



Respiratory Protection Plan

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1.0 Introduction

1.1 Policy

It is the policy of the University of Nevada, Reno (UNR) to provide faculty, staff, students and visitors with a safe and healthy learning, research, and work environment. The UNR Environmental Health & Safety Department will provide guidance on the selection, use, care, and maintenance of respiratory protective equipment and develop procedures for their safe use.

All activities involving the use of respiratory protective equipment including but not limited to operations, maintenance and research activities in all facilities controlled by the University of Nevada, Reno shall be conducted in compliance with the provisions of this program.

This policy is intended to meet the requirements of the U.S. Occupational Safety and Health Administration's Respiratory Protection Standard 29 CFR 1910.134.

1.2 Purpose

The purpose of the Respiratory Protection Program is to protect employees against harmful dusts, fogs, fumes, mists, gases, smokes, sprays, bioaerosols, and vapors, through the use of personal protective equipment (PPE). If effective engineering or administrative controls are not feasible, respirators shall be provided by the University when such equipment is necessary to protect the health of the employee.

This program will be implemented to ensure there are specific practices and procedures in place to safeguard employees who, during their normal duties, are or could be, exposed to hazardous airborne contaminants.

1.3 Scope

This program applies to, but is not limited to, any individual whose work requires the use of respiratory protection.

Where effective engineering controls are not feasible, or when they are being used but they do not adequately control exposures below permissible exposure limits personal protective equipment shall be used.

Respiratory protective equipment is required for work in environments with radioactive or chemical exposure levels exceed acceptable limits, when a risk assessment determines that airborne exposure to infectious agents is likely, and during some

emergency response situations such as clean-up of some hazardous materials spills. Respiratory protective equipment may also be required for work in confined spaces or for short-term projects where engineering controls are not practical.

2.0 Responsibility

Each department that requires, is required to use, or has voluntary use of respirators, is responsible for implementing the respiratory protection program. Each department is responsible for scheduling department employees for annual fit-testing and medical evaluation as needed.

2.1 Supervisors, Managers, and Principal Researchers

Each person in charge of a research project or in charge of a craft or maintenance crew engaged in activities where respiratory protective equipment is, or may be, required, is responsible for:

2.1.1

Requesting assistance from the Environmental Health & Safety Department (EH&S) in evaluating new or non-routine operations that may present respiratory health and safety hazards.

2.1.2

Notifying EH&S of the need for the use of respiratory protective equipment, including any voluntary use of respiratory protection.

2.1.3

Identifying, with the assistance of the Environmental Health & Safety Department, those employees who may need respiratory protective equipment.

2.1.4

Ensuring that all employees who will use respiratory equipment complete the Medical Questionnaire and are scheduled for and complete any required medical evaluations.

2.1.5

Ensuring that all employees who use respiratory protection receive training and fit testing on an annual basis.

2.1.6

Obtaining assistance of the Environmental Health & Safety Department in selecting appropriate respiratory protection devices before they are purchased.

2.1.7

Enforcing the use of respiratory protective equipment when required by regulations or other requirements, as outlined in the standard operating procedures of this program.

2.2 Employees

Employees are responsible for:

2.2.1

Utilizing issued respiratory protection in accordance with instructions and training provided by EH&S and in accordance with the standard operating procedures of this program.

2.2.2

Notifying supervisors and/or EH&S of any voluntary use of respiratory protection.

2.2.3

Completing the Medical Questionnaire accurately and submitting it to an approved on-line evaluation physician service or to a qualified physician or other licensed health care professional (PLHCP).

2.2.4

Attending training and receiving fit-testing on an annual basis.

2.2.5

Informing supervisor of any personal health problems that may arise which could be aggravated by the use of respiratory protective equipment.

2.2.6

Preventing damage to respirators insuring that respirators are not modified or altered in any way

2.2.7

Reporting any observed or suspected malfunctioning respirator to the supervisor.

2.2.8

Using only specific respiratory protective devices for which they have received training and fit testing.

2.2.9

Checking the respirator for good fit before each use.

2.2.10

Checking for deterioration of the respirator before each use.

2.2.11

Recognizing indications that cartridges and/or filters are at the end of their service life.

2.2.12

Cleaning and sanitizing reusable respirators after use.

2.2.13

Storing the respirator in a protected location.

2.2.14

Discarding disposable respirator as directed.

2.2.15

Notifying supervisors and EH&S when they have a condition that may interfere with face-piece sealing such as:

1. A weight change of 20 lbs. or more
2. Significant facial scarring in the area of the face piece seal.

3. Significant dental changes, i.e., multiple extractions without prosthesis, or dentures.
4. Reconstructive or cosmetic surgery.

2.3 EH&S Department

EH&S personnel are responsible for:

2.3.1

Determining individuals and associated operations which require respirator usage.

2.3.2

Providing assistance in reviewing purchases of respiratory protective equipment when requested.

2.3.3

Providing instruction and training on respirator selection criteria, fit testing, use and maintenance.

2.3.4

Directing employees to either A+ Total care or Norco for fit testing.

2.3.5

Notifying the employee's supervisor of any required referrals for medical evaluation.

2.3.6

Maintaining medical clearance, training, and fit testing records.

2.3.7

Providing consulting services for respiratory protection matters.

3.0 Medical Evaluation

3.1 Medical Questionnaire

Each employee who is required to wear a respirator must complete a medical questionnaire. The medical questionnaire can either be obtained from EH&S or from A+ Total Care/Norco prior to a medical evaluation.

3.2 Medical Clearance

Any employee who uses respiratory equipment must receive a signed medical clearance from a licensed physician or other licensed health care professional before being fitted for, and issued a respirator. The medical clearance shall be updated in accordance with the following criteria:

3.2.1

If the employee reports medical signs or symptoms that are related to the ability to use a respirator.

3.2.2

If the designated medical professional, supervisor or respirator program supervisor informs the department that the employee needs to be reevaluated.

3.2.3

If information from the respiratory protection program, including observations made during fit testing or program evaluation indicates the need for reevaluation.

3.2.4

If a change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed upon the employee.

3.3 Medical Examinations

Medical examinations are required for the following persons:

3.3.1

Employees who work or may potentially work with asbestos containing materials.

3.3.2

Individuals whose Medical Questionnaire evaluation indicates that examination by a physician is required.

3.3.3

Individuals who have a known health problem that could be aggravated by the use of respiratory protective equipment.

3.3.4

Individuals who the designated medical professional has determined require a medical examination for any reason before assignment to activities requiring the use of respiratory protective equipment.

4.0 Education and Training

The Environmental Health & Safety Department shall provide instruction on:

4.0.1

Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.

4.0.2

What the limitations and capabilities of the respirator are.

4.0.3

How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.

4.0.4

How to inspect, put on and remove the respirator.

4.0.5

How to perform seal checks of the respirator

4.0.6

Procedures for maintenance and storage of the respirator.

4.0.7

How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator.

4.0.8

General requirements of the OSHA Respiratory Protection standard.

5.0 Respirator Selection and Use

Proper selection and use of a respirator is critical to avoid impairment to an individual's health, including certain delayed lung diseases such as silicosis, pneumoconiosis, or asbestosis.

5.1 Respirator Selection

At GBC the 3M Organic Vapor / Particulate Combo cartridge filter is used.

5.2 Respirator Use

Air purifying respirators are not designed to be used in an atmosphere:

5.2.a.

That is immediately dangerous to life or health (IDLH).

5.2.b.

From which escape cannot occur without the aid of the respiratory equipment.

5.2.c.

Containing less than 19.5% oxygen.

5.2.d.

With unknown contaminants.

- Under such conditions, air supplied respiratory protective equipment or self-contained breathing apparatus is required.

5.2.1 Do not wear a respirator if you have:

5.2.1.a.

Not completed the Medical Questionnaire and obtained written medical clearance from the designated physician.

5.2.1.b.

Not been trained by an Environmental Health & Safety Representative in the use of the respirator.

5.2.1.c.

Not successfully completed initial fit testing.

5.2.1.d.

Gone more than 12 months since your last fit test.

5.2.1.e.

Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function.

5.2.2 DO NOT modify or alter your respirator in any manner, unless specified in the instruction manual.

5.2.2.a.

Use only MSHA/NIOSH or NIOSH approved components and replacement parts for your specific respirator. Failure to use MSHA/NIOSH or NIOSH components and replacement parts VOIDS the MSHA/NIOSH or NIOSH approval of the entire respirator, invalidates all manufacturers' warranties, and may result in lung disease or exposure to other hazardous or life threatening conditions.

5.2.3 Inspect all components of your respirator system before use for signs of damage or wear that may reduce the protection provided.

5.2.3.a.

Immediately replace any worn or damaged components with MSHA/NIOSH or NIOSH approved components or remove the respirator from service. See the MAINTENANCE section for proper directions for inspecting, cleaning, and storing your respirator.

5.3 Respirator User Seal Checks

For all tight-fitting respirators, the user shall perform user seal checks according to the following directions:

5.3.1 Negative Pressure User Seal Check

This test must be performed before each use and should be performed periodically during use.

This test is performed by closing off the inlets of the canister, cartridges or filters by covering with the palms of the hands, by placing seals over the canister or cartridge inlets, or by squeezing breathing tubes so that air cannot pass. Inhale gently so the face piece collapses slightly and hold breath for ten seconds. If the face piece remains slightly collapsed and inward leakage is not detected, the respirator is assumed tight and the exhalation valve and face piece are not leaking.

5.3.2 Positive Pressure User Seal Check

This test must be performed before each use and should be performed periodically during use.

This test is performed by closing off the exhalation valve and exhaling gently into the face piece. The fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage. For some respirators, the exhalation valve cover must be removed. Carefully replace it after the test.

6.0 Respiratory Equipment

This section contains operating instructions and limitations for respiratory equipment that may be used at GBC. The following use limitations apply to all use of respiratory protective devices used at GBC:

6.0.1.

Facial hair that interferes with face to mask fit shall not be permitted.

6.0.2.

The Medical Questionnaire must be completed.

6.0.3.

Written medical clearance from a designated physician must be obtained.

6.0.4

Training and fit testing must be successfully completed prior to use and annually thereafter.

6.0.5

If an employee exhibits/experiences difficulty in breathing (that is unrelated to respirator function) during testing or use, he/she shall be referred to a physician to determine fitness to use such equipment while performing assigned duties.

Not everyone can wear respirators. Individual with impaired lung function, due to asthma or emphysema for example, may be physically unable to wear a respirator. Individuals who cannot get a good facepiece fit, including those individuals whose beards or sideburns interfere with the facepiece seal, will be unable to wear tight fitting respirators.

Respirators may also present communication problems, vision problems, fatigue and reduced work efficiency. Nonetheless, it is sometimes necessary to use respiratory protection as the means of control.

6.1 Filtering Face-pieces (N95 respirators)

6.1.1. Availability and types for use.

N95 respirators of various kinds, including disposable types, may be used for protection against low concentrations of certain nuisance dusts (such as dust generated while sweeping floors or sanding wood). Only the N95 respirators which incorporate a surgical mask are designed to be fluid resistant to splash and spatter of blood and other infectious materials.

6.1.2. Limitations.

N95 respirators provide no protection against gases, vapors or toxic contaminants. They will not protect the user in atmospheres containing oil aerosols. Since they supply no oxygen, they cannot be used in oxygen deficient atmospheres. These masks must not be used for work involving hazardous particulates such as asbestos.

6.1.3. Procedure.

When a N95 respirator is required for a job situation, the user should:

6.1.3.a.

Put on the N95 respirator and adjust it for proper fit. Some masks have adjustable face sealing areas.

6.1.3.b.

Discard an N95 respirator upon observation of damaged or missing parts, if the mask becomes contaminated with dust or fluids and/or if excessive clogging of the respirator causes breathing difficulty. If the N95 respirator has a replaceable dust filter, replace the dust filter with a new one when normal breathing becomes difficult.

6.2 Air-Purifying Half Mask Respirators

6.2.1. Availability and types for use.

Half mask respirators are the most widely used types of respirators; several brands and sizes are available on the market to assure employee comfort and a satisfactory fit. Various types of filters, chemical cartridges and combination filter cartridges are available for employee protection.

6.2.2. Limitations.

Since this type of respirator does not supply air, it cannot be used in oxygen deficient atmospheres, in IDLH atmospheres or in untested confined spaces. It can only be used for protection against the contaminants and the concentration limits listed on the cartridge. The wearer should leave an area immediately if gas/vapor is smelled inside the mask or if breathing resistance increases.

An air purifying respirator should not be used for contaminants which do not display adequate odor or other warning properties without implementation of a cartridge change-out schedule that is based on the specific air contaminants and expected exposure. Cartridges shall be changed in accordance with the chemical break-through information contained in Appendix B. A half mask respirator shall not be worn when facial hair extends under the face mask sealing area.

6.2.3. Procedure

To put on and adjust the half mask respirator:

6.2.3.a.

Hold the mask so the narrow nose cup points upward.

6.2.3.b.

Grasp both lower mask straps and hook them behind the neck, allowing the chin to fit in first.

6.2.3.c.

Grasp both top straps and hook them behind the head and above the ears, making sure of a proper fit on the nose.

6.2.3.d.

Adjust the straps so the fit is snug but comfortable by pulling both straps simultaneously to the rear and not outward.

6.2.3.e.

Check for leaks by performing a qualitative negative/positive pressure user seal check. (See qualitative fit testing section.)

6.2.3.f

Each user of respiratory protective equipment must inspect, clean, and maintain the respirator after each use. Any parts showing wear must be replaced at this time with parts approved for the specific respirator.

7.0 Maintenance and Care of Respirators

The primary responsibility for maintaining the respirator in proper and clean condition rests with the employee. Minor repair and/or adjustment may be made on the spot; major repairs require removing respirator from service.

7.1 Inspection for Defects

7.1.1. Examine the face piece for:

7.1.1.a.

Excessive dirt

7.1.1.b.

Cracks, tears, holes, or physical distortion of shape

7.1.1.c.

Inflexibility of the face piece

7.1.1.d.

Cracked or badly scratched lenses in full face pieces

7.1.1.e.

Missing mounting clips, badly worn threads or missing gaskets, if required.

7.1.2. Examine the head straps or head harness for:

7.1.2.a.

Breaks

7.1.2.b.

Loss of elasticity

7.1.2.c.

Broken or malfunctioning buckles in attachments

7.1.2.d.

Excessive wear on attachments

7.1.2.e.

Excessive wear on head harness which might permit slippage

7.1.3 Examine the exhalation valve for the following after removing its cover:

7.1.3.a.

Foreign material such as detergent residue, dust, or human hair

7.1.3.b.

Cracks, tears, pinholes, or distortions in the valve material

7.1.3.c.

Improper insertion of valve body in face piece

7.1.3.d.

Missing or defective valve cover

7.1.3.e.

Improper installation of valve in the valve body

7.1.4 Examine the air purifying element for:

7.1.4.a.

Correct cartridge, canister, or filter for the hazard.

7.1.4.b.

Incorrect installation, loose connections, missing or worn gasket or cross threading in the holder

7.1.4.c.

Expired shelf life date on the cartridge or canister.

7.1.4.d.

Cracks or dents in the outside case of the filter, cartridge, or canister

7.2 Cleaning

7.2.1

Respirators, whether used routinely or for emergencies, must be cleaned and disinfected by the employee on a regular basis. As a minimum, respirator cleaning should take place on a weekly basis following use, and more frequently as conditions of use warrant. Remove filters, cartridges, or canisters.

7.2.2

Disassemble facepieces by removing speaking diaphragms, valve assemblies, hoses, or other components.

7.2.3

Wash components in warm (110° F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer.

7.2.4

A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

7.2.5

Rinse components thoroughly in clean, warm, preferably running water. Drain. It is important to thoroughly rinse because detergents that dry on facepieces may result in dermatitis or may cause deterioration of rubber if not completely removed.

7.2.6

Components should be hand-dried with a clean lint-free cloth or air-dried in a clean place free from contamination.

7.2.7

Reassemble the face piece and place the respirator in a sealed container for storage.

7.3 Storage

Respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture or damaging chemicals.

7.3.1

Respirators must be placed in sealed plastic bags or other suitable containers and stored in a location that prevents damage and/or contamination.

7.3.2

Respirators should be packed or stored so that the face piece and exhalation valve will rest in a normal position and function will not be impaired by either of these setting in an abnormal position.

7. 3.

Cartridges are to be stored separately in sealed plastic bags.

8.0 Quantitative Fit Testing Procedures

Quantitative fit testing is the preferred testing method. A respirator with a half mask facepiece must achieve an overall fit factor of 100.

Quantitative fit testing must be repeated at least annually. In addition, quantitative fit testing shall be repeated immediately if the test subject has:

8.0.1.

A weight change of 20 lbs. or more;

8.0.2.

Significant facial scarring in the area of the face piece seal;

8.0.3.

Significant dental changes, i.e., multiple extractions without prosthesis, or dentures;

8.0.4.

Reconstructive or cosmetic surgery; or

8.0.5.

Any other condition that may interfere with face piece sealing.

8.1 Negative Pressure User Seal Check

This test must be performed before each use and should be performed periodically during use.

This test is performed by closing off the inlets of the canister, cartridges or filters by covering with the palms of the hands, by placing seals over the canister or cartridge inlets, or by squeezing breathing tubes so that air cannot pass. Inhale gently so the face piece collapses slightly and hold breath for ten seconds. If the face piece remains slightly collapsed and inward leakage is not detected, the respirator is assumed tight and the exhalation valve and face piece are not leaking.

8.2 Positive Pressure User Seal Check

This test must be performed before each use and should be performed periodically during use.

This test is performed by closing off the exhalation valve and exhaling gently into the face piece. The fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage. For some respirators, the exhalation valve cover must be removed. Carefully replace it after the test.

9.0 Record Keeping

The Environmental Health & Safety Department will maintain the following records:

9.0.1

Training records (Appendix E)

9.0.2

Physician's written medical clearance

9.0.3

Qualitative fit test form (Appendix F)

10.0 Cartridge Change Schedules

Cartridges shall be changed in the following circumstances:

10.0.1

Cartridges shall be changed out each year prior to the start of the use of pesticides.

10.0.2

The cartridges shall be changed out if while being used voluntarily for work involving particulates the wearer notices a change in resistance when breathing.

10.0.3

Cartridges shall be replaced if damage i.e., cracks or deformation are noted on it.

Appendix A-Voluntary Use of a Respirator

Appendix D to 29 CFR 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

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

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.