Respiratory Protection Program
Example Document

Fargo Cass Public Health
City of Fargo, ND

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1.0 Purpose and Applicability (OSHA Standard 1910.134 (c)(1))

It is the policy of **_____** to protect the health and safety of its employees by 1) eliminating hazardous exposures where possible; and 2) using engineering and administrative controls to minimize hazardous exposures that cannot be eliminated. In some cases, however, such controls will not reduce exposures to safe levels and the use of respiratory protection may be required.

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 for use of respiratory protection.

This program applies to **all _____ employees and contract employees** who may need to wear respiratory protection due to the nature of their work. It applies to the use of filtering face piece (disposable) respirators.

2.0 Responsibilities:

2.1 Respirator Program Administrator (RPA) (OSHA Standard 1910.134 (c) (3))

_____, has been designated as the 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 in order for it to be effective. Department leadership has ultimate responsibility for all aspects of this program and has given the RPA full authority to make the necessary decisions to ensure its success. This authority includes (but is not limited to) conducting a hazard assessment for selecting appropriate respiratory protection, purchasing the necessary equipment and supplies, and developing and implementing the policies and procedures in the written RPP.

Specifically, the RPA will:

- Conduct a hazard assessment and select the appropriate level of respiratory protection for each task or job title with exposure and record that information in the “Recommended Equipment Use Chart” in Appendix A of this RPP.
- Develop and monitor respirator maintenance procedures.
- Coordinate 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 annual training in the use and limitations of respirators in accordance with OSHA Standard 1910.134(k).

- Provide annual respirator fit testing in accordance with OSHA Standard 1910.134 (f)
- Maintain records of respirator training, medical clearance, and fit testing as required by OSHA Standard 1910.134 (m)
- Maintain a copy of this written RPP and program evaluations, and ensure that they are readily accessible to anyone in the program.
- Review the written RPP at least annually to ensure compliance with OSHA Standard 1910.124 (l)
- Complete Respirator Employer Authorization and Information Eval for each _____ employee

2.2 Supervisors

Supervisors of employees included in the RPP will:

- Actively participate in the hazard assessments by evaluating potential exposures to respiratory hazards, including chemical exposures and/or aerosol transmissible diseases (ATDs), 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. (The supervisor knows the day-to-day job tasks assigned to employees, and the RPA may have more knowledge about respiratory protection requirements.)
- Sign employees' Respirator Employer Authorization and Information Eval form
- Be responsible for ensuring that employees in their units follow the procedures outlined in the RPP. They will schedule employees for medical evaluations, training, and fit testing and ensure that they are allowed to attend these appointments during work hours.
- Be responsible for ensuring that employees with facial hair, who were not fit-tested as part of the agency's annually scheduled fit-testing, will, in the event of an emergency, shave their facial hair and report to the _____ Occupational Health Clinic for just-in-time fit-testing, as directed by Emergency Preparedness to do so.
- Be responsible for tracking their employees who have not been fit-tested due to facial hair and, in the event that the employee shaves the facial hair at any point during the year, will schedule that employee for a routine fit-testing at _____ Occupational Health.

2.3 Employees in the Program

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

- Complete required Respirator Medical Evaluation Questionnaire (Part A Section 1 and Part A Section 2) for medical clearance and participate in a medical examination if necessary.
- Comply with facial hair requirements for respirator use.
- Attend annual training and respirator fit testing as required in the RPP.
- Use, maintain, and dispose of respirators properly in accordance with training and the procedures in the RPP.

2.4 New Hires

- New _____ employees who have been fit tested by another agency within 12 months of the _____ fit testing schedule will be asked to provide documentation of that fit testing. Such cases will be evaluated by the RPP administrator, who will advise the employee on when they will need to be tested again.
- New employees who have never been fit tested or who did not present fit testing documentation to COF-EH from previous employer will be:
  1. Required to complete a fit testing medical questionnaire during new hire orientation; questionnaire will be reviewed by RPP administrator or COF medical provider
  2. Fit tested during new hire orientation
- In the event of an emergency requiring use of an N95 respirator, any employee who has not yet been fit tested will be provided with "just in time" fit testing.
- “Just in time" fit testing requires the employee be medically pre-screened using fit testing medical questionnaire, the fit testing medical questionnaire be reviewed by the RPP administrator or COF medical provider, and completion of fit testing
- Fit testing medical questionnaire and Respirator Fit Test Record will be filed in the employee’s Employee Health record.

3.0 Respirator Selection (OSHA Standard 1910.134 (d))

3.1 Hazard assessment (OSHA Standard 1910.134 (d) (1) (iii))

The RPA will select the types of respirators to be used by _____ employees based on the hazards to which employees may be exposed and in accordance with all OSHA regulations and CDC guidelines. With input from the respirator user, the RPA and supervisor will conduct a hazard assessment for each task, procedure, or work area where there are airborne contaminants. The hazard assessment will include the following as needed:

- Identification of potential exposures. The most common potential exposure for _____ employees will be ATDs, such as tuberculosis or pandemic influenza.
- A review of work processes to determine which tasks and locations have potential exposures.

3.2 NIOSH Certified Equipment (OSHA Standard 1910.134 (d)(1)(ii))

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

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

- **Filtering face piece respirator (N95 for ATDs)** is a particulate air-purifying respirator in which the entire face piece is composed of the filtering medium. These respirators are disposable and designed for a single use. An N95 has a filter efficiency of 95%.

3.3 Assignment of Respirators by Task and Location (OSHA Standard 1910.134 (d))

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 clinical and outreach settings. 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 anticipates a new exposure. Any employee who believes that respiratory protection is needed during any particular activity must contact their 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.

4.0 Medical Evaluation (OSHA Standard 1910.134 (e)(2)(i))

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.

Medical evaluations and clearances will be performed by COH-EH nurse or COF-EH medical provider.

Before being assigned to work in an area where respirators are required, each employee will complete the Respirator Medical Evaluation Questionnaire (Part A Section 1 and Part A Section 2) and turn it in to COF-EH Clinic. The questionnaire will be filled out during work hours and should be turned in directly to the COF-EH clinic via interoffice mail (in sealed envelope), personally delivering it to the clinic (in sealed envelope), or via secure electronic transmission. Employees may also speak directly with the COF-EH nurse or medical provider if they have questions. The COF-EH nurse or medical provider will consult with department supervisors and will provide supervisor with a copy of this RPP, to reference for information 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 environments of particular concern (ex. extremes of temperature or humidity).

The COF-EH nurse or medical provider will review completed questionnaires and make a medical determination as to whether the employee can wear a respirator safely. The COF-EH nurse or medical provider may make this determination based on the questionnaire alone. The COF-EH nurse or medical provider may require a physical examination of the employee and may order tests, consultations, or procedures as deemed necessary. Should a physical examination be necessary, the COF-EH medical provider will provide a Respirator Medical Examination Results by PLHCP form, which may clear the employee for respirator use, or may specify restrictions or limitations on use, such as the type of respirator that may be worn or the duration that it may be worn. A copy of this written determination will be provided to the employer and 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 COF-EH nurse or medical provider requests re-evaluation.
- Observations made during fit testing and/or program evaluation indicate a need for re-evaluation (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 (OSHA Standard 1090.134 (f))

Before an employee is required to use any respirator with a tight-fitting face piece (anything except a PAPR with hood or helmet that does not rely upon a tight-fitting face piece-to-face seal), she/he will be fit tested with the same make, model, style, and size of respirator to be used. Employees will be tested by _____. Employees with facial hair that interferes with the face piece-to-face seal will not be fit tested and will not be allowed to wear a respirator with a tight-fitting face piece. (Exception: In the

event of an emergency, employees with facial hair may be required to shave all facial hair, and report to COF-EH for just-in-time fit-testing.)

All employees who must wear respiratory protection shall receive medical clearance before fit testing is performed. 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 cannot wear tight-fitting respirators will be reassigned to areas without exposure.

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.

A qualitative fit test will be used for all wearers of N95 respirators. The qualitative test will follow the protocol for saccharine and/or Bitrex® solutions found in Appendix D of this RPP. A quantitative fit testing will be offered to nurses giving direct TB patient care.

6.0 Training (OSHA 1910.134 (k))

Annual respirator training will be provided for all employees covered by this program. The training will be conducted by **Respirator Program Administrator,** and will include the following:

- The general requirements of the OSHA Respiratory Protection Standard.
- The hazards and risk level of those hazards that are expected to be encountered in department operation.
- The specific circumstances under which respirators are to be used.
- Why the respirator is necessary and how proper fit, usage, or maintenance can ensure the protective effect of the respirator.
- The limitations and capabilities of the respirators that will be used.
- How to effectively use the respirators.
- How to inspect, put on, remove, use, and check the seals of the respirator (for tight-fitting respirators such as N95s).
- The procedures outlined in this program for maintenance, storage, and cleaning or disposal of respirators.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- How to decontaminate (or safely dispose of) a respirator that has been contaminated with chemicals or hazardous biological materials.

Training shall be provided at the time of initial assignment to respirator use, but before actual use, by _____, 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/she has not retained the requisite understanding or skill.

The employee will also receive additional training during the fit testing procedure that will provide him/her an opportunity to handle the respirator, have it fitted properly, test its face piece-to-face seal, wear it in normal air for a long familiarity period, 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 D of this RPP)

Employees will be given the opportunity during training to provide feedback on the effectiveness of the program and any suggestions they have for improvement.

7.0 Respirator Use (OSHA Standard 1910.134 (g))

Employees will use their respirators under conditions specified by this program and in accordance 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 face seal. Such conditions may be a growth of beard, long moustache, sideburns, or even razor stubble as well as scars, other facial deformities, and sometimes 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 policies pertaining to ensuring the safe use of respirators. To assure proper protection, the wearer will perform a user seal check in accordance with manufacturer's instructions and the training provided at the time of fit testing, each time he/she puts on the respirator. Employees who wear corrective glasses or other personal protective equipment must be sure that such equipment is worn in a manner that does not interfere with the face piece seal.

N95 filtering face piece respirators will be discarded after each use.

Employees may leave the work area to change or adjust their respirator for the following reasons:

- To adjust their respirator if the respirator is impeding their ability to work.
- To wash their face if the respirator is causing discomfort, perspiration or rash.

8.0 Storage, Maintenance, and Care of Respirators (OSHA Standard 1910.134 (h)(1))

8.1 Storage (OSHA Standard 1910.134 (h)(2))

All N95 respirators will be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

- Filtering face piece respirators will be stored in each department, in a designated area, in accordance with manufacturer instructions.
- The respirators should be packed or stored so that they do not become damaged. (Note: respirators should not be stored in pockets, plastic bags, or other confined areas.)
- Respirators will be labeled with the user's name before use to prevent reuse by another individual. Label may be placed on the elastic strap, but not on the mask itself.

8.2 Inspection, Maintenance, and Repairs (OSHA Standard 1910.134 (h)(3))

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, and filters.
- All rubber or plastic parts, for pliability and signs of deterioration.

Any defective respirators shall be removed from service. Defective disposable respirators will be discarded and replaced.

9.0 Program Evaluation (OSHA Standard 1910.134 (l))

The RPA will conduct an annual evaluation of the RPP to ensure that all aspects of the program adhere to the requirements of the OSHA Respiratory Protection Standard and that it is being implemented effectively to protect employees from respiratory hazards.

Program evaluation will include:

- 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 fit, use, and maintenance issues) that will be collected at 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** (OSHA Standard 1910.134(m))

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 COF-EH Clinic, in a locked filing cabinet and/or in the COF-EH electronic medical record, as part of confidential medical records. These records will be made available in accordance with the OSHA Access to Medical Records Standard 29CFR 1913.10(a), 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 COF-EH Clinic, and stored, along with the medical records, until the next training or fit test.

- A copy of this RPP and records of program evaluations and revisions shall be made available to all affected employees, their representatives, and representatives of OSHA, upon their request.

RPP Appendix A: Respirator Assignments by Task/Location
(Specifies minimum level of respiratory protection required)

Task/Location	Potential Exposure	Respirator Type	Employees Included
Performing high hazard procedures on confirmed or suspected influenza cases or present during such procedures	Infectious aerosols*	N95	All
Entry into airborne infection isolation room or other area occupied by confirmed or suspected case of Airborne Infectious Disease (AirID)	Infectious aerosols*	N95	All
Performing patient care or present during performance of procedures on an AirID confirmed or suspected case	Infectious aerosols*	N95	All
Cleaning/decontaminating area occupied by AirID confirmed or suspected case, or after patient has left if space has not yet been adequately ventilated	Infectious aerosols*	N95	All
Repair/maintenance of air systems or equipment that may contain or generate aerosolized infectious agents	Infectious aerosols*	N95	All
Transport of an AirID confirmed or suspected case when the patient is not masked	Infectious aerosols*	N95	All
Response to _____ emergency involving Infectious agents.	Infectious aeorsols*	N95	All
Entry into home/pet hoarding environment	Aeorsolized mold an dust particles; aeorsolized animal fecal material	N95	Environmenta Health
Entry into home/pet hoarding environment	Raised ammonia levels	No respiratory protection beyond N95 respirator recommended at this time. _____ Environmental Health Employees are instructed by department supervisor to leave environment immediately if they detect the smell of ammonia.	Environmenta Health

Entry into structure with risk of asbestos exposure	Asbestos exposure	_____environmental Health employees will not enter into a building with an asbestos exposure risk	Environmenta Health

*****Infectious aerosols include aerosolizable spore-containing powders such as Anthrax/Bacillus anthracis, aspergillosis (if massive soft tissue infection with copious drainage and repeated irrigations required), varicella (chickenpox) and herpes zoster (disseminated or in an immunocompromised host)/Varicella-zoster virus, measles (rubeola)/Measles virus, Monkeypox/Monkeypox virus, severe acute respiratory syndrome (SARS)/SARS-associated coronavirus (SARS-CoV), smallpox (variola)/Variola virus, tuberculosis (TB)/Mycobacterium tuberculosis, novel or emerging pathogens and any other disease for which public health guidelines recommend airborne infection isolation (CDC and public health authorities will post latest respiratory protection guidance)

RPP Appendix B: Fit Test Protocol

Appendix A to Section 5144: 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) The following test exercises are to be performed for all fit testing methods prescribed in this appendix. The test subject shall perform exercises, in the test environment, in the following manner:

(1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

(2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.

(3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

(4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).

(5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

(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.

3. Saccharin Solution Aerosol Protocol. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(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 the 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 sectionI. 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).

(11) 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.

4. BitrexTM (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol. The BitrexTM (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) 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.

(2) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

(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 3) 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 not 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 sectionI. 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 C: User Seal Check Procedures

Appendix B-1. to Section 5144: 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 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. With respirator fitted in place on the face, inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. If the facepiece remains in its slightly collapsed condition, and no inward leakage of air is detected, the 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 D: Definitions

Assigned protection factor (APF) means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.

Emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

Escape-only respirator means a respirator intended to be used only for emergency exit.

Filter or air purifying element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

High efficiency particulate air (HEPA) filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

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

Immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Loose-fitting facepiece means a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) means the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.

Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.

Positive pressure respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Qualitative fit test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Service life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

This section means this respiratory protection standard.

Tight-fitting facepiece means a respiratory inlet covering that forms a complete seal with the face.

User seal check means an action conducted by the respirator user to determine if the respirator is properly seated to the face.