses	<input type="checkbox"/>	<input type="checkbox"/>
b. Wear glasses	<input type="checkbox"/>	<input type="checkbox"/>
c. Color blind	<input type="checkbox"/>	<input type="checkbox"/>
d. Any other eye or vision problem	<input type="checkbox"/>	<input type="checkbox"/>
12. Have you <i>ever had</i> an injury to your ears, including a broken eardrum?	<input type="checkbox"/>	<input type="checkbox"/>
13. Do you <i>currently</i> have any of the following hearing problems?	<input type="checkbox"/>	<input type="checkbox"/>
a. Difficulty hearing	<input type="checkbox"/>	<input type="checkbox"/>
b. Wear a hearing aid	<input type="checkbox"/>	<input type="checkbox"/>
c. Any other hearing or ear problem	<input type="checkbox"/>	<input type="checkbox"/>
14. Have you <i>ever had</i> a back injury?	<input type="checkbox"/>	<input type="checkbox"/>
15. Do you <i>currently</i> have any of the following musculoskeletal problems?	<input type="checkbox"/>	<input type="checkbox"/>
a. Weakness in any of your arms, hands, legs, or feet	<input type="checkbox"/>	<input type="checkbox"/>
b. Back pain	<input type="checkbox"/>	<input type="checkbox"/>
c. Difficulty fully moving your arms and legs	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
d. Pain and stiffness when you lean forward or backward at the waist	<input type="checkbox"/>	<input type="checkbox"/>
e. Difficulty fully moving your head up or down	<input type="checkbox"/>	<input type="checkbox"/>
f. Difficulty fully moving your head side to side	<input type="checkbox"/>	<input type="checkbox"/>
g. Difficulty bending at your knees	<input type="checkbox"/>	<input type="checkbox"/>
h. Difficulty squatting to the ground	<input type="checkbox"/>	<input type="checkbox"/>
i. Climbing a flight of stairs or a ladder carrying more than 25 lbs.	<input type="checkbox"/>	<input type="checkbox"/>
j. Any other muscle or skeletal problem that interferes with using a respirator	<input type="checkbox"/>	<input type="checkbox"/>

**Part B.** Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the healthcare professional who will review the questionnaire.

	YES	NO
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?	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," name the chemicals if you know them: _____.		
3. Have you ever worked with any of the materials, or under any of the conditions, listed below?		
a. Asbestos	<input type="checkbox"/>	<input type="checkbox"/>
b. Silica (e.g., in sandblasting)	<input type="checkbox"/>	<input type="checkbox"/>
c. Tungsten/cobalt (e.g., grinding or welding this material)	<input type="checkbox"/>	<input type="checkbox"/>
d. Beryllium	<input type="checkbox"/>	<input type="checkbox"/>
e. Aluminum	<input type="checkbox"/>	<input type="checkbox"/>
f. Coal (for example, mining)	<input type="checkbox"/>	<input type="checkbox"/>
g. Iron	<input type="checkbox"/>	<input type="checkbox"/>
h. Tin	<input type="checkbox"/>	<input type="checkbox"/>
i. Dusty environments	<input type="checkbox"/>	<input type="checkbox"/>
j. Any other hazardous exposures	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," describe these exposures: _____		

	YES	NO
4. List any second jobs or side businesses you have:	<input type="checkbox"/>	<input type="checkbox"/>
5. List your previous occupations:	<input type="checkbox"/>	<input type="checkbox"/>
6. List your current and previous hobbies:	<input type="checkbox"/>	<input type="checkbox"/>
7. Have you been in the military services? If "yes," were you exposed to biological or chemical agents (either in training or combat)	<input type="checkbox"/>	<input type="checkbox"/>
8. Have you ever worked on a HAZMAT team?	<input type="checkbox"/>	<input type="checkbox"/>
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)? If "yes," name the medications if you know them: _____	<input type="checkbox"/>	<input type="checkbox"/>
10. Will you be using any of the following items with your respirator(s)?	<input type="checkbox"/>	<input type="checkbox"/>
a. HEPA Filters	<input type="checkbox"/>	<input type="checkbox"/>
b. Canisters (for example, gas masks)	<input type="checkbox"/>	<input type="checkbox"/>
c. Cartridges	<input type="checkbox"/>	<input type="checkbox"/>
11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?	<input type="checkbox"/>	<input type="checkbox"/>
a. Escape only (no rescue)	<input type="checkbox"/>	<input type="checkbox"/>
b. Emergency rescue only	<input type="checkbox"/>	<input type="checkbox"/>
c. Less than 5 hours per week	<input type="checkbox"/>	<input type="checkbox"/>
d. Less than 2 hours per day	<input type="checkbox"/>	<input type="checkbox"/>
e. 2 to 4 hours per day	<input type="checkbox"/>	<input type="checkbox"/>
f. Over 4 hours per day	<input type="checkbox"/>	<input type="checkbox"/>
12. During the period you are using the respirator(s), is your work effort:	<input type="checkbox"/>	<input type="checkbox"/>
a. <i>Light</i> (less than 200 kcal per hour) If "yes," how long does this period last during the average shift: ____ hrs. ____ mins.  Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.	<input type="checkbox"/>	<input type="checkbox"/>
b. Moderate (200 to 350 kcal per hour) If "yes," how long does this period last during the average shift: ____ hrs. ____ mins.  Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
c. Heavy (above 350 kcal per hour)	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," how long does this period last during the average shift: ____ hrs. ____ mins.		
Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).		
13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using the respirator?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," describe this protective clothing and/or equipment:		
14. Will you be working under hot conditions (temperature exceeding 77 deg. F)?	<input type="checkbox"/>	<input type="checkbox"/>
15. Will you be working under humid conditions?	<input type="checkbox"/>	<input type="checkbox"/>
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 first toxic substance:		
Estimated maximum exposure level per shift:		
Duration of exposure per shift:		
Name of second toxic substance:		
Estimated maximum exposure level per shift:		
Duration of exposure per shift:		
Name of third toxic substance:		
Estimated maximum exposure level per shift:		
Duration of exposure per shift:		
The name of any other toxic substances that you'll be exposed to while using your respirator:		
19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):		

## **RPP Appendix D: Selected Fit Test Protocols**

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

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#### ***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 enough respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a 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 facepiece shall be selected and retested if the test subject fails the user seal check tests.

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

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

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

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

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

**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 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.

D-23

(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 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 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 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. D-24

(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 like 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. D-26

(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).

## RPP Appendix E: User Seal Check Procedures

### Appendix B-1. to Sec. 1910.134: User Seal Check Procedures (Mandatory)

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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. Facepiece Positive and/or Negative Pressure Checks.***

*A. 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.

*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 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.

#### ***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)**

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

#### ***I. Procedures for Cleaning Respirators.***

A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

B. Wash components in warm (43 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 facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

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

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

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

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## For More Information

### Contacting NIOSH

To ask questions regarding the content of this document or for more information about occupational safety and health topics, please contact NIOSH: 1-800-CDC-INFO (1-800-232-4636); TTY: 1-888-232-6348; e-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) or visit the NIOSH website at [www.cdc.gov/niosh](http://www.cdc.gov/niosh).

### Contacting OSHA

To ask questions or to get more information about OSHA regulations, or to file a confidential complaint, contact OSHA at 1-800-321-OSHA (6742) or TTY: 1-877-889-5627 or go to [www.osha.gov](http://www.osha.gov).





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