RESPIRATORY PROTECTION PROGRAM

PROGRAM STATEMENT

The University of North Dakota’s respiratory protection program provides acceptable employee protection against inhalation of respirable dusts, toxins, vapors, fumes, mists, and radioactive air contaminants and oxygen deficiency when engineering controls are not adequate, feasible, or applicable. Additionally, the program helps prevent employee overexposure to hazardous substances or atmospheres that may adversely affect an employee’s health or safety, and further establishes procedures for respirator selection, maintenance, and inspection.

REASON FOR PROGRAM

This program was designed to reduce an employee’s inhalation of hazardous atmospheres, and to comply with exposure limits for work environments established by regulatory and/or professional organizations.

SCOPE OF PROGRAM

This program applies to:

✔ President
✔ Vice Presidents
✔ Deans, Directors & Department Heads
✔ Area Managers & Supervisors
✔ Faculty
✔ Staff
✔ Students
✔ Others – Contractors/Visiting Workers

WEB SITE REFERENCES

This program:  http://UND.edu/finance-operations/_files/docs/6-30-respiratory-protection-program.pdf
Policy Office:  http://UND.edu/finance-operations/policy-office.cfm
Vice President for Finance & Operations:  http://UND.edu/finance-operations/
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RELATED INFORMATION

| 29 CFR 1910.1001(g) – Asbestos: Respiratory Protection | http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=b3ba97816138af68d712551b0e6d724e&ty=HTML&h=L&mc=true&r=PART&n=pt29.6.1910#se29.6.1910 11001 |
| 29 CFR 1910.134 – Respiratory Protection | http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=b3ba97816138af68d712551b0e6d724e&ty=HTML&h=L&mc=true&r=PART&n=pt29.5.1910#se29.5.1910 11134 |
| 29 CFR 1926.1101(h) – Asbestos: Respiratory Protection | http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=b72b86132dc6d787f303e83c431e4bc3&ty=HTML&h=L&mc=true&r=PART&n=pt29.8.1926#se29.8.1926 11101 |
| 29 CFR 1926.62(f) – Lead: Respiratory Protection | http://www.ecfr.gov/cgi-bin/text-idx?type=home;c=ecfr;cc=ecfr;sid=375c7b3e9d1c5a27a86f9c004a000642;idno=29.region=DIV1;v1=1926.62;rgn=div8;view=text;node=29%3A8.1.1.1.1.4.13.13 |

CONTACTS

Specific questions should be directed to the following:

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<tr>
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DEFINITIONS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-Purifying Respirator</td>
<td>A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>Atmosphere-Supplying Respirator</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 (SARs) and self-contained breathing apparatus (SCBA) units.</td>
</tr>
<tr>
<td><strong>Canister or 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>
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<tr>
<td><strong>CFR</strong></td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td><strong>Competent Personnel</strong></td>
<td>Individual possessing the skills, knowledge, experience, and judgment to perform assigned tasks or activities satisfactorily as determined by UND.</td>
</tr>
<tr>
<td><strong>Demand Respirator</strong></td>
<td>An atmosphere-supplying respirator that admits breathing air to the face piece only when a negative pressure is created inside the face piece by inhalation.</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><strong>Employee</strong></td>
<td>For the purposes of this policy, includes UND employees, volunteers, and contract employees.</td>
</tr>
<tr>
<td><strong>Employee 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>End-of-Service-Life Indicator</strong></td>
<td>A system that warns the respirator user of the approach of the end of adequate respirator protection, for example, that the sorbent is approaching saturation or is no longer effective.</td>
</tr>
<tr>
<td><strong>Filter or Air-Purifying Element</strong></td>
<td>A component used in a respirator to remove solid or liquid aerosols from the inspired air.</td>
</tr>
<tr>
<td><strong>Filtering Face Piece (dust mask)</strong></td>
<td>A negative-pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.</td>
</tr>
<tr>
<td><strong>High Efficiency Particulate Air (HEPA) Filter</strong></td>
<td>A filter that is at least 99.7% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR84 particulate filters are the N100, R100, and P100 filters.</td>
</tr>
<tr>
<td><strong>Immediately Dangerous to Life or Health (IDLH)</strong></td>
<td>Any atmosphere that poses an immediate hazard to life, would cause irreversible adverse health effects, or would impair an individual’s ability to escape from dangerous atmospheres.</td>
</tr>
<tr>
<td><strong>Loose-Fitting Face Piece</strong></td>
<td>A respirator face piece that is designed to form a partial seal with the face.</td>
</tr>
<tr>
<td><strong>National Institute for Occupational Safety and Health (NIOSH)</strong></td>
<td>A U.S. federal agency that conducts research and makes recommendations to prevent worker injury and illness.</td>
</tr>
<tr>
<td><strong>Negative Pressure Respirator (tight-fitting)</strong></td>
<td>A respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.</td>
</tr>
<tr>
<td><strong>OSHA</strong></td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td><strong>Oxygen-Deficient Atmosphere</strong></td>
<td>An atmosphere with oxygen content below 19.5% by volume. All oxygen-deficient atmospheres are considered IDLH atmospheres.</td>
</tr>
<tr>
<td><strong>Permissible Exposure Limit (PEL)</strong></td>
<td>The OSHA established eight-hour time-weighted average (TWA) exposure, based on a 40-hour work week, or the short-term exposure limit (STEL) shall not be exceeded.</td>
</tr>
<tr>
<td><strong>Poor Warning Properties</strong></td>
<td>A substance whose odor, taste, or irritation effects are not detectable or not persistent at concentrations at or below the exposure limit.</td>
</tr>
</tbody>
</table>
Positive-Pressure Respirator
A respirator in which the pressure inside the face piece exceeds the ambient air pressure outside the respirator.

Powered Air-Purifying Respirator (PAPR)
An air-purifying respirator that uses a blower to move air through air-purifying elements to the respirator face piece.

Pressure Demand Respirator
A positive-pressure atmosphere-supplying respirator that admits breathing air to the face piece when the positive pressure is reduced inside the face piece by inhalation.

Required Use
Refers to situations in which supervisors, the Respiratory Protection Program Administrator, or other designated individual have made the determination that respirator use is a necessary element for job completion.

Self-Contained Breathing Apparatus (SCBA)
An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user. This respirator may be used in atmospheres immediately dangerous to life or health (IDHL).

Short-Term Exposure Limit (STEL)
A permissible exposure limit as determined by any 15 minute exposure period.

Student
For the purposes of this policy, an individual matriculating at an institution of higher education who is at UND for academic purposes only. Students who are also hired as employees will function under the guidelines for employees when acting as an employee.

Supplied-Air Respirator or Air Line Respirator
An atmosphere-supplying respirator for which the source of breathing air is not designated to be carried by the user.

Tight-Fitting Face Piece
A respirator face piece that is designed to form a complete seal to the user’s face.

Time-Weighted Average (TWA)
The average concentrations of a contaminant in air during a specific time period.

User Seal Check
An action conducted by the respirator user to determine if the respirator is properly sealed to the face.

Vapor
The gaseous phase of matter that normally exists in a liquid or solid state at room temperature.

PRINCIPLES

OVERVIEW – UND’s respiratory protection program provides acceptable employee protection against inhalation of respirable dusts, toxins, vapors, fumes, mists, and radioactive air contaminants and oxygen deficiency when engineering controls are not adequate, feasible, or applicable. Additionally, the program helps prevent employee overexposure to hazardous substances or atmospheres that may adversely affect an employee’s health or safety, and further establishes procedures for respirator selection, maintenance, and inspection.

This program was designed to reduce an employee’s inhalation of hazardous atmospheres, and to comply with exposure limits for work environments established by regulatory and/or professional organizations.

PROCEDURES

UND’s Office of Safety has overall responsibility for administering the respiratory protection program and is available to provide assistance to departments that use the program. Departments are responsible for supplying
required protection devices and paying for the costs associated with this program.

Departments are encouraged to develop additional procedures applicable to their specific operations as long as the supplemental procedures coincide with the requirements outlined in this document. Additional procedures must be approved by a respiratory protection program administrator (RPPA) in the Office of Safety prior to implementation.

Failure to follow policies and procedures pertaining to respirator use could lead to disciplinary actions, up to and including termination.

Work Area Monitoring

Monitoring responsibility is that of the supervising department. Monitoring must be conducted by the responsible department in compliance with OSHA standards to assure the adequacy of the respiratory protection program. If external monitoring is necessary, the department must work in consultation with Office of Safety to identify and initiate monitoring. Office of Safety will provide periodic auditing to ensure departments are monitoring work areas appropriately. Departments must send sampling records to the Office of Safety.

Respirator Selection

The basic purpose of any respirator is to protect the respiratory system from inhalation of hazardous atmospheres. Respirators provide protection either by removing contaminants from the air before they are inhaled or by supplying an independent source of breathable air.

GENERAL REQUIREMENTS

1. Respirators are to be selected based on the potential exposure that the employee may face. A sufficient number of respirator models and sizes must be available to employees, who are required to use a respirator, to ensure the respirator correctly fits the user.
2. Respirators are required when engineering or administrative controls are unsuccessful at maintaining exposure below permissible exposure limits. Respirators are also required whenever a supervisor or procedure requires the use of respiratory protection.
3. The use of privately owned respirators is forbidden for tasks requiring the use of respirators.
4. Respirators provided by UND for tasks requiring the use of respirators must be NIOSH-certified, and the manufacturer’s use criteria must be followed.
5. Employees using filtering facepiece respirators provided by UND for tasks not requiring the use of respirators (e.g., protection from pollen or other nuisance aerosols) must be provided supplemental information (see Appendix 1, Information for Employees Using Respirators When Not Required).
6. Employees using privately owned filtering facepiece respirators for tasks not requiring the use of respirators are advised to read the manufacturer’s precautions and limitations that come with the respirator and Appendix 1 of this program, prior to use.

RESPIRATORS FOR IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH) ATMOSPHERES

1. Respirators approved for IDLH atmospheres are (except for emergency escape):
   a. A full-face piece pressure-demand self-contained breathing apparatus (SCBA) certified by the National Institute for Occupational Safety and Health (NIOSH) for a minimum service life of 30 minutes, or
   b. A combination full-face piece pressure-demand SAR with auxiliary self-contained air supply.
2. Respirators provided only for escape from IDLH atmospheres must be NIOSH-certified for escape from the atmosphere in which they will be used.

RESPIRATORS FOR ATMOSPHERES THAT ARE NOT IDLH – The department must provide employees with a respirator that is adequate to protect the health of the employee and is certified for the intended use.
Respirator Medical Evaluation and Fit Testing

MEDICAL EVALUATION – Employees using respirators must be medically evaluated in accordance with OSHA, biological, and other standards to determine an employee’s ability to wear a respirator. This medical evaluation is performed by the university’s designated medical provider. Medical evaluation results are kept on file with UND’s designated medical provider.

FIT TESTING – Employees wearing a tight-fitting face piece respirator must be fit tested according to OSHA standard requirements which will be conducted by the university’s designated medical provider unless otherwise approved by the Office of Safety. Departments capable of conducting fit testing must submit a detailed program to the Office of Safety and identify competent personnel who will conduct respirator fit testing for departmental employees.

Respirator Usage

USER SEAL CHECKS – When using a tight-fitting respirator, user seal checks must be performed to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed below or the respirator manufacturer’s recommended user seal check method must be used. User seal checks are not substitutes for fit testing.

1. Positive-pressure seal check – Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For some respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

2. Negative-pressure seal check – Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

3. Manufacturer's recommended seal check – The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures, provided that the manufacturer's procedures are equally effective as the checks listed above.

If the respirator fails to pass these checks, the fit is not acceptable. Adjust the respirator or adjust the head straps and then repeat the checks. If the respirator continues to fail the checks, the RPPA or designated representative must be contacted before proceeding further.

CLEANING, INSPECTION, MAINTENANCE, AND STORAGE – Employees must follow the manufacturer’s recommended instructions for cleaning, inspection, maintenance, and storage of the respirator. Supervisors are responsible for ensuring employees have manufacture’s instructions provide or accessible to them.

GENERAL USAGE – When there is a change in the work area conditions, the level of exposure, or the degree of physical burden, the effectiveness of the selected respirator must be reevaluated.

Employees must leave a respirator use area:
1. To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use.
2. When vapor or gas breakthrough has been detected, changes in breathing resistance occurs, or leakage
of the face piece is noticed.
3. To replace the respirator or the filter, cartridge, or canister elements.

Procedure for IDLH atmospheres:
1. At least one other employee must be located outside of the IDLH atmosphere.
2. Visual, voice, or signal line communication must be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
3. The employee(s) located outside the IDLH atmosphere must have been trained and equipped to provide effective emergency non-entry rescue.
4. The employee(s) outside the IDLH atmosphere must have the capability to summon rescue personnel in the event of an emergency.

Response to Emergency Situations

This respiratory protection program and the respirators provided by UND for tasks requiring the use of respirators are applicable for routine procedural work only and are not intended to handle emergency situations. If an emergency occurs, call 9-1-1 immediately. Trained and certified emergency responders will provide the necessary response and take control of the situation.

Training

1. Departments are responsible for ensuring employees are trained on the proper use, care, maintenance, and storage of respiratory protection equipment prior to requiring an employee to use a respirator. Employees who voluntarily use a filtering face piece must be provided with the information contained in Appendix 1.
2. Training for required use respirators must include, but is not limited to:
   a. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
   b. The limitations and capabilities of the respirator.
   c. How to use the respirator effectively in emergency situations that occur during routine procedural work, including situations in which the respirator malfunctions.
   d. How to inspect, put on and remove, use, and check the seals of the respirator.
   e. What the procedures are for maintenance and storage of the respirator.
   f. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
   g. Additional information relevant to the work the employee will be performing.
3. Refresher training must be provided when one of the following situations occurs:
   a. Change in the workplace or the type of respirator required renders previous training obsolete.
   b. Inadequacies in the employee’s knowledge or use of the respirator indicate that the employee has not retained the level of understanding or skill required to use the respirator properly.
   c. Any other situation arises in which retraining appears necessary to ensure safe respirator use is maintained.

Program Evaluation

Regular evaluations (at least annually) of the respiratory protection program must be completed by a department’s respiratory program administrator and/or the respiratory program administrator or designated representative within the Office of Safety.
1. Employees must be observed in the work environment to determine whether respirators are being properly selected, used, and maintained.
2. Problems must be solved by the selection of alternate equipment, additional training, or other appropriate means.

Training must be evaluated (at least annually) to determine if employees are receiving knowledge and/or skills
adequate for the program. This evaluation must be conducted randomly by a department’s respiratory program administrator and/or the UND respiratory program administrator or designated representative within the Office of Safety.

RESPONSIBILITIES

| Department Heads, Directors and Managers | ▪ Ensure personnel within their purview are knowledgeable of the respiratory protection required for the area/operation where the work is taking place.  
▪ Ensure employees are informed that they must comply with all facets of this respiratory program, including equipment inspection and maintenance.  
▪ Supply required protection devices to employees and cover all costs associated with the respiratory protection program.  
▪ Ensure monitoring is conducted in compliance with OSHA standards, and send sampling records to the Office of Safety. |
| Employees | ▪ Have awareness of the respiratory protection requirements for work areas.  
▪ Wear the appropriate respiratory equipment according to proper instructions.  
▪ Maintain the equipment in a clean and operable manner. |
| Office of Safety | ▪ Maintain records of all employees participating in respiratory protection.  
▪ Audit respirator for compliance with this program.  
▪ Act as a resource on matters relating to this program. |
| Supervisors | ▪ Ensure personnel within their purview are knowledgeable of the respiratory protection required for the area/operation where the work is taking place.  
▪ Ensure employees are informed that they must comply with all facets of this respiratory program, including equipment inspection and maintenance.  
▪ Ensure manufacturer’s instructions and necessary training are provided to employees using respirators. |

FORMS

There are no forms associated with this policy.

APPENDICES

| Appendix 1 – Information for Employees Using Respirators When Not Required |
| Appendix 2 – Respiratory Protection Devices for Biohazardous Agents |

REVISION RECORD

| 11/04/1998 – Program Implementation | Loss Control Committee |


<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/28/2012</td>
<td>Program Revision</td>
<td>Loss Control Committee</td>
</tr>
</tbody>
</table>
| 09/14/2015       | Program Revision                                       | • Put document into policy/program template.  
|                  |                                                        | • Revised document to coincide with OSHA standards and other requirements. |
| 10/21/2015       | Revision Endorsed                                       | Loss Control Committee          |
| 12/02/2015       | Revised                                                | • Added procedures for respiratory protection devices for biohazardous agents as appendix |
| 04/11/2016       | Revision Approved                                       | President Edward T. Schafer     |
Information for Employees Using Respirators When Not Required

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 regulatory or other agencies. Before voluntarily using a 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, vapor, 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.
REASON FOR PROCEDURE

UND has established standard operating procedures for the use of N-95 or higher respirators and powered air purifying respirators (PAPRs), which must be followed while working with animals and biohazardous agents in a laboratory setting to minimize the risk of exposure to biohazardous agents/allergens in research and instructional activities involving animal use.

CONTACTS

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<tr>
<th>Subject</th>
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</tr>
</thead>
</table>

DEFINITIONS

<table>
<thead>
<tr>
<th>Assigned Protection Factor (APF)</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending Veterinarian</td>
<td>A person who has graduated from a veterinary school accredited by the American Veterinary Medical Association’s Council on Education or has a certificate issued by the American Veterinary Medical Association’s Education Commission for Foreign Veterinary Graduates and who is responsible for evaluating the type and amount of anesthetic, analgesic, and tranquilizing drugs used on animals during actual research, testing, or experimentation where appropriate to relieve all unnecessary pain and distress in the subject animals.</td>
</tr>
</tbody>
</table>
| Biohazardous Material           | All viable infectious, pathogenic, or toxin-producing agents, prions, biologically-derived toxins, or nucleic acid constructs that have the potential to affect the health of humans, animals, plants, or the environment. This includes vectors known to carry and transmit infectious agents, infected or
potentially infected animals, infectious material, and recombinant or synthetic nucleic acid molecules capable of producing deleterious effects in humans, animals, plants, or ecosystems either directly through infection or indirectly through damage to the environment.

**Biological Hazards**

Bacteria, viruses, fungi, and other living organisms that are respirable and can cause acute and chronic infections. Examples include Legionnaire’s Disease and animal waste products (e.g., feces).

**Biological Safety Officer**

The individual appointed by an institution to oversee management of biosafety risks.

**CFR**

Code of Federal Regulations

**Contaminated**

The presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item or surface.

**Designated Medical Provider (DMP)**

A medical professional or a facility selected by the employer to treat work related injuries. All employers in University of North Dakota have the option of selecting a DMP.

**Employee**

For the purposes of this policy, includes UND employees, volunteers, and contract employees.

**Filtering Facepiece Respirator**

Negative pressure air purifying particulate respirators that differ from other respirators because the filtering piece itself is the mask. To be a certified filtering facepiece respirator, the mask must be NIOSH approved, double strapped and clearly labeled with both a letter designation (N, R, P) indicating resistance to oil degradation and a filtering efficiency (95, 99, 100). Single strap varieties of nuisance particle masks are not certified by NIOSH and should not be considered an approved respirator. Most surgical masks do not meet the definition of an N-95 or higher respirator and should not be considered adequate for protection from aerosolized infectious droplets.

**N95 or Higher Respirators**

Filtering facepiece respirators that are air-purifying respirators certified by the National Institute of Occupational Safety and Health (NIOSH) to have filter efficiency level of 95 percent or greater against particulate aerosols free of oil and greater than 0.3 microns in size.

**PAPR**

Powered air purifying respirator

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**PRINCIPLES**

**OVERVIEW** – All researchers working with biohazardous agents are responsible for the proper use of agents and the safety of employees, students, the public, the environment, and the public service interests of the University. This procedure provides designated employees with guidelines to protect against inhalation of airborne infectious agents or certain aerosolized drugs while working with animals. This information complies with the Centers for Disease Control and Prevention (CDC), and Occupational Safety and Health Administration (OSHA) regulations and guidelines regarding the use of respiratory protection.

These procedures coincide with the information outlined in the UND’s Respiratory Protection Program (see Related Information, Resources & Forms) and are designed to minimize the risk of contracting and/or spreading laboratory acquired infections (LAIs) when working with animals and biological risk groups 2 and 3 organisms in a laboratory setting. These procedures comply with the Centers for Disease Control and Prevention (CDC), and Occupational Safety and Health Administration (OSHA) regulations and guidelines regarding the use of respiratory protection.
PROCEDURES

Using Respiratory Protection Devices in the Animal Facility at UND

INITIATION OF POWERED AIR PURIFYING RESPIRATOR (PAPR) USE – For any protocol/procedure in which airborne isolation is required (based on risk assessment), PAPR devices must be obtained for use by all appropriate employees/students by the principal investigator.

All employees/students who use PAPRs must be medically screened by the UND’s occupational health care provider and must have received PAPR use training.

INITIATION OF N-95 OR HIGHER RESPIRATOR USE – For any protocol/procedure in which an N-95 or higher respirator use is required (based on risk assessment), N-95 or higher respirator devices must be obtained for use by all appropriate employees/students by the principal investigator.

All employees/students who use an N-95 or higher respirator must be medically screened and fit tested by UND’s occupational health care provider and must have received the respirator use training. Fit testing is required prior to use and annually thereafter. This is done by the university’s designated medical provider unless otherwise approved by the Office of Safety. Departments capable of conducting fit testing must submit a detailed program to the Office of Safety and identify competent personnel who will conduct respirator fit testing for departmental employees.

USE SPECIFICS FOR PAPRs AND N-95 OR HIGHER RESPIRATORS
1. Require employees/students to pass medical screening process before being used.
2. Filter particulate matter from the air that is breathed.
3. Hood/headpiece/mask cannot be shared between users unless proper disinfecting of the piece(s) has occurred.
4. Can be used multiple times by a single user. However, N-95 or higher respirators used in the animal facility must be discarded at the end of the day/shift (in a biohazard bag).
5. Require annual respiratory protection training.
6. Do not contain latex.

DEVICE DIFFERENCES

<table>
<thead>
<tr>
<th></th>
<th>PAPR Model 3M Air Mate, 3M™ Versaflo™ TR-300; MAXAIR 700 Shroud System (TC-21C-0813)</th>
<th>N-95 or Higher Respirator 3M 1860/1860S, 1870, 8233</th>
</tr>
</thead>
<tbody>
<tr>
<td>Require annual fit-testing</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Can be worn by persons with beards, facial hair?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>OSHA Assigned protection Factor (APF)</td>
<td>25</td>
<td>10</td>
</tr>
</tbody>
</table>

Using Powered Air Purifying Respirators (PAPRs) in the Animal facility at UND

ENTERING AIRBORNE ISOLATION ROOM/ANIMAL ROOM
1. The PAPR headpiece and base unit must be completely donned prior to entering an airborne isolation room/animal room (based on risk assessment).
2. The individual PIs/supervisors obtain:
   a. Base unit/battery pack
   b. Breathing tube
   c. Headpiece (separate one for each staff member needing to use a PAPR)
3. Attach plastic ribbed tubing to the base unit. Unlike the headpiece, the base unit and tubing can be worn and used by multiple members.
4. If the tubing is already attached, ensure that it is firmly connected to the based unit/battery pack.
5. Once the tubing is secured, turn the blower on.
6. Place your hand at the opening of the plastic tubing. You should feel a steady stream of air coming from the tubing opening.
7. Listen for the steady whirring of the base unit motor.
8. If you do not feel the airflow or hear the whirring of the motor, replace the base unit and attach it to the charger. Obtain a new base unit and check for airflow and motor function.
9. Once PAPR base unit is successfully checked, turn the unit off.
10. Each staff member who might need to use a PAPR should be given her/his own PAPR headpiece, and mark it accordingly.
11. Attach the PAPR headpiece to the other end of the plastic ribbed tubing.
12. Attach the base unit (with battery pack) around your waist. Adjust the waist strap to fit comfortably.
13. Turn the PAPR base unit on.
14. Place the PAPR headpiece over your head.
15. Enter the room.

EXITING AIRBORNE ISOLATION ROOM/ANIMAL ROOM
1. Follow all steps in leaving an animal room as specified in the animal biosafety level 1/animal biosafety level 2 (ABSL-1/ABSL-2) safety manual.
2. In the anteroom, don clean gloves. Remove the headpiece. Disconnect the breathing tube from the headpiece. Remove the base unit from your waist, with the breathing tube attached. Turn off the blower on the base unit.
3. Inspect the base unit, breathing tube, and headpiece for any visible contamination or damage.
4. The PAPR headpiece is a product that may be used repeatedly by the same individual until it is torn, the elastic is no longer taut, or it is grossly soiled.
5. The base unit and the breathing tube should be assessed for any signs of damage.
6. The exterior of the base unit, breathing tube, and headpiece should be cleaned with an approved disinfectant wipe if soiled/contaminated and between uses. Grossly contaminated headpieces must be discarded as a biohazard waste in a red bag.
7. Discard gloves and wash hands.
8. Every individual who is required to wear a PAPR unit (based on risk assessment) must have their own designated headpiece labeled with their name. No sharing of headpieces is permitted. Each person entering the animal room should keep his/her PAPR headpiece neat the PAPR base units and breathing tubes when not in use.
9. Return the PAPR base unit to the designated location in the animal facility.

Using N-95 or Higher Respirators in the Animal Facility at UND

ENTERING AIRBORNE ISOLATION ROOM/ANIMAL ROOM
1. The N-95 or higher respirator must be donned prior to entering an airborne isolation room/animal room (based on risk assessment).
2. Inspect the mask for damage. Discard (in a biohazard bag) if it is torn, soiled, or the elastic is no longer taut.
3. Cup the mask in one hand and hold close to the face.
4. Position the upper strap at the crown of the head with the other hand.
5. Position the lower strap at the neck, again with the other hand.
6. Adjust the mask to ensure that it is fitted to the face.
7. Adjust the metal clip to fit tight over the bridge of the nose.
8. Conduct a seal-check every time you put the respirator on (before entering area of concern).

EXITING AIRBORNE ISOLATION ROOM/ANIMAL ROOM
1. Follow all steps in leaving an animal room as specified in the animal biosafety level 1/animal biosafety level 2 (ABSL-1/ABSL-2) safety manual.
2. In the anteroom, don clean gloves. Remove the mask. Inspect the mask for any visible contamination or damage.
3. The N-95 or higher respirator is a product that may be used repeatedly by the same individual with the same day/shift (Only in ABSL-1/ABSL-2 animal rooms). It should be labelled and stored in a plastic bag until discarded. Discard at the end of the day/shift (in a biohazard bag).

Program Evaluation

Regular evaluations (at least annually) of the respiratory protection program for the animal facility at UND will be completed by the respiratory program administrator (attending veterinarian) and a designated representative within the Office of Safety.

1. Employees will be observed in the work environment to determine whether PAPRs or N-95 or higher respirators are being properly selected, used, and maintained.
2. Problems will be solved by the selection of alternate equipment, additional training, or other appropriate means.

Training will be evaluated (at least annually) to determine if employees/students are receiving knowledge and/or skills adequate for the program. This evaluation will be conducted randomly by the respiratory program administrator and a designated representative within the Office of Safety.

RELATED INFORMATION, RESOURCES & FORMS

<table>
<thead>
<tr>
<th>29 CFR 1910.134 – Respiratory Protection</th>
<th><a href="http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&amp;SID=b3ba97816138af68d712551b0e6d724e&amp;ty=HTML&amp;h=1&amp;mc=true&amp;r=PART&amp;n=pt29.5.1910#se29.5.1910_1134">http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&amp;SID=b3ba97816138af68d712551b0e6d724e&amp;ty=HTML&amp;h=1&amp;mc=true&amp;r=PART&amp;n=pt29.5.1910#se29.5.1910_1134</a></th>
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<tr>
<td>NIOSH-Approved N95 Particulate Filtering Facepiece Respirators</td>
<td><a href="http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/n95list1.html">http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/n95list1.html</a></td>
</tr>
<tr>
<td>The National Personal Protective Technology Laboratory (NPPTL)</td>
<td><a href="http://www.cdc.gov/niosh/npptl/respusers.html">http://www.cdc.gov/niosh/npptl/respusers.html</a></td>
</tr>
<tr>
<td>UND Respiratory Protection Program</td>
<td>Contact Office of Safety</td>
</tr>
</tbody>
</table>

RESPONSIBILITIES

| Attending Veterinarian at UND | ▪ Ensure personnel within their purview are knowledgeable of the respiratory protection required for the area/operation where the work is taking place. ▪ Ensure employees/students are informed that they must comply with all facets of this respirator program, including equipment inspection and maintenance. |
### Biological Safety – Respiratory Protection for Biohazardous Agents

#### Procedures

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| **Biological Safety Officer** | - Advise the principal investigators, administration, and staff on any concern regarding biohazards and their control.  
- Perform routine inspections of animal facilities in which biohazardous activities are conducted, and report significant problems, violations, accidents or illnesses related to biohazardous activities.  
- Provide UND personnel with information about current regulations, laws, guidelines, and safety pertinent to work with biohazardous materials and animals, and coordinate/deliver training programs.  
- Serve as a liaison between the university and regulatory agencies. |
| **Employees/Students**        | - Have awareness of the respiratory protection requirements for work areas.  
- Wear the appropriate respiratory equipment according to proper instructions.  
- Maintain the equipment in a clean and operable manner. |
| **Office of Safety**          | - Overseer of the Respiratory Protection Program.  
- Coordinates medical examinations with the Designated Medical Provider.  
- Coordinates annual respirator fit tests with the Designated Medical Provider.  
- Provide orientation session on use of PAPRs for all employees and students.  
- Maintaining records required by the program. |
| **Principal Investigators/Supervisors** | Principal investigators-supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas if an N-95 or higher respirator or a PAPR unit is used. In addition to being knowledgeable about the program requirements for their own employee’s protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the principal investigator-supervisor include:  
- Ensuring that employees/students under their supervision (including new hires) have received appropriate training, fit testing and annual medical evaluation.  
- Being aware of tasks requiring the use of respiratory protection.  
- Enforcing respirators are properly cleaned, maintained, and stored according to the respiratory protection program.  
- Coordinating with the program administrator on how to address respiratory hazards or other concerns regarding the program. |
| **Designated Medical Provider** | Provide fit-testing for N-95 or higher (or other tight-fitting respirators) and maintain fit-test and respiratory protection records. |

### REVISION RECORD

<table>
<thead>
<tr>
<th>Date</th>
<th>Remarks</th>
</tr>
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<tbody>
<tr>
<td>12/02/2015</td>
<td>Procedure Implementation</td>
</tr>
</tbody>
</table>

Biological Safety Officers