

# **SOUTHERN UTAH UNIVERSITY'S RESPIRATORY PROTECTION WRITTEN PROGRAM**

December 2017

## **1.0 PURPOSE:**

Southern Utah University has determined that certain employees and students are exposed to respiratory hazards during routine operations. These hazards include, chemical vapors, certain biohazards, and other particulates. The purpose of this program is to ensure that all Southern Utah University employees and students are protected from exposure to these respiratory hazards.

Engineering controls, such as ventilation and substitution of less toxic materials, are the first line of defense at Southern Utah University; however, engineering controls are not always feasible for some of our operations, or do not always completely control the identified hazards. In these situations, respirators and other protective equipment must be used. Respirators are also needed to protect employee health during emergencies. The work activities requiring respirator use at Southern Utah University are outlined in Table 1 in the Scope and Application section of this program.

In addition, some employees have expressed a desire to wear respirators during certain operations that do not require respiratory protection. As a general policy Southern Utah University will review each of these requests on a case-by case basis. As outlined in the Scope and Application section of this program, voluntary respirator use is subject to certain requirements of this program.

## **2.0 SCOPE AND APPLICATION:**

This program applies to all SUU employees and students who are required to wear respirators during normal work operations, lab/research operations and during some non-routine or emergency operations such as a spill of a hazardous substance. Individuals who are required to wear respirators (as outlined in Table 1) must be enrolled in the Southern Utah University respiratory protection program. Employees or students who voluntarily wear filtering face pieces (dust masks) are not subject to enrollment in this program. However, they must be familiar with the information contained in Appendix D of the OSHA Respiratory Protection Program titled, "Information for Employees Using Respirators When Not Required Under the Standard" (See Appendix C of this document). When filtering face pieces are required, the OSHA respiratory protection standard and the components of this written program, apply.

**Table 1: Mandatory Respirator Use at Southern Utah University**  
**For more details please contact the Director of Safety and Risk Management at (435)586-7901.**

<b>Work Process</b>	<b>Type of Respirator</b>
<b>Chemical Hazards</b>	Full face Air-purifying Respirator (APR) Half-face Air-purifying Respirator (APR)
<b>Biohazards</b>	N95 disposable N99 disposable Powered Air-purifying Respirator (PAPR) with hood
<b>Asbestos Management</b>	Half, Full face Air-purifying Respirator (APR) or Powered Air-purifying Respirator (PAPR)
<b>Pesticide Application</b>	Powered Air-purifying Respirator (PAPR) or half face Air-purifying Respirator (APR)
<b>Emergency response</b>	Half, Full Face Air-purifying Respirator (APR), Self-Contained Breathing Apparatus (SCBA), Powered Air-purifying Respirator (PAPR)

### 3.0 DEFINITIONS

**Aerosol** – A gaseous suspension of fine solid or liquid particles.

**ANSI** - American National Standards Institute.

**Approved** - Tested and listed as satisfactory jointly by the National Institute for Occupational Safety and Health (NIOSH).

**Canister (Air-Purifying)** - A container filled with sorbents and catalysts that remove gases and vapors from air drawn through the unit. The canister may also contain an aerosol (particulate) filter to remove solid and liquid particles.

**Cartridge** - A small container filled with air-purifying media. (often activated charcoal / carbon)

**Contaminant** - A harmful, irritating, or nuisance material that is foreign to the normal atmosphere.

**Dust** – Fine, dry particles of matter.

**Exhalation Valve** - A device that allows exhaled air to leave a respiratory device and prevents outside air from entering through the valve.

**Face-piece** - That portion of a respirator that covers the wearer’s nose, mouth, and/or eyes. Designed to make a gas-tight or dust-tight fit with the face, it includes the headbands, exhalation valve(s), and connections for an air-purifying device.

**Filter** - A fibrous medium used in respirators to remove solid or liquid particles from the airstream entering the respiratory enclosure.

**Fit-Check (Negative and Positive)** - A procedure used to determine if the respirator is properly adjusted by blocking the intake port(s), the exhaust port(s) and inhaling and exhaling, respectively. This procedure should be done each time a respirator is used.

**Fume** - Airborne particulate formed by the evaporation of solid material e.g. metal fume emitted during welding.

**HEPA - High-Efficiency Particulate Air Filter** - A filter designed to remove 99.97% of airborne particulate 0.3 um in diameter.

**IDLH Atmosphere** - An atmosphere immediately dangerous to life or health (IDLH). An IDLH atmosphere poses an immediate hazard to life, such as being oxygen deficient (containing less than 19.5% oxygen), or produces an irreversible debilitating effect on health.

**Inhalation Valve** - A device that allows respirable air to enter the face-piece and prevents exhaled air from leaving the face-piece through the intake opening.

**NIOSH - National Institute for Occupational Safety and Health** - A Federal agency that tests, approves, and certifies respiratory protection equipment.

**OSHA - Occupational Safety and Health Administration** - The Federal Agency which sets the minimum requirements for respirator use.

**Particulate Matter** - A suspension of fine solid or liquid particles in air, such as dust, fog, fume, mist, smoke or sprays. Particulate matter suspended in air is commonly known as an aerosol.

**PEL** - Permissible Exposure Limit as established by the Occupational Safety & Health Administration (Fed OSHA and Cal/OSHA).

**Pesticide** - For the purpose of this manual, the terms *pesticide* and *pesticide chemical* are synonymous with *economic poison*, as defined under the United States Department of Agriculture's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

**PF - Protection Factor** - The overall protection afforded by a certain type of respirator as defined by the ratio of the concentration of contaminant outside a face-mask to that inside the equipment under conditions of use. For example: if a half-mask respirator has a protection factor of 10, it may be used for protection in atmospheres with a contaminant concentration up to 10 times the permissible exposure limit.

**Pulmonary Function Test** - Tests requiring use of an approved spirometer including forced vital capacity (FVC), the maximum amount of air that can be expired from the lung after full inhalation, and forced expiratory volume after one second (FEV<sub>1</sub>), the amount of air forcibly expired in one second.

**Qualitative Fit Test** - A test procedure to determine the effectiveness of the seal between the face-mask and the wearer's face using a challenge agent such as Bitrex, Isoamyl Acetate, Irritant Smoke or Saccharin. This is a pass/fail test, where if the individual detects the agent during the fit test, they fail; if they don't detect the challenge agent during the fit test, they pass.

**Quantitative Fit Test** - The measurement of the effectiveness of a respirator seal in the surrounding atmosphere. This test, using a PORTACOUNT, is performed by dividing the measured concentration of the dust particles in the surrounding atmosphere by the measured concentration of the particles inside the respirator face-piece.

**Resistance** - Opposition of the flow of air, as through a canister, cartridge or particulate filter.

**Respirator** - A device designed to protect the wearer from inhalation of harmful atmospheres.

**SCBA - Self-Contained Breathing Apparatus** - For the purpose of this manual, a unit designed to provide the wearer with clean air independent of the surrounding air. A supply of approved compressed air contained in a gas cylinder is carried by the wearer. SCBA units are generally restricted to types equipped with pressure-demand regulators that maintain positive pressure in a full face-mask.

**Supplied-Air Respirator** - For the purpose of this manual, a hose-mask respirator equipped with a face-piece, breathing tube, safety harness and safety line. Air is supplied through a hose connected to a compressed-air cylinder or air compressor.

**Test Subject** - A person wearing a respirator for quantitative fit testing.

**Umbilical System** - A respirator system, which includes a hose connecting the facepiece to an air supply.

**TLV - Threshold Limit Value** - A list published yearly by the American Conference of Governmental Industrial Hygienists as a guide for exposure concentrations that a healthy individual normally can tolerate for eight hours a day, five days a week, without harmful effects. Airborne particulate concentrations are generally listed as milligrams per cubic meter of air ( $\text{mg}/\text{M}^3$ ). Gaseous concentrations are listed as parts per million (ppm) by volume.

**Vapor** - The gaseous state of a substance that is solid or liquid at ordinary temperature and pressure.

#### **4.0 RESPONSIBILITIES:**

##### **Program Administrator**

The Program Administrator is responsible for administering the respiratory protection program. Duties of the program administrator include:

- Issuing and administering this program and making sure that the program satisfies the requirements of all applicable federal, state or local respiratory protection requirements.

- Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- Assisting supervisors in the selection of appropriate respiratory protection for use in their departments.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Arranging for and/or conducting training.
- Maintaining the training records of all employees including in the training sessions.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Conducting/supervising qualitative fit testing with Irritant Smoke.
- Administering the medical surveillance program.
- Maintaining records required by the program.
- Evaluating the program.
- Updating written program, as needed.
- Conducting hazard assessments where respiratory hazards may be present.
- Auditing the respiratory protection program to ensure its continued effectiveness.
- Coordinating medical examinations and maintaining associated records.
- Assuring that all equipment purchased is approved by NIOSH.

The Program Administrator for Southern Utah University is the Director of Safety and Risk Management (435) 586-7901.

### **Supervisors**

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- Knowing the hazards in their area that require respiratory protection.
- Knowing the types of respirators that need to be used.
- Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing, and annual medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Purchase appropriate respiratory protection equipment and assuring that all equipment purchased is approved by NIOSH.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan.
- Ensuring that respirators fit well and do not cause discomfort.
- Continually monitoring work areas and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.

### **Employees and Students**

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

- Only wear the respirator for the conditions specified in the Respirator Training and Fit Test Report (see Appendix A)

- Care for and maintain their respirators as instructed, and store them in a clean sanitary location.
- Inform their supervisor or Program Administrator if the respirator no longer fits well, and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.

## **5.0 PROGRAM ACTIVITIES:**

### **Selection Procedures**

The Program Administrator will assist Supervisors in the selection of respirators to be used on site, based on the hazards to which workers are exposed and in accordance with all OSHA standards. The Program Administrator and Supervisor will conduct a hazard evaluation (see Appendix G) for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

1. Identification and development of a list of hazardous substances used in the workplace, by department, or work process.
2. Review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.

The hazard evaluation may include exposure monitoring to quantify potential hazardous exposures. Monitoring will be conducted if an industrial hygienist conducting the evaluation determines that it is required. Monitoring will be contracted and performed by a certified industrial hygienist when needed.

### **NIOSH Certification**

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use.

### **Emergency Use**

Supplied air and air purifying respirators will be used depending on the emergency. Appropriate respiratory protection will be selected by the Incident commander or the Program Administrator.

### **Voluntary Respirator Use**

Filtering face piece respirators (Disposable N95, N100) are the only Voluntary Use respirators permitted by Southern Utah University. SUU will provide filtering face piece respirators at no charge to employees for voluntary use for the following work processes:

- Employees may wear Filtering face piece respirators when working in animal areas.
- Facilities Management workers may wear filtering face piece respirators for dusty operations.

The voluntary use of other types of respirators is generally not permitted. However, the Program Administrator shall authorize voluntary use of other types of respiratory protective equipment as requested by SUU employees on a case-by case basis, depending on specific workplace

conditions and the results of the medical evaluations. Voluntary users of filtering face piece respirators (N95, N100) are not required to undergo medical clearances. However, voluntary users of all other respirators are required to complete the medical clearance questionnaire and be medically cleared. Although not mandated, we strongly recommend that voluntary N95 and N100 respirator users also complete the medical clearance questionnaire to ensure that the respirator itself is not a hazard to the employee.

The Program Administrator will provide all employees who voluntarily choose to wear respirators with a copy of Appendix D of the OSHA standard (found in Appendix C of this document). Appendix D details the requirements for voluntary use of respirators by employees.

### **Medical Evaluation**

Employees who are required to wear respirators, or have special permission to voluntarily wear a reusable air-purifying respirator (APR), must pass a medical evaluation before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

Medical evaluations are provided by a physician, or other licensed healthcare professional (PLHCP) at the Cedar City Intermountain WorkMed 962 South Sage Drive.

In some cases other licensed physicians may provide the evaluation. Medical evaluation procedures are as follows:

- The medical evaluation will be conducted using the questionnaire provided in 29CFR1910.134 Appendix C of the OSHA respiratory protection standard (See Appendix D1). The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations.
- All affected employees will be given a copy of the medical questionnaire to fill out and they will bring the completed questionnaire to the medical practitioner. Employees will be permitted to fill out the questionnaire on company time.
- Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the medical practitioner.
- All employees will be granted the opportunity to speak with the medical practitioner about their medical evaluation, if they so request.

The Program Administrator has provided the Cedar City Intermountain WorkMed with a copy of this Respirator program. In addition, a letter is sent with the employee requesting a medical evaluation (see Appendix D).

In special cases where other licensed physicians provide the medical exam, the Program Administrator will provide the same information.

After an employee has received clearance and starts to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:

- Employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
- A physician informs the Program Administrator that the employee needs to be reevaluated;



- Information from the program, including observations made during fit testing and program evaluation, indicates a need for reevaluation;
- A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the physician.

### **Fit Testing**

Fit testing is required for SUU employees who are required to wear respirators and will be fit tested:

- Prior to being allowed to wear any respirator with a tight fitting face piece.
- Annually.
- When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

Employees whose facial hair interferes with the face-piece-to-face-seal will not be allowed to wear negative-pressure air-purifying respirators. Qualitative fit test procedures will conform to the methods set forth in 29CFR1910.134 Appendix A Section B.

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of PAPRs shall be conducted in the negative pressure mode if worn with a tight fitting face piece. See Appendix A for the Qualitative Respirator Fit Test Procedure and Appendix B for the Respirator Training and Fit Test Report.

### **General Use Procedures:**

Employees will use their respirators under conditions specified by this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH, or by its manufacturer, or for an exposure, or work activity that is not approved by the Program Administrator. See Appendix E for Operating Procedures and Limitations for Respiratory Equipment.

All employees wearing respirators other than filtering face piece (dust mask) or disposable N95 and N100 respirators, shall conduct user seal checks each time that they wear their respirator. Employees shall use either the positive or negative pressure check (depending on which test works best for them) specified in Appendix B-1 of the OSHA Respiratory Protection Standard (See Appendix F).

All employees shall be permitted to leave the work area to maintain their respirator for the following reasons: to clean their respirator if the respirator is impeding their ability to work, change filters or cartridges, replace parts, or to inspect respirator if it stops functioning as intended. Employees should notify their supervisor before leaving the area.



## **Respirator Malfunction**

For any malfunction of an APR (e.g., such as breakthrough, face piece leakage, or improperly working valve), the respirator wearer should inform his or her supervisor that the respirator no longer functions as intended, and obtain a replacement. The supervisor must ensure that the defective respirator is taken out of service.

All workers wearing atmosphere-supplying respirators will work with a buddy. Buddies shall assist workers who experience a Supplied-Air Respirator (SAR) malfunction as follows:

If a worker experiences a malfunction of an SAR, he or she should signal to the buddy that he or she has had a respirator malfunction. The buddy shall don an emergency escape respirator and aid the worker in immediately exiting the work area.

## **Cleaning**

Respirators (except for disposable respirators such as N95s) are to be regularly cleaned and disinfected at a suitable location.

Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary. Atmosphere supplying and emergency use respirators are to be cleaned and disinfected after each use.

### **Follow manufacturer's recommendations if they differ from the following disinfection and cleaning procedures:**

- Disassemble respirator, removing any filters, canisters, or cartridges.
- Wash the facepiece and associated parts in a mild detergent with warm water. Do not use organic solvents.
- Rinse completely in clean warm water.
- Wipe the respirator with disinfectant wipes (70% Isopropyl Alcohol) to kill germs.
- Air dry in a clean area.
- Reassemble the respirator and replace any defective parts.
- Place in a clean, dry plastic bag or other air tight container.

Note: The employee's supervisor will ensure an adequate supply of appropriate cleaning and disinfection material at the cleaning station. If supplies are low, employees should contact their supervisor who will order the needed supplies.

## **Maintenance**

Respirators are to be properly maintained at all times in order to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer.

Inspection of the respirator must be conducted before every use. The following checklist will be used when inspecting respirators:

### **Face piece:**

cracks, tears, or holes  
facemask distortion  
cracked or loose lenses/face shield

**Head straps:**

breaks or tears  
broken buckles

**Valves:**

residue or dirt  
valve distortion  
cracks or tears in valve material

**Filters/Cartridges:**

NIOSH approval designation  
gasket integrity  
cracks or dents in housing  
proper cartridge for hazard

**Air Supply Systems:**

breathing air quality/grade  
condition of supply hoses  
hose connections  
settings on regulators and valves

**Cartridge Change Schedules**

Respirator users are informed of the proper cartridge change schedule during annual training and are asked to follow the recommendations set forth by the respirator and cartridge manufacturer. If you have questions about filter and/or cartridge replacements, please contact the Program Administrator (435)586-7901.

**Storage**

Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program and will store their respirator in a plastic bag in their own emergency response bag or other suitable location.

**Defective Respirator**

Respirators that are defective or have defective parts shall be taken out of service and given to the Program Administrator. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor. Supervisors will give all defective respirators to the Program Administrator who will decide whether to

- Temporarily take the respirator out of service until it can be repaired.
- Perform a simple fix on the spot such as replacing a head strap.
- Dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of similar make, model, and size. All tagged out respirators will be kept in the Program Administrator's office.

**Training**

The Program Administrator and qualified Supervisors will provide training to respirator users on the contents of the SUU Respiratory Protection Program and their responsibilities under it, and on the OSHA Respiratory Protection standard. Workers will be trained prior to using a respirator in the workplace. Supervisors will also be trained prior to using a respirator in the workplace or prior to supervising employees that must wear respirators.

The training course will cover the following topics:

- The SUU Respiratory Protection Program
- The OSHA Respiratory Protection standard
- Respiratory hazards encountered at SUU and their health effects
- Proper selection and use of respirators
- Limitations of respirators
- Respirator donning and user seal (fit) checks
- Fit testing
- Emergency use procedures (if applicable)
- Maintenance and storage
- Medical signs and symptoms limiting the effective use of respirators

Employees will be retrained annually or as needed (e.g., if they change departments and need to use a different respirator). Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises, i.e. correctly donning and doffing the respirator. Respirator training will be documented by the Program Administrator and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

## **6.0 PROGRAM EVALUATION**

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records. These findings will be reported to employee's supervisor and will specify corrective actions and target dates for the implementation of those corrections.

## **7.0 DOCUMENTATION and RECORDKEEPING**

A written copy of this program and the OSHA standard is kept in the Program Administrator's office. It is available to all employees who wish to review it.

Also maintained in the Program Administrator's office are copies of training and fit test records. These records will be updated when: new employees are trained, existing employees receive refresher training, and as new fit tests are conducted.

The Program Administrator will also maintain copies of the medical clearance records for all employees covered under the respirator program. The completed medical questionnaire and documented findings are confidential and will remain with the appropriate medical practitioner. The Program Administrator will only retain written recommendation regarding each employee's ability to wear a respirator.

## **8.0 APPENDICES**

Appendix A: Qualitative Respirator Fit Test Procedure  
Appendix B: Respirator Training and Fit Test Report  
Appendix C: Information for Employees who Voluntarily Use Respirators  
Appendix D: Letter Requesting Medical Evaluation for Respirator Use  
Appendix D1: Medical Evaluation Form  
Appendix E: Operating Procedures and Limitations for Respiratory Equipment  
Appendix F: Positive and Negative User Seal Check Procedure  
Appendix G: Respiratory Hazard Assessment Form

## Appendix A: Qualitative Respirator Fit Test Procedure

The test subject shall perform exercises, in the test environment, in the following manner:

- (1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
- (2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- (3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
- (4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- (5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

### **Rainbow Passage**

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

(7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments that do not permit bending over at the waist.

(8) Normal breathing. Same as exercise (1).

The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated. If the wearer smells the test odor, tastes the flavoring, or experiences irritation, the fit is faulty and another size or style mask must be obtained, or the unit adjusted until a fit is obtained.

## Appendix B Respirator Training and Fit Test Report

### Respirator Training

Name of person trained/tested: \_\_\_\_\_

Person's organization/employer: \_\_\_\_\_

The individual named above has successfully completed:     initial             refresher respiratory protection training for use of the respirator(s) listed in the fit test report below. The training included the elements required by the OSHA respiratory protection standard (29 CFR 1910.134(K)).

Name of trainer: \_\_\_\_\_

Signature of trainer \_\_\_\_\_ Date \_\_\_\_\_

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### Fit Test Report

Test method: Qualitative Respirator Fit Test Procedure (Appendix A)

Test date: \_\_\_\_\_

Model(s): \_\_\_\_\_

Respirator manufacturer: \_\_\_\_\_

Mask style(s): \_\_\_\_\_ Size \_\_\_\_\_ NIOSH approval # \_\_\_\_\_

Exercises	<u>Pass?</u>	
	Yes	No
Normal breathing	___	___
Deep breathing	___	___
Head side-to-side	___	___
Head up and down	___	___
Talking	___	___
Bend and touch toes/step in place	___	___
Normal breathing	___	___

Name of fit tester: \_\_\_\_\_

Signature of fit tester \_\_\_\_\_ Date \_\_\_\_\_

Signature of employee \_\_\_\_\_ Date \_\_\_\_\_

Employee's signature indicates the employee has undergone respirator training and fit testing.

Fit tester: Give one copy to this report to the Program Administrator and give the original to the employee.

## **APPENDIX C**

### **Information for Employees who Voluntarily Use Respirators**

APPENDIX D to Sec. 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 respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. Keep it in a clean place, and discard or clean it when it becomes visibly dirty or you suspect it might be contaminated.

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Program Administrator: \_\_\_\_\_ Date: \_\_\_\_\_



## **Appendix D:**

### **Letter Requesting Medical Evaluation for Respirator Use**

To: To whom it may concern

From:

Date:

Re: Medical evaluation for respirator use.

\_\_\_\_\_, a Southern Utah University employee, is required to wear a respirator at work. Southern Utah University requests that you provide this employee with a medical evaluation that meets the requirements outlined in the Occupation Health and Safety Administration's Respirator Standard, 1910.134 paragraph (e). Please follow this procedure when you examine this employee.

We request that you provide the SUU Director of Safety and Risk Management with a signed statement on letterhead indicating that the employee is medically able to wear a respirator under the conditions described. Please feel free to contact me if you have any questions.

Michael Humes  
Director of Safety and Risk Management  
Southern Utah University  
351 West University Blvd.  
Cedar City, Utah 84720  
(435)586-7901  
[humes@suu.edu](mailto:humes@suu.edu)

Encl.: 1910.134 (e) and OSHA Respirator Medical Evaluation Questionnaire

## REGISTRATION INFORMATION

(Required For NON-DOT Drug Screen Donors Only)

Client ID (SSN): _____		
Last Name: _____	First Name: _____	MI: _____
Address: _____	City: _____	State: _____ Zip Code: _____
Home Phone: _____	Cell Phone: _____	
Birth Date (M/D/Y): _____	Gender: <input type="radio"/> Female <input type="radio"/> Male	
Company: _____	Department: _____	
Work Phone: _____	Ext: _____	Supervisor: _____
What is your preferred language? _____		
Do you request interpretation services? <input type="radio"/> Yes <input type="radio"/> No		
For Drug Screens: <input type="radio"/> Photo ID Verified <input type="radio"/> Collector Initials _____		

### CONSENT FOR SERVICES

**NON-DOT Drug and Alcohol Testing at Intermountain WorkMed:** If I am here for a drug or alcohol test, I hereby authorize Intermountain WorkMed to release my specimen to an independent forensic toxicology laboratory designated by my employer/potential employer. I understand that the laboratory will perform tests for drugs and/or alcohol on samples of my urine, blood, or hair. I further authorize release of the test results to the designated representatives of my employer/potential employer. If requested, I agree to sign a separate Authorization to release the information. If applicable, I understand that Intermountain WorkMed follows manufacturer recommendations for the conduct and interpretation of Rapid Drug Screens and verifies each non-negative result with a certified laboratory before reporting the test as positive. I understand and agree that Intermountain WorkMed is not responsible for the work of any independent lab that may perform such tests. I agree that Intermountain WorkMed is not responsible for any actions my employer/potential employer may take or not take as the result of receiving the results of any test. I agree to notify Intermountain WorkMed of any information that I consider relevant to the test, including identification of currently or recently used prescription or nonprescription drugs, or other relevant medical information. I understand that I will not have a physician – patient relationship with Intermountain WorkMed as the result of the test and that Intermountain WorkMed will not release the results of the test to me.

**Responsibility:** I understand that if I am here for an injury and workers compensation is denied for any reason, I am financially responsible for charges incurred in connection with all visits related to the injury, including costs, expenses, and reasonable attorney's fees if this matter is placed for collection.

I acknowledge that I have been offered or received a copy of the current Intermountain Healthcare Notice of Privacy Practices.

**Signature:** \_\_\_\_\_

**Date (M/D/Y):** \_\_\_\_\_

NPP Given \_\_\_\_\_

Can you read well enough to answer the questionnaire? Yes / No

Today's Date \_\_\_\_\_ Name \_\_\_\_\_ Date of Birth \_\_\_\_\_

Age \_\_\_\_\_ Gender:  Male  Female Height: \_\_\_\_\_ feet \_\_\_\_\_ inches Weight: \_\_\_\_\_ pounds (lbs)

Phone Number (include area code) \_\_\_\_\_ Best time of day to call \_\_\_\_\_ Job Title \_\_\_\_\_

1. Has your employer informed you about how to contact the health care professional who will review this questionnaire?  Yes  No
2. Check the type of respirator you will be using (select all that apply):
  - N, R, or P disposable respirator, filter mask, non-cartridge type only
  - Other type—half or full face piece type, powered air purifying, supplied air, self-contained breathing apparatus, etc.
3. Do you currently smoke tobacco, or have you smoked tobacco in the last month?  Yes  No

YES	NO	Have you ever had any of the following conditions?
<input type="checkbox"/>	<input type="checkbox"/>	Seizures (fits)
<input type="checkbox"/>	<input type="checkbox"/>	Diabetes
<input type="checkbox"/>	<input type="checkbox"/>	Allergic reactions that interfere with your breathing
<input type="checkbox"/>	<input type="checkbox"/>	Claustrophobia (fear of closed-in places)
<input type="checkbox"/>	<input type="checkbox"/>	Trouble smelling orders

YES	NO	Do you currently take medication for any of the following problems?
<input type="checkbox"/>	<input type="checkbox"/>	Breathing or lung problems
<input type="checkbox"/>	<input type="checkbox"/>	Heart problems
<input type="checkbox"/>	<input type="checkbox"/>	Blood pressure
<input type="checkbox"/>	<input type="checkbox"/>	Seizures (fits)

YES	NO	Have you ever had any of the following pulmonary or lung problems?	YES	NO	Have you ever had any of the following pulmonary or lung problems?
<input type="checkbox"/>	<input type="checkbox"/>	Asbestosis	<input type="checkbox"/>	<input type="checkbox"/>	Silicosis
<input type="checkbox"/>	<input type="checkbox"/>	Asthma	<input type="checkbox"/>	<input type="checkbox"/>	Pneumothorax (collapsed lung)
<input type="checkbox"/>	<input type="checkbox"/>	Chronic bronchitis	<input type="checkbox"/>	<input type="checkbox"/>	Lung cancer
<input type="checkbox"/>	<input type="checkbox"/>	Emphysema	<input type="checkbox"/>	<input type="checkbox"/>	Broken ribs
<input type="checkbox"/>	<input type="checkbox"/>	Pneumonia	<input type="checkbox"/>	<input type="checkbox"/>	Chest injuries or surgeries
<input type="checkbox"/>	<input type="checkbox"/>	Tuberculosis			
<input type="checkbox"/>	<input type="checkbox"/>	Any other lung problem, list problem(s) here _____			

YES	NO	Do you currently have any of the following symptoms of pulmonary or lung illness?
<input type="checkbox"/>	<input type="checkbox"/>	Shortness of breath
<input type="checkbox"/>	<input type="checkbox"/>	Shortness of breath when walking fast on level ground or walking up a slight hill or incline
<input type="checkbox"/>	<input type="checkbox"/>	Shortness of breath when walking with other people at an ordinary pace on level ground
<input type="checkbox"/>	<input type="checkbox"/>	Having to stop for breath when walking at your own pace on level ground
<input type="checkbox"/>	<input type="checkbox"/>	Shortness of breath when washing or dressing yourself
<input type="checkbox"/>	<input type="checkbox"/>	Shortness of breath that interferes with your job
<input type="checkbox"/>	<input type="checkbox"/>	Coughing that produces phlegm (thick sputum)
<input type="checkbox"/>	<input type="checkbox"/>	Coughing that wakes you early in the morning
<input type="checkbox"/>	<input type="checkbox"/>	Coughing that occurs when you are lying down
<input type="checkbox"/>	<input type="checkbox"/>	Coughing up blood in the last month
<input type="checkbox"/>	<input type="checkbox"/>	Wheezing
<input type="checkbox"/>	<input type="checkbox"/>	Wheezing that interferes with your job
<input type="checkbox"/>	<input type="checkbox"/>	Chest pain when you breathe deeply
<input type="checkbox"/>	<input type="checkbox"/>	Any other symptoms that you think may be related to lung problems

YES	NO	Have you ever had any of the following?	YES	NO	Have you ever had any of the following?
<input type="checkbox"/>	<input type="checkbox"/>	Heart attack	<input type="checkbox"/>	<input type="checkbox"/>	Swelling in your legs or feet, not caused by walking
<input type="checkbox"/>	<input type="checkbox"/>	Stroke	<input type="checkbox"/>	<input type="checkbox"/>	Heart arrhythmia (heart beating irregularly)
<input type="checkbox"/>	<input type="checkbox"/>	Angina (chest pain)	<input type="checkbox"/>	<input type="checkbox"/>	High blood pressure
<input type="checkbox"/>	<input type="checkbox"/>	Heart failure			
<input type="checkbox"/>	<input type="checkbox"/>	Any other heart problem, list problem(s) here _____			

9.	YES	NO	Have you ever had any of the following cardiovascular or heart symptoms?
	<input type="checkbox"/>	<input type="checkbox"/>	Frequent pain or tightness in your chest
	<input type="checkbox"/>	<input type="checkbox"/>	Pain or tightness in your chest during physical activity
	<input type="checkbox"/>	<input type="checkbox"/>	Pain or tightness in your chest that interferes with your job
	<input type="checkbox"/>	<input type="checkbox"/>	Your heart skipping or missing a beat, in the past two years
	<input type="checkbox"/>	<input type="checkbox"/>	Heartburn or indigestion that is not related to eating
	<input type="checkbox"/>	<input type="checkbox"/>	Heart arrhythmia (heart beating irregularly)
	<input type="checkbox"/>	<input type="checkbox"/>	High blood pressure
	<input type="checkbox"/>	<input type="checkbox"/>	Any other symptoms that you think may be related to heart or circulation problems

10. Have you ever worn a respirator?  Yes (please answer questions below)  No (skip to question 11)

Type(s) of respirator worn \_\_\_\_\_

	YES	NO	Did you have any of the following problems while using your respirator?
	<input type="checkbox"/>	<input type="checkbox"/>	Eye irritation
	<input type="checkbox"/>	<input type="checkbox"/>	Skin allergies or rashes
	<input type="checkbox"/>	<input type="checkbox"/>	Anxiety
	<input type="checkbox"/>	<input type="checkbox"/>	General weakness or fatigue
	<input type="checkbox"/>	<input type="checkbox"/>	Any other problem that interfered with your use of a respirator

Questions 11-16 are only required for employees who have been selected to use either a full face piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering questions 11-16 is voluntary.

11. Have you ever lost vision in either eye?  Yes, temporarily  Yes, permanently  No

12.	YES	NO	Do you currently have any of the following vision problems?	YES	NO	Do you currently have any of the following hearing problems?
	<input type="checkbox"/>	<input type="checkbox"/>	Wear contact lenses	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty hearing
	<input type="checkbox"/>	<input type="checkbox"/>	Wear glasses	<input type="checkbox"/>	<input type="checkbox"/>	Wear a hearing aid
	<input type="checkbox"/>	<input type="checkbox"/>	Color blind	<input type="checkbox"/>	<input type="checkbox"/>	Any other ear or hearing problem, list problem(s) here
	<input type="checkbox"/>	<input type="checkbox"/>	Any other eye or vision problem, list problem(s) here			

13. Have you ever had an injury to your ears, including a broken ear drum?  Yes  No

14. Have you ever had a back injury?  Yes  No

15.	YES	NO	Do you currently have any of the following musculoskeletal problems?	YES	NO	Do you currently have any of the following musculoskeletal problems?
	<input type="checkbox"/>	<input type="checkbox"/>	Weakness in any of your arms, hands, legs, or feet	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty fully moving your head side to side
	<input type="checkbox"/>	<input type="checkbox"/>	Back pain	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty squatting to the ground
	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty fully moving your arms and legs	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty climbing a flight of stairs or a ladder
	<input type="checkbox"/>	<input type="checkbox"/>	Pain or stiffness when you lean forward or backward at the waist	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty carrying more than 25 pounds
	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty fully moving your head up or down	<input type="checkbox"/>	<input type="checkbox"/>	Any other muscle or skeletal problem that you think may interfere with using a respirator

16. Would you like to talk about your answers to this questionnaire with the healthcare professional who will be reviewing it?  Yes  No

Healthcare Professional Comments \_\_\_\_\_

Healthcare Professional Signature \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Examiner Signature \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## Appendix E

### Operating Procedures and Limitations for Respiratory Equipment

#### Disposable Filtering Face-pieces (N-95 Units)

**Use of N-95s** – The usefulness of N-95 units is primarily found in a couple of main areas. 1) Nuisance type particulates (i.e. dust, cobwebs, mixing chemical powders, etc.) 2) For use in work conditions where one may be working around viruses, bacteria, etc. (i.e. BSL3, Student Health Services, etc.). Occasionally these units (specific types) can be used while working with particulate hazards in addition to nuisance level organic vapors below OSHA's Permissible Exposure Limit.

**Limitations** - Disposable filtering face-pieces offer limited protection due to poor sealing characteristics inherent in their design. Since they provide no protection against gases and vapors and supply no oxygen, they cannot be used in atmospheres with gases or vapors or in oxygen deficient areas. Neither can they be worn for protection against toxic contaminants, nor when facial hair extends under the face-piece sealing area.

**Policy** - N-95 filtering face-pieces (single-use respirators) fall under the category of “respirators” by definition and should be treated as such for worker protection.

It is important to note that any filtering face-piece containing the “NIOSH” label is considered a respirator, and falls under the same requirements as half face and full face respirators for medical clearance and fit tests. However, there are some “dust masks” that do not contain a “NIOSH” label and do not require a medical clearance and respirator fit test.

**Procedure** - To put on and adjust an N-95 respirator:

1. Position the respirator in your hands with the nosepiece at your fingertips.
2. Cup the respirator in your hand, with the nosepiece at your fingertips, allowing the headbands to hang freely below your hand.
3. Position the respirator under your chin with the nosepiece up. The top strap goes over your head, resting high at the top back of your head. The bottom strap is positioned around the neck and below the ears. The straps do not cross over one another. If there is only 1 headband, it should rest high at the back of your head.
4. Most disposable respirator models have a metal nose clip. Place your fingertips from both hands at the top of the metal nose clip. Slide your fingertips down both sides of metal nose strip to mold the nose area to the shape of your nose.
5. Checking the fit – First place both hands completely over the respirator, then take a quick breath in to check whether the respirator seals tightly to the face. Be careful not to disturb the position of the respirator. Next, place both hands completely over the respirator and exhale. If during either step, air leaks around the nose, readjust the nosepiece as described above and if this does not solve the leak issue, try a different N-95 respirator.



#### Air-purifying Half-Face Respirators

**Availability and Types for Use** - Reusable half-face respirators are the most commonly used type of respirator. Half-face respirators are air-purifying devices that cover the nose, mouth, and chin. The face-piece is equipped with either cartridges that capture gases and vapors, and/or filters which capture particles, filtering the air as the user breathes. Each cartridge or filter is made for a specific gas, vapor, or particle hazard, with some offering protection against a combination of hazards.

**Limitations** - Since this type of respirator does not supply air, it cannot be used in oxygen deficient atmospheres, in IDLH atmospheres, or in confined spaces. It can only be used for protection against the contaminants listed on the cartridge or the manufacturer's cartridge selection chart at known concentrations. The half-face has a protection factor of 10, allowing the wearer to only be exposed to a specific contaminant at concentrations less than 10 times the allowable limits (PEL). It cannot be used against natural gas or vapors with poor warning properties. The wearer



should leave an area immediately if the smell of gas or vapor is detected inside the mask or if the breathing resistance increases.

The half-face respirator cannot be worn when facial hair extends under the face-mask sealing area.

**Procedure** - To put on and adjust a half-face respirator:

1. Inspect your respirator: Make sure both inhalation and exhalation valves are in place on the mask. Check for any signs of wear or deterioration.
2. Hold the mask so the narrow nose-cup points upward.
3. Grasp both of the lower mask straps and hook them behind the neck; place the top cradle straps on the top of and behind the head.
4. Before using your respirator, check for leaks by performing both positive- and negative pressure *checks*:



Positive Pressure and Negative Pressure User Seal check (Appendix F):

## Air Purifying Full Face Respirators

**Availability and Types For Use** - Full face respirators provide more protection than half-face because their shape allows a better mask-to-face seal. The addition of a face-piece protects the eyes from irritating chemicals, splashes, or particulate atmospheres. Full face respirators are equipped with selective types of air-purifying cartridges or filters - dependent upon the protection required - to capture dust, mists, fumes, or gas and vapor hazards.

**Limitations** - Air-purifying full face respirators have the same limitations for use as half face respirators. Since they do not supply air, they cannot be used in oxygen deficient atmospheres or temperature extremes, in IDLH atmospheres, or in confined spaces. The full face respirator has a protection factor of 50, only allowing the wearer to be exposed to a specific contaminant at concentrations less than 50 times the allowable limits (PEL).

Standard eyeglasses interfere with the mask-to-face seal; therefore, the wearer should obtain an additional pair of prescription lenses attached to a spectacle mount kit for installation into the mask. The spectacle kits are available through EH&S and the prescription lenses are available from an outside eye Dr. (ask Occupational Health Services for details).

**Procedure** - To put on a full face respirator:

1. Inspect your respirator. Check for any signs of wear or deterioration. Make sure the appropriate cartridges or filters are securely attached and that the expiration date of the filters has not passed.
2. Loosen all straps; pull the harness over the head and place the chin in the chin cup.
3. Pull the head harness well down on the back of the head.
4. Tighten the harness gently, starting with the bottom straps and then the middle and top straps.
5. Before using your respirator, check for leaks by performing the positive- and negative pressure checks described in the half-face section of this booklet.
6. Return the respirator to Occupational Health Services for maintenance or for replacement if it becomes damaged or shows signs of wear.



## Powered Air Purifying Respirators (PAPR); Loose & Tight Fitting Face-pieces

**Availability and Types For Use** - Powered Air Purifying Respirators (PAPR) are belt-mounted, battery-operated blower respirators. Contaminated air is filtered through a cartridge, filter, or cartridge/filter combination, while a constant supply of purified / filtered air is delivered to the face-piece. Since the blower has rechargeable batteries, it can be reused with the addition of a freshly charged battery. Tight and loose fitting face-pieces are approved by NIOSH, and available at UC Davis.



**Limitations** - A PAPR with a belt-mounted blower and selected cartridges cannot be used in oxygen-deficient atmospheres, in IDLH atmospheres, or for protection against gases or vapors. The batteries should be fully charged before using the blower. The protection factor varies depending upon the face piece. It cannot be used in emergency situations.

**Procedure** - To use a powered air purifying respirator, each time:

1. Inspect your equipment. Check for any signs of wear or deterioration. Make sure the appropriate cartridge(s)/filter(s) are securely attached.
2. Ensure that appropriate airflow is achieved by using a manometer and following manufacturer's guidelines.
3. Mount the unit on your waist and adjust the belt until it is comfortable.
4. Put on the face mask.
5. Turn the blower on. Air will flow into the mask.

Note: There are certain brands that have the fan motor/blower and filter at the center nosepiece of the mask instead of on the belt.

## Air Supplied Airline Respirators

Air supplied airline respirators are used when fresh supplied air from a tank is necessary during work operations. Typical applications for these units would be working in an environment that would require clean air with fresh oxygen that an Air Purifying Respirator could not provide. When using these devices it is important to ensure that the location of the air tank is not near a source of carbon monoxide or any other air contaminant, and that the tank has appropriate Grade D air as described by the compressed gas association.



## Self-Contained Breathing Apparatus (SCBA)

**Availability and Types For Use** - Self-Contained Breathing Apparatus (SCBA) units provide the user with a supply of Grade D breathing air regardless of ambient air contamination. They may be used in atmospheres unsuitable for air-purifying respirators. This includes use in IDLH atmospheres and for emergencies where breathing hazards may exist and mobility is essential. SCBA units may be used in IDLH atmospheres only in conjunction with a positive-pressure full face-mask, and a five-minute escape breathing air apparatus. All employees using SCBA require specialized training.



Departments utilizing SCBA units must purchase their own EH&S-approved equipment. Though purchased by the department, the use of such equipment by university personnel comes under the control of the UCD Respiratory Protection Program administered by EH&S.

**Limitations** - The air supply in a standard SCBA cylinder is normally rated for between a 30 and 60 minute duration; however, heavy exertion and stress will increase breathing rates and deplete the air in less than the original available time; usually in half the time. *When the alarm bell on the unit sounds and the light flashes, the wearer has a quarter of the air supply remaining.* No one should work alone in hazardous atmospheres-a standby with SCBA and proper communications equipment should always be nearby. The positive-pressure full face-mask used with the SCBA unit cannot be worn when facial hair extends under the face-piece sealing area of the mask.

**Procedure** -To use a Self-Contained Breathing Apparatus (SCBA):

1. Remove the unit from its case or cabinet and inspect it carefully to ensure that it is operating properly before putting it on. Follow the instructions specified by the SCBA manufacturer for air-cylinder operation.
  - Check the cylinder gauge for a “full” indication.
  - Check the connection between the cylinder and the regulator.
2. Put on the SCBA unit and adjust the harness.
3. Check hoses and overall condition of the mask (straps, lens, etc.).
4. Put the mask on and adjust it. Start with the bottom straps, and then the top straps (pull the top strap snug, not tight).
5. Place your palm over the inhalation opening of respirator and inhale slowly until the mask is drawn toward your face; hold your breath for 10 seconds to see whether there is any leakage in the mask-to-face seal.
6. With your palm still over the opening of the exhalation valve, exhale, noting whether there is any leakage around the face-piece. This step also clears the exhalation valve.
7. Make the air connection to the regulator.
8. *Always switch the regulator to positive-pressure mode (up) before entry into an IDLH atmosphere.*
9. Inspect the SCBA unit at least monthly to ensure proper operation for emergency use. Document your inspections (see Appendix F, *Monthly Maintenance Checklist for SCBA units*).



**Pressure-Demand Regulator** - The pressure-demand regulator minimizes any chance of contaminants leaking into the mask during inhalation because the entire face-mask is kept at positive pressure in relation to the surrounding atmosphere. A special full face-mask equipped with a positive-pressure exhalation valve is held closed by air pressure to prevent contaminants from leaking into the face-piece during inhalation. Because proper performance of the pressure demand regulator is essential to the wearer’s protection, any problems with the regulator must be immediately reported to EH&S.

## **Respiratory Protection against M. tuberculosis**

*Availability and Types for Use* - The use of NIOSH-certified respirators equipped with HEPA filters by all workers potentially exposed, in conjunction with an effective respiratory protection program should be used in health-care settings for protection against M. tuberculosis.

*Assignment of Responsibility* - Supervisory responsibility for the respiratory protection program should be assigned to designated persons with expertise in issues relevant to the program, including Occupational Health Services. Respirator wearers and supervisors should receive training in the reasons for needing to wear their respirator and the potential risks of not doing so. Health care workers should undergo fit testing to identify a respirator with an adequate fit. In addition, the employee should receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. The program should be completely evaluated at least annually.

## **Specialized Respiratory Protection Equipment**

Umbilical respirators supply clean air through a hose attached to a compressor, or a tank of compressed air. As the user inhales, air flows into the respirator. Use of an umbilical air-line system may be permitted in an IDLH atmosphere under certain conditions.

All supplied air systems used for respiratory purposes must meet a minimum quality and purity of air as stated in the California Code of Regulations; Title 8, Section 5144. Should the above type of protective equipment, or other specialized equipment be required, contact EH&S for an evaluation.

## Appendix F Positive and Negative Pressure User Seal Check

**Positive-Pressure (User Seal) Check** - Block the exhaust port with the heel of your hand and exhale with enough force to cause a slight positive pressure inside the face-piece. If the face-piece bulges slightly and no air leaks between the face and face-piece are detected, a proper fit has been obtained.



**Negative-Pressure (User Seal) Check** - Block the intake port(s) with your palms and inhale for five to ten seconds. If the face-piece collapses slightly and no air leakage is detected between your face and the face-piece, a proper fit has been obtained.



