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1.0 Purpose

The purpose of this policy is to protect the health and safety of University employees who work in areas that may have irritating or hazardous atmospheres. This policy outlines the proper implementation, operation and record keeping as required by 29 CFR 1910.134.

2.0 Scope

This policy applies to all University employees who work in irritating or hazardous atmospheres. An irritating or hazardous atmosphere is one that contains levels of dust, smoke, fog, fumes, mists, vapors or gases which meet or exceed levels that are causing irritations or are considered to create adverse health effects by OSHA (Occupational Safety and Health Administration). Additional terms and phrases are defined in appendix A of this policy.

3.0 Responsibilities

It is important that all responsible parties of this program understand their individual roles and carry them out to ensure that employee health is adequately protected.

3.1 Risk Management And Safety Responsibilities

It is the responsibility of Risk Management and Safety to provide the following services to the University and its employees:

A. Develop and maintain the policy

Risk Management and Safety shall develop the Respiratory Protection Policy that serves to protect University employees and complies with Federal OSHA standards. Risk Management and Safety shall review the policy annually and make changes when necessary.

B. Identify work place atmospheric hazards

When departments contact Risk Management to advise them of changes in the process or the chemicals used in their work environment, Risk Management and Safety shall evaluate the potential for atmospheric hazards and the need for the use of respiratory protection by employees who may be exposed.

C. Training employees

Risk Management and Safety shall offer training to all affected departments on an annual basis. This training shall comply with the training requirements outlined in 29 CFR 1910.134(K) (see section 5.1, of this policy).

D. Respirator selection

When it has been determined that respirators are needed for specific personnel, Risk Management and Safety shall determine the appropriate type of respirator and cartridges that will be used and will supply them at a cost to the employee's department.

E. Management of the qualification process

When it has been determined that an employee will need to wear a respirator, Risk Management and Safety shall manage the process which qualifies them to wear a respirator, including:

1. Training: Training will be provided to all respirator users by Risk Management and Safety or a qualified contractor (see section 5.1 of this policy).
2. Fit testing: Risk Management and Safety will perform fit testing procedures (or will arrange for qualified contractors to do so) in accordance with CFR 1910.134 (see section 5.3 of this policy).
3. Medical Evaluation: Risk Management and Safety will arrange for medical evaluations for each respirator user through a qualified medical provider who will require a questionnaire to be completed (see appendix B of this policy) as part of the evaluation.

F. Record keeping

Risk Management and Safety shall maintain accurate medical evaluation records as required in 29 CFR 1910.20. The records shall include the employees name, social security number, their duties and the physician's medical evaluation opinion and/or results. Proper records shall also be maintained for each employee on fit testing and training.

G. Provide information to the medical provider

Risk Management and Safety shall inform the medical provider of the conditions that each respirator user is expected to work in so that they can account for the physical stresses each employee may encounter. Such information shall include;

1. The type and weight of the respirator
2. The duration of respirator use
3. The extent of extra protective equipment and clothing that will be worn
4. The expected temperatures and humidity extremes

H. Consultation

Risk Management and Safety shall be available to all employees and departments to assist with inquiries regarding atmospheric hazards, the need for respirators and other related questions.

3.2 Department Responsibilities

Departments are responsible for the following items as they relate to the Respiratory Protection Program:

A. Scheduling Training.

It is the responsibility of each department to ensure that their employees receive annual respiratory protection training. The departments shall contact Risk Management and Safety to schedule the training sessions for their employees and ensure that all of their employees attend the training. When employees are new to the program and will be expected to wear a respirator, the employee's supervisor shall contact Risk Management and Safety to initiate training for that employee.

B. Ensure employee attendance

It is the responsibility of each department to ensure that their employees attend their annual fit testing, training and medical evaluation appointments.

C. Providing equipment

It is the responsibility of each department to supply the necessary respiratory protection, fit tests and medical evaluations free of cost to their employees.

D. Addressing employee concerns

It is essential that supervisors listen to their employee's concerns and address them as necessary. They may utilize the expertise of Risk Management and Safety when needed.

E. Notifying Risk Management and Safety

Departments shall communicate important information when changes occur in their department. This includes the need to;

- 1) Notify Risk Management and Safety when a process or protocol has changed.
- 2) Notify Risk Management and Safety when new chemicals are being used.
- 3) Notify Risk Management and Safety when new employees are hired who need respiratory protection training, fit testing and medical evaluations.

3.3 Employee Responsibilities

Each individual employee is responsible for the following items as they relate to the Respiratory Protection Program:

A. Attend Training

The purpose of annual respiratory protection training is to supply the employee with the knowledge necessary to safely wear a respirator and to ensure adequate protection for them during the activities they perform. Without the training, employees may lack such knowledge and may not be able to adequately protect themselves from atmospheric hazards. It is with that idea that employees who do not attend their mandatory training will be held responsible for their own actions.

B. Attend fit test appointments

The purpose of the annual fit test is to ensure that no physical changes occurred since the prior fit test which disables the respirator from providing a tight seal and adequately protecting the wearer. For this reason, it is important that each employee attends his/her scheduled annual fit test.

C. Attend Medical Evaluations

The purpose of the medical evaluation is to ensure that no health changes have occurred to the employee that may present a health risk while wearing a respirator. Since respirators require more labored breathing, it is important that the user is physically fit and able to handle restrictive breathing for extended periods of time. For this reason, medical evaluations are mandatory.

D. Following safe procedures

It is a condition of employment that the respirator user follow safe work practices that he/she has learned during annual respiratory protection training. If questions arise about safe practices, employees are expected to contact their supervisor.

E. Communicate with Supervisor

It is essential that employees communicate atmospheric hazards in the workplace with their supervisor so that the hazards may be appropriately addressed. In addition, employees shall inform their supervisors of problems that they may be having with their respiratory protection equipment or when there are questions as to when or where the respiratory protective equipment is needed.

F. Caring for equipment

It is the respirator user's responsibility to properly maintain, clean and store their respiratory protective equipment based on the information provided to them during annual training (see section 6.2 of this policy).

G. Proper use of respirator

Based on knowledge received from annual training, it is the respirator user's responsibility to properly wear his/her respirator, including proper;

- 1) Donning of the respirator (putting it on)
- 2) Doffing of the respirator (taking it off)
- 3) Adjusting of the respirator
- 4) Conducting negative and/or positive fit tests prior to using the respirator

4.0 Respirator Considerations

For purposes of this policy, Risk Management and Safety has established considerations as to which respirators shall be used, when they shall be required and a basis for the selection of respirators.

4.1 What constitutes a respirator

A respirator is typically defined as a device to protect the wearer from the inhalation of harmful contaminants. However, under this policy, Risk Management and Safety does not recognize non-cartridge style, half-face masks as a safe respirator when potentially dangerous levels of ambient chemicals or materials are present. Therefore, such devices shall not be issued to employees who have a foreseeable potential to exceed their PEL (permissible exposure limit) for any airborne material. These devices will only be issued as a means of comfort from nuisance levels of contaminants or when respirators are worn voluntarily. When employees are exposed to materials that may potentially expose them to levels which meet or exceed their PEL, half or full face, cartridge style respirators will be issued. In the event that a half or full face cartridge style respirators may not adequately protect the employee, self-contained breathing apparatus (SCBA) systems will be considered.

4.2 When respirators are required

Any time an atmospheric hazard is identified, engineering and administrative controls to minimize levels will be considered first. If such controls are not feasible then personal protection will be necessary. Personal protection may also be used in the interim, while engineering and/or administrative controls are being implemented.

A respirator must be worn by an employee who has the potential to meet or exceed his/her permissible exposure limit and when all feasible engineering and administrative controls are not effective in reducing the potential exposure to safe levels.

4.3 The selection of respirators

Supervising departments shall provide respirators, through Risk Management and Safety, at no cost to their employees who are required to wear them. Proper respirator selection is critical and shall be completed by Risk Management and Safety only. Risk Management and Safety will select the type and style of respirator and the protective cartridges that are appropriate for the individual's needs. Risk Management and Safety will choose the appropriate respirator based on their expertise, available research data and manufacturer's recommendations. The following criteria will be considered:

- A. The chemical and physical properties of the ambient materials
- B. The nature of the hazard
- C. Chemical and physical warning properties
- D. Health hazard and risks involved with the materials
- E. The potential exposure level
- F. The nature of the work activity and physical demand
- G. Results of air monitoring, if available or necessary
- H. The length of time of exposure
- I. The period of time that the respirator will be worn
- J. Fit testing results
- K. The limitations and capabilities of different respirators
- L. Assigned protection factors of respirators

At least two different brands and three sizes will be available to increase the likelihood of a tight fit and to accommodate different work operations.

Only respirators that are approved and certified by NIOSH (National Institute for Occupational Safety and Health) will be issued. Only atmosphere-supplying respirators shall be used in atmospheres that may have levels of any chemical or material that exceeds that which is Immediately Dangerous to Life and Health (IDLH). Air-purifying respirators shall not be used for hazardous chemicals with poor warning properties unless the chemical's odor threshold (concentration at which a chemical can be smelled) is less than three times its permissible exposure limit (PEL) or it has no Ceiling Limit (Maximum allowable concentration for any moment). In addition, air-purifying respirators shall not be used when oxygen levels are below 19.5% or above 22% by volume. Under these conditions, only atmosphere-supplying respirators may be used. When using atmosphere-supplying respirators a buddy systems shall be used when possible (also, refer to the Confined Space Policy).

Each respirator style has been assigned a “protection factor” (a value that OSHA assigns to a respirator which indicates the ratio of the concentration of a contaminant in the air versus its concentration inside the face piece of the respirator) which will be considered when a respirator is selected (see Appendix D for the various protection factors).

5.0 Qualification Process

In order for employees to be approved to wear respirators on the job, there are several steps that must first be taken so that the University can be assured that health risks are minimized and safe practices will be observed.

5.1 Training

There are many important concepts and safety precautions that must be understood by respirator users before they wear a respirator. Risk Management and Safety, or a chosen, qualified contractor shall conduct the respiratory protection training on an annual basis or when other changes in the process or chemicals used occur. The training shall include a discussion of the following items and give the employees an opportunity to ask questions:

- A. When the respirator is needed
- B. Why the respirator is needed
- C. The hazards to which they may be exposed
- D. The limitations and capabilities of each respirator
- E. The respirator selection for their use
- F. The type and frequency of respirator inspections
- G. How to properly don, doff, wear, adjust, care for and maintain their respirator
- H. How to check for a proper respirator fit (negative/positive fit tests)
- I. Respirator malfunctions and emergencies
- J. How to identify signs that the cartridge is not properly working
- K. The basis of the Respiratory Protection Program

5.2 Medical Evaluations

The University will request that each employee who wears a respirator receive a medical evaluation by a licensed and approved medical professional at a periodic frequency consistent with CFR 1910.134 requirements. Each department will be notified by Risk Management and Safety each year to send their applicable employees to the specified medical provider to receive medical evaluations. However, it is the responsibility of the supervisor to ensure that the employee receives his/her evaluation.

As required in 29 CFR 1910.134, the University will provide respirator medical certification by the following means:

- A. Medical questionnaire focusing on the employees respiratory system (see Appendix B)
- B. Administration of a Pulmonary Function Test may be necessary
- C. Interpretation of questionnaire and testing results by a qualified physician
- D. Certification or non-certification of employee
- E. When an employee is medically certified to wear a respirator, they will then be fit tested as outlined in “Respirator Fit Testing”, section 5.3 of this policy
- F. Should an employee fail medical certification, the following options will be utilized:
 - 1) Retest in thirty days pending physician recommendations
 - 2) Utilize physician’s recommendations
 - 3) Refer employee’s failing the medical certification to their department director and the Office of Human Resources

5.3 Respirator Fit Tests

Due to weight loss, weight gain, facial hair and other changes a person may go through from year to year, it is important that he/she has a respirator fit test performed every year to ensure that his/her face piece is providing an effective seal for adequate protection.

Respirator fit tests are conducted annually by Risk Management and Safety or an approved contractor. Risk Management and Safety will contact each department to notify them and schedule their employees for fit tests each year.

Fit testing shall be consistent with CFR 1910.134 and specific methodology may vary depending on equipment availability, technology and specific contractor methods.

If the employee passes the respirator fit test, he/she will be certified for respirator use (assuming he/she passed the medical evaluation and completed the training required). If the fit test is failed, the following options shall be utilized:

- A. Retest after alterations, correction, or suggestions of the evaluator
- B. Refer the employee failing the respirator fit testing to their department director and the Office of Human Resources.

Facial hair and cosmetics that interfere with the respirator face piece’s ability to provide a tight seal is prohibited. Fit tests will not be performed

on employees who have facial hair (side burns, beards and the like) or interfering cosmetics and will be referred to his/her supervisor.

6.0 Respirator Use, Care and Maintenance

It is important that each employee take proper care of his/her personal respirator and understand the responsibilities they have with their respirator. This section explains the various considerations that shall be taken with respect to the proper use of, care for and maintenance of respirators.

6.1 Respirator Use

Before an employee wears a respirator he/she must have successfully completed all necessary requirements of the Respiratory Protection Program including training, medical evaluation, fit testing and the proper selection and issuance of the respirator and cartridges by Risk Management and Safety.

Atmospheric supplying respirators (or air supplying) and the buddy system (two persons) shall be used, and the Notre Dame Fire Department notified, when an employee must enter an area with an unknown atmosphere, an oxygen deficient atmosphere or an atmosphere with IDLH (Immediately Dangerous to Life and Health) levels of a substance (also see the University's Confined Space Policy).

Atmosphere supplying respirator air quality shall comply with 29 CFR 1910.134(I) which includes the following air quality standards:

- A. Oxygen = 19.5-23.5%
- B. Hydrocarbons = < 5 mg/M³
- C. CO = 10 ppm or less
- D. Carbon Dioxide = 1,000 ppm or less
- E. No noticeable odor
- F. Canisters must be certified by manufacturers that it meets requirements for type 1-grade D breathing air and that the moisture content in the cylinder does not exceed a dew point of -50 degrees F. at one atmosphere.
- G. Canisters must meet NIOSH requirements from 42 CFR Part 84

6.2 Care and Maintenance

It is the responsibility of the respirator user to properly care for and maintain his/her personal respirator and to notify his/her supervisor when problems are discovered, such as broken or damaged parts, ineffective seals, cartridges which are used up, etc. The following regimen shall be observed and conducted by each employee:

A. Cleaning:

Respirators shall be cleaned and disinfected after each day's use. The disinfecting agent must be approved by Risk Management and Safety or recommended by the respirator manufacturer. Emergency use respirators shall be cleaned and disinfected after each use and on a monthly basis thereafter.

B. Inspection:

Respirators shall be inspected before each use by the wearer and emergency respirators shall be inspected monthly. The inspection shall include the following:

- 1) Face piece: For dirt, cracks, tears, holes, inflexibility, scratched lenses (in full face respirators) , broken mounting clips, missing gaskets or badly worn threads.
- 2) Head Straps: For breaks, loss of elasticity or broken buckles.
- 3) Exhalation valve: For foreign objects, cracks and tears, improper insertion of valve body or missing or defective valve cover.
- 4) Air purifying elements: For the wrong element (cassette) for the job, incorrect installation, loose connections, missing gaskets, expiration of shelf-life, cracks or dents in filter, cartridge or cassette.
- 5) Air supply system: For attachments and end fittings and condition of all regulators, valves or other air-flow regulators.

C. Storage:

To prevent problems with respirators, the following storage requirements have been established:

- 1) Respirators shall be identified with the user's name.
- 2) Respirators shall be stored in plastic bags or other sealed container to prevent it's exposure to atmospheric elements.
- 3) Each department shall provide a respirator storage place that provides protection against degrading elements, such as physical damage, dust, temperature extremes, chemicals, moisture and sunlight.

7.0 Voluntary Use of Respirators

The University recognizes that employees may wish for additional protection against ambient materials that are not producing exposures at or near permissible exposure limits (PEL's) or wish to minimize nuisance levels of ambient materials and therefore choose to wear a respirator. The University encourages the use of respirators under these conditions for added protection or more pleasant working conditions but considers it as voluntary use.

When respirators are used voluntarily, the respirator user shall notify Risk Management and Safety and shall read and sign the form titled "Information To Employees Who Wear Respirators For Voluntary Use" (see Appendix E) and return it to Risk Management and Safety. If the user chooses a cartridge style, half or full-face respirator for voluntary use, he/she shall also receive a medical clearance evaluation.

Appendix A: Definitions

Adequate warning properties:	Detectable characteristics of hazardous chemicals including irritation effects and odor.
Air purifying respirator:	A respirator that removes air contaminants from air that surrounds the respirator.
Assigned protection factor:	A value that OSHA assigns to a respirator which indicates the ratio of the concentration of a contaminant in the air versus the concentration inside the face piece of the respirator.
Atmosphere-supplying respirator:	A respirator that supplies air from an atmosphere independent from the surrounding atmosphere.
Canister or Cartridge:	The container which contains the sorbent, catalyst or filtering material which removes the hazardous ambient material.
Ceiling limit:	The concentration of a material that should not be exceeded during any part of the working exposure.
Doff:	Taking a device off.
Don:	Placing a device on.
Elastomeric face piece:	A respirator face piece made of an elastic substance.
Filter:	A medium used to remove solid or liquid particles from the air.
Fit factor:	A measurement of the concentration of a substance in the air (inside a test chamber) to its concentration inside the respirator.
Hazardous chemical:	A substance that meets OSHA's definition for a health hazard in 29 CFR 1910.1200 (c).
Immediately Dangerous to Life and Health (IDLH):	Atmospheric concentrations of a chemical, or absence of oxygen that will cause fatal injury or irreversible health effects.

Appendix A: Definitions

- Negative pressure respirator: A respirator that maintains a negative pressure inside the face piece when the user inhales and a positive pressure when the user exhales.
- Permissible Exposure Limit: The maximum allowable exposure concentration of a material by OSHA standards, based on 8-hrs per day, 40-hrs per week.
- Positive pressure respirator: An atmosphere-supplying respirator that always maintains a positive pressure inside the face piece.
- Qualitative fit test: A measurement of the effectiveness of a respirator fit that is determined by the individual's ability to detect the odor or irritation of a contaminant.
- Respirator: A device used to protect the wearer from inhaling harmful contaminants.
- Supplied-air respirator: A respirator that supplies an independent source of air from a compressed container.

Appendix B: Medical Evaluation Questionnaire

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Appendix B: Medical Evaluation Questionnaire

Appendix C: Respiratory Protection Verification Form

Medical Evaluation

Medical provider

The following information is being provided to the physician as a worse-case scenario, but shall be assumed for purposes of this medical evaluation:

1. Respirator weight = 3 lbs
2. Type of respirator may either be a half face or full face air purifying, negative pressure respirator. All Notre Dame Fire Fighters wear full face atmosphere supplying respirators.
3. The employee shall be able to wear the respirator for 40 hours per week
4. It is assumed that extensive physical activity will take place which may influence the employee's ability to breath through a respirator. Such activities may include lifting, pushing, pulling and aerobic activities under high temperatures and humidity.
5. It is assumed that other personal protective equipment will be worn along with the respirator, such as a tyvek suite, gloves and heavy clothing.

_____ of _____
Employee Department

Has successfully met the requirements for the medical approval to wear a respirator and has received a copy of my recommendations, if any.

Physician _____ Date _____

Physician's comments _____

Respirator Fit Test

Fit testing company

_____ of _____
Employee Department

Has successfully met the requirements outlined in 29 CFR 1910.134(f) to wear a respirator.

Evaluator _____ Date _____

Appendix D: Assigned Protection Factors For Different Respirators

<u>Respirator</u>	<u>Assigned Protection Factor</u>
SCBA (self-contained Breathing Apparatus)	
Pressure demand	50
Positive pressure	>1,000
Full-Face	
Supplied air	>1,000
Pressure Demand	
Half face	1,000
Full face	1,000
Continuous flow	
Half face	50
Air purifying	
Full face	50
Half face	10

Assigned Protection Factor is the level of respiratory protection expected from a respirator that is properly functioning, has been properly fitted, and is worn by a worker trained in its use. The number is used to help provide an estimate of the maximum concentrations of a contaminant in which a particular respirator can be used.

Appendix E: Information To Employees Who Wear Respirators For Voluntary Use

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 limit 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.

I have read the above information and am voluntarily using a respirator,

Print Name

Department

Sign Name

Date