DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONAL SERVICES

RESPIRATORY PROTECTION PROGRAM MANUAL

March 23, 2017

Date Adopted: March 25, 2004 Revision Date: March 23, 2017

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RESPIRATORY PROTECTION PROGRAM

1. INTRODUCTION

It is the policy of the Department of Public Safety and Correctional Services (DPSCS) to provide employees with a safe and healthy working environment. This is accomplished by utilizing facilities and equipment that have all feasible safeguards incorporated into their design. When effective engineering controls are not feasible, or when they are being initiated, protection shall be used to ensure personnel protection.

This program does not apply to contractors, as they are responsible for providing their own respiratory protection programs and respiratory protective equipment.

This manual contains procedures related to a Respiratory Protection Program for **(Facility)** that comports with the Occupational Safety and Health Administration's (OSHA), Respiratory Protection Program 29 CFR 1910.134, Maryland Occupational Safety and Health (MOSH), Division of the Department of Labor, Licensing and Regulation requirements.

This is a facility specific program. It is in addition to, and does not replace, the DPSCS Tuberculosis Respiratory Protection Program.

The Department of Public Safety & Correctional Services is committed to conducting operations in a manner that minimizes health risks to its employees. The Department shall maintain and enforce a Respiratory Protection Program in accordance with OSHA 29 CFR 1910.134.

This program applies to **(Facility)** employees who are required to wear air-purifying respirators to prevent exposure to airborne contaminants during emergency situations.

The Department of Public Safety and Correctional Services shall take steps to prevent workplace related injury or illness by:

(1) Reducing operational risks;
(2) Developing, implementing and maintaining a respiratory protection program;
(3) Providing equipment and related training effective in safeguarding employees against respiratory hazards; and
(4) Requiring each facility to implement the requirements detailed in this Manual to establish Department compliance with the OSHA and MOSH requirements.

Direction or assistance regarding the Respiratory Protection Program is available through the Office of Environmental Compliance and Safety.

2. RESPONSIBILITIES

2.1. Office of Environmental Compliance & Safety

The Office of Environmental Compliance and Safety (ECS) is responsible for establishing and maintaining a respiratory protection program consistent with the goal of protecting DPSCS personnel from respiratory hazards. ECS shall implement a Respiratory Protection Program which is designed and organized to ensure respirators are properly selected, used, and maintained by DPSCS personnel, and to meet federal regulatory standards (29 CFR 1910.134) and industry accepted standards (ANSI).

The Office of Environmental Compliance and Safety (ECS) is also responsible for evaluating those tasks for which respiratory protection is thought to be necessary, determining the degree of hazard posed by the potential exposure, determining whether engineering or administrative controls are feasible, and will specifying which respiratory protection device is to be used for each task. In addition, ECS shall train personnel in the selection and use of respiratory protective devices, conduct qualitative and/or quantitative fit testing, and issue necessary protective devices.

2.2. Employee Health Services (EHS)

The Employee Health Services shall establish medical evaluation and surveillance procedures and review the health status of all personnel who may be required to wear respiratory protective equipment in the completion of their assigned tasks in accordance with established OSHA standard 29 CFR 1910.134.

2.3. Respiratory Protection Program Coordinator (RPPC)

The Respiratory Protection Program Coordinator (RPPC) shall be responsible for the coordination of the respiratory protection program in this institution. They shall be responsible for identifying work place conditions that require the use of a respirator. The RPPC shall provide medical evaluation forms to employees and forward the completed, sealed confidential medical evaluations to the LHCP. They shall identify, for the facility manager's approval, fit testers and schedule employees for medical evaluations, fit testing and training of other staff on use, care and maintenance of respirators. They shall ensure that employees have received proper qualitative and/or quantitative fit testing on respirators and, maintain all records associated with the respiratory protection program to include, but not limited to: a list of employees medically approved to be fit tested; training records; respirator inventory; and, the Respiratory Protection Program manual. The RPPC shall facilitate the ordering of respirators and remove respirators from service that no longer meet criteria.

The RPPC also works closely with Employee Health Services, Environmental Compliance and Safety Management and the Audit team to ensure program compliance and ensure that an adequate number of employees are certified and trained in the use of respirators. They shall also attend meetings as necessary.

2.4. Supervisor

Supervisors shall ensure each employee the supervisor oversees, and who is using a respirator, has received appropriate training, adheres to all required standards in its use and has received an annual medical evaluation. Supervisors shall ensure the availability of appropriate respirators and accessories, provide adequate storage facilities, and encourage proper respirator equipment maintenance. Supervisors shall be familiar with tasks requiring the use of respiratory protection, and ensure all employees engaged in such work use the appropriate respirators at all times.

2.5. Respirator Wearers

Each employee required to use a respirator shall use that respirator when and where required and in the manner in which they were trained. Respirator wearers shall report any malfunctions of the respirator to the employee's supervisor immediately. The respirator wearer shall also guard against mechanical damage to the respirator, clean the respirator as instructed, and store the respirator in a clean, sanitary location.

2.6. Others

Personnel may not enter an area where respiratory protection equipment is required unless they are equipped with and trained in the use of the appropriate equipment, according to instructions regarding use and limitations. Personnel shall be fit tested and medically qualified to wear the respirator being issued prior to entry to the site.

Contractors are required to develop and implement a respiratory protection program for their employees who must enter into or work in areas where exposure to hazardous materials cannot be controlled or avoided. This program must meet OSHA regulations and include issuance of respirators, medical evaluations, fit testing and training.

3. MEDICAL EVALUATION

The Licensed Health Care Professional who is an employee of EHS or an outside contractor, initially and periodically thereafter, shall determine whether or not an employee can wear the required respirator without physical or phobic risk. That decision shall be based on the overall health of the individual and special medical tests (pulmonary function studies, EKG, etc.) as appropriate. The Licensed Health Care Professional shall determine whether or not the individual will be restricted from wearing respiratory protective equipment. If a medical restriction is applied, the Licensed Health Care Professional shall notify employee, the employee's supervisor, and the RPPC formally of the restriction.

The Licensed Health Care Professional shall use medical tests and procedures according to OSHA medical surveillance requirements and/or NIOSH recommendations.

4. SELECTION AND USE OF RESPIRATORY PROTECTIVE DEVICES

4.1. Respirator Use

The following employees shall use respiratory protection:

A. Employees in areas with known contaminant levels requiring the use of respiratory protection, respiratory hazards or in which contaminant levels may be created without warning (e.g., emergency purposes such as hazardous material spill responses) and pose a respiratory hazard.
B. Employee performing operations documented to be health hazardous and those unavoidably required to be in the immediate vicinity where similar levels of contaminants are generated.
C. Employee in suspect areas or performing operations suspected of being health hazardous but for which adequate sampling data has not been obtained.

4.2. Respirator Use for Biohazards

The Employee Infection Control Unit, EHS, shall conduct a risk assessment and determine the appropriate level of personal protective equipment required. Respirators for use in areas where biohazards are used or stored must be selected based on a review of the laboratory procedures, protocols, etc. The Employee Infection Control Unit, EHS, will conduct a risk assessment and determine the appropriate level of personal protective equipment required.

4.3. Respirator Selection

Selection of the proper respirator(s) to be used in any work area or operation at DPSCS is made only after a determination has been made as to the real and/or potential exposure of employees to harmful concentrations of contaminants in the workplace atmosphere. This evaluation will be performed prior to the start of any routine or non-routine tasks requiring respirators. The Office of Environmental Compliance and Safety shall select respiratory protective equipment, using ANSI Z88.2, NIOSH Certified Equipment List, and/or the NIOSH Respirator Selection Decision Logic as a guide. ECS shall consider the following when selecting respirators:

- Effectiveness of the device against the substance of concern;
- Estimated maximum concentration of the substance in the work area;
- General environment (open shop or confined space, etc.);
- Known limitations of the respiratory protective device;
- Comfort, fit, and worker acceptance; and
- Other contaminants in the environment or potential for oxygen deficiency.

Examples of work that may require the use of respirators includes, but are not limited to:

- Asbestos abatement activities;
- Abrasive blasting;
- Cutting or melting lead or stripping lead-based paints from surfaces;
- Welding or burning;
- Painting, especially with epoxy or organic solvent coatings;
- Using solvents, thinners, or degreasers;
- Any work which generates large amounts of dust;
- Chemical Agents such as CS; and
- Pepper Agents such as OS.

A review of the real and/or potential exposures is made at least annually by each facility to determine if respiratory protection continues to be required, and if so, do the previously chosen respirators still provide adequate protection.

5. Types of Respirators

A. Air-Purifying Respirator

These respirators remove air contaminants by filtering, absorbing, adsorbing, or chemical reaction with the contaminants as they pass through the respirator canister or cartridge. This respirator is to be used only where adequate oxygen (19.5 to 23.5 percent by volume) is available. Air-purifying respirators can be classified as follows:

1. Particulate removing respirators, which filter out dusts, fibers, fumes and mists. These respirators may be single-use disposable respirators or respirators with replaceable filters.

   NOTE: Surgical masks do not provide protection against air contaminants. They are never to be used in place of an air-purifying respirator. They are for medical use only.

2. Gas- and vapor-removing respirators, which remove specific individual contaminants or a combination of contaminants by absorption, adsorption or by chemical reaction. Gas masks and chemical-cartridge respirators are examples of gas- and vapor-removing respirators.
3. Combination particulate/gas- and vapor-removing respirators, which combine the respirator characteristics of both kinds of air-purifying respirators.

B. **Supplied-Air Respirators**

These respirators provide breathing air independent of the environment. Such respirators are to be used when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air-purifying respirator is inadequate. Supplied-air respirators, also called air-line respirators, are classified as follows:

1. **Demand**

   This respirator supplies air to the user on demand (inhalation), which creates a negative pressure within the face piece. Leakage into the face piece may occur if there is a poor seal between the respirator and the user's face.

2. **Pressure-Demand**

   This respirator maintains a continuous positive pressure within the face piece, thus preventing leakage into the face piece.

3. **Continuous Flow**

   This respirator maintains a continuous flow of air through the face piece and prevents leakage into the face piece.

5.1. Identification of Respirator Cartridges and Gas Mask Canisters

Respirator cartridges and canisters are designed to protect against individual or a combination of potentially hazardous atmospheric contaminants, and are specifically labeled and color-coded to indicate the type and nature of protection they provide.

The NIOSH approval label on the respirator specifies the maximum concentration of contaminant(s) for which the cartridge or canister is approved. For example, a label may read:

"DO NOT WEAR IN ATMOSPHERES IMMEDIATELY DANGEROUS TO LIFE. MUST BE USED IN AREAS CONTAINING AT LEAST 20 PERCENT OXYGEN. DO NOT WEAR IN ATMOSPHERES CONTAINING MORE THAN ONE-TENTH PERCENT ORGANIC VAPORS BY VOLUME. REFER TO COMPLETE LABEL ON RESPIRATOR OR CARTRIDGE CONTAINER FOR ASSEMBLY, MAINTENANCE, AND USE."

5.2. Warning Signs of Respirator Failure

A. Particulate Air-Purifying

If an employee experiences breathing difficulty with a filter respirator (due to partial clogging with increased resistance), the employee shall replace filter(s), or if the respirator is a disposable device, properly dispose of the device.

B. Gas or Vapor Air-Purifying

If, when using a gas or vapor respirator (chemical cartridge or canister), any of the warning properties (e.g., odor, taste, eye irritation, or respiratory irritation) occur, the employee wearing the device shall promptly leave the area and check the following:

- Proper face seal
- Damaged or missing respirator parts
- Saturated or inappropriate cartridge or canister

If the employee does not find any irregularities with the equipment and if no discrepancies are observed, the employee shall replace the cartridge or canister. If any of the warning properties appear again, the concentration of the contaminants may have exceeded the cartridge or canister design specification. When this situation is present an airline respirator is required.

C. Service Life of Air-Purifying Respirator Canisters and Cartridges

The canisters or cartridges of air-purifying respirators are intended to be used until filter resistance precludes further use, or the chemical sorbent is expended as signified by a specific warning property, e.g., odor, taste, etc. The Department shall supply new canisters, cartridges or filters when a respirator is reissued. When in doubt about the previous use of the respirator, the employee may obtain a replacement canister or cartridge.

D. Supplied Air Respirator

When using an airlines respirator, an employee wearing the device shall leave the area immediately when the compressor failure alarm is activated or if an air pressure drop is sensed.

6. RESPIRATOR TRAINING

A respirator user and the user's supervisors shall receive training on the contents of the DPSCS Respiratory Protection Program and their individual responsibilities under it. The Department shall provide training in proper selection and use, as well as the limitations of the respirator. Training also covers how to ensure a proper fit before use and determining when a respirator is no longer providing the protection intended.

The RPPC shall provide training to respirator wearers in the use, maintenance, capabilities, and limitations of respirators initially upon assignment of personnel to tasks requiring the use of respirators. Retraining is given annually thereafter and only upon successful completion of the medical evaluation. The RPPC shall include the following in the training:

1. Nature and degree of respiratory hazard;
2. Respirator selection, based on the hazard and respirator capabilities and limitations;
3. Donning procedures and fit tests including hand's-on practice;
4. Care of the respirator, e.g., need for cleaning, maintenance, storage, and/or replacement; and
5. Use and limitations of respirator.

The RPPC shall require that respirator training be properly documented (Appendix A) including the type and model of respirator for which the individual has been trained and fit-tested.

7. RESPIRATOR FIT TESTING

The Department shall use a fit test to determine the ability of each individual respirator wearer to obtain a satisfactory fit with any air-purifying respirator. The Department shall use both quantitative and qualitative fit tests. An employee shall successfully pass the fit test before being issued an air-purifying respirator.

An employee may not wear a negative-pressure respirator in a work situation before the employee has demonstrated that an acceptable fit can be obtained.

Respirator fitting is conducted initially upon assignment to a task requiring use of a respirator. Refitting is conducted annually thereafter upon successful completion of the respirator training.

The Department shall ensure that fit testing is conducted by trained fit testers with oversight provided jointly by Environmental Compliance and Safety and Employee Health Services and the test results will be the determining factor in selecting the type,

model, and size of negative-pressure respirator for use by each individual respirator wearer.

7.1. Fit Checking

Each time a respirator is put on, the user shall perform positive and negative pressure fit checks. These checks are not a substitute for fit testing. Respirator users shall be properly trained in the performance of these checks and understand their limitations.

A. **Negative Pressure Check**

Applicability/Limitations: This test cannot be carried out on all respirators; however, it can be used on face pieces of air purifying respirators equipped with tight-fitting respirator inlet covers and on atmosphere supplying respirators equipped with breathing tubes which can be squeezed or blocked at the inlet to prevent the passage of air.

Procedure: Close off the inlet opening of the respirator's canister(s), cartridge(s), or filter(s) with the palm of the hand, or squeeze the breathing air tube or block its inlet so that it will not allow the passage of air. Inhale gently and hold for at least 10 seconds. If the face piece collapses slightly and no inward leakage of air into the face piece is detected, it can be reasonably assumed that the respirator has been properly positioned and the exhalation valve and face piece are not leaking.

B. **Positive Pressure Check**

Applicability/Limitations: This test cannot be carried out on all respirators; however, respirators equipped with exhalation valves can be tested.

Procedure: Close off the exhalation valve or the breathing tube with the palm of the hand. Exhale gently. If the respirator has been properly positioned, a slight positive pressure will build up inside the face piece without detection of any outward air leak between the sealing surface of the face piece and the face.

7.2. Qualitative Fit Testing

Federal regulations (29 CFR 1910.134 Appendix A) require qualitative fit tests of respirators and describe step-by-step procedures. This test checks the subject's response to a chemical introduced outside the respirator face piece. This response is either voluntary or involuntary depending on the chemical used. Several methods may be used. The DPSCS shall use the odorous vapor test protocol for qualitative fit testing.

A. Odorous Vapor

The odorous vapor test is a voluntary response test. It relies on the subject's ability to detect an odorous chemical while wearing the respirator. Air purifying respirators must be equipped with an organic cartridge or canister for this test. A saturated gauze pad is placed near the face piece-to-face seal of the respirator of the test subject's skin. If the test subject is unable to smell the chemical, then a satisfactory fit is assumed to be achieved. If the subject smells the chemical, the fit is unsatisfactory.

If the subject cannot smell the chemical, the person conducting the test shall momentarily pull the respirator away from the subject's face. If the subject is then able to smell the chemical, a satisfactory fit is assumed. If the subject cannot smell the chemical with the respirator pulled away from the face, this test is inappropriate for this subject, and a different test will be used.

This test is limited by the wide variation of odor thresholds among individuals and the possibility of olfactory fatigue. Since it is a voluntary response test it depends upon an honest response.

7.3. Quantitative Fit Testing

Quantitative fit testing, using the OHD fit test system, is generally performed on both full-face and half-face negative pressure respirators. Fit factors are determined by comparing the particle concentration outside the respirator with the concentration inside the respirator face piece. An acceptable fit is achieved when the respirator wearer successfully completes a series of six programmed exercises (normal breathing, deep breathing, moving head up and down, moving head side to side, reading aloud, and normal breathing) with a fit factor of 100 or more.

7.4. Special Problems

A. Facial Hair

No attempt is made to fit a respirator on an employee who has facial hair which comes between the sealing periphery of the face piece and the face, or if facial hair interferes with normal functioning of the exhalation valve of the respirator.

B. Glasses and Eye/Face Protective Devices

Proper fitting of a respiratory protective device face piece for individuals wearing corrective eyeglasses or goggles may not be established if temple bars or straps extend through the sealing edge of the face piece. If an employee wears eyeglasses, goggles, face shield or welding helmet with a respirator, the employer must ensure that such equipment is worn so as not to adversely affect the seal of

the face piece. If a full-face piece respirator is used, special provisions for a prescription glasses spectacle kit are required. Kits are available from all respirator manufacturers that allow the mounting of prescription lenses inside the respirator.

7.5. Respirator User Cards

The RPPC shall issue Respirator User Cards to workers who have been trained, fitted, and medically evaluated to use respirators. A Respirator User Card includes:

1. Name of the worker.
2. The statement: "This is to certify that (name) has passed a Qualitative Fit Test and/or a Quantitative Fit Test with:"
3. The type(s), model(s), and size(s) of respirator(s) that the cardholder was issued.
4. Expiration date of card.
5. Signature of Tester.

7.6. Recordkeeping

The RPPC shall ensure that respirator fit-testing is documented and includes the type of respirator, brand name and model, method of test and test results, test date and the name of the instructor/tester (See Appendix B).

8. MAINTENANCE AND ISSUANCE OF RESPIRATORS

8.1. Maintenance

The maintenance of respiratory protective devices involves a thorough visual inspection for cleanliness and defects (i.e., cracking rubber, deterioration of straps, defective exhalation and inhalation valves, broken or cracked lenses, etc.). The Department shall ensure that worn or deteriorated parts are replaced prior to reissue. The Department shall ensure that a respirator with a known defect is not reissued for use. The Department shall ensure that no attempt is made to replace components, make adjustments or make repairs on any respirator beyond those recommended by the manufacturer. The Department shall ensure that under no circumstances are parts substituted with parts that will invalidate the approval of the respirator. The manufacturer or a qualified trained technician shall conduct any repairs to reducing or admission valves, regulators, or alarms.

8.2. Cleaning of Respirators

The Department shall ensure that all respirators in routine use are cleaned and sanitized on a periodic basis. Respirators used non-routinely are cleaned and sanitized after each use and filters and cartridges replaced. The respirator wearer of routinely used respirators shall conduct the cleaning under this section. Replacement cartridges and filters are obtained by contacting the RPPC.

Cleaning and disinfection of respirators shall be done frequently to ensure that skin-penetrating and dermatitis-causing contaminants are removed from the respirator surface. Respirators maintained for emergency use or those used by more than one person must be cleaned after each use by the user.

An individual cleaning and disinfecting a respirator shall use the following procedure:

1. Remove and discard all used filters, cartridges, or canisters.
2. Wash face piece and breathing tube in a cleaner-disinfectant solution. A hand brush may be used to remove dirt. Solvents, which can affect rubber and other parts, shall not be used.
3. Rinse completely in clean, warm water.
4. Air dry in a clean area in such a way as to prevent distortion.
5. Clean other respirator parts as recommended by the manufacturer.
6. Inspect valves, head straps, and other parts to ensure proper working condition.
7. Reassemble respirator and replace any defective parts.
8. Place in a clean, dry plastic bag or other suitable container for storage after each cleaning and disinfection.

8.3. Issuance of Respirators

The Department may not order, purchase or issue respiratory protective equipment before the respirator wearer has received respirator training and a fit test. The Department shall ensure that new employees, who require respiratory protective equipment, must be placed into the respirator program requirements before being issued equipment. A Respirator Certification card must be shown prior to the issuance of a respirator.

DPSCS provides **(Mask Type and Model).** These face pieces have a variety of canisters that may be worn with them; hence, the canisters and face pieces are packaged separately. At the time of issue the appropriate canister is determined, based on the user's needs, and is issued with the appropriate face piece. In addition, disposable respirators with a filter rating N-95 are available for use under appropriate conditions.

8.4. Storage

The Department shall ensure that after inspection, cleaning, and any necessary minor repairs, respirators are stored to protect against sunlight, heat, extreme cold, excessive moisture, damaging chemicals or other contaminants. The Department shall ensure that respirators placed at a station or work area for emergency use are stored in compartments built for that purpose, that are quickly accessible at all times and will be clearly marked. In addition, the Department shall ensure that routinely used respirators, such as half-mask or full-face air-purifying respirators, are placed in sealable plastic bags. An employee may store a respirator in such places as lockers or toolboxes only if they are first placed in a carrying case or carton. An employee shall ensure that a respirator shall be packed or is stored so that the face piece and exhalation valves will rest in a normal position and not

be crushed. Emergency use respirators shall be stored in a sturdy compartment that is quickly accessible and clearly marked.

9. PROGRAM AUDIT

The ANSI Z88.2-1980 document entitled "Practices for Respiratory Protection" specifies:

"Section 3.5.15 Respirator Program Evaluation. An appraisal of the effectiveness of the respirator program shall be carried out at least annually. Action shall be taken to correct defects found in the program."

The Department shall ensure that a Respiratory Protection Program includes investigating wearer acceptance of respirators, inspecting respirator program operation, and appraising protection provided by the respirator.

The Department shall ensure that evidence of excessive exposure of respirator wearers to respiratory hazards is followed up by an investigation to determine why inadequate respiratory protection was provided. The findings of the respirator program evaluation will be documented, and this documentation will list plans to correct faults in the program and set target dates for the implementation of the plans. These evaluations will be conducted at least annually.

10. RECORDKEEPING

The following records shall be developed and maintained for the DPSCS Respirator Program:

Record	**Location**
Medical Evaluations	Employee Health Services
Training Records	Facility Respiratory Protection Program Coordinator
Respirator Program Manual, IHP, and SOPs	Office of Environmental Compliance, Safety and Emergency Operations
Hazard Evaluations (Air sampling results, surveys, respirator selection records)	Facility Respiratory Protection Program Coordinator
Biohazard Risk Assessments	Employee Infection Control Unit Employee Health Services
Fit Test Records	Facility Respiratory Protection Program Coordinator
Program Evaluations	Audit Division

11. Definitions

"Administrative Controls" - means administrative changes in work schedules or procedures that reduce employee exposure to respiratory hazards.

"APR" - Air purifying respirator - means a respirator with an air purifying filter cartridge or canister that removes specific air contaminants by passing ambient air through the air purifying element.

"Atmosphere supplying respirator" - means a respirator that supplies the wearer with breathing air from a source independent of the ambient air, including supplied air respirators (SAR).

"Canister or cartridge" - means a container with a filter, sorbent or catalyst, or a combination of these items, which removes specific contaminants from the air passed through the container.

"Contaminants" - means substances in the air that can cause immediate (acute) or long term (chronic) health problems.

"Concentration" - means the amount of contaminant in the air, measured in parts per million (ppm) or milligrams per cubic meter (mg/m3).

"CS"- means Orthochlorobenzalmolonitrile, a riot control agent considered an irritant.

"Demand respirator" - means an atmosphere-supplying respirator that admits breathing air to the face piece only when a negative pressure is created inside the face piece by inhalation.

"Dusts" - means fine particles that are created when solid material breaks down. Operations that typically create dust are grinding, crushing, drilling, sanding and milling.

"Dust Masks" (Filtering Face pieces) - means a negative pressure particulate respirator with a filter as an integral part of the face piece, or with the entire face piece composed of the filtering medium.

"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" - means an individual working for the Department on a full or part-time basis and whose responsibilities include wearing a respirator as a part of their assigned duties.

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

"End of Service Life Indicator" (ESLI) - means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

"Engineering Controls" - means specialized equipment, processes or practices that can reduce employee exposure to respiratory hazards.

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

"Exposure" - means coming into contact with a hazardous substance through inhalation, ingestion, skin contact or absorption.

"Facility" - means a physical structure used by the Department to house individuals placed in the care and custody or under the supervision of the Department.

"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.

"Fumes" - means byproducts are created when solid materials vaporize under extreme heat. As the vapor cools it condenses into an extremely small particle, e.g., fumes are created during welding and cutting of steel.

"Gases" - means vaporous substances, that like air, has the ability to diffuse and spread throughout an enclosure or area. Examples of gases are nitrogen, carbon monoxide and carbon dioxide.

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

"IDLH" - means an OSHA classification "Immediately Dangerous to Life and Health" for atmospheres that are immediately fatal.

"Loose fitting face piece" – means a respirator with an inlet covering that is designed to form a partial seal with the face.

"Mists" - means air-borne particulates created when liquids are atomized and condensed. Typical sources of mists are spraying operations, mixing and cleaning operations.

"MOSH" - means the Maryland Occupational Safety and Health Division of the Department of Labor, Licensing and Regulation.

"MSDS" - means Material Safety Data Sheet, written or printed material from the product manufacturer, which has information about the hazards of a material.

"MUL" - Maximum Use Limit. The maximum amount of protection provided by a respirator. MUL is calculated by multiplying the respirators protection factor by the Permissible Exposure Level (PEL) for the contaminant.

"Negative Pressure Respirator" - means a tight-fitting respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air outside the respirator.

"NIOSH" - means the National Institute for Occupational Safety and Health, a federal agency which establishes minimum performance standards for respirators and approves respirators for various uses.

"OC"- means Oleoresin Capsicum, aerosol spray products containing pepper spray, an inflammatory agent.

"OSHA" - means the Occupational Safety and Health Administration of the United States Department of Labor.

"Program" - means the Department's Respiratory Protection Program.

"Oxygen Deficiency" - means too little oxygen in the air, which can result in illness or injury to employees. By OSHA definition, it is an oxygen level less than 19.5%.

"PAPR" - means a powered air-purifying respirator a respirator that uses a blower to force the ambient air through air purifying elements to the inlet covering.

"PEL" – means Permissible Exposure Level. Established by OSHA, PELs are the maximum allowable concentrations of substances in the air that an employee can be exposed to without harmful effects during an 8-hour period.

"PLHCP" - means a physician or other licensed health care professional, whose legally permitted scope of practice allows him or her to independently provide or be delegated the responsibility to provide some or all the health care services required by this program.

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

"PPE" - means Personal Protective Equipment. Any equipment used to protect an employee from danger, including hard hats, boots, gloves, hoods, goggles, and respirators.

"Program Administrator" – means the Department's Respiratory Protection Program Administrator responsible for programmatic management of the Respiratory Protection Program.

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

"QNFT" - means Quantitative fit test: 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 face piece, helmet, hood, suit or a mouthpiece respirator with nose-clamp.

"Respiratory Protection Program Coordinator" (RPPC) - means the individual responsible for the coordination of the respiratory protection program in this institution

"Supplied air respirator" (SAR) - means an atmosphere supplying respirator for which the source of breathing air is not designed to be carried by the user. (e.g. an airline respirator).

"Tight fitting face piece" - means a respirator with an inlet covering that forms a complete seal with the face.

"TLV" – means Threshold Limit Value. Exposure guidelines established by ACGIH, which have been established for airborne concentrations of many chemical compounds.

"TWA" - means Time Weighted Average. A weighted average exposure level over a given amount of time, usually 8 hours.

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

"Vapors" - means gaseous fumes are formed through the evaporation of liquids or solids. Examples include gasoline, paint thinners, and solvents.

AUTHORITY/REFERENCES

- American National Standards Institute: American National Standard Practices for Respiratory Protection, ANSI Z88.2, New York, NY: American National Standards Institute, 1989.
- American National Standards Institute: American National Standard For Respiratory Protection - Respirator Use - Physical Qualifications for Personnel, ANSI Z88.6, New York, NY: American National Standards Institute, 1984.
- Compressed Gas Association: Commodity Specification for Air. (ANSI/CGA G-7.1), Arlington, VA: Compressed Gas Association, Inc., 1989.
- Occupational Safety and Health Administration (OSHA) United Stated Department of Labor, 29 CFR 1910.134, "Respiratory Protection".
- Correctional Services Article §2-103, Annotated Code of Maryland

Table 4-1 Respirator Selection and Use

HAZARD	RESPIRATOR TYPE
Asbestos	Half-mask, air-purifying respirator with HEPA filters Full-face, air-purifying respirator with HEPA filters Full-face, powered air-purifying respirator with HEPA filters
Epoxy- or Oil-based Paints	Half-face, air-purifying respirators with organic vapor filters Full-face powered air-purifying respirator with organic vapor filters
Lead-based Paint removal	Half-face, air-purifying respirators with HEPA filters Full-face, air-purifying respirators with HEPA filters Full-face, powered air-purifying respirators with HEPA filters
Use of Pesticides, Herbicides, and Rodenticides	Full-face, air-purifying respirator with combination particulate and pesticide cartridges Full-face, powered air-purifying respirator with combination particulate and pesticide cartridges

APPENDIX A

RESPIRATOR TRAINING CERTIFICATION

I hereby certify that I have been trained in the proper use and limitations of the respirator issued to me. The training included the following:

1. Instruction on putting on, fitting, testing and wearing the respirator.
2. Instruction on inspection, cleaning, and maintaining the respirator.
3. Explanation of dangers related to misuse.
4. Instructions on emergency situations.

I further certify that I understand the use, care, and inspection of the respirator and have tested and worn the unit.

Date: _____

Signed: _____

Last Four of SSN: _____

Respirator Type Issued: _____

Training Coordinator: _____

APPENDIX B - FIT TEST WORKSHEETS

QUALITATIVE RESPIRATOR FIT TEST

Name: _____

Last four of SSN: _____

Clean Shaven? __Yes __No

Spectacle Kit? ___Yes ___No

Manufacturer/Model _____ Size: ___S ___M ___L

Odorous Vapor ___Pass ___Fail

Fit Tester _____
Date_____

Employee _____ Date _____

QUANTITATIVE RESPIRATOR FIT TEST

Name: _____

Last four of SSN: _____

Clean Shaven? __Yes __No

Spectacle Kit? ___Yes ___No

Manufacturer/Model _____ Size: ___S ___M ___L

Odorous Vapor ___Pass ___Fail

Fit Tester _____
Date_____

Employee _____ Date _____

APPENDIX C - AIR PURIFYING CARTRIDGE COLOR CODES

CONTAMINANTS TO BE PROTECTED AGAINST	COLORS ASSIGNED AND/OR COMPONENTS
Acid gases	White.
Hydrocyanic acid gas	White with 1/2 inch green stripe completely around the canister near the bottom.
Chlorine gas	White with 1/2 inch yellow stripe completely around the canister near the bottom.
Organic vapors	Black.
Ammonia gas	Green.
Acid gases and ammonia gas	Green with 1/2 inch white stripe completely around the canister near the bottom.
Carbon monoxide	Blue.
Acid gases and organic vapors	Yellow.
Hydrocyanic acid gas and chloropicrin vapor	Yellow with 1/2 inch blue stripe completely around the canister near the bottom.
Acid gases, organic vapors, and ammonia gases	Brown.
Radioactive materials, excepting tritium and noble gases	Purple (magenta).
Pesticides	Organic vapor canister plus a filter
Particulates (dusts, fumes, mists, fogs, or smoke) in combination with any of the above gases or vapors	Canister color for contaminant, as designated above, with 1/2 inch gray stripe completely around the canister near the top.

Note: Orange should be used as a complete body, or stripe color to represent gases not included in this table