I. PURPOSE

This Respiratory Protection Program is designed to provide for the safe use of respirators and to achieve compliance with Michigan Occupational Safety and Health Administration (MIOSHA) General Industry Standard Part 451, Respiratory Protection. The objective of this regulation is to protect employees from respiratory exposures to hazardous materials in their work environment.

II. SCOPE AND APPLICATION

All Eastern Michigan University divisions and departments using respirators are required to comply with this Respiratory Protection Program.

III. DEFINITIONS

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

Assigned protection factor (APF) - the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when an on-going and effective respiratory protection program is implemented.

Atmosphere-supplying respirator- a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere including supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

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

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

EHS – Environmental Health and Safety.

Emergency situation - 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 - 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) - 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.

Escape-only respirator - a respirator intended for emergency exit only.

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

Filtering facepiece (dust mask) - 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 - 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 - the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See Qualitative fit test QLFT and Quantitative fit test QNFT.)

Helmet - a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter - 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 - 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) - 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 - a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) - the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator. MUC 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 my 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 judgement.

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

Oxygen deficient atmosphere - an atmosphere with an oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP) - 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 this program.

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

Powered air-purifying respirator (PAPR) - an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator - a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

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

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

Respiratory inlet covering - 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.

Self-contained breathing apparatus (SCBA) - an atmosphere-supplying respirator where the breathing air source is carried by the user.

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

Supplied-air respirator (SAR) or airline respirator - an atmosphere-supplying respirator where the source of breathing air is not carried by the user.

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

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

Voluntary Use of Respirators – the use of a respirator even though the use of a respirator is not required by EMU or a MIOSHA standard.

IV. RESPONSIBILITIES

A. Deans, Directors, Department Heads

1. Encourage the use of engineering controls and administrative practices to eliminate the need for respiratory protective equipment.

2. Provide the respiratory protective equipment required following the procedures of this program.

3. Must not allow employees/student workers to bring their own respirators to work. If there are extenuating circumstances, you must contact EHS for assistance.

4. Provide the leadership and the management systems necessary to ensure safe working conditions are maintained in their Colleges, Schools, and Departments.

5. Ensure the Respiratory Protection Program is implemented in their area.

6. Motivate and assist faculty, managers and supervisors with Respiratory Protection Program compliance.

7. Provide the necessary resources for the Respiratory Protection Program.

8. Require faculty and staff to attend all applicable training sessions.

9. Ensure employees needing respirators receive the appropriate respirator and training.

10. Ensure disciplinary actions are taken when violations of the Respiratory Protection Program are egregious and/or repetitive.

B. Faculty, Supervisors and Managers

1. Must conduct and document a hazard assessment, including potential emergency situations, to determine the tasks requiring respiratory protective equipment.

2. Must implement the Respiratory Protection Program in their work area.

3. Must coordinate employee schedules for the required medical examination and fit testing.

4. Must train all affected employees regarding the hazards of the task requiring respiratory protection and the limitations of the respiratory protective equipment.

5. Must perform periodic work site inspections to determine if the degree of hazard has changed.

6. Must ensure proper use and maintenance of respiratory protective equipment by their employees/students.

7. Must attend at least one fit test to receive proper training.

8. Ensure the necessary respirators are provided, used and maintained.

9. Provide and document training on respirator use, maintenance and limitations.

10. Enforce the rules and requirements of the Respirator Protection Program, including disciplinary action for repeated and/or egregious non-compliance.

11. Remove defective respirator from service immediately.

C. Employees and Students

1. Must receive a medical evaluation, fit test and training prior to being issued respiratory protective equipment.

2. Must store, maintain, inspect and use the respirator according to the procedures set forth in this program.

3. Must use the respirator in all environments where engineering controls are not feasible to control an exposure and/or at work sites where the supervisor has deemed it necessary.

4. Must attend all required training sessions.

5. Must use a respirator, as trained and as required by the respirator manufacturer's certification, in all situations requiring respiratory protection.

6. Immediately report any defects in the respirator to their supervisor or EHS.

7. Report any signs and symptoms of possible exposures, known exposures, accidents and near misses to your supervisor or EHS.

D. Environmental Health and Safety

1. Is the designated program administrator for the Respiratory Protection Program.

2. Assists departments with respirator program implementation and compliance.

3. Conducts site evaluations prior to implementation of the respirator program requirements to determine what engineering controls and workplace practices can be used to negate the need for respirators.

4. Assists with the selection of the appropriate respirator.

5. Coordinates the medical questionnaire reviews, medical evaluations and fit tests.

6. Periodically reviews and updates the Respiratory Protection Program.

V. PROCEDURES

To minimize occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, gases, mists, smokes, sprays, or vapors, the primary control measure is to prevent atmospheric contamination whenever possible. This prevention must include, where feasible, engineering control measures (enclosure of the operation, general and local ventilation) and/or administrative practices and rules (substitution of less toxic materials). When engineering controls and administrative practices are not feasible to achieve compliance with the permissible exposure limits, respirators may be used pursuant to the following requirements.

A. General Requirements

1. When respirators are required, only National Institute of Occupational Safety and Health (NIOSH) certified respirators will be issued.

2. Environmental Health and Safety must be contacted prior to purchasing or using a respirator for an evaluation of the need for the respirator.

3. A medical evaluation is needed prior to anyone being issued a respirator.

4. Respiratory protective equipment, training and medical evaluations must be provided by the issuing department at no charge to the employee.

B. Respirator Selection

1. In order to use a respirator, a hazard assessment needs to be conducted to evaluate the respiratory hazard(s) in the work area, identify other factors affecting the respirator performance and reliability and then base the respirator selection on these factors. Things to consider include:
   a. The nature of the hazard and work operation or process.
   b. The physical and chemical properties of the air contaminant, including the warning properties of the hazardous material(s).
   c. The adverse health effects of the respiratory hazard, the relevant hazardous exposure level and all applicable regulations relating to the potential hazard.
   d. The results of workplace sampling of airborne concentrations of contaminants, including the oxygen levels in the work area.
   e. The time period respiratory protection will be required to be worn.
   f. The work activities and potential stress of these work conditions on employees wearing the respirators.
   g. Fit test results.
   h. The physical characteristics, functional capabilities and limitations of the respirators.
   i. If the nature of the hazard cannot be determined, then the atmosphere must be considered IDLH.

2. When selecting respirators, a sufficient number of respirator models and sizes must be provided in order for the respirator to be acceptable and correctly fit the user(s).

3. Respirators for atmospheres that are not IDLH.

a. The respirator must be adequate to protect the health of the user and ensure compliance with all other MIOSHA requirements, under routine and reasonably foreseeable emergency situations.
b. The assigned protection factors listed below in Table 1 Assigned Protection Factors must be used to select a respirator that meets or exceeds the required level of user protection.
c. When using a combination respirator (e.g. airline respirators with an air-purifying filter), the issuer must ensure the assigned protection factor is appropriate to the mode of operation in which the respirator is being used.

TABLE 1
ASSIGNED PROTECCTION FACTORS[5]

Type of respirator [1,2]	Quarter mask	Half mask	Full facepiece	Helmet/ Hood	Loosefitting facepiece
1. Air-Purifying Respirator	5	[3]10	50	-	-
2. Powered Air-Purifying Respirator (PAPR)	-	50	1,000	[4]25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	-	10	50	-	-
• Continuous flow mode	-	50	1,000	[4]25/1,000	25
• Pressure-demand or other positive-pressure mode	-	50	1,000	-	-
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	-	10	50	50	-
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	-	-	10,000	10,000	-

Notes:

[1] Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

[2]The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

[3]This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

[4]The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

[5]These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d) (2) (ii).

4. Respirators for IDLH atmospheres
   a. Either a full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of 30 minutes or a combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply must be provided.
   b. All oxygen deficient atmospheres are considered IDLH.
   c. At this time, for IDLH atmospheres, EMU will contact an appropriately trained and equiped Hazardous Materials Contractor to handle the situation.

5. Maximum Use Concentration (MUC) (Protection Factor x PEL)
   a. The selected respirator must maintain the user's hazardous exposure, when measured outside the respirator, at or below the MUC.
   b. The MUC cannot be applied to IDLH situations.
   c. When the calculated MUC exceeds the IDLH level for a hazardous substance, or the performance limits of the cartridge or canister, then the maximum MUC must be set at the lower limit.
   d. The respirator selected must be appropriate for the chemical state and physical form of the contaminant.

6. For protection against gases and vapors, the respirator must be:
   a. An atmosphere-supplying respirator, or
   b. An air-purifying respirator, provided that:
      i. The respirator is equipped with an end-of-service life indicator (ESLI) certified by NIOSH for the contaminant; or
      ii. If there is no ESLI appropriate for the conditions present, the supervisor must implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure the canisters and cartridges are changed before the end of their service life.

7. For protection against particulates, the respirator must be:
   a. An atmosphere- supplying respirator; or
   b. An air-purifying respirator equipped with a filter certified by NIOSH as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH, see items d – g below.
   c. For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.
   d. There are 9 classes of filters (three levels of filter efficiency, each with three categories of resistance to filter efficiency degradation.
      i. The three levels of filter efficiency are 95%, 99% and 99.97%.

ii. The three categories of resistance to filter efficiency degradation are labeled N, R and P.
   a) N – Not resistant to oil
   b) R – Resistant to oil
   c) P – Oil proof
iii. The class of filter will be clearly marked on the filter, filter package or respirator box.
iv. Chemical cartridges including particulate filter elements will carry a similar marking that pertains only to the particulate filter element.

e. The selection of N, R and P series filtered non-powered particulate respirators depends on the presence or absence of oil particles, as follows:
   i. If no oil particles are present in the work environment, use a filter of any series (N, R, or P).
   ii. If oil particles (e.g. lubricants, cutting fluids, glycerin, etc.) are present use and R- or P-series filter.
   iii. If oil particles are present, use only a P-series filter.
f. Selection of filter efficiency (95%, 99% or 99.97%) depends on how much filter leakage can be accepted. A higher filter efficiency means lower filter leakage.
g. The choice of facepiece depends on the level of protection needed based on the APF needed.

C. Medical Evaluation

Using a respirator may place a physiological burden on the user that varies with the type respirator worn, the job and workplace conditions in which the respirator is used and the medical status of the user. Therefore, the following requirements must be adhered to in order to determine if someone is able to use a respirator.

1. The EMU Respirator Medical Evaluation form (emudps-ehs-f018), Appendix B, must be completed prior to fit testing and using a respirator.
2. The completed form must be submitted to Environmental Health and Safety in a sealed envelope marked confidential.
3. The completed forms will be reviewed by a physician or other licensed health care professional (PLHCP) and a determination made to approve, approve with restrictions or deny the use of the respirator.
4. In some cases, follow-up medical evaluations may be needed. Follow-up medical examinations are required if a positive response is given to any questions 1 through 8 in Section 2, Part A of the questionnaire.
5. The follow-up medical examination must include any medical tests, consultations, or diagnostic procedures the PLHCP deems necessary to make a final determination.

6. The medical questionnaire and examinations must be administered confidentially during the user's normal working hours or at a time and place convenient to the user.
7. The user can discuss the questionnaire and examination results with the PLHCP.
8. Prior to the PLHCP making any determinations regarding fitness to wear a respirator, EMU must provide the following information:
    a. The type and weight of the respirator the user will wear;
    b. The duration and frequency of respirator use, including use for rescue and escape;
    c. The expected physical work effort;
    d. Additional protective clothing and equipment the user will wear;
    e. Temperature and humidity extremes the user may encounter;
    f. A copy of the EMU Respiratory Protection Program and the MIOSHA regulation.
9. Medical Determination
    a. In determining the user's ability to use a respirator, EMU must:
        i. Obtain a written recommendation regarding the user's ability to use the respirator from the PLHCP. The recommendation must only provide the following information:
            a) Any limitations on respirator use related to the medical condition of the user or workplace conditions, including whether or not the user is medically able to use a respirator.
            b) The need, in any, for follow-up medical evaluations; and
            c) A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.
            d) If the PLHCP finds a medical condition that the user cannot wear a negative pressure respirator, a PAPR can be used if the PLHCP indicates the user can medically wear this type respirator.
        ii. Additional medical evaluations are needed if:
            a) A user reports medical signs or symptoms related to respirator usage;
            b) A department is advised by the PLHCP, supervisor or EHS (respirator program administrator) that a user needs to be reevaluated;
            c) Observations during fit testing and/or program evaluation indicates the need for the user to be re-evaluated; or
            d) A change occurs in the workplace conditions (physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on the user.

D. Fit Testing

1. Prior to using any respirator with a negative or positive pressure tight-fitting facepiece, the user must be fit tested with the same make, model, style and size of respirator that will be used.
2. Users of a tight-fitting facepiece respirator **must** pass either a qualitative fit test (QLFT) or quantitative fit test (QNFT).
3. Users must be fit tested prior to initial respirator use, whenever a different respirator facepiece (size, style, model or make) is used and at least annually thereafter.
4. An additional fit test **must** be conducted whenever the user, PLHCP, supervisor or EHS makes a visual observation of changes in the users physical condition that could affect the respirator fit.
   a. This includes but is not limited to facial scarring, dental changes, cosmetic surgery or an obvious change in body weight.
   b. If after passing a QLFT or QNFT the user reports the fit of the respirator is unacceptable, the user must be given a reasonable opportunity to select a different respirator facepiece and to be retested.
5. Fit testing must be administered using an OSHA-accepted QLFT or QNFT protocol, please see Appendix A 1910.134 Appendix A Fit Testing Procedures.
6. At this time, EMU uses a qualified third party to perform fit tests for EMU respirator users.

E. Respirator Use

The following are the procedures to be followed for the proper use of respirators. This includes prohibiting conditions that may result in facepiece seal leakage, users removing respirators in hazardous environments, ensuring continued effective respirator operation throughout the work shift and establishing procedures for the use of respirators in IDLH atmoshperes.

1. Facepiece seal protection
   a. Tight-fitting facepiece respirators must not be worn by users having:
      i. Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or
      ii. Any condition that interferes with the face-to-facepiece seal or valve function.
      iii. Please reference the CDC/NIOSH Facial Hairstyles and Filtering Facepiece Respirators guide, Appendix C.
   b. If the user wears corrective glasses or goggles or other PPE, the supervisor must ensure the glasses, goggles or PPE do not interfere with the seal of the facepiece to the users face.

c. The user **must** perform a user seal check **each** time they put on the respirator. User seal check procedures include the following:
    i. Facepiece Positive and/or Negative Pressure Checks
        a) Positve Pressure Check
            1) Close off the exhalation valve and exhale gently into the facepiece.
            2) The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage or air at the seal.
            3) For most respirators this method of leak testing requires the user 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
            1) Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s).
            2) Inhale gently so that the facepiece collapses slightly and hold your breath for 10 seconds.
            3) The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the cartridge inlet opening with a thin latex or nitrile glove.
            4) 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.
        c) 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 if the supervisor can demonstrate that the manufacturer's procedures are equally effective.
        d) When performing the facepiece pressure checks, both the positive and negative pressure checks must be performed.

2. Continuing respirator effectiveness
    a. Supervision of the work area must be maintained to monitor work area conditions and the degree of respirator user exposure or stess.
    b. When there is a change in either of these conditions, the supervisor **must** reevaluate the effectiveness of the respirator.
    c. The supervisor must ensure the respirator users leave the use area:
        i. To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator usage; or

ii. If the user detects vapor or gas breakthrough, changes in breathing resistance or leakage of the facepiece; or
iii. To replace the respirator or the filter, cartridge or canister elements.

d. If the user detects vapor or gas breakthrough, changes in breathing resistance or leakage of the facepiece, the respirator must be repaired or replaced prior to allowing the user to return to the work area.

F. Respirator Maintenance and Care

1. Cleaning and disinfecting
   a. Each respirator user must be provided with a respirator that is clean, sanitary and in good working order.
   b. Respirators must be cleaned and disinfected using the following procedures:
      i. Remove filters, cartridges or canisters. Diassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended b the manufacturer. Discard or repair any defective parts.
      ii. Wash components in warm (110 ^{o}F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff (not wire) brush may be used to facilitate the removal of dirt.
      iii. Rinse components thoroughly in clean, warm (110 ^{o}F maximum), preferably running water. Drain.
      iv. When the cleaner used does not contain a disinfecting agent, respirator components shuld be immersed for two (2) minutes in one of the following:
         a) Hypochlorite solution (50 ppm of chlorine) made by adding approximately one (1) milliliter of laundry bleach to one liter of water at 110 ^{o}F; or
         b) 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 45% alcohol) to one (1) liter of water at 110 ^{o}F; or
         c) Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
      v. Rinse components thoroughly in clean, warm (110 ^{o}F maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
      vi. Components should be hand-dried with a clean lint-free cloth or air-dried.

vii. Reassemble facepiece, replacing filters, cartridges and canisters where necessary.
viii. Test the respirator to ensure all components work properly.

c. Respirators must be cleaned and disinfected at the following intervals:
   i. Respirators issued for the exclusive use of a user must be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
   ii. Respirators issued to more than one (1) user must be cleaned and disinfected before being worn by different users.
   iii. Respirators maintained for emergency use must be cleaned and disinfected after each use.
   iv. Respirators used in fit testing and training must be cleaned and disinfected after each use.
d. Respirator storage
   i. All respirators must be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals.
   ii. Respirators must be packed or stored to prevent deformation of the facepiece and exhalation valve.
e. Respirator inspections
   i. Respirators used in routine situations must be inspected before each use and during cleaning.
   ii. Respirators for emergency situations must be inspected monthly and per the manufacturer's recommendations and must be checked for proper function before and after each use.
   iii. Respirator inspections must include the following:
      a) A check of respirator function, tightness of connections and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
      b) A check of elastomeric parts for pliability and signs of deterioration.
f. Repairs
   i. Respirators that fail an inspection or are otherwise found to be defective must be removed from service and discarded, repaired or adjusted in accordance with the following:
      a) Respirator repairs or adjustments are to be made only by persons appropriately trained to perform such operations and must use only the respirator manufacturer's NIOSH-approved parts designed for the respirator.
      b) Repairs must be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and

c) Reducing and admission valves, regulators and alarms must be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

G. Breathing air quality and use

At this time, EMU does not have any atmosphere-supplying respirators or escape respirators.

H. Identification of Filters, Cartridges and Canisters

All filters, cartridges and canisters used at EMU must be labeled and color coded with the NIOSH approval label. The labels cannot be removed and must remain legible. The color coding is as follows:

Contaminant	Color Coding on Cartridge/Canister
Acid gases	White
Hydrocyanic acid gas	White with ½ inch green stripe completely around the canister near the bottom
Chlorine gas	White with ½ inch yellow stripe completely around the canister near the bottom
Organic vapors	Black
Ammonia gas	Green
Acid gases and ammonia gas	Green with ½ inch white stripe completely around the canister near the bottom
Carbon monoxide	Blue
Acid gases & organic vapors	Yellow
Hydrocyanic acid gas and chloropicrin vapor	Yellow with ½ inch blue stripe completely around the canister near the bottom
Acid gases, organic vapors and ammonia gases	Brown
Radioactive materials, except tritium and noble gases	Purple (magenta)
Pesticides	Organic vapor canister plus a particulate filter
Multi-Contaminant and CBRN agent	Olive
Any particulates – P100	Purple
Any particulates – P95, P99, R95, R99, R100	Orange
Any particulates free of oil – N95, N99 or N100	Teal

I. Respirator Training and Information

1. Respirator training and information must be provided to each respirator user prior to requiring the user to use a respirator and at least annually thereafter.
2. The respirator user must be able to demonstrate knowledge of at least the following:
   a. Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator;
   b. What the limitations and capabilities of the respirator are;

c. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
d. How to inspect, put on and remove, use and check the seals of the respirator;
e. What the procedures are for maintenance and storage of the respirator;
f. How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator; and
g. The general requirements of this section.

3. Respirator users must be trained annually and when the following situations occur:
   a. Changes in the workplace or the type of respirator render previous training obsolete;
   b. Inadequacies in the user's knowledge or use of the respirator indicate the user has not retained the requisite understanding or skill; or
   c. Any other situation arises in which retraining appears necessary to ensure safe respirator use.
4. The information in Appendix D, Information for Employees Using Respirators When Not Required Under the Standard, must be provided writing to employees who wear respirators when such use is not required by EMU.

J. Program Evaluation

1. Supervisors and EHS are responsible for ensuring the requirements of the EMU Respiratory Protection Program are being effectively implemented and that the program continues to be effective.
2. Supervisors and EHS will consult with respirator users to assess the users' views on the program effectiveness and to identify problems. Any problems identified will be corrected.
3. Factors to be evaluated include, but are not limited to:
   a. Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);
   b. Appropriate respirator selection for the hazards to which the user is exposed;
   c. Proper respirator use under the workplace conditions the user encounters; and
   d. Proper respirator maintenance.
4. EHS will update the Respiratory Protection Program as needed.

K. Recordkeeping

1. The completed EMU Respirator Medical Evaluation forms will be kept in secure files by EHS.
2. Documentation of the fit tests administered will include the following
   a. The name and EMU ID number of the user tested

b. The type fit test performed
c. The specific make, model, style and size of the respirator tested
d. The test date
e. The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

3. Fit test records will be retained until the next fit test is administered.
4. A written copy of this program will be kept on file.
5. These records will be made available to the users and to MIOSHA inspectors as required by the MIOSHA Respiratory Protection Standard.

VI. APPENDICES

A. Appendix A: 1910.134 Appendix A Fit Testing Procedures
B. Appendix B: EMU Respirator Medical Evaluation form (emudps- ehs-f018)
C. Appendix C: CDC/NIOSH Facial Hairstyles and Filtering Facepiece Respirators
D. Appendix D: Appendix D Information for Employees Using Respirators When Not Required Under the Standard

VII. HISTORY

Revision	Changes
0	Original Program
1	Document format, updated information based on MIOSHA standard amendments 1/2014, appendices and hyperlinks added.