

# DUQUESNE UNIVERSITY

## RESPIRATORY PROTECTION PROGRAM

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### **Purpose**

The purpose of this Respiratory Protection Program is to ensure Duquesne University employees are protected from airborne respiratory hazards. Respiratory protection must be incorporated when good engineering or administrative controls are not feasible, while these controls are being implemented or during emergencies. Respiratory hazards include but are not limited to harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors.

This Program also establishes Duquesne University's written compliance as required by the Occupational Safety and Health Administration (OSHA) under Title 29 Code of Federal Regulations Part 1910.134.

### **Scope**

This Program applies to all respiratory protection that may be utilized by Duquesne University employees during the course of normal operations as well as during some non-routine or emergency situations.

### **Responsibilities**

#### Administration:

Duquesne University has the overall responsibility for providing a place of employment free of recognized hazards and unsafe conditions, as well as complying with federal, state, and local standards and regulations.

#### Deans, Department Heads, and Supervisors:

In addition to being knowledgeable about this Program's requirements for respiratory protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Deans, Department Heads and Supervisors are responsible for:

- Identifying work areas, processes or tasks that require workers to wear respirators.
- Ensuring that the respiratory protection program is implemented and followed in areas under their control.
- Providing new employees with informal on-the-job training about potential respiratory hazards, personal protective equipment requirements, and this Program.
- Notifying the Office of Environmental Health and Safety (EH&S) about workplace conditions and potentially affected employees.
- Ensuring that affected employees receive respirator training, medical surveillance and fit testing prior to working with the respirators.
- Ensuring the availability of appropriate respirators and accessories.
- Enforcing affected employees to properly wear respirators when needed.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Continually monitoring work areas and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.
- Developing a canister/cartridge change schedule if using respiratory protection against gases and vapors

#### Environmental Health and Safety:

The Director, Environmental, Health and Safety is the Program Administrator. The Program Administrator is responsible for administering the respiratory protection program. Duties of the Program Administrator include:

- Providing guidance to deans, department heads, and supervisors in the selection of approved respirators.
- Selection of respiratory protection options based upon hazards to which workers are exposed.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Arranging for and/or conducting training according to this Program.
- Scheduling medical evaluations and fit testing.
- Maintaining records of exposure assessments, training, and respirator fit testing.
- Evaluating and updating the program as needed.

#### Affected Employees:

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

- Use the protective equipment provided in accordance with instructions and training received.
- Care for and maintain their respirators as instructed, and store them in a clean, sanitary location.
- Inform their immediate supervisor if the respirator no longer fits well, and request a new one that fits properly.
- Inform their immediate supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns regarding the program.
- Use the protective equipment provided in accordance with instructions and training received.
- Report any malfunction of the equipment to their immediate supervisor.
- Employees performing routine tasks shall not borrow emergency respiratory equipment that is permanently assigned to a specific location.
- Observe all procedures and requirements outlined in this Program.
- Attend training sessions and obtain medical surveillance when required.

- Notify immediate supervisor of changes in the workplace that could change exposures.

## **General Requirements:**

### A. Exposure Assessments

Potential exposures to hazardous materials and conditions at Duquesne University are routinely evaluated through regular workplace inspections, campus safety suggestion forms, and upon employee or supervisor request. The Office of Environmental Health and Safety takes all practical efforts to ensure that engineering or other controls are available and implemented to eliminate the need for respiratory protection. Nevertheless, certain situations and operations continue to require the use of respirators where exposures cannot be otherwise managed below the applicable permissible exposure limit (PEL). Also, respirators may be required or desired because of the odor or irritation associated with chemical exposures, even though they may be well below all applicable exposure limits.

### B. Respirator Selection:

The Program Administrator will help deans, directors and department heads select and purchase an appropriate respirator based on the respiratory hazard(s) to which employees are exposed. Workplace/user factors that affect respirator performance and reliability must be taken into consideration. Each department, whose employees are required to wear a respirator, will be financially responsible for the purchase of the respirator(s) and their associated parts and equipment.

All respirators will be certified by the National Institute for Occupational Safety and Health (NIOSH) and the respirator must be used in compliance with the conditions of its certification.

The Program Administrator will help deans, directors, department heads, and supervisors identify and evaluate the respiratory hazard(s) in the workplace. This evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where employee exposure cannot be identify or reasonably estimated, the Program Administrator must consider the atmosphere to be immediately dangerous to life and health (IDLH).

All respirators will be selected from a sufficient number of models and sizes so that the respirator is acceptable to, and correctly fits, the user.

#### 1. Respirators for IDLH Atmospheres:

Respirators, for employee use in IDLH atmospheres, will be provided as follows:

- a. A full facepiece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes.
- b. A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
- c. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.
- d. All oxygen-deficient (<19.5% O<sub>2</sub>) atmospheres shall be considered IDLH.

#### 2. Respirators for Non-IDLH Atmospheres:

A respirator will be provided that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

The respirator selected will be appropriate for the chemical state and physical form of the contaminant.

- a. For protection against gases and vapors:
  - An atmosphere-supplying respirator, or
  - An air-purifying respirator, provided that the respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or
  - If there is no ESLI appropriate for the conditions, a change schedule for canisters and cartridges must be implemented based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.
  - Respirator manufacturers can provide assistance in determining a reasonable change program. The change out would depend on the task involved. For some tasks weekly or monthly changes are reasonable. In other instances, end of task or end of shift is reasonable.
  - See Appendix A for help in developing a canister/cartridge change schedule.
- b. For protection against particulates:
  - An atmosphere-supplying respirator; or
  - 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.

C. Respirators Use:

Procedures for the proper use of respirators must be established and implemented. These requirements include prohibiting conditions that may result in facepiece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres.

1. Facepiece seal protection:

Employees, who have the following conditions, will not be permitted to wear respirators with tight-fitting facepieces:

  - a. Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or
  - b. Any condition that interferes with the face-to-facepiece seal or valve function.
  - c. If an employee wears corrective glasses or goggles or other personal protective equipment, such equipment must be worn in a manner that does not interfere with the seal of the facepiece to the face of the user.
2. Respirator effectiveness:

Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the employer shall re-evaluate the continued effectiveness of the respirator.
3. Employees must leave the respirator use area:
  - a. To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or
  - b. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; (if the employee detects vapor or gas breakthrough, changes in breathing resistance, or

- leakage of the facepiece, the employee must inform their immediate supervisor and/or the Program Administrator to replace or repair the respirator before the employee can return to the work area) or
- c. To replace the respirator or the filter, cartridge, or canister elements.
  - d. At no time, for any reason, will the user remove a respirator while inside an area designated for respirator use.

4. For all IDLH atmospheres, the following elements must be utilized:
  - a. One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
  - b. Visual, voice, or signal line communication must be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
  - c. The employee(s) located outside the IDLH atmosphere must be trained and equipped to provide effective emergency rescue;
  - d. Public Safety (x4747) must be notified before the employee(s) located outside the IDLH atmosphere enters the IDLH atmosphere to provide emergency rescue;
  - e. Public Safety, once notified, will provide necessary assistance appropriate to the situation;
  - f. Employee(s) located outside the IDLH atmospheres must be equipped with:
    1. Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either
    2. Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
    3. Equivalent means for rescue where retrieval equipment is not required.

5. **Restrictions:**

Respirators requiring a tight face seal for proper performance may not be worn if certain physical or health conditions prevent obtaining the tight seal. These may include: glasses (with tight fitting full facepiece respirators), missing denture(s), facial hair that interferes with the seal, punctured eardrum, articles of clothing that affect fit, or any other physical, health, or prosthetic conditions that interrupt or preclude an effective respirator fit test. Each of these conditions may be remedied as follows:

- a. Eyeglass Temple Pieces – Where a full-face respirator must be worn, a spectacle kit that fit the respirator must be provided to the employee free-of-charge. The employee will then need to visit an optometrist during regular working hours to arrange for the lens to be fabricated to the required prescription. Although the practice is strongly discouraged, contact lenses may be worn provided the respirator is of full-face design.
- b. Missing Denture(s) – Will be addressed by the physician or other licensed health care professional (PLHCP) and the reason for the missing dentures identified.
- c. Facial Hair Impeding Effective Seal – Where an employee is required to wear a negative pressure respirator, and facial hair impedes an effective facial seal, the hair must be removed before the respirator can be worn.
- d. Clothing – Clothing, jewelry or other personal items worn that prevent making an effective facial seal must be removed so that the respirator can be properly worn.
- e. Other Issues – Other issues (e.g., prosthetics, handicaps, facial malformations) that could prevent the effective use of a respirator will be addressed on a case-by-case basis with the PLHCP during the medical screening.

D. **Medical Evaluation:**

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions, and the medical status of the employee.

Each employee must undergo a medical evaluation to determine the employee's ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

An employee's medical evaluation may be discontinued when the employee is no longer required to use a respirator.

1. Medical evaluation procedures:  
Duquesne University will identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire (Appendix B) or an initial medical examination that obtains the same information as the medical questionnaire.
2. Follow-up medical examination:  
The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.
3. Administration of the medical questionnaire and examinations:  
The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.

The employee will have an opportunity to discuss the questionnaire and examination results with the PLHCP.

4. Supplemental information for the PLHCP:  
The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:
  - a. The type and weight of the respirator to be used by the employee;
  - 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 to be worn; and
  - e. Temperature and humidity extremes that may be encountered.

Any supplemental information previously provided to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.

Duquesne University will provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

Note: When Duquesne University replaces a PLHCP, the employer must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically re-evaluated solely because a new PLHCP has been selected.

5. Medical determination:  
In determining the employee's ability to use a respirator, Duquesne University will obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

- a. Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
- b. The need, if 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.

6. Additional medical evaluations:

Duquesne University will provide additional medical evaluations if:

- a. An employee reports medical signs or symptoms that are related to ability to use a respirator;
- b. A PLHCP, supervisor, or the respirator Program Administrator deems a re-evaluation is necessary;
- c. Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation; or
- d. A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and/or temperature) that may result in a substantial increase in the physiological burden placed on an employee.

E. Fit Testing

All employees that are required to use any respirator with a negative or positive pressure tight-fitting facepiece must be fit tested with the same make, model, style, and size of respirator that will be used. Duquesne University will ensure:

- Employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT).
- Employees using a tight-fitting facepiece respirator be fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.

Additional fit testing may be administered whenever the employee reports, or the PLHCP, supervisor, or Program Administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to:

- facial scarring,
- dental changes,
- cosmetic surgery, or
- an obvious change in body weight.

If after passing a fit test, the employee notifies the Program Administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee will be given a reasonable opportunity to select a different respirator facepiece and be re-tested.

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol.

Once the user has passed a fit test, a respirator seal check must be performed prior to each use. A user seal check is mandatory per OSHA and can be found in Appendix C.

F. Maintenance and Care of Respirators

1. Cleaning and disinfecting:

Prior to use, each respirator must be clean, sanitary, and in good working condition. The employee must ensure that respirators are cleaned and disinfected using the following procedures:

- a. Remove filters, cartridges, or canisters. Disassemble facepiece by removing speaking diaphragms, demand and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or replace any defective parts.
  - b. Wash components in warm water with a mild detergent or with a cleaner recommended by the manufacturer.
  - c. Rinse components thoroughly in clean, warm running water and air dry. All parts of the respirator must be thorough rinsed. 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.
  - d. Wipe the respirator with disinfectant wipes (alcohol-free) and air dry.
  - e. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
  - f. Test the respirator to ensure that all components work properly.
2. The respirators shall be cleaned and disinfected at the following intervals:
- a. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected prior to and after each use to maintain a sanitary condition;
  - b. Respirators issued to more than one employee shall be cleaned and disinfected prior to being worn by different individuals;
  - c. Respirators maintained for emergency use shall be cleaned and disinfected after each use; and
  - d. Respirators used in fit testing and training shall be cleaned and disinfected after each use.
3. Storage:  
The employee will ensure that respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. Respirators must be packed or stored to prevent deformation of the facepiece and exhalation valve.
- Respirators used for emergency response will be:
- a. Kept accessible to the work area;
  - b. Stored in compartments or in covers that are clearly marked as containing emergency respirators; and
  - c. Stored in accordance with any applicable manufacturer instructions.
4. Inspection:  
The employee will ensure that respirators are inspected as follows:
- a. All respirators used in routine situations must be inspected before each use and during cleaning;
  - b. All respirators maintained for use in emergency situations must be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use; and
  - c. Emergency escape-only respirators must be inspected before being carried into the workplace for use.
  - d. A check for 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
  - e. A check of parts for pliability and signs of deterioration.
  - f. A self-contained breathing apparatus (SCBA) must be inspected monthly. Air and oxygen cylinders must be maintained in a fully charged state and must be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The regulator and warning devices must be check for proper operation.

5. All SCBAs and respirators maintained for emergency use must be inspected on a monthly basis (Appendix D). The procedures for this monthly inspection must:
  - a. Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and
  - b. This information must be on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.
6. Repairs:

All respirators and/or parts of the respirator 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 procedures:

  - a. Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;
  - b. Repairs shall 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 will be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

#### G. Training and Information

Effective training must be comprehensive, understandable, and recur annually or more often when deemed necessary to employees who are required to use respirators. All training will be required prior to the employee using a respirator in the workplace.

1. Training will ensure that each employee can demonstrate knowledge in 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 respirators; and
  - g. The general requirements of this Program.
2. Retraining will be administered 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 employee's knowledge or use of the respirator.
  - c. Any other situation arises in which retraining appears necessary to ensure safe respirator use.

#### H. Voluntary Respirator Use

Employees who voluntarily use dust mask respirators at Duquesne University will not be required to undergo a medical evaluation or respirator training. However, according to OSHA, all voluntary dust mask respirator users must read a short training policy titled "Instructions for Voluntary Dust Must Respirator Use at Duquesne University" (Appendix E). This policy must be distributed whenever dust mask respirators are requested. The following conditions must exist in order for dust mask respirators to be used voluntary:

- Exposure to airborne contaminants is below OSHA permissible exposure limits (PELs).
- Exposure is only to non-toxic nuisance materials.
- There is no exposure potential to infectious disease agents.
- The dust mask respirator is not used to reduce exposure to gases or vapors.

## I. Program Evaluation

### 1. Environmental, Health and Safety (EH&S):

The office of EH&S will periodically evaluate the Respiratory Protection Program. The office of EH&S will ensure:

- a. A written program exists.
- b. Employees are utilizing respirators properly.
- c. Records are complete for employee medical evaluations and certifications, fit testing and training.
- d. The written program is reviewed and updated when deemed necessary.
- e. Employees are surveyed for program effectiveness.

### 2. Department Supervisors:

Department supervisors will ensure:

- a. The written program is implemented.
- b. Employees have been properly trained prior to respirator use.
- c. The correct respirator is utilized for all the contaminants encountered.
- d. Workplace hazards have been identified and reviewed.
- e. All provisions of the written program are implemented.
- f. Respirators and cartridges are properly maintained, cleaned and stored.

## J. Recordkeeping

### 1. EH&S will maintain all records for respirator training, medical certifications, and fit testing. These records include:

- a. The name or identification of the employee tested;
- b. Type of fit test performed;
- c. Specific make, model, style, and size of respirator tested;
- d. Date of test; and
- e. The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

### 2. Medical Questionnaire:

The organization reviewing employee medical questionnaires will maintain the records for these files. Duquesne University will not review or store the medical questionnaire employees complete.

This Program will be reviewed at least annually and updated when deemed necessary.

## **Appendix A**

### **Developing a Canister/Cartridge Change Schedule**

Each University department utilizing respiratory protection against gases and vapors must develop a change schedule based on available data or information that can be relied upon to ensure that cartridges are changed **before** the end of their useful service life.

Consider the following factors in determining change schedules:

- The contaminants the respirator is to protect against.
- The concentrations of contaminants in the work area.
- Frequency of use (is the respirator used continuously or intermittently throughout the shift?)
- Temperature, humidity and air flow through the cartridge or canister.
- Employees' work rates.
- The presence of other potentially interfering chemicals.

Always assume worst case conditions to avoid breakthrough earlier than anticipated. Always document the information relied upon and the basis for the change schedules. This information and each department's change schedule must be supplied to the Program Administrator, which will be inserted into this written Respiratory Protection Program.

#### **Where can I get help on developing change schedules?**

Consult with the respirator supplier or manufacturer for guidance on developing change schedules specific to your department's work conditions. Some suppliers have prepared materials that may assist you with developing change schedules.

Other resource that can be used to develop a change schedule are:

<http://www.3m.com/market/safety/ohes2/html/cartridgechange.html>

[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=DIRECTIVES&p\\_id=2275&p\\_text\\_version=FALSE](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=2275&p_text_version=FALSE)

## Appendix B

### OSHA Respirator Medical Evaluation Questionnaire

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

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

1. Today's date: \_\_\_\_\_

2. Your name: \_\_\_\_\_

3. Your age (to nearest year): \_\_\_\_\_

4. Sex (circle one): Male/Female

5. Your height: \_\_\_\_\_ ft. \_\_\_\_\_ in.

6. Your weight: \_\_\_\_\_ lbs.

7. Your job title: \_\_\_\_\_

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): \_\_\_\_\_

9. The best time to phone you at this number: \_\_\_\_\_

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No

11. Check the type of respirator you will use (you can check more than one category):

a. \_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non- cartridge type only).

b. \_\_\_\_\_ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one): Yes/No

If "yes," what type(s): \_\_\_\_\_

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

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No

2. Have you ever had any of the following conditions?

1. Seizures (fits): Yes/No
2. Diabetes (sugar disease): Yes/No
3. Allergic reactions that interfere with your breathing: Yes/No
4. Claustrophobia (fear of closed-in places): Yes/No
5. Trouble smelling odors: Yes/No

3. Have you ever had any of the following pulmonary or lung problems?

1. Asbestosis: Yes/No
2. Asthma: Yes/No
3. Chronic bronchitis: Yes/No
4. Emphysema: Yes/No
5. Pneumonia: Yes/No
6. Tuberculosis: Yes/No
7. Silicosis: Yes/No
8. Pneumothorax (collapsed lung): Yes/No
9. Lung cancer: Yes/No
10. Broken ribs: Yes/No
11. Any chest injuries or surgeries: Yes/No
12. Any other lung problem that you've been told about: Yes/No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?

1. Shortness of breath: Yes/No
2. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
3. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
4. Have to stop for breath when walking at your own pace on level ground: Yes/No
5. Shortness of breath when washing or dressing yourself: Yes/No
6. Shortness of breath that interferes with your job: Yes/No
7. Coughing that produces phlegm (thick sputum): Yes/No
8. Coughing that wakes you early in the morning: Yes/No
9. Coughing that occurs mostly when you are lying down: Yes/No
10. Coughing up blood in the last month: Yes/No
11. Wheezing: Yes/No
12. Wheezing that interferes with your job: Yes/No
13. Chest pain when you breathe deeply: Yes/No
14. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you ever had any of the following cardiovascular or heart problems?

1. Heart attack: Yes/No
2. Stroke: Yes/No

3. Angina: Yes/No
4. Heart failure: Yes/No
5. Swelling in your legs or feet (not caused by walking): Yes/No
6. Heart arrhythmia (heart beating irregularly): Yes/No
7. High blood pressure: Yes/No
8. Any other heart problem that you've been told about: Yes/No

6. Have you ever had any of the following cardiovascular or heart symptoms?

1. Frequent pain or tightness in your chest: Yes/No
2. Pain or tightness in your chest during physical activity: Yes/No
3. Pain or tightness in your chest that interferes with your job: Yes/No
4. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
5. Heartburn or indigestion that is not related to eating: Yes/ No
6. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you currently take medication for any of the following problems?

1. Breathing or lung problems: Yes/No
2. Heart trouble: Yes/No
3. Blood pressure: Yes/No
4. Seizures (fits): Yes/No

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

1. Eye irritation: Yes/No
2. Skin allergies or rashes: Yes/No
3. Anxiety: Yes/No
4. General weakness or fatigue: Yes/No
5. Any other problem that interferes with your use of a respirator: Yes/No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No

11. Do you currently have any of the following vision problems?

1. Wear contact lenses: Yes/No
2. Wear glasses: Yes/No
3. Color blind: Yes/No
4. Any other eye or vision problem: Yes/No

12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No

13. Do you currently have any of the following hearing problems?

- 1. Difficulty hearing: Yes/No
  - 2. Wear a hearing aid: Yes/No
  - 3. Any other hearing or ear problem: Yes/No
14. Have you ever had a back injury: Yes/No
15. Do you currently have any of the following musculoskeletal problems?

- 1. Weakness in any of your arms, hands, legs, or feet: Yes/No
- 2. Back pain: Yes/No
- 3. Difficulty fully moving your arms and legs: Yes/No
- 4. Pain or stiffness when you lean forward or backward at the waist: Yes/No
- 5. Difficulty fully moving your head up or down: Yes/No
- 6. Difficulty fully moving your head side to side: Yes/No
- 7. Difficulty bending at your knees: Yes/No
- 8. Difficulty squatting to the ground: Yes/No
- 9. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
- 10. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

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

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No  
 If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

- 1. Asbestos: Yes/No
- 2. Silica (e.g., in sandblasting): Yes/No
- 3. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
- 4. Beryllium: Yes/No
- 5. Aluminum: Yes/No
- 6. Coal (for example, mining): Yes/No
- 7. Iron: Yes/No
- 8. Tin: Yes/No
- 9. Dusty environments: Yes/No
- 10. Any other hazardous exposures: Yes/No

If "yes," describe these exposures: \_\_\_\_\_  
 \_\_\_\_\_

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4. List any second jobs or side businesses you have: \_\_\_\_\_

---

5. List your previous occupations: \_\_\_\_\_

---

6. List your current and previous hobbies: \_\_\_\_\_

---

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If "yes," name the medications if you know them: \_\_\_\_\_

10. Will you be using any of the following items with your respirator(s)?

1. HEPA Filters: Yes/No
2. Canisters (for example, gas masks): Yes/No
3. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:

1. Escape only (no rescue): Yes/No
2. Emergency rescue only: Yes/No
3. Less than 5 hours per week: Yes/No
4. Less than 2 hours per day: Yes/No
5. 2 to 4 hours per day: Yes/No
6. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:

1. Light (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

2. Moderate (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

3. Heavy (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment: \_\_\_\_\_

\_\_\_\_\_

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No

16. Describe the work you'll be doing while you're using your respirator(s):

\_\_\_\_\_

\_\_\_\_\_

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

\_\_\_\_\_

\_\_\_\_\_

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of the second toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of the third toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

The name of any other toxic substances that you'll be exposed to while using your respirator:

\_\_\_\_\_

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19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

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Signature \_\_\_\_\_ Date \_\_\_\_\_

Date of Birth \_\_\_\_\_

Employer's Information: \_\_\_\_\_  
Type of respirator: \_\_\_\_\_  
Weight of respirator: \_\_\_\_\_

## **Appendix C**

### **Respirator User Seal Check**

Persons using tight-fitting respirators must perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method must be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

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

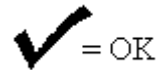
- A. Positive pressure check. Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

#### **II. Manufacturer's Recommended User Seal Check Procedures**

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

# Appendix D

## SCBA Monthly Checklist



SCBA Serial Number: \_\_\_\_\_

<b>TEST:</b>	<b>DATE:</b>						
<b>Cylinder Check: Cylinder Filled (&gt;30 in)</b>							
<b>High Pressure Alarm: (open cylinder valve, listen)</b>							
<b>Valve Packing not leaking? (listen, close cylinder valve)</b>							
<b>Regulator Pressure Gauge: (reads same as cylinder?)</b>							
<b>Low Pressure Alarm: (open purge, close)</b>							
<b>Straps:</b>							
<b>Complete Set</b>							
<b>Not Frayed or Damaged</b>							
<b>Buckles: Lock Correctly</b>							
<b>Back Plate and Cylinder Lock:</b>							
<b>No Missing Rivets or Screws:</b>							
<b>Strap Tightener and Lock Fully Engaged:</b>							
<b>Cylinder:</b>							
<b>Tightly Fastened to Backplate</b>							
<b>Hydrostatic Test Date: (within 3 years)</b>							
<b>No Cuts in Fiberglass Wrap:</b>							
<b>Gauge Face Clear:</b>							
<b>High-Pressure Hose and Connector Condition:</b>							
<b>Facepiece:</b>							
<b>Lens Clear</b>							
<b>Overall Condition:</b>							
<b>Breathing Tube and Connector: Condition</b>							
<b>Storage:</b>							
<b>Re-check gauge: Cylinder Full (&gt;30 in)</b>							
<b>Pressure Bled from Hose and Regulator:</b>							
<b>Cylinder, Purge Valves Closed:</b>							
<b>Straps, Facepiece Reset/ Stored Properly:</b>							
<b>INSPECTION PERFORMED BY: (initial)</b>							

This checklist must be kept where the SCBA(s) and/or emergency use respirator(s) are stored. After each monthly inspection, a copy of the SCBA Checklist must be sent to the Office of Environmental, Health and Safety for recordkeeping.

## **Appendix E**

### **Instructions for Voluntary Dust Mask and Respirator Use**

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

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If Duquesne University provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the 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.
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. Keep it in a clean place, and discard or clean it when it becomes visibly dirty or you suspect it might be contaminated.

## **Appendix F: Definitions**

**Air-Purifying Respirator (APR)** - 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** - a respirator that supplies the user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR) 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** means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

**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 to be used only for emergency exit.

**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 also 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 mono-disperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 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.

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 paragraph (e) of this section.

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.

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 for which the breathing air source is designed to be 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 for which the source of breathing air is not designed to be 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.