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Introduction

Respiratory Protection Program Scope

The Occupational Safety and Health Administration (OSHA), under the provisions of the 29 Code of Federal Regulations [CFR] §1910.134(c) and appendices, requires Temple University to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. This program applies to all employees, students, and volunteers/visiting scholars who are required to wear or voluntarily wear a respirator.

When effective environmental controls (e.g., enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials) are not feasible, or while they are being instituted, appropriate respirators must be used.

Respiratory Protection Program Administrator

The respiratory protection program, designed in compliance with 29 CFR §1910.134(c)(3), must be administered by a suitably trained program administrator who is qualified by appropriate training or experience commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

Kisha Grady, Senior Training Specialist for the Environmental Health and Radiation Safety Department, was appointed as the Respiratory Protection Program Administrator for Temple University by Gregory B. Lupinski, Director of the Environmental Health and Radiation Safety Department.

Principal investigators, Directors, or Supervisors are responsible for ensuring that employees, students, and volunteers/visiting scholars, under their supervision, seek respiratory protection when it is appropriate. Responsibility for overseeing the implementation of the Respiratory Protection Program for individuals requiring respiratory protection rests with the immediate Principal investigator, Director, or Supervisor and hereafter will be identified as Employer.
## Section 1: Definitions

Most definitions in this section can be found in 29 CFR §1910.134(a-b).

<table>
<thead>
<tr>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air-Purifying Respirator (APR)</strong></td>
<td>A respirator with an air-purifying filter or cartridge that removes specific air contaminants by passing ambient air through the air-purifying element.</td>
</tr>
<tr>
<td><strong>Assigned protection factor (APF)</strong></td>
<td>The workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.</td>
</tr>
<tr>
<td><strong>Atmosphere-Supplying Respirator</strong></td>
<td>A respirator that supplies the respirator 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.</td>
</tr>
<tr>
<td><strong>Cartridge</strong></td>
<td>A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.</td>
</tr>
<tr>
<td><strong>Combination Respirators</strong></td>
<td>Are respirators designed to be used in atmospheres that contain hazards of both particulates and gases and use combination cartridges to reduce exposure to these hazards.</td>
</tr>
<tr>
<td><strong>Emergency Situation</strong></td>
<td>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.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>End-of-Service-Life Indicator (ESLI)</td>
<td>A system that warns the respirator user of the approach of the end of the adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.</td>
</tr>
<tr>
<td>Filtering Facepiece</td>
<td>A negative-pressure particulate respirator with a filter as an integral part of the facepiece composed of the filtering medium.</td>
</tr>
<tr>
<td>Fit Factor</td>
<td>A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ration of the concentration of a substance in ambient air to its concentration inside the respirator when worn.</td>
</tr>
<tr>
<td>Fit Test</td>
<td>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]).</td>
</tr>
<tr>
<td>Immediately Dangerous to Life and Health (IDLH)</td>
<td>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.</td>
</tr>
<tr>
<td>Maximum use concentration (MUC)</td>
<td>The maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA</td>
</tr>
</tbody>
</table>
exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.

**Oxygen-Deficient Atmosphere**
An atmosphere with an oxygen content below 19.5% by volume.

**Occupational Exposure Limit**
It is an upper limit on the acceptable concentration of a hazardous substance in workplace air for a particular material or class of materials. It is typically set by competent national authorities and enforced by legislation to protect occupational safety and health.

**Particulate-removing respirators**
A respirator designed to reduce inhaled concentrations of nuisance dusts, fumes, mists, toxic dusts, radon daughters, asbestos-containing dusts or fibers, or any combination of these substances, by filtering most of the contaminants from the inhaled air before they enter the breathing zone of the respirator user.

**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.

**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.

**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.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantitative Fit Test (QNFT)</strong></td>
<td>An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.</td>
</tr>
<tr>
<td><strong>Respirator User Exposure</strong></td>
<td>Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.</td>
</tr>
<tr>
<td><strong>Self-Contained Breathing Apparatus (SCBA)</strong></td>
<td>An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.</td>
</tr>
<tr>
<td><strong>Service Life</strong></td>
<td>The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.</td>
</tr>
<tr>
<td><strong>Supplied-Air Respirator (SAR) or Airline Respirator</strong></td>
<td>An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.</td>
</tr>
<tr>
<td><strong>User Seal Check</strong></td>
<td>An action conducted by the respirator user to determine if the respirator is properly seated to the face.</td>
</tr>
<tr>
<td><strong>Vapor- and gas-removing Respirators</strong></td>
<td>Are respirators designed with sorbent elements (cartridges) that adsorb and/or absorb the vapors or gases from the contaminated air before they can enter the breathing zone of the individual. An example of this type of respirator would be a full-facepiece respirator.</td>
</tr>
</tbody>
</table>
Section 2: Responsibilities

**Employer**

The employer is responsibility for:

- Implementing the Respiratory Protection Program in their work area.
- Identifying individuals and their jobs or tasks which may require respiratory protection, providing this information to the Respiratory Protection Program Administrator and seeking assistance in evaluation of respiratory hazards.
- Purchasing respirators that are appropriate of the hazard and making them available for respirator users.
- Enforcing the proper use of respiratory protection equipment.
- Ensuring that respirators are properly cleaned, maintained, and stored according to this program.
- Ensuring that respirator users under their supervision (including students and visiting scholars) receive appropriate training, medical evaluation, and initial and annual fit testing.
- Identifying changes in jobs or tasks which may require re-evaluation of respirator use and notifying the Respiratory Protection Program Administrator.

**Employee and Student Health Services**

Employee and Student Health Services is responsible for:

- Performing initial and periodic medical evaluations and any necessary follow-up examinations of employees, students, and volunteers/visiting scholars to determine their ability to wear a respirator.
- Providing the completed respiratory medical clearance form of the respirator user’s ability to wear a respirator to the Respiratory Protection Program Administrator.
- Maintaining records of medical evaluations.

**Respirator User (employee, student or visiting scholar)**

The respirator user is responsible for:

- Completing the OSHA Medical Evaluation Questionnaire (see Appendix B or visit our website at [https://www.temple.edu/ehrs/handbook/documents/OSHAREspiratorMedicalEvaluation.pdf](https://www.temple.edu/ehrs/handbook/documents/OSHAREspiratorMedicalEvaluation.pdf)) in its entirety and the left-hand side of the Respiratory Medical Clearance form (see Appendix C or visit our website at [http://www.temple.edu/ehrs/safety/occupational](http://www.temple.edu/ehrs/safety/occupational).
safety/documents/RespiratoryMedicalClearanceForm.pdf), and submit them to Employee or Student Health Services.

- Using the respirator in accordance with the manufacturer's instructions and the training received.
- Storing, cleaning, maintaining, and guarding against damage to the respirator.
- Reporting any malfunction of the respirator to his/her employer.
- Inspecting the respirator before each use.
- Promptly reporting to his/her employer or Employee Health Services any symptoms of illness that may be related to respirator usage or exposure to hazardous atmospheres.
- Identifying changes in jobs or tasks which may require re-evaluation of respirator use and notifying the Respiratory Protection Program Administrator.

Environmental Health and Radiation Safety Department

The Environmental Health and Radiation Safety Department is responsible for developing, implementing, and administering the Respiratory Protection Program at Temple University. The Respiratory Protection Program Administrator is responsible for:

- Evaluating respiratory hazards in the work areas.
- Coordinating medical evaluation and fit testing services for respirator users.
- Providing guidance to the employer for selecting and purchasing approved respirators.
- Assisting with fit testing for respirator users.
- Providing training (including refresher sessions) on the proper use, maintenance, and storage of respirators to all respirator users.
- Maintaining records on respiratory protective equipment assignments, medical clearances, fit testing, and training.
- Evaluating the overall effectiveness of the respirator program.

Section 3: Procedures for Selecting Respirators for Use in the Workplace

Respirator selection requires correctly matching the respirator with the hazard (the degree of hazard) and the user. The respirator selected must be adequate to effectively reduce the exposure of the respirator user under all conditions of use, including reasonably foreseeable emergency situations. Proper respirator selection involves choosing a device that fully protects the user from the respiratory hazards to which he/she may be exposed and permits the user to perform the job with the least amount of physical burden.

The Environmental Health and Radiation Safety Department will identify and evaluate the respiratory hazard(s) in the workplace. This evaluation will include a reasonable estimate of respirator user's
exposures to the respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Environmental Health and Radiation Safety will select and provide an appropriate respirator based on the respiratory hazard(s) to which the user is exposed and the workplace, along with user factors that affect respirator performance and reliability. The 2004 NIOSH Respirator Selection Logic will serve as a template for assuring that all of the important elements are considered when selecting a respirator. (This template can be found on page in Appendix A of this document.)

To effectively select the respirator, Environmental Health and Radiation Safety must first assemble the necessary toxicological, safety, and other relevant information for each respiratory hazard, which can include:

1. **Nature of the hazard, and the physical and chemical properties of the air contaminant.** The nature of the hazard, whether it is in the form of a gas, dust, organic vapor, fume, mist, oxygen deficiency or any combination of hazards, needs to be taken into account. The physical and chemical properties of the contaminant that affect respirator selection, and the selection of respirator components such as cartridges and filters must also be considered. Physical properties include such factors as particle size for dusts, and vapor pressure for gases and vapors. Chemical properties of the air contaminant that affect breakthrough times, and the ability of the filter material to remove, adsorb, or absorb the contaminant must also be considered.

2. **Concentrations of contaminants.** Sampling and analysis of the workplace air determines what degree of exposure is occurring, and thus what degree of protection is required. Where such sampling and analysis have been done, the results are to be used as a point of comparison with the occupational exposure level, i.e., to determine how much the concentration must be lowered by the respirator to reduce respirator user's exposure to a safe level.

3. **The relevant permissible exposure limit or other occupational exposure limit.** Respirators selected must be capable of protecting against overexposure by reducing and maintaining exposure to or below the relevant exposure limit. In addition to the OSHA occupational exposure limits, Environmental Health and Radiation Safety will refer to the American Conference of Governmental Industrial Hygienists (ACGIH) recommended Threshold Limit Values (TLV’s), and the National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL’s).

4. **Nature of the work operation or process.** The type of job operation, the equipment or tools that will be used, and any motion or travel the job requires can influence the type of respirator selected.
5. **Time period respirator is worn.** Environmental Health and Radiation Safety will consider the period of time during which the respirator will be used by respirator user during a work shift. Breakthrough times for different chemicals can vary greatly and are dependent on the concentrations of contaminants in the workplace air, patterns of respirator use, and environmental factors including temperature and humidity. A respirator that provides adequate protection for one chemical may be inadequate for another chemical with a different breakthrough time. In addition, individuals wearing respirators for longer periods of time may need respirators that impose the minimum possible physical burden.

6. **Work activities and stress.** The work activities of individuals while wearing respirators are also a factor. Heavy work that is physically draining may affect an employee's capability of wearing certain types of respirators. Temperature and humidity conditions in the workplace may also affect the physical/psychological stress level associated with wearing a respirator, as well as the effectiveness of respirator filters and cartridges. These types of factors must be assessed in selecting the appropriate equipment for a particular work situation.

7. **Fit testing.** Some individuals may be unable to achieve an adequate fit with certain respirator models or a particular type of respirator, such as N95 particulate respirator; an alternative respirator model with an adequate fit or other type of respirator that provides adequate protection will be used. Environmental Health and Radiation Safety will provide a sufficient number of respirator models and sizes from which respirator users can choose an acceptable respirator that fits correctly.

8. **Physical characteristics, functional capabilities, and limitations of respirators.** The last category of information to be considered when selecting respiratory protection is the physical characteristics, functional capabilities, and limitations of the respiratory protection equipment itself. Respirators selected must not impair the user's vision, hearing, communication, and physical movement necessary to perform jobs safely.

**Summary of Potential Respiratory Hazards**

The list below is not exhaustive but is meant to provide examples of potential various hazards individuals can be exposed to.

**Biological Hazard**

The National Institute of Allergy and Infectious Diseases, a division of the National Institutes of Health, classifies biological agents in the following ways:

- **Category A** are those organisms/biological agents that pose the highest risk to national
security and public health because they:

- can be easily disseminated or transmitted from person to person;
- result in high mortality rates and have the potential for major public health impact;
- might cause public panic and social disruption; and,
- require special action for public health preparedness.

- **Category B** are the second-highest priority agents/organisms/biological agents that:
  - are moderately easy to disseminate;
  - result in moderate morbidity rates and low mortality rates; and,
  - require specific enhancements of CDC’s diagnostic capacity and enhanced disease surveillance.

- **Category C Diseases/Agents** are the third-highest priority agents and include emerging pathogens that could be engineered for mass dissemination in the future because of:
  - Availability;
  - ease of production and dissemination; and,
  - potential for high morbidity and mortality rates and major health impact.

Some biological agents are naturally respiratory hazards that affect humans. Other agents that may not normally considered to be respiratory hazards to humans may be weaponized, genetically modified, or enhanced with other materials to make them respiratory hazards. For this purpose, a comprehensive list of biological agents has been adopted from the [National Institute of Allergy and Infectious Diseases](https://www.niaid.nih.gov).
Variola major (smallpox) and other related pox viruses

*Francisella tularensis* (tularemia)

Viral hemorrhagic fevers

- Arenaviruses
- Bunyaviruses
- Flaviviruses (e.g., Dengue)
- Filoviruses (e.g., Ebola and Marburg)

### Category B Priority Agents

*Burkholderia pseudomallei* (melioidosis)

*Coxiella burnetii* (Q fever)

*Brucella* species (brucellosis)

*Burkholderia mallei* (glanders)

*Chlamydia psittaci* (Psittacosis)

Ricin toxin (Ricinus communis)

Epsilon toxin (Clostridium perfringens)

Staphylococcus enterotoxin B (SEB)

Typhus fever (*Rickettsia prowazekii*)

Food- and waterborne pathogens

- Bacteria
- Diarrheagenic *E. coli*
- Pathogenic Vibrios
- *Shigella* species
- Salmonella
- *Listeria monocytogenes*
- *Campylobacter jejuni*
- *Yersinia enterocolitica*

- Viruses
  - Caliciviruses
  - Hepatitis A

- Protozoa
  - *Cryptosporidium parvum*
  - *Cyclospora cayatanensis*
  - *Giardia lamblia*
  - *Entamoeba histolytica*
  - *Toxoplasma gondii*
  - *Naegleria fowleri*
  - *Balamuthia mandrillaris*

- Fungi
  - Microsporidia

Mosquito-borne encephalitis viruses

- West Nile virus (WNV)
- LaCrosse encephalitis (LACV)
- California encephalitis
- Venezuelan equine encephalitis (VEE)
- Eastern equine encephalitis (EEE)
- Western equine encephalitis (WEE)
- Japanese encephalitis virus (JE)
- St. Louis encephalitis virus (SLEV)

**Category C Priority Agents**

Nipah and Hendra viruses
### Additional hantaviruses

### Tickborne hemorrhagic fever viruses

- **Bunyaviruses**
  - Severe Fever with Thrombocytopenia Syndrome virus (SFTSV), Heartland virus
- **Flaviviruses**
  - Omsk Hemorrhagic Fever virus, Alkhurma virus, Kyasanur Forest virus

### Tickborne encephalitis complex flaviviruses

- Tickborne encephalitis viruses
- European subtype
- Far Eastern subtype
- Siberian subtype
- Powassan/Deer Tick virus

### Yellow fever virus

### Tuberculosis, including drug-resistant TB

### Influenza virus

### Other Rickettsias

### Rabies virus

### Prions

### Chikungunya virus

### Coccidioides spp.

### Severe acute respiratory syndrome associated coronavirus (SARS-CoV), MERS-CoV, and other highly pathogenic human coronaviruses
Antimicrobial resistance, excluding research on sexually transmitted organisms, unless the resistance is newly emerging*

- Research on mechanisms of antimicrobial resistance
- Studies of the emergence and/or spread of antimicrobial resistance genes within pathogen populations
- Studies of the emergence and/or spread of antimicrobial-resistant pathogens in human populations
- Research on therapeutic approaches that target resistance mechanisms
- Modification of existing antimicrobials to overcome emergent resistance

*Excluded Research (Sexually Transmitted Organisms) - Bacterial vaginosis, Chlamydia trachomatis, cytomegalovirus, Granuloma inguinale, Hemophilus ducreyi, hepatitis B virus, hepatitis C virus, herpes simplex virus, human immunodeficiency virus, human papillomavirus, Treponema pallidum, Trichomonas vaginalis

Antimicrobial research, as related to engineered threats and naturally occurring drug-resistant pathogens, focused on development of broad-spectrum antimicrobials

Chemical Hazards

<table>
<thead>
<tr>
<th>Acetic Acid</th>
<th>Acetone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylene gas</td>
<td>Ammonia</td>
</tr>
<tr>
<td>Arsenic</td>
<td>Arsine (SA)</td>
</tr>
<tr>
<td>Benzene</td>
<td>Bromobenzylcyanide</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Cyanide</td>
</tr>
<tr>
<td>Cyanogen Chloride</td>
<td>Ethylene Glycol</td>
</tr>
</tbody>
</table>
### Radiological Hazards

- Alpha particles
- Beta particles
- Gamma

### Other Respiratory Hazards

Laboratory animal allergy (LAA) is recognized as an occupational disease, in peer-review articles, which can affect individuals exposed to laboratory animals. Most laboratory animal species have multiple allergen sources (i.e., hair, dander, urine, saliva, and serum), each of which warrants consideration where exposure is concerned. Like many occupational hazards, the intensity (or concentration) of allergen exposure, along with duration and routes of entry, are significant factors in an allergic disease. Occupational exposure to animal allergens occurs predominantly through inhalation of airborne allergens, which makes exposure control largely an exercise in particulate control. There is no clearly established threshold for allergen exposure to support a minimum safe exposure level. Where engineering and administrative controls have proven to be infeasible and/or an individual is sensitized to LAA (based on medical judgement from a Physician or other Licensed Health Care Professional), a NIOSH-certified respiratory protective equipment will be selected, which will include an air purifying respirator with a minimum filter efficiency of 95% for the most penetrating aerosol.
Respiratory Protection Program  rev. April 2020

size (0.3 µm) or a Powered Air-Purifying Respirator (PAPR). (These respirators are defined in detail below.)

Respirator Classifications

Respirators provide protection either by removing contaminants from the air before they are inhaled or by supplying an independent source of respirable air. The respirator must be used in compliance with the conditions of that certification. When selecting a respirator for the hazard(s) in the area, a list of NIOSH-certified respirators and the conditions of the certification will be obtained from NIOSH's certified equipment list.

Environmental Health and Radiation Safety will select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to and correctly fits the user. There are two major classifications of respirators:

- Air purifying respirators (devices that remove contaminants from the air); and,
- Atmosphere-supplying respirators (those devices that provide clean breathing air from an uncontaminated source).

Air Purifying Respirators

These respirators are grouped into three general types: particulate removing, vapor and gas removing, and combination. Elements that remove particulates are called filters; while vapor and gas removing elements are called chemical cartridges. Filters and cartridges are the functional portion of air-purifying respirators, and they can generally be removed and replaced once their effective life has expired (see page 20 of this section). The exception would be filtering facepiece respirators (commonly referred to as "disposable respirators," "dust masks," or "single-use respirators"), which cannot be cleaned, disinfected, or resupplied with an unused filter after use.

1. **Particulate-removing** respirators are designed to reduce inhaled concentrations of nuisance dusts, fumes, mists, toxic dusts, radon daughters, asbestos-containing dusts or fibers, or any combination of these substances, by filtering most of the contaminants from the inhaled air before they enter the breathing zone of the respirator user. They may have single-use or replaceable filters. These respirators may be non-powered or powered air-purifying.

   a. Non-powered air-purifying particulate respirators are classified into three series, N-, R-, and P. They are classified according to the efficiency level of the filter(s), as tested
Filter classifications, efficiencies, oil resistances and challenge agents specified

<table>
<thead>
<tr>
<th>Minimum Efficiency</th>
<th>N</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-oil Aerosols</td>
<td>N95</td>
<td>R95</td>
<td>P95</td>
</tr>
<tr>
<td>95%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Includes oil Aerosols*</td>
<td>R99</td>
<td></td>
<td>P99</td>
</tr>
<tr>
<td>99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Includes oil Aerosols**</td>
<td>R100</td>
<td></td>
<td>P100</td>
</tr>
<tr>
<td>99.97%</td>
<td>N100</td>
<td>R100</td>
<td>P100</td>
</tr>
</tbody>
</table>

*May have a time use restriction on this filter series when oil aerosols are present.

**Use according to manufacturer's time use restrictions when oil aerosols are present.

1) N-Series particulate respirators are NOT resistant to oil; thereby providing protection against solid and liquid aerosol particulates that do NOT contain oil. Examples of common non-oil based solid particulates include “dust” particles related to metal or wood non-oil-based liquids. The difference between an N95, N99 and N100 respirator is simply the filter’s efficiency level (i.e., N95 = NOT resistant to solids and liquids which contain oil and provides 95% filtering efficiency). The higher the efficiency, the more particulates the respirator will filter out. **Note:** Unless the manufacturer identifies a specified duration of use, for example “single-use only”, the service life of all filters is limited by considerations of hygiene, damage, and breathing resistance. All filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance. Follow the manufacturer’s recommendations for specific information on the model you are using or departmental change-out schedule.

2) R-Series particulate respirators are resistant to oil, which means they provide protection against both solid and liquid aerosol particulates that may contain oil. These respirators, however, are only certified for up
to 8-hours of service life.

3) P-Series particulate respirators are similar to the R-series particulate respirators, in that they provide protection against both solid and liquid aerosol particulates that may contain oil. The service life of P-Series particulate respirators, however, is substantially longer, with NIOSH recommended disposal after 40 hours or 30 days of use, whichever comes first. This extended service life is contingent on the mask being undamaged and with no detectable breathing resistances.

Flow Chart for Selecting Particulate Filters

Source: 42 CFR § 84 Respiratory Protective Devices

b. A powered air-purifying respirator (PAPR) uses a blower to force the ambient atmosphere through air purifying elements to the inlet covering.

2. **Vapor- and gas-removing** respirators are designed with sorbent elements (cartridges) that adsorb and/or absorb the vapors or gases from the contaminated air before they can enter the breathing zone of the user. An example of this type of respirator would be a full facepiece respirator.
3. **Combination** respirators are designed to be used in atmospheres that contain hazards of both particulates and gases and use combination cartridges to reduce exposure to these hazards.

All filters and cartridges used in the workplace must be labeled and color coded with the NIOSH approval label. The label must not to be removed and must remain legible.

Here are the different respirators Environmental Health and Radiation Safety approved to be worn throughout the University.

- **N95 particulate respirators**
  - 3M 1860 (large) and 1860S (small)
  - Moldex 2200 (medium/large) and 2201 (small)
  - Kimberly Clark Tecnol PFR95 in small and regular

- **Powered air-purifying respirator (PAPR)**
  - 3M Air-mate. **Note**: 3M will phase-out parts for this respirator in 2019.
  - 3M Versaflo TR-300-HKS (small head cover kit) or HKL (large head cover kit).

- **Full-face air purifying respirator (in various sizes)**
  - MSA Ultra Elite or Ultra-Twin
  - 3M FX 400 series
  - Moldex model 9000
  - Drager X-plore 6300

Respirators with air-purifying sorbent elements (e.g., cartridges) must be used with caution and with recognition of the wide variability of service lives under differing use conditions. Factors known to affect the service lives of sorbent elements include, but are not limited to:

- the make and model of sorbent element(s);
- airborne concentrations of contaminant(s); and
- relative humidity through each sorbent element.
Provided that the respirator is equipped with an End-of Service-Life Indicator (ESLI) certified by NIOSH for the contaminant. If, on the other hand, the respirator is not equipped with an ESLI, the employer must implement a change schedule for cartridges and/or filters that is based on objective information or data that will ensure that cartridges and filters are changed before the end of their service life.

**Note:** Environmental Health and Radiation Safety will provide guidance on the determining process and disseminate this information during the fit-testing and training session.

### Atmosphere-Supplying Respirators

These respirators provide air from a source independent of the surrounding atmosphere instead of removing contaminants from the atmosphere. These respirators are classified by the method that is used to supply air and the way in which the air supply is regulated, which include:

1. Self-contained breathing apparatus that contains air or oxygen in a tank and carried on the respirator's back (similar to SCUBA gear);
2. Supplied-air respirator that contains compressed air from a stationary source supplied through a high-pressure hose connected to the respirator); and,
3. Combination self-contained and supplied-air respirators.

These respirators are used in atmospheres that pose an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere. **Note:** Environmental Health and Radiation Safety will contact external support (e.g., Philadelphia Hazmat or contracted Waste Vendor) to enter these atmospheres wearing atmosphere-supplying respirators. The external support will be required to follow the requirement elements in 29 CFR §1910.134(i).

### Section 4: Medical Evaluations for Respirator Users

Using a respirator may place a physiological burden on an individual that varies with:

- the type of respirator worn;
- the job and workplace conditions in which the respirator is used; and,
- the medical status of the employee.
A medical evaluation will be performed by a Physician or other Licensed Health Care Professional (PLHCP) from Employee Health Services to determine the employee's ability to use a respirator before the he/she (or visiting scholar) is fit tested or required to use the respirator in the workplace.

Note: Students who receive payment for Temple University and tasks require the use of respirator are deemed employees. Student who do not receive payment from Temple University and tasks require the use of respirator will be medically cleared by Student Health Services.

The PLHCP will perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation questionnaire is described in 29 CFR §1910.134 Appendix C. Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination. A “yes” answer to any of the questions numbered 1-8 in Section 2 of Part A requires a follow-up medical examination.

The medical questionnaire and examinations must be administered confidentially during the respirator user’s normal working hours or at a time and place convenient for him/her. The medical questionnaire must be administered in a manner that ensures that the respirator user understands its contents. The employer must provide the respirator user with an opportunity to discuss the questionnaire and examination results with the PLHCP.

The following information must be provided to the PLHCP before he/she makes a recommendation concerning an individual's ability to use a respirator:

- the type and weight of the respirator to be used by the individual;
- the duration and frequency of respirator use (including use for rescue and escape);
- the expected physical work effort.;
- additional protective clothing and equipment to be worn; and,
- temperature and humidity extremes that may be encountered.

The employer must ensure that a follow-up medical examination is provided for an individual who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of OSHA Respirator Medical Evaluation Questionnaire (Mandatory), Appendix C to 29 CFR §1910.134 or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up medical examination must include any medical tests, consultation, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Note: The Environmental Health and Radiation Safety Department has created a reader friendly version of the OSHA Respirator Medical Evaluation Questionnaire, which contains information from Sections 1 and 2, Part A of 29 CFR §1910.134 Appendix C (and can be found in Appendix B of this document). Questions in Part B of Appendix C is not mandatory but may be
added at the discretion of the PLHCP.

Subject to 29 CFR §1910.134(m)(1) and 1910.1020(d)(1)(ii), the medical evaluation for each employee must be preserved and maintained for at least the duration of employment plus 30 years. The medical evaluation for an employee who worked less than one year is exempt from this requirement providing that the medical evaluation is provided to the employee upon termination of employment.

Medical Determination

In determining an individual’s ability to use a respirator, the PLHCP will provide Environmental Health and Radiation Safety with a completed Respiratory Medical Clearance Form regarding the individual's ability to use the respirator. The form (which also can be found in Appendix C of this document) must provide at least the following information:

- Any limitations on respirator use related to the medical condition of the individual, or to the workplace conditions in which the respirator will be used, including whether or not he/she is medically able to use the respirator.
- The need, if any, for follow-up medical evaluations.
- A statement that the PLHCP has provided the employee with a copy of the form.

This information will help the Environmental Health and Radiation Safety Department proceed with fit-testing and training the respirator user on the determined respirator.

If the respirator is a non-powered air-purifying particulate respirator (e.g., N95 particulate respirator) and the PLHCP finds a medical condition that may place the individual's health at risk if the respirator is used, the employer must provide a Powered Air-Purifying Respirator (PAPR) if the PLHCP's medical evaluation finds that he/she can use such a respirator. If a subsequent medical evaluation finds that the respirator user is medically able to use a non-powered air-purifying particulate respirator, the employer is no longer required to provide a PAPR.

Additional Medical Evaluations

At a minimum, the employer must provide an additional medical evaluation that comply with the requirements of 29 CFR §1910.134 if:

- The respirator user reports medical signs or symptoms that are related to the ability to use a respirator.
- A PLHCP, supervisor, or the Respirator Program Administrator informs the employer that the respirator user needs to be re-evaluated.
• Information from the respiratory protection program, including observations made during fit-
testing and program evaluation, indicates a need for the respirator user to be re-evaluated.
• A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and
temperature) that may result in a substantial increase in the physiological burden placed on
the respirator user.

Section 5: Fit Testing Procedures for Respirators

Before an individual - employee, student, or visiting scholar – uses any respirator, he/she must be fit
tested with the same make, model, style, and size of respirator that will be used in the workplace.

The employer must ensure that the respirator user using a respirator is 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.

Method

Prior to the actual fit test, the respirator user will be given the opportunity to come to the
Environmental Health and Radiation Safety Department to select from a sufficient number of models
and sizes so that the individual can find an acceptable and correctly fitting respirator. The individual
will be shown how to put on a respirator, position it on the face, set strap tension, and determine an
acceptable fit. Once an acceptable respirator has been found -- which takes into account the position
of the mask on the face, nose, and cheeks, the employer will be asked to purchase the selected
respirator. When the respirator is obtained, the respirator user must contact the Environmental Health
and Radiation Safety Department to schedule a time to be fit-tested and trained on the selected
respirator.

Types of Fit Testing

Fit testing may either be qualitative (QLFT) or quantitative (QNFT) and will be administered using an
OSHA-accepted QLFT or QNFT protocol. The OSHA accepted QLFT and QNFT protocols are listed in

Prior to the commencement of the fit test, the respirator user will be given a description of the fit test
and a description of the exercises that he/she will be performing during fit testing. The respirator to
be tested will be worn for at least five minutes before the start of the fit test.
Qualitative fit testing (QLFT). Qualitative fit testing involves the introduction of an aerosol test agent into an area around the head of the respirator user. A determination is then made as to whether or not the wearer can detect the presence of the test agent through means such as odor, taste, or nasal irritation. If the presence of the test agent is detected inside the mask, the respirator fit is considered to be inadequate. There are four qualitative fit test protocols approved in OSHA's standard. However, the Environmental Health and Radiation Safety Department uses the Bitrex™ protocol for the QLFT fit-testing session.

Quantitative fit testing (QNFT). Quantitative fit-testing employs instrumentation to measure the amount of leakage into the respirator. There are four quantitative fit test protocols approved in OSHA's standard. The Environmental Health and Radiation Safety Department uses the ambient aerosol condensation nuclei counter (CNC; Portacount™) protocol where it quantitatively fit tests respirators with the use of a probe. Note: The probed respirator is only used for quantitative fit tests and required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor. A probed respirator has a special sampling device, installed on the respirator that allows the probe to sample the air from inside the mask. A minimum fit factor pass level of at least 500 is required for a full facepiece negative pressure respirator. The entire screening and testing procedure must be explained to the respirator user prior to the conduct of the screening test.

The Environmental Health and Radiation Safety Department will conduct an additional fit test whenever the respirator user reports, or the employer makes visual observations of, changes in his/her 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 (29 CFR §1910.134[f][3]).

Fit Test Exercises

The following test exercises will be performed for all fit testing methods described in the OSHA Respiratory Protection standard in the Environmental Health and Radiation Safety Department:

- Normal breathing in a normal standing position, without talking;
- Deep breathing in a normal standing position, breathing slowly and deeply, taking precaution not to hyperventilate;
- Turning the head slowly from side to side, while standing in place, with the respirator user holding his/her head momentarily at each extreme so that he/she can inhale at each side;
- Moving the head up and down slowly, while standing in place, inhaling in the up position when looking toward the ceiling;
- Talking out loud slowly, reading from a prepared text such as the Rainbow Passage, counting backward from 100, or reciting a memorized poem or song;
Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- Grimacing by smiling or frowning (only for QNFT testing);
- Bending at the waist as if to touch toes (jogging in place can be done when the fit test enclosure doesn't permit bending at the waist); and
- Normal breathing (as described above).

Each test exercise must be performed for one minute, except for the grimace exercise which must be performed for 15 seconds. The respirator must not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

The Environmental Health and Radiation Safety Department will coordinate a time for the respirator user to come to their office and perform the exercises in their office. He/she will also be asked to refrain from eating, drinking, and/or smoking 15 minutes prior to the commencement of the fit-testing session, and to bring any applicable safety equipment that may be worn during actual respirator use to session to determine if it could interfere with the respirator fit. If the respirator user exhibits breathing difficulty during the fit test, he/she will be referred to PLHCP to determine whether the respirator user can wear a respirator while performing his or her duties.

Retesting

If the respirator user finds the fit of the respirator unacceptable during the fit-testing session, he/she is given a reasonable opportunity to select a different respirator and to be retested. In addition, retesting is required whenever the respirator user reports, or the employer, PLHCP, supervisor, or program administrator observe changes in his/her physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes (e.g., wearing new dentures), cosmetic surgery, or an obvious change in body weight.
Section 6: Procedures for Proper Use of Respirators

The selection of a specific respirator will be made by the Environmental Health and Radiation Safety Department who are knowledgeable about the limitations associated with each class of respirators and familiar with the actual workplace environment, including the job task(s) to be performed.

Once the respirator is properly selected and fitted by the Environmental Health and Radiation Safety Department, it is necessary for the respirator user to ensure that the respirator is used properly in the workplace. The following conditions may compromise the effective use of the respirator and jeopardize protection:

- facepiece seal leakage;
- removing the respirator at the wrong time in hazardous atmosphere(s);
- not properly performing user seal checks; or,
- not replacing defective parts from the manufacture.

In these circumstances, there is the danger that respirator user may have a false sense of security in feeling that they are protected when they are not. The Environmental Health and Radiation Safety Department will cover the aforementioned factors that may compromise the effective use of the respirator during the fit-testing session, along with the following:

- the proper way to don, wear, and remove PPE without contaminating oneself or introducing cross contamination to the workplace;
- how to recognize the respirator's limitation(s); and,
- how to properly inspect, store, maintain, and decontaminate the respirator.

The employer must also be aware of the conditions in the work areas where respirator users are using respirators. Employers are required to routinely evaluate workplace conditions, the degree of respirator user exposure, and physical stress so that they can provide additional or different respiratory protection when necessary. By observing respirator use under actual workplace conditions, employers can note problems such as changes in the fit of a respirator due to the use of other protective equipment, or conditions leading to skin irritation.

Respirator Use Under Special Conditions

Respirator selection are based primarily on the physical, chemical, and toxicological properties of the contaminant and on the limitations of each class of respirators, including filtration efficiency, air supply capability, and face seal characteristics and leakage. The Environmental Health and Radiation Safety Department will use the NIOSH Decision Logic for Respirator Selection (found in Appendix A of this document), as an assessment tool for respirator selection. Moreover, the
Environmental Health and Radiation Safety Department will ensure that the respirator is approved by the National Institute for Occupational Safety and Health (NIOSH), using the National Personal Protective Technology Laboratory certified equipment list.

Typically, respirator users are not exposed to a single unvarying concentration of a hazardous substance; rather individual exposures may vary throughout a work shift and between days. The highest anticipated concentration must, therefore, be considered in the respirator selection process. Respirator users must be aware of the variability in human responses to the warning properties of hazardous substances and must promptly report it to his/her employer or the Respiratory Protection Program Administrator.

- **Seal of Air-purifying Respirators.** The employer must not permit an N95 particulate or full-facepiece respirator to be worn by respirator user who have conditions that would compromise the facepiece-to-face seal. Examples of these conditions include facial hair (e.g., beard stubble, sideburns, or beard) or hair that interferes with the facepiece seal or valve function, absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or the use of jewelry or headgear that projects under the facepiece seal.

- **User Seal Check.** A user seal check (formerly known as a fit check) must be performed every time an air-purifying respirator is put on or adjusted to ensure proper seating of the respirator to the face. The Environmental Health and Radiation Safety Department will cover the user seal check for the positive and/or negative pressure checks described in Appendix B-1 of 29 CFR §1910.134 or the manufacturer’s recommended procedures (when equally protective). If the respirator user fails the user seal check test, another facepiece will be selected.

- **Corrective Glasses or Goggles.** Corrective glasses or goggles, or other personal protective equipment, must be worn in such a way that they do not interfere with the seal of the facepiece to the face. Since eyeglasses or goggles may interfere with the seal of half-facepiece respirators, the Environmental Health and Radiation Safety Department will recommend that a full-facepiece respirator be worn where either corrective glasses or eye protection is required. Special corrective lenses can be mounted inside full-face respirators and are available from all manufacturers of full-face piece respirators.

- **Contact Lenses.** Several factors may restrict or even prohibit the use of contact lenses while wearing any type of respiratory device. This is especially true of atmosphere-supplying respirators. With full-facepieces, incoming air directed toward the eye can cause discomfort from dirt, lint, or other debris lodging between the contact lens and the pupil.
**Note:** Environmental Health and Radiation Safety will use external support who will use atmosphere-supplying respirators. Hence this subsection will be applicable for the external support and will be required to follow the requirement elements in 29 CFR §1910.134(i).

- **In Low and High Temperatures.** Low temperatures may fog respirator lenses. Hence the Environmental Health and Radiation Safety Department will recommend a nose cup for full-face piece respirators (which directs the warm, moist exhaled air through the exhalation valve without it touching the nose) to provide satisfactory vision at as low as -30°F.

  A respirator user working in high temperature air is under physiological stress. Wearing a respirator causes additional stress which should be minimized by using a light-weight respirator with low breathing resistance. Respirator users must be aware of the signs and symptoms of heat stress, including heat cramps, heat exhaustion, and heat stroke. Heat stroke is a true medical emergency and should not be ignored.

- **Physiological Response to Respirator Use.** Wearing any respirator, alone or in conjunction with other types of protective equipment, will impose some physiological stress on the wearer. Weight of the equipment, for example, increases the energy requirement for a given task.

  Use of respirators in conjunction with protective clothing can greatly affect the human response and endurance, especially in hot environments. Normally, in hot environments or during heavy work, the body relies a great deal on heat loss through the evaporation of sweat. With impermeable clothing, the heat loss by water evaporation is not possible. Users must be aware of the signs and symptoms of heat stress, including heat cramps, heat exhaustion, and heat stroke. Heat stroke is a true medical emergency and should not be ignored. Hence, the Environmental Health and Radiation Safety Department will use this information in selecting the appropriate respirator to reduce the health load to the respirator user.

  To reduce the incidence of heat stress, the Environmental Health and Radiation Safety Department recommend methods, such as:

  - adjusting the work/rest schedules;
  - using automated procedures and/or mechanical assistance where possible;
  - minimize the work intensity; and,
  - periodic fluid/water replacement breaks and consider cooling garments.
• **Chemical Contaminant Migration:** The employer and user should be aware that some contaminants have a tendency to migrate through cartridge sorbent material during periods of storage or nonuse. This is characteristic of the contaminant-carbon bed interaction for organic chemicals with boiling points below 149°F (65°C) and would predictably shorten breakthrough times. In cases where respirators are used for multiple days, this could present an additional exposure to the respirator user. Where contaminant migration is possible, respirator cartridges without ESLI must be changed after every work shift where exposure occurs.

### Section 7: Procedures and Schedules for Cleaning, Disinfecting, Storing, Inspecting, Repairing, Discarding, and Otherwise Maintaining Respirators

The employer is required to provide an environment that will allow cleaning and disinfecting, storage, inspection, and repair of respirators used by respirator user.

**Cleaning and Disinfecting**

The employer must provide each respirator user with a respirator that is clean, sanitary, and in good working order. The employer must ensure that respirators are cleaned and disinfected using the procedures referred to in 29 CFR §1910.134(h) and included in this section for tight-fitting full-facepiece respirators. Procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness, may be substituted.

**Note:** The Environmental Health and Radiation Safety Department will provide guidance to the user on the appropriate cleaning and disinfecting methods for the respirator either during the fit-testing session or through other means of correspondence (e.g., email).

The following steps are to be followed for a tight-fitting full-facepiece respirator:

1. Remove filters or cartridges. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm (110°F [43°C] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff-bristle (not wire) brush may be used to facilitate the removal of dirt.
4. When the cleaner used does not contain a disinfecting agent, respirator components must be
immersed for two minutes in one of the following:

a. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110°F (43°C).

b. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 millimeters of tincture of iodine (6-8 grams ammonium and/or potassium iodine/100 cc of 45% alcohol) to one liter of water at 110°F (43°C).

c. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

5. Rinse components thoroughly in clean, warm (110°F [43°C] 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 or rubber or corrosion of metal parts if not completely removed.

6. Components must be hand-dried with a clean, lint-free cloth or air-dried.

7. Reassemble facepiece, replacing filters and cartridges where necessary.

8. Test the respirator to ensure that all components work properly.

The respirators must be cleaned and disinfected at the following intervals:

- issued for the exclusive use of a respirator user must be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;
- issued to more than one user must be cleaned and disinfected before being worn by different individuals;
- maintained for emergency use must be cleaned and disinfected after each use; and/or,
- used in fit testing and training must be cleaned and disinfected after each use.

Storing

The employer must ensure that respirators are stored as follows:

- All respirators must be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they must be packed and stored to prevent deformation of the facepiece and exhalation valve;
- Emergency respirators must be kept accessible to the work area;
- Emergency respirators must be stored in compartments, covers, or bags that are clearly marked as containing emergency respirators; and,
- Respirators must be stored in accordance with any applicable manufacturer’s instructions.
Inspecting

All respirators used in non-emergency situations must be inspected before each use and during cleaning.

**Note:** The Environmental Health and Radiation Safety Department will provide documentation to the user on how to inspect and store the respirator either during the fit-testing session or through other means of correspondence (e.g., email).

The respirator inspections should include a check of:

- Respirator function;
- Tightness of connections;
- Condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges and/or filters; and/or,
- Elastomeric parts for pliability and signs of deterioration.

Respirators designated for use in an emergency situation are to be inspected at least monthly and in accordance with the manufacturer’s instructions and checked for proper function before and after each use. These respirators must be certified by documenting the date that the inspection was performed, the name or signature of the inspector, the findings of the inspection, any required remedial action, and a serial number or other means of identifying the inspected respirator. An example of the inspection form the Environmental Health and Radiation Safety Department uses to inspect their respirators can be found in Appendix D of this document. All inspection forms are filed internal and electronic.

**Note:** The Environmental Health and Safety Department uses the 3M TR-600 Powered Air Purifying Respirator (PAPR) when responding to emergencies. The PAPR systems and battery packs are inspected monthly by designated staff. Staff are issued their own hood assembly and instructed (outlined in an internal Standard Operating Procedure) to perform an inspection prior to connecting it to the PAPR system for emergencies.

Repairing, Discarding, and Otherwise Maintaining Respirators

The employer must ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by people appropriately trained to
perform such operations and must use only the respirator manufacturer’s NIOSH-approved parts designed for the respirator.

- Repairs must be made according to the manufacturer’s recommendations and specifications for the type and extent of repairs to be performed.

**Service Life Information**

A cartridge’s useful service life is how long it provides adequate protection from harmful chemicals in the air. The service life of a cartridge depends upon many factors, including:

- Environmental conditions to include relative humidity through each sorbent element;
- Breathing rate;
- Cartridge filtering capacity;
- The make and model of sorbent material; and,
- The amount of contaminants in the air.

Respirators with air-purifying sorbent elements must be used with caution and with recognition of the wide variability of service lives under differing use conditions.

Reliance on odor thresholds and other warning properties will not be permitted as the primary basis for determining the service life of gas and vapor cartridges. Some cartridges are equipped with an End-of-Service-Life Indicator (ESLI). If there is no ESLI on the cartridges, the Environmental Health and Radiation Safety Department will take a conservative approach and recommend that cartridges and filters be changed when:

- the cartridge and/or filter has been used in a hazardous environment by referring to manufacturer’s recommendations for length of service in specific hazardous environments;
- the cartridge and/or filter becomes wet;
- the respirator user notices increased resistance;
- the respirator user detects an odor or taste while using the cartridge; or,
- the cartridge and/or filter reaches the manufacturer’s expiration date on the cartridge and/or filter.
Section 8: Training on the Proper Use, Limitations, and Maintenance of Respirators

Training is an important part of the respiratory protection program and is essential for correct respirator use. It must be conducted in a manner that is comprehensive, understandable, and take place prior to requiring the respirator user to use a respirator in the workplace and recur at least annually or more often if necessary.

The Environmental Health and Radiation Safety Department will assist, under the employer’s supervision, with ensuring that individuals who seek respiratory protection receives training on the proper use of the respirator, including donning and doffing, any limitations in its use, and maintenance. Responsibility for overseeing the implementation of the Respiratory Protection Program for individuals requiring respiratory protection rests upon the employer.

The Environmental Health and Radiation Safety Department will ensure that each respirator user can demonstrate knowledge of at least the following during the fit-testing session:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- Procedures for user seal check;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, don and doff, use and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and,
- The general requirements of 29 CFR §1910.134.

Retraining will be administered annually, and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the respirator user’s knowledge or use of the respirator indicate that he/she has not retained the requisite understanding or skill; or,
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.
Section 9: Training in the Respiratory Hazards to Which They Are Potentially Exposed During Emergency Situations

An analysis of the hazards to which individuals are potentially exposed during routine and emergency situations is contained in Section 1: Procedures for Selecting Respirators for Use in the Workplace.

Employees, who are First Responders or First Receivers, must employ the Recognize, Avoid, Isolate, and Notify (R.A.I.N.) process with respect to respiratory hazards. Training on these procedures will be comprehensive, understandable, and conducted annually or more frequently if necessary (see section 8). Indicators that the employee may require additional training may include that the employee’s competency in this function is questioned by the employee him/herself or the employee’s supervisor, or if work conditions change in a manner that is inconsistent with the R.A.I.N. procedures.

R: Recognize

- Recognize respiratory hazards by observing signs and symptoms of victims such as Salivation, Lacrimation, Urination, Defecation, Gastroenteritis, Emesis, Miosis (SLUDGEM), redness or blistering of the skin, and mass casualties or mass fatalities. Other indicators may include injury and/or illness in animals and/or birds.
- Recognize potential respiratory hazards by observing package labels, vehicle or container placards, leaking or damaged containers, and/or the presence of containers that may be used as dissemination devices.
- Recognize potential respiratory hazards by observing threat levels, verbal or written threats, and abnormal public behavior.

A: Avoid

- Avoid unprotected exposure in areas and situations with known or suspected respiratory hazard releases.
- Don appropriate respiratory protection in known or suspected respiratory hazard releases.
- Don other appropriate PPE as indicated.

I: Isolate

- Assume a safe distance from the respiratory hazard(s). Ensure a secure perimeter, as feasible, to ensure the responder’s safety, as well as public safety.
- Establish control zones—hot, warm, and cold zones.
• Perform self-decontamination procedures to remove contaminants.

**N: Notify**

• Notify immediate supervisor and appropriate chain of communication for other responding units of known or suspected respiratory hazard release.
• If you have been injured or exposed, an injury report form may be indicated.

### Section 10: Individual Use of Respirators Not Required by Temple University

Where respirator use is not required, the employer may provide respirators at the request of individuals or permit individuals to use their own respirators if it is determined that such respirator use will not in itself create a hazard.

The employer must contact the Environmental Health and Radiation Safety Department to identify and evaluate the respiratory hazard(s) in the workplace, using the [2004 NIOSH Respirator Selection Logic](https://www.osha.gov/SLTC/respiratoryprotection/respiratorselection.html) as a template. If it is determined that voluntary respirator use is permissible, elements outlined in this respiratory protection program must be implemented to ensure that any individual using a respirator voluntarily is provided the same service and oversight as an individual who is required to wear a respirator. They include the following:

• Get a medical evaluation done to determine if they are physically able to wear a respirator (see section 4);
• Choose a certified respirator to protect against the contaminant of concern. **Note:** The National Institute for Occupational Safety and Health (NIOSH) certifies respirators, and the Environmental Health and Radiation Safety Department will provide assistance with the selection process (see section 3);
• Get fit-tested by the Environmental Health and Radiation Safety Department (see section 5); and,
• The employer must ensure that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.
Section 11: Procedures for Regularly Evaluating the Effectiveness of the Program

The employer must conduct evaluations of the workplace as necessary to ensure that the provisions of the current written respiratory protection program are being effectively implemented and that it continues to be effective (Respiratory Protection, 29 CFR §1910.134[l]).

The Environmental Health and Radiation Safety Department will regularly consult respirator user required to use respirators to assess his/her views on the program effectiveness and to identify any problems. Any problems identified during this assessment must be corrected. Factors to be assessed include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);
- Appropriate respirator selection for the hazards to which the employee is exposed;
- Proper respirator use under the workplace conditions the employee encounters; and,
- Proper respirator maintenance.
Appendix A: Assessment Tool for NIOSH Decision Logic for Respirator Selection

This section comes directly from the 2004 NIOSH Respirator Selection Logic (p. 2 and 5-10). To use this selection logic, the Environmental Health and Radiation Safety Department will first assemble the necessary toxicological, safety, and other relevant information for each respiratory hazard, including the following:

- General use conditions, including determination of contaminant(s);
- Physical, chemical, and toxicological properties of the contaminant(s);
- NIOSH recommended exposure limit (REL), OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), State-OSHA exposure limit, American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Limit (WEEL), or other applicable occupational exposure limit;
- Expected concentration of each respiratory hazard;
- Immediately dangerous to life or health (IDLH) concentration;
- Oxygen concentration or expected oxygen concentration;
- Eye irritation potential; and
- Environmental factors, such as presence of oil aerosols.

**Step 1.** Is the respirator intended for use during firefighting?

If yes, only a full-facepiece, pressure-demand, self-contained breathing apparatus (SCBA) meeting the requirement of the NFPA 1981, Standard on Open-circuit Self-contained Breathing Apparatus for Fire and Emergency Services (2002 edition) is required. **Note:** The Environmental Health and Radiation Safety Department will contact external support (e.g., Philadelphia Fire Department) for firefighting events. The external support will be required to follow the requirement elements in 29 CFR §1910.134(i).

If no, proceed to Step 2.

**Step 2.** Is the respirator intended for use in an oxygen-deficient atmosphere, i.e., less than 19.5% oxygen?

If yes, any type of SCBA other than escape only, or supplied-air respirator (SAR) with an auxiliary SCBA is required. Auxiliary SCBA must be of sufficient duration to permit escape to safety if the air supply is interrupted. **If yes, and contaminants are also**
present, proceed to Step 3 to determine if the hazard requires the SCBA or SAR/SCBA to meet a specific APF level.

If no, proceed to Step 3.

**Step 3.** Is the respirator intended for entry into unknown or IDLH atmospheres (e.g., an emergency situation)?

If yes, one of two types of respirators are required: a pressure demand SCBA with a full facepiece or a pressure-demand SAR with a full facepiece in combination with an auxiliary pressure-demand SCBA. Auxiliary SCBA must be of sufficient duration to permit escape to safety if the air supply is interrupted.

If no, proceed to Step 4.

**Step 4.** Is the exposure concentration of the contaminants, as determined by acceptable industrial hygiene methods, less than the NIOSH REL or other applicable exposure limit?

If yes, a respirator is not required for routine work. For escape respirators, determine the potential for generation of a hazardous condition caused by an accident, spill or equipment failure. See Section IV. Page 17, for a discussion and selection of escape respirators. Proceed to Step 6.

If no, proceed to Step 5.

**Step 5.** Are conditions such that an individual who is required to wear a respirator can escape from the work area and not suffer loss of life or immediate or delayed irreversible health effects if the respirator fails, i.e., are the conditions not immediately dangerous to life or health (IDLH)? IDLH values for certain compounds can be found in the NIOSH Pocket Guide for Chemical Hazards. This document can be accessed at http://www.cdc.gov/niosh/npg/npg.html.

If yes, conditions are not considered to be IDLH. Proceed to Step 6.

If no, conditions are considered to be IDLH. Two types of respirators are recommended: a pressure-demand, full-facepiece SCBA or a pressure demand, full-facepiece SAR in combination with an auxiliary pressure demand, full-facepiece SCBA. The auxiliary SCBA must be of sufficient duration to permit escape to safety if the air supply is interrupted. An auxiliary unit means that the SAR unit includes a separate air bottle to provide a reserve source of air should the airline become damaged. The auxiliary unit shares the same mask and regulator and enables the SAR to function as an SCBA if
needed.

Step 6. Is the contaminant an eye irritant, or can the contaminant cause eye damage at the workplace concentration? Information on eye irritation is included in the International Chemical Safety Cards which can be accessed at [https://www.cdc.gov/niosh/ipcs/default.html](https://www.cdc.gov/niosh/ipcs/default.html).

If yes, a respirator equipped with a full facepiece, helmet, or hood is recommended. Proceed to Step 7.

If no, a half-mask or quarter-mask respirator may still be an option, depending on the exposure concentration. Proceed to Step 7.

Step 7. Determine the maximum hazard ratio (HR) by the following:

Divide the time-weighted average (TWA) exposure concentration for the contaminant determined in Step 4 by the NIOSH REL or other applicable exposure limit. If the exposure limit is an 8 hour limit the TWA used must be on 8-hour average. If the exposure limit is based on 10 hours, use a 10-hour TWA.

If the contaminant has a ceiling limit, divide the maximum exposure concentration for the contaminant determined in Step 4 by the ceiling limit. If the contaminant has a short-term exposure limit (STEL), divide the maximum 15 min TWA exposure concentration for the contaminant determined in Step 4 by the STEL.

For escape respirators, determine the potential for generation of a hazardous condition caused by an accident or equipment failure.

If a potentially hazardous condition could occur or a hazard ratio greater than 1 has been calculated, proceed to Step 8.

Step 8. If the physical state of the contaminant is:

- a particulate (solid or liquid aerosol) during periods of respirator use, proceed to Step 9;
- a gas or vapor, proceed to Step 10;
- a combination of gas or vapor and particulate, proceed to Step 11.

Step 9. Particulate Respirators

Step 9.1: Is the particulate respirator intended only for escape purposes?
If yes, see Section 4 of this program, for a discussion and selection of escape respirators.

If no, the particulate respirator is intended for use during normal work activities. Proceed to Step 9.2.

**Step 9.2:** Filter series (N, R or P) that will provide protection against exposure to the particulate in question is recommended.

The selection of N-, R-, and P-series filters depends on the presence or absence of oil particles, as follows:

- If no oil particles are present in the work environment, use a filter of any series (i.e., N-, R-, or P-series).
- If oil particles (e.g., lubricants, cutting fluids, glycerine, etc.) are present, use an R- or P-series filter. **Note:** N-series filters cannot be used if oil particles are present.
- If oil particles are present and the filter is to be used for more than one work shift, use only a P-series filter.

**Note:** To help you remember the filter series, use the following guide:

- N for Not resistant to oil
- R for Resistant to oil
- P for oil Proof

Selection of filter efficiency (i.e., 95%, 99%, or 99.97%) depends on how much filter leakage can be accepted. Higher filter efficiency means lower filter leakage.

**Step 9.3:** Respirators that have not been eliminated from Table 1 (Assigned Protection Factors [APF] of 29 CFR §1910.134) by the previous steps and that have APFs equal to, or greater than, the maximum hazard ratio determined in Step 7 are recommended.

Note, however, that the maximum use concentration (MUC) is the maximum atmospheric concentration of a hazardous substance from which a respirator user can be expected to be protected by a class of respirator and is determined by the lesser of:
• APF X exposure limit
• The respirator manufacturer's MUC for a hazardous substance
• (if any) 1 If the respirator is intended for use in an oxygen-deficient atmosphere, only SCBA or SAR with an auxiliary SCBA, can be selected from the Table.
• The IDLH, unless the respirator is a pressure-demand, full-facepiece SCBA or combination pressure-demand SAR with a full facepiece in combination with an auxiliary pressure-demand SCBA.

For multi-component mixtures the MUC can be calculated by:
\[
\frac{C_1}{MUC_1} + \frac{C_2}{MUC_2} + \ldots + \frac{C_n}{MUC_n} = 1
\]

**Step 10.** Gas/Vapor Respirators

**Step 10.1:** Is the gas/vapor respirator intended only for escape?

- If yes, refer to escape respirators Section IV.
- If no, the gas/vapor respirator is intended for use during normal work activities. Proceed to Step 10.2.

**Step 10.2:** An air-purifying chemical cartridge respirator is recommended that has a sorbent suitable for the chemical properties of the anticipated gas/vapor contaminant(s) and for the anticipated exposure levels. Information on cartridges approved for use for classes of chemicals or for specific gases or vapors can be found in the NIOSH Certified Equipment List. Proceed to Step 10.3.

**Step 10.3:** Respirators that have not been eliminated from Table 2 by the previous steps and that have APFs equal to, or greater than, the maximum hazard ratio determined in Step 7 are recommended.

**Note:** The maximum use concentration (MUC) is the maximum atmospheric concentration of a hazardous substance from which a respirator user can be expected to be protected by a class of respirator and is determined by the lesser of:

- APF X exposure limit
- The respirator manufacturer's MUC for a hazardous substance (if any)
- The IDLH, unless the respirator is a pressure-demand, full-facepiece SCBA or combination pressure-demand SAR with a full facepiece in combination with an auxiliary pressure-demand SCBA.
For multi-component mixtures the MUC can be calculated by:
\[
\frac{C_1}{MUC_1} + \frac{C_2}{MUC_2} + \ldots + \frac{C_n}{MUC_n} = 1
\]

**Step 11.** Combination Particulate and Gas/Vapor Respirators

**Step 11.1:** Is the combination respirator intended for "escape only" purposes?

If yes, refer to escape respirators on page 17, for a discussion and selection of "escape only" respirators.

If no, the combination respirator is intended for use during normal work activities. Proceed to Step 11.2.

**Step 11.2:** From Table 3, select a respirator type, not eliminated by the previous steps, and have APFs equal to, or greater than, the maximum hazard ratio determined in Step 7.

**Note:** the maximum use concentration (MUC) is the maximum atmospheric concentration of a hazardous substance from which a respirator user can be expected to be protected by a class of respirator and is determined by the lesser of:

- APF X exposure limit
- The respirator manufacturer’s MUC for a hazardous substance (if any)
- The IDLH, unless the respirator is a pressure-demand, full-facepiece SCBA or combination pressure-demand SAR with a full facepiece in combination with an auxiliary pressure-demand SCBA.

For multi-component mixtures the MUC can be calculated by:
\[
\frac{C_1}{MUC_1} + \frac{C_2}{MUC_2} + \ldots + \frac{C_n}{MUC_n} = 1
\]
### Respirator Selection Form

<table>
<thead>
<tr>
<th>Chemical Name and Form</th>
<th>Air Concentration</th>
<th>IDLH</th>
<th>OEL</th>
<th>Hazard Ratio</th>
<th>MUC (if applicable)</th>
<th>Respirator Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Respirator Selected:
Appendix B: OSHA Medical Evaluation Questionnaire

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: 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.

Can you read (circle one):  [ ] Yes  [ ] No

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)

<table>
<thead>
<tr>
<th>Name (Last, First, MI):</th>
<th>Today’s date: / /</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (to nearest year):</td>
<td>Gender (circle one): M / F</td>
</tr>
<tr>
<td>Height: ft. in.</td>
<td>Weight: lbs.</td>
</tr>
<tr>
<td>Phone number (where you can be reached by the health care professional who reviews this questionnaire): ( )</td>
<td></td>
</tr>
<tr>
<td>The best time to phone you at this number:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>(street)</td>
<td>(city)</td>
</tr>
<tr>
<td>Job Title &amp; Department:</td>
<td></td>
</tr>
</tbody>
</table>

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

2. 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).

3. 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.

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?
   a. Seizures
      □ Yes □ No
   b. Diabetes (sugar disease)
      □ Yes □ No
   c. Allergic reactions that interfere with your breathing
      □ Yes □ No
   d. Claustrophobia (fear of closed-in places)
      □ Yes □ No
   e. Trouble smelling odors
      □ Yes □ No

3. Have you ever had any of the following pulmonary or lung problems?
   a. Asbestosis
      □ Yes □ No
   b. Asthma
      □ Yes □ No
   c. Chronic bronchitis
      □ Yes □ No
   d. Emphysema
      □ Yes □ No
   e. Pneumonia
      □ Yes □ No
   f. Tuberculosis
      □ Yes □ No
   g. Silicosis
      □ Yes □ No
h. Pneumothorax (collapsed lung)  □ Yes □ No
i. Lung cancer  □ Yes □ No
j. Broken ribs  □ Yes □ No
k. Any chest injuries or surgeries  □ Yes □ No
l. 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?
   a. Shortness of breath  □ Yes □ No
   b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline  □ Yes □ No
   c. Shortness of breath when walking with other people at an ordinary pace on level ground  □ Yes □ No
   d. Have to stop for breath when walking at your own pace on level ground  □ Yes □ No
   e. Shortness of breath when washing or dressing yourself  □ Yes □ No
   f. Shortness of breath that interferes with your job  □ Yes □ No
   g. Coughing that produces phlegm (thick sputum)  □ Yes □ No
   h. Coughing that wakes you early in the morning  □ Yes □ No
   i. Coughing that occurs mostly when you are lying down  □ Yes □ No
   j. Coughing up blood in the last month  □ Yes □ No
   k. Wheezing  □ Yes □ No
   l. Wheezing that interferes with your job  □ Yes □ No
   m. Chest pain when you breathe deeply  □ Yes □ No
   n. 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?
   a. Heart attack  □ Yes □ No
b. Stroke
   □ Yes □ No

c. Angina
   □ Yes □ No

d. Heart failure
   □ Yes □ No

e. Swelling in your legs or feet (not caused by walking)
   □ Yes □ No

f. Heart arrhythmia (heart beating irregularly)
   □ Yes □ No

g. High blood pressure
   □ Yes □ No

h. 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?
   a. Frequent pain or tightness in your chest
      □ Yes □ No
   b. Pain or tightness in your chest during physical activity
      □ Yes □ No
   c. Pain or tightness in your chest that interferes with your job
      □ Yes □ No
   d. In the past two years, have you noticed your heart skipping or missing a beat
      □ Yes □ No
   e. Heartburn or indigestion that is not related to eating
      □ Yes □ No
   f. 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?
   a. Breathing or lung problems
      □ Yes □ No
   b. Heart trouble
      □ Yes □ No
   c. Blood pressure
      □ Yes □ No
   d. Seizures
      □ Yes □ No

8. If you’ve used a respirator, have you ever had any of the following problems?
   □ Yes □ No
   (If you’ve never used a respirator, check the following space and go to question 9.)
   a. Eye irritation
      □ Yes □ No
   b. Skin allergies or rashes
      □ Yes □ No
c. Anxiety □ Yes □ No
d. General weakness or fatigue □ Yes □ No
e. 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?
   a. Wear contact lenses □ Yes □ No
   b. Wear glasses □ Yes □ No
   c. Color blind □ Yes □ No
d. Any other eye or vision problem □ Yes □ No

12. Have you ever had an injury to your ears, including a broken eardrum? □ Yes □ No

13. Do you currently have any of the following hearing problems?
   a. Difficulty hearing □ Yes □ No
   b. Wear a hearing aid □ Yes □ No
c. 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?
   a. Weakness in any of your arms, hands, legs, or feet □ Yes □ No
   b. Back pain □ Yes □ No
c. Difficulty fully moving your arms and legs □ Yes □ No
d. Pain or stiffness when you lean forward □ Yes □ No

e. Difficulty fully moving your head up or down □ Yes □ No

f. Difficulty fully moving your head side to side □ Yes □ No

g. Difficulty bending at your knees □ Yes □ No

h. Difficulty squatting to the ground □ Yes □ No

i. Climbing a flight of stairs or ladder carrying more than 25 lbs. □ Yes □ No

j. Any other muscle or skeletal problem that interferes with using a respirator □ Yes □ No

Signature of employee: ____________________________ Date: __________
Appendix C: Respiratory Medical Clearance Form

Respiratory Medical Clearance Form

The Occupational Safety and Health Administration (OSHA) requires that a person be medically evaluated by a physician or other licensed health care professional to determine whether, and under what conditions, a worker (or student if applicable) can safely wear a respirator. This form allows your physician or other licensed health care professional to indicate whether you are medically cleared to safely wear a respirator in the course of your work without disclosing confidential medical information.

To be completed after a medical evaluation that includes review of the OSHA Respirator Medical Evaluation Questionnaire (Mandatory) Appendix C of 29 CFR 1910.134.

To be completed by the Respirator User:
Name: ____________________________
TU ID#: ____________________________
Department/School: __________________
Telephone #: ______________________
Email: _____________________________

To be completed by a Physician or Other Licensed Health Care Professional:
I have performed a respirator medical evaluation, including review of the individual’s OSHA Respirator Medical Evaluation Questionnaire Appendix C of 29 CFR 1910.134.

The identified individual is approved to wear (check all that apply):

- [ ] N95 particulate respirator
- [ ] Half-mask, air purifying respirator
- [ ] Full-face, air purifying respirator
- [ ] Powered air purifying respirator

If applicable, the following workplace conditions will result in additional physiological burden: ____________________________

- Follow-up medical evaluation is required IF ANY of the following occur prior to approval:
  - a positive response to any question among questions 1 through 8 in Section 2, Part A of the OSHA Respirator Medical Evaluation Questionnaire Appendix C was provided by the above identified individual; or,
  - the initial medical examination demonstrates the need for a follow-up medical examination.

[ ] This user is approved to wear a respirator. Approval date: ______________________
[ ] This user is not approved to wear a respirator.

I have provided the above identified individual a copy of this form: [ ] Yes [ ] No

Physician or Other Licensed Health Care Professional:
Printed name: ____________________________ Signature: ____________________________
Company Name: ____________________________ Date: ____________________________

This completed and signed form MUST be provided by the respirator user before the fit test organizers will conduct respirator fit testing.

Form Available for Download Here:
Appendix D: Monthly Respirator Inspection Form

Temperature University
Environmental Health
and Radiation Safety

Monthly Inspection Form for 3M TR-600
Powered Air Purifying Respirator with
Hood Assembly S-857

IMPORTANT! Initial each box in the right-hand column as you perform the inspection.
There are four units; please make sure each one is inspected.

Inspector: ____________________________

Unit Serial Number: TR602N052581, TR602N052603, TR602N052567, TR602N052331

Date: ________________________________

<table>
<thead>
<tr>
<th>Condition</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The blower has a crack.</td>
<td></td>
<td>FAIL</td>
</tr>
<tr>
<td>The breathing tube has tears, holes, or cracks.</td>
<td></td>
<td>FAIL</td>
</tr>
<tr>
<td>Either end of the breathing tube is damaged.</td>
<td></td>
<td>FAIL</td>
</tr>
<tr>
<td>The charge status on the battery pack is not indicated.</td>
<td></td>
<td>FAIL</td>
</tr>
<tr>
<td>The battery pack is cracked.</td>
<td></td>
<td>FAIL</td>
</tr>
<tr>
<td>The molding surrounding the electrical connection pins on the battery pack is missing.</td>
<td></td>
<td>FAIL</td>
</tr>
</tbody>
</table>

Comments (specify the serial numbers of any units that failed):

January 2020