

***BRUNSWICK  
SEWER DISTRICT***

**RESPIRATORY PROTECTION  
POLICY**

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## **SECTION 2**

### **RESPIRATORY PROTECTION POLICY**

#### **2.1 PURPOSE**

The purpose of this policy is to ensure the protection of all employees from respiratory hazards. Using accepted engineering control measures such as ventilation and the use of less toxic materials will accomplish this, when feasible. When these measures are not feasible the appropriate respirator will be worn in accordance with 29 CFR 1910.134 and the Maine Department of Labor.

#### **2.2 PROGRAM ADMINISTRATOR**

The Assistant General Manager will administer the Respiratory Protection Policy. The function of the administrator is to oversee the program and evaluate effectiveness. This will be accomplished through periodic, but at least annual reviews, of the program. These reviews will include, but not be limited to, verification of fit testing and medical review records.

#### **2.3 RESPONSIBILITIES**

##### **2.3.1 Program Administrator**

The Program Administrator is responsible for oversight of the respiratory protection program. The Program Administrator may perform the following and/or assign a designated employee to perform the following duties of the program:

- A. Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- B. Selection of respiratory protection options.
- C. Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- D. Arranging for and/or conducting training.
- E. Ensuring proper storage and maintenance of respiratory protection equipment.

##### **2.3.2 District**

The District is responsible for ensuring that the respiratory protection program is implemented. The District must provide for medical evaluations to determine each employee's ability to wear a respirator; pulmonary function tests as required, fit testing and must provide the appropriate respirators and accessories. The district will provide this service through U.S. HealthWorks.

### 2.3.3 Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- A. Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing, and medical evaluation.
- B. Ensuring the availability of appropriate respirators and accessories.
- C. Being aware of tasks requiring the use of respiratory protection.
- D. Enforcing the proper use of respiratory protection when necessary.
- E. Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection policy.
- F. Ensuring that respirators fit well and do not cause discomfort.
- G. Continually monitoring work areas and operations to identify respiratory hazards.
- H. Coordinating with the Program Administrator on how to address respiratory hazards and other concerns regarding the program.

### 2.3.4 Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- A. Care for and maintain their respirators as instructed, and store them in a clean sanitary location.
- B. Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.
- C. Inform their supervisors or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.

## 2.4 MEDICAL EVALUATION

Employees who are required to wear respirators, or who choose to wear APR (air purifying respirators) voluntarily, must pass a medical exam before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician or other licensed health care professional (PLHCP) has determined that they are medically

able to do so. A licensed physician at the District's contracted health service provider, U.S. HealthWorks, where all company medical services are provided, will provide the medical evaluations. Medical evaluation procedures are as follows:

- A. The medical evaluation will be conducted using the questionnaire provided in Appendix C of the respiratory protection standard. The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations.
- B. The District Program Administrator will send the employee directly to the physician for medical evaluation assistance when employees are unable to read and/or understand the questionnaire.
- C. All affected employees will be given a copy of the medical questionnaire to fill out, along with an envelope for the questionnaire to be given to the District's contracted health service provider, U.S. HealthWorks at the time of medical evaluation. Employees will be permitted to fill out the questionnaire on company time.
- D. The periodic evaluation will be administered according to the following schedule:
  - District Employees that are required to wear respirators will be evaluated annually
- E. Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the District's contracted health service physician.
- F. All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
- G. The Program Administrator has provided the District's contracted health service, U.S. HealthWorks physician with a copy of this program, a copy of the Respiratory Protection standard, the list of hazardous substances in the work area, and for each employee requiring evaluation: his or her job title, crew, proposed respirator type and weight, length of time required to wear respirator, expected physical work load (light, moderate or heavy), potential temperature and humidity extremes, and any additional protective clothing required.
- H. After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:
  - Employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.

- The District's contract health service, physician U.S. HealthWorks or supervisor informs the Program Administrator that the employee needs to be reevaluated;
  - Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation;
  - A change occurs in workplace conditions that may result in an increased physiological burden on the employee.
- I. All examinations and questionnaires are to remain confidential between the employee and the physician. The only information available to the Program Administrator and supervisors is the physician's written recommendation regarding each employee's ability to wear a respirator.

## **2.5 FIT TESTING**

Fit testing is required for employees who are required to wear APR's and negative or positive pressure SAR's with tight fitting face pieces. Fit testing is done to evaluate the fit of a respirator on each employee required to wear one. Fit testing is required before initial use, annually, when there are changes in the employee's physical condition that could affect respirator fit (obvious change in body weight, facial scarring, dentures, etc.), and whenever a different respirator face piece is used.

- A. Employees will be fit tested with the make, model and size respirator that they will actually wear.
- B. The fit test will be administered using an OSHA-accepted QLFT protocol, as contained in Respiratory Protection standard Appendix A. QLFT protocols include using one of the following: Isoamyl acetate, saccharin, bitrex, and irritant smoke.
- C. The Program Administrator or designated employee will make arrangements for fit testing using the above protocol. The Program administrator will keep all fit testing records in the vault.
- D. Fit testing should not be confused with a seal check. The respirator user, to determine if the respirator is properly seated to the face each time a respirator is donned conducts a seal check.

### **2.5.1 Respirator Use**

### **2.5.2 Wearer Responsibilities**

In any situation that requires the use of a respirator, your first responsibility is to respect the danger of a contaminated atmosphere and wear the appropriate

breathing protection. A respirator will not eliminate the hazardous atmosphere; it is a barrier that will protect you from the hazard. As a wearer it is your responsibility to:

- A. Understand how the respirator is to be used, use it according to instructions and use it whenever you are working in an area where dusts, mist, vapors or toxic gases contaminate the atmosphere.
- B. Inspect the respirator before each use and be sure it fits properly.
- C. Be certain that any filters and cartridges are adequate for the hazard.
- D. Leave the contaminated area immediately if you feel any discomfort or suspect a problem with the respirator.
- E. Protect the respirator against deterioration and damage.
- F. Report any damage to your supervisor or the Program Administrator.
- G. Employees will not wear respirators during emergency situations.

### **2.5.3 Identifying Respiratory Hazards**

Respiratory hazards exist whenever the air you breathe endangers your life or health. At Brunswick Sewer District these hazards may exist in any enclosed space, (tanks, sanitary maintenance holes, tin cans, interceptors, wells, etc.) and where chemicals are stored. These areas exist at the Treatment Plant, at the Pump Stations, and through the Collection System. They may also occur while painting, grinding, welding, working with lime, lawn care or any number of jobs where particulate, fumes or gases are produced. The four kinds of respiratory hazards are:

- A. Particulate - finely divided solid or liquid particles generated by such processes as grinding, crushing and mixing of a compound, either a solid or a liquid. There are three types of particulates as follows:
  - Dusts are solid particles produced by such processes as grinding, crushing, and mixing of powder compounds. Examples are lime dust and wood dust or dry soil disturbed during lawn work. By comparison to the following two types of particulates dust particles are usually large.
  - Mists are tiny liquid droplets, usually formed whenever a liquid is sprayed, vigorously mixed, or otherwise agitated. Paint mists during spray painting and plant water sprayed from fire hoses are an example.
  - Fumes are solid condensation particles of extremely small particle size. Fumes are found in the air near welding operations.
- B. Gases are the normal form of substances like carbon dioxide or hydrogen sulfide. These substances are solids or liquids only at very low temperatures or extremely

high pressures. Carbon dioxide for instance is a gas at room temperature, but it occurs as a solid, dry ice, at low temperatures.

- C. Vapors are exactly like gases except that they are formed by the evaporation of substances, such as acetone, which ordinarily occurs as a liquid. Two basic forms, gaseous and particulate, frequently occur together. Paint spraying operations for example produce both paint mists (particulate) and solvent vapors (gases).
- D. Oxygen deficiency occurs when the oxygen as detected by a gas detector goes below 19.5%. An air-purifying respirator will not protect the wearer in an oxygen deficient atmosphere.
- E. Long-term exposure to even low concentrations of many particulates, gases, and vapors can cause permanent lung damage.

#### **2.5.4 Wearer Requirements**

- A. Facial hair  
It is an OSHA regulation that employees are not permitted to wear tight-fitting respirators if facial hair prevents them from achieving a good face-to-face piece seal.
- B. Corrective Lenses  
Spectacle temple bars, or straps that pass between the face-to-facepiece seal of a full-face respirator are not permitted. The District will purchase a lens kit from the respirator manufacturer and pay the cost for prescription lenses.
- C. PPE  
Personal protective equipment (such as goggles) shall be worn in a manner that does not interfere with the face-to-facepiece seal.
- D. Miscellaneous sealing problems  
Scars, hollow temples, prominent cheekbones, deep skin creases, weight changes, and lack of teeth or dentures may cause face-to-facepiece sealing problems.
- E. Seal check  
Employees will perform a user seal check to ensure an adequate seal is achieved each time the respirator is donned. This will be done using a Positive and Negative Pressure Check.
  - Positive Pressure Check
    - Don the respirator.
    - Close off the exhalation valve with the palm of your hand and exhale gently into the face piece.

- The 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.
- Negative Pressure Check
  - Don the respirator.
  - Close off the inlet opening(s) of the cartridge by covering with your palms. For openings that cannot be covered with your palm, cover the inlet opening of the cartridge with a thin PVC glove.
  - Inhale gently so the facepiece collapses slightly, and hold breath for 10 seconds.
  - If facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness is considered satisfactory.

## 2.6 RESPIRATOR MALFUNCTION

For any malfunction of an APR (such as breakthrough, facepiece leakage, or improperly working valve), the respirator wearer should inform his or her supervisor that the respirator no longer functions as intended, and go to a safe area to maintain the respirator. The supervisor must ensure that the employee receives the needed parts to repair the respirator, or is provided with a new respirator. Safety attendants will assist workers who experience an SAR malfunction as follows:

- A. If worker on a tripod, safety attendant must remove worker from confined space immediately.

## 2.7 TYPES OF RESPIRATORS

There are two basic categories of respirators, those that purify contaminated air and those that provide a supply of fresh air. Only respirators approved by the National Institute of Occupational Safety and Health (NIOSH) may be used. Brunswick Sewer District employees will at no time be required or permitted to use any level of respiratory protection or perform work in an IDLH (Immediately Dangerous to Life and Health) atmosphere. At Brunswick Sewer District we have the following:

Air Purifying Respirators (APRs):  
 North half-facepiece respirator 7700-30  
 North full-facepiece respirator 7600-08A

Filtering Facepieces (Dust masks)  
 Moldex 2200 N95  
 3M 8214 N95 Particulate



## 3M 9925 Welding Fume Respirator

Supplied Air Respirators (SARs):

MSA Hip Air Breathing Apparatus used with EnMet AFP-40 to achieve Class D breathing air

### 2.7.1 Cartridges

A. Cartridges for the North APRs that are commonly used at the District are: Selection is based upon the MSDS's required applied protection factor (APF).

- 7581P100 Organic Vapor & P100 Any Particulate Filter  
Used for painting, but not paints with isocyanates, cleaning tanks, etc.
- 75SCP100 Defender Multi-purpose & P100 Any Particulate Filter  
Voluntarily used in the press room when pressing
- 7582P100 Chlorine & P100 Any Particulates  
Used for working with a large sodium hypochlorite spill, working inside hypo tanks prior to flushing with water, when handling any of the chemicals listed for cartridge, etc.
- N7500-2 Chlorine  
Used for working with a large sodium hypochlorite spill, working inside hypo tanks prior to flushing with water, when handling any of the chemicals listed for cartridge, etc.
- 7580P100 P100 Any Particulates Filter (HEPA)  
Used when working in lime silo and various maintenance work such as sanding, cutting PVC pipe or performing any activity that can create dusts, mists or fumes.

B. All cartridges must have color-coded label showing NIOSH approval. Labels must not be removed and must remain legible. If labels are missing replace the cartridge.

C. Other cartridges will be provided, as needed following manufacturer's recommendation.

D. 3M 9925 Welding Fume Respirator are disposable filtering face pieces may be used when welding.

E. 3M 8214 N95 Particulate, 3M 8271 P95 and Moldex 2200 N95 is a disposable filtering face piece that is used when handling material that produces a dust such as lime, grinding, etc.

## 2.8 CLEANING, INSPECTION AND MAINTENANCE

Respirators are to be regularly cleaned and disinfected. The correct procedure for cleaning, Appendix B of 1910.134, is posted in the lunchroom on the inside of a cabinet door, and is attached to this policy in Appendix A.

Respirators are issued for the exclusive use of an employee and should be inspected using the following check list:

- A. Face piece
  - Cracks, tears or holes
  - Facemask distortion
  - Cracked or loose lenses/faceshield
  
- B. Headstraps
  - Breaks or tears
  - Broken buckles
  
- C. Valves
  - Residue or dirt
  - Cracks or tears in valve material
  - Warped valve material
  
- D. Filters/Cartridges
  - Approval designation (NIOSH)
  - Gaskets
  - Cracks or dents in housing
  - Proper cartridge for hazard

Employees are permitted to perform limited maintenance on their respirator in an area that is free of respiratory hazards. Employees should contact their supervisor or the Safety coordinator for parts that are needed. No attempts shall be made to replace components or to make adjustments, or to make repairs beyond the manufacturer's recommendation. Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor. Supervisors will give all defective respirators to the Safety coordinator or designated employee. The Safety coordinator or designated employee will decide whether to:

- Temporarily take the respirator out of service until it can be repaired.
- Dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of similar make, model and size.

## **2.9 CARTRIDGE CHANGE SCHEDULE**

Employees wearing filtering face pieces will dispose of them at the end of the shift.

Employees wearing APRs shall change the cartridges on their respirator following manufacture's recommendations; when they first begin to experience difficulty breathing (resistance); breakthrough; or at the end of the shift.

Spent cartridges can be disposed of in the regular trash.

## **2.10 STORAGE OF RESPIRATORS**

Respirators must be stored in a clean, dry area. Exposure to heat, sunlight, cold, dusts or chemicals can damage the respirator. Respirators must be kept in a re-sealable plastic bag, (Ziploc 2 gallon size).

A respirator must not be stored in an area where they are piled on top of each other or other items get piled on top of them. If a respirator is not properly stored, the overall shape or fit can be permanently damaged or disfigured.

## **2.11 TRAINING**

The Program Administrator or designated employee will provide or find a source to provide training to respirator users on the content of Brunswick Sewer District's Respiratory Protection Policy and their responsibilities under it, and on the OSHA Respiratory Protection Standard.

Training is required before initial use. District supervisors must determine if an employee has been trained before assigning an employee to work requiring a respirator. Re-training is required annually, when workplace conditions change, new types of respirators are used, or there is an indication that extra training is needed. The District will provide training to all employees on:

- A. Why a respirator is necessary and how proper fit, use and maintenance are important to the effectiveness of respiratory protection.
- B. The capabilities and limitations of the respirator.
- C. How to don and doff a respirator, including doing a seal check;
- D. Procedures for cleaning, inspecting, maintenance and storage;
- E. Recognition of signs and symptoms that may limit or prevent the use of a respirator;

## **2.12 PROGRAM REVIEW AND EVALUATION**

District supervisors shall annually evaluate the workplace as necessary to ensure that the provisions of the current written program are being implemented and that it continues to be effective.

District supervisors or the Program Administrator should regularly consult with employees to assess the employee's views on program effectiveness and to identify any problems. Factors to be considered include:

- A. Respirator fit
- B. Appropriate respirator selection for the hazards to which employees are exposed
- C. Proper respiratory use under workplace conditions that the employee encounters
- D. Proper respiratory maintenance

The Safety Committee will annually review this policy.

## **2.13 DOCUMENTATION AND RECORD KEEPING**

The most recently approved revision of this program will be provided to all employees. All employees who wish to review the OSHA standard may do so through the use of the internet.

The Program Administrator will maintain copies of training and fit test records in the vault. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.

The completed medical questionnaire and the physician's documented findings are confidential and will remain at the District's contracted health service, U.S. HealthWorks provider. The only information available to the Program Administrator and supervisors is the physician's written recommendation regarding each employee's ability to wear a respirator.

## APPENDIX 2A

(Appendix B-2 of 1910.134: Respiratory Cleaning Procedures (Mandatory))

State of Maine  
Respiratory Protection Standard  
Me 1910.134

## Appendix B-2 to § 1910.134: Respiratory Cleaning Procedures (Mandatory)

These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use 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.

### 1. Procedures for Cleaning Respirators

- A. Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- B. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- C. Rinse components thoroughly in clean warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
- D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or
  2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc 40% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,
  3. Other commercially available cleaners of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- E. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- F. Components should be hand-dried with a clean lint-free cloth or air-dried.
- G. Reassemble face piece, replacing filters, cartridges, and canisters where necessary.
- H. Test the respirator to ensure all components work properly.

## APPENDIX 2B (Hazard Assessment)

<u>Contaminant</u>	<u>Exposure Level (8hrs TWA)</u>	<u>PEL</u>	<u>Controls</u>	<u>Location</u>
Quicklime (Calcium Oxide)		TLV=2 mg/m3	Particulate filter (purple)	Lime silo/ Press Room
Welding (Welding electrode)		TLV=0.5-5 mg/m3	Exhaust fans, bay door open, ventilate area, welding or burning galvanized use welding filtering face piece	T/P & CP facilities
Hydrogen Sulfide	<10 PPM	<10 PPM	Ventilation, Gas meter to monitor	T/P & C/P facilities
Oxygen Deficiency	<19.5%	<19.5%	Ventilation, Gas meter to monitor	T/P & C/P facilities
Sodium Hypochlorite	0.5 PPM as Cl	0.5 PPM as Cl 2mg/m3 as NaOH	Ventilation, Gas meter to monitor,  Half or full face respirator and acid gas cartridge used for working with a large sodium hypochlorite spill, working inside hypo tanks prior to flushing with water (white/purple)	T/P facilities
Vaporooter II			Full face respirator with Organic vapor and particulate filter cartridge (black/purple)	T/P & C/P facilities
Ospho Metal Treatment	1 mg/m3	1mg/m3 as phosphoric acid	Ventilation  Full face respirator and acid Gas cartridge (white/purple)	T/P & C/P facilities
Sodium Thiosulfate			Ventilation  Gas meter to monitor	T/P facilities
Sodium Chloride (Water Softener Salt)			Particulate filter	Odor Control Room
ZETAG 7557	5 mg/m3 as Hexanedioic acid		Ventilation	Polymer Room
Marking Paint California Products (Paint)			Particulate Filter  Half or full face respirator with organic vapor and particulate filter cartridge	C/P T/P & C/P facilities



## Appendix 2C

### Voluntary Use of Respirators

## **VOLUNTARY USE OF RESPIRATORS**

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

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 the District provides respirators for your voluntary use you need to take certain precautions to be sure that the respirator itself does not present a hazard.

Due to the increase demands upon the respiratory and circulatory systems you must have passed the pulmonary function test and the medical exam provided by the District in order to voluntarily wear any respirator.

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 respirators 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. This includes the use of N95 disposable particulate respirators (paper dust masks).
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.