

# RESPIRATORY PROTECTION PROGRAM

## Introduction

The provisions of the Respiratory Protection Program are per the requirements listed in the Federal Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.134, as enforced at Western Kentucky University (WKU) by the Commonwealth of Kentucky Labor Cabinet.

## Scope

The following program establishes guidelines for safe practice in the use of respiratory protective devices at WKU. "At WKU" includes maintenance, academic, or research functions performed on WKU property or done by/for the purpose of representing WKU. This Respiratory Protection Program will address methods to protect WKU or eliminate inhalation hazards that are at or above the recommended safe exposure limits. WKU will use the hierarchy of hazard controls to minimize exposure levels before respiratory protection is used. This will include: elimination of hazard (ventilation), substitution of a non-hazardous or lesser hazardous substance, changing procedures, and training. Only in an emergency or during the time that engineering controls are being implemented, or the hazard cannot be eliminated will respiratory protection be used.

This program applies to all use of respirators, voluntary or mandatory, regardless of frequency of use, reason for use, or duration of use.

## Respiratory Protection Devices

Respirators are devices that protect against harmful chemicals, vapors, dusts, fumes, mists, smokes, or sprays. Some respirators provide air from a tank or an airline hose (atmosphere-supplying); others provide a filter, cartridges, or canisters to remove the contaminants in the air as you breathe in (air purifying). Respirators can also be classified as tight-fitting or loose-fitting. Some respirator facepieces are considered elastomeric meaning they are constructed from Natural or Synthetic Rubber and form a tight seal on the face. Respirators come in all sizes and shapes from quarter face (covering just nose and mouth), half face (covering the lower face), to full face (covering the complete face). Respirators provide protection based on the fit of the respirator to the face it is working to seal. Based on the mask type, size, and proper seal will determine the approved fit factor.

## Responsibilities

### Environmental Health & Safety (EHS)

Department of Environmental Health & Safety is responsible for administering the respiratory Protection Program by:

- Providing assistance in evaluating operations which may require respirator usage
- Conducting training.
- Conducting qualitative fit testing.
- Make available the medical questionnaire.
- Conducting exposure air monitoring when necessary, and maintaining these records. Air monitoring results will be available for affected workers.
- Maintaining training records and fit testing records required by the program.
- Providing consulting services for respirator protection matters.
- Evaluating and updating written program, as needed.

### **Supervisors, Managers, Professors, Instructors, and Principal Investigators (hereafter, 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 protection, supervisors must also ensure that the program is set in place and followed by:

- Coordinating with EHS on evaluating new or non-routine operations that may present respiratory hazards and obtaining assistance in selecting respiratory protection devices if needed.
- Being aware of tasks requiring the use of respiratory protection.
- Identifying persons in their charge who may need respiratory protective equipment.
- Ensuring that those under their supervision have received appropriate training, fit testing, and medical evaluation.
- Ensuring the availability of appropriate respirators and accessories for employees.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are cleaned, maintained, and stored according to the Respiratory Protection Plan.
- Notifying EH&S of any voluntary use of respiratory protection.
- Continually monitoring work areas and operations to identify respiratory hazards.

### **Employees**

*(The term Employee includes anyone who is compensated by WKU in his or her daily activities.)*

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

- Be approved by Supervisors for use of a respirator.
- Complete the required medical questionnaire accurately and be evaluated by a qualified physician or other licensed health care professional.
- Use only specific respiratory protective devices for which they have received training and fit testing.
- Inspect respirator before each use, ensure proper fit, and wear as instructed.
- Guard against damage to respirator.
- Care for and maintain respirators as instructed, store them in a clean, sanitary location.
- Clean and sanitize reusable respirators after each use before storing.
- When using a disposable respirator discard as directed, primarily single use.

- Avoid using respirators when defective, misshaped, and degraded or can no longer form a good seal around the user's face.
- Report any malfunction of the respirator to his/her supervisor.
- Inform their supervisor or EHS of any respiratory hazards that they feel are not adequately addressed in the workplace, and of any other concerns they have regarding the program.

## **Students**

Students are responsible for following all health and safety standards and rules. Students, who in their role as students, participate in the Respiratory Protection Program must comply and potentially be responsible for cost of medical evaluation and respiratory protection equipment. Students must:

- Have approval before using respirators of any kind.
- Have medical evaluation and fit test before usage of respirator.
- Sign voluntary use sheet for nuisance mask.
- Be trained when to use a respirator, how to use, how to clean, and maintain the respirator.
- Understand limitations of respirator.
- Maintain for personal use only.
- Inspect before each use, ensure proper fit, and wear as instructed.
- Report any concerns to their PI or professor.

## **Professors, Instructors, Graduate Assistants**

Professors, Instructors, and Graduate Assistants who are in charge of students must first use all means of implementing administrative controls, or engineering controls to rule out the possibility of respirator use. Contact EH & S for evaluation or assistance for operations that may present a respiratory hazard. Respirators, like all personal protective equipment, are a last resort for protection.

## **General Requirements**

WKU's Respiratory Protection Program have adopted the Occupational Health & Safety Standard 29 CFR 1910.134 as a guideline to follow for selecting respirators based on:

- The type of hazard to which the worker will be exposed;
- Reasonably estimated or evaluated concentration of the contaminant; and
- Pertinent OSHA standards (substance-specific health standards)

## **Only NIOSH approved respirators are to be used.**

Before wearing an elastomeric respirator at WKU, the user must first pass a medical exam that states the user is capable of wearing a respirator. The user is to be instructed and trained in the proper use of respirators and their capabilities and limitations. Training is initially and annually, thereafter.

This training may be conducted by an appropriate manufacturer's representative, EHS, or other qualified individuals.

User shall conduct user seal checks each time that they wear respirator. Positive or negative pressure checks shall be performed, as applicable.

Tight-fitting respirators are not to be worn if employees have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good seal. Employees are not permitted to wear headphones, jewelry, or other articles that may interfere with the face piece-to-face seal.

### **Voluntary Use**

Employees and students may express a desire to wear a respirator when performing tasks that do not require respiratory protection. Employees will make their desire know to their supervisors. The supervisor with the assistance of EHS will review the request for approval by ensuring that the employees' health or safety will not be jeopardized. The "Voluntary Use Form" (Appendix C) must be signed and kept on file with their supervisors or with EHS. Any employee who voluntarily wears a NIOSH approved elastomeric respirator (reusable) when a respirator is not required is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program, and must be provided with "Voluntary Use Form". ("Information for Employees Using Respirators When Not Required Under the Standard"). When a filtering facepiece (dust mask) is chosen voluntarily, precautions must be taken to ensure that the limitations of the dust mask are understood and that these masks are to be disposed of properly after use. Dust masks protect against dust particulates such as wood dust, pollen, or nuisance dust. In a health care setting, workers use them to protect against aerosolized droplets released from sick patients. Dust masks are not to be shared between users: discard the mask if it becomes soiled, difficult to breath, or it becomes damp. Do not stored for reuse.



Elastomeric air purifying respirator



Filtering facepiece, dust mask

### **Training**

In order to comply with user training requirements of the OSHA Respiratory Protection Program the following topics must be disclosed with users initially and annually thereafter.

- The reasons for the need of respiratory protection.
- The nature, extent, and effects of respiratory hazards to which one may be exposed.
- How improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- An explanation of the operation, capabilities, and limitations of the respirator.
- How to inspect, put on and remove, use, and check the seals of the respirator.

- What the procedures are for maintaining and storage of the respirator.
- How and when to change-out the cartridges.
- Instructions on how to recognize and cope with emergencies, including when the respirator malfunctions.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator.

## **Cleaning**

Respirators (elastomeric) are to be regularly cleaned and disinfected after each use, daily, or as often as necessary to ensure sanitary use of the respirator.

- Refer to the User Instructions for your specific elastomeric facepiece to identify the components that may be cleaned or immersed in water.
- Remove the cartridges, do not immerse in water.
- Disassemble the facepiece, wash in a mild soap and water solution then disinfect with an approved cleaner-disinfectant solution (one-part bleach to ten parts water).
- Rinse completely in clean, warm water.
- Air-dry in a clean area.
- Reassemble the respirator and replace any defective parts.
- Respirator wipes may be used for cleaning. Do not use alcohol base solvent.

## **Storage**

After inspection, cleaning, and necessary repairs, respirators should be stored in a protective location so as not to contaminate or damage the respirator.

- Place respirator in a clean, dry, plastic bag or other airtight container.
- Store in area away from direct heat, sunlight, or other stored chemicals that could cause contamination.
- Store respirator so that the facepiece and exhalation valve will rest in a near normal position.

## **Change-Out-Schedule for Cartridges**

Change out of cartridges on a respirator depends on wear and use. This will be determined upon respirator hazard assessment.

## **Inspection**

Elastomeric respirators should be inspected before each use to ensure protection. Check the respirator for any cracks, tears, or holes.

- Check gaskets for pliability or cracks.

- Check for distortion of face mask or cracks in lenses.
- Check head straps for any broken buckles, breaks or tears.
- Check valves for any cracks, tears, residue or dirt.
- Check cartridges for any cracks or dents in housing, gaskets, and ensure the proper cartridge for the hazard.
- If there is any sign of damage or excessive wear, employees must report findings to the supervisor immediately.

Dust mask must be stored in a clean dry area and away from chemicals and moisture. Inspect dust mask before each use to ensure cleanliness, there is no deterioration of straps, or distortion of the face piece. Dust masks are an individual use mask: do not share with others. Dispose of if it becomes dirty, wet, or if breathing becomes difficult.

**NOTE:** *There are Self Contained Breathing Apparatus (SCBA) stored in a number of mechanical rooms across campus. These units have been placed by, and for the use of, outside vendors. WKU employees are not authorized to utilize this equipment.*

## **Medical Evaluations**

Employees who are required to wear respirators, or who choose to wear an air-purifying respirator (elastomeric) voluntarily must pass a medical exam before being permitted to wear a respirator. Any employee refusing medical evaluation will not be allowed to work in an area requiring respirator use. Wearing a respirator may place a burden on an employee's health. This burden varies, due to the weight and breathing resistance of the respirator and the workplace conditions under which the respirator is worn. Examples of some medical conditions that may interfere with safe use of a respirator include cardiovascular and respiratory disease, high blood pressure, angina, asthma, chronic bronchitis, or emphysema. Respirators may cause severe anxiety or claustrophobia once the respirator is sealed to the face.

Employees will fill out a medical questionnaire (Appendix B) that will be reviewed by a health care physician or other licensed health care professional. A physician may require a pulmonary function test to assist in the determination for a medical clearance. All examinations and questionnaires are to remain confidential between patient and physician. All medical records will be maintained with the physician. A medical clearance form from the physician regarding employee's ability to wear a respirator must be provided to EH & S before respirator fit test may be conducted. The physician release form will be maintained at EHS.

## **Fit Testing**

Employees who are required to wear elastomeric air purifying respirators will be fit tested:

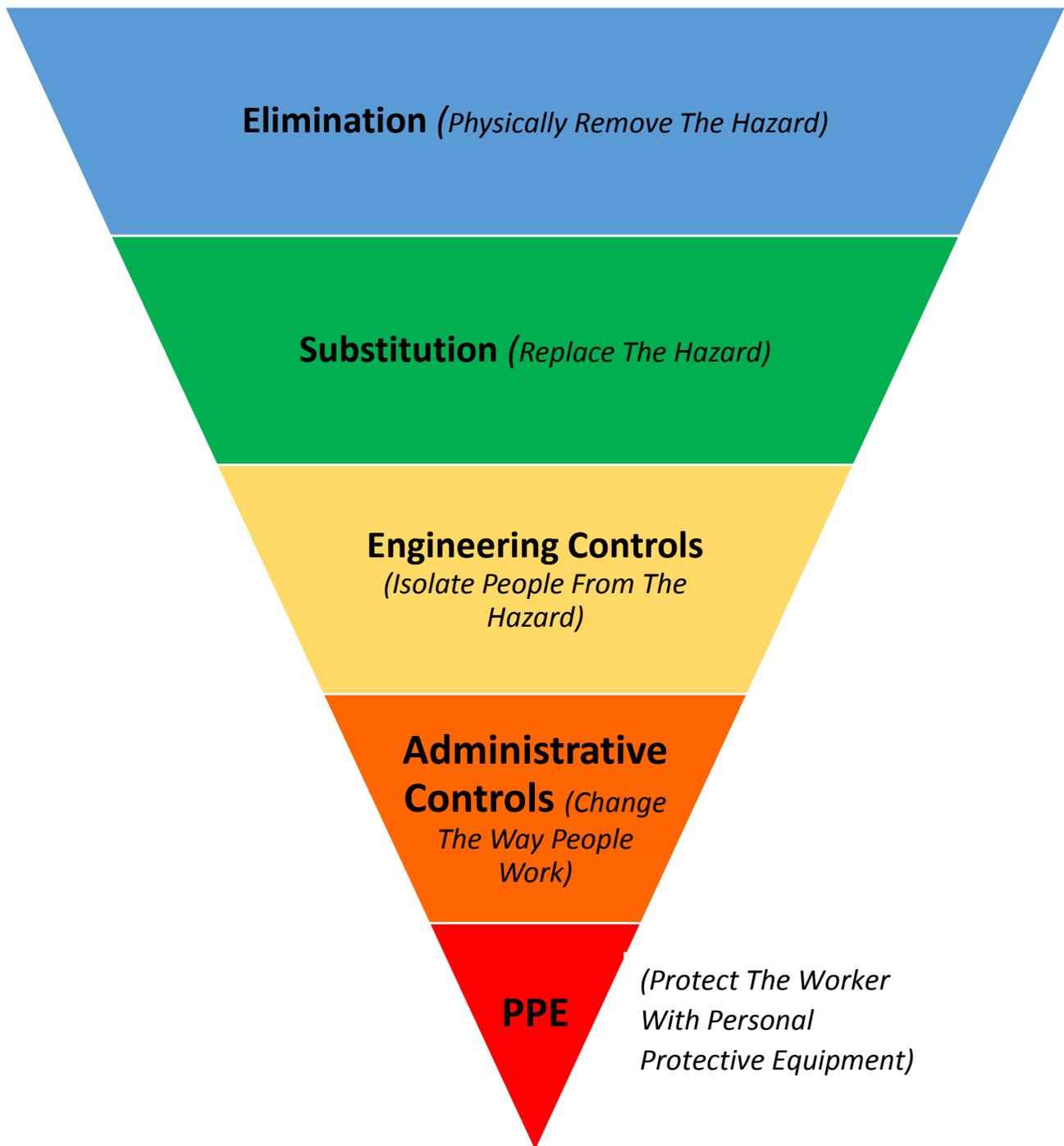
- After medical approval.
- Prior to being allowed to wear any respirator with a tight-fitting face piece.
- Annually

- When there are changes in the employee's physical condition that could affect respiratory fit (change in body weight, facial scarring, dental changes, and/or cosmetic surgery).
- There is a change of respirator make or model.
- With the same make, model, style, and size of respirator that will be used.

Fit test will be conducted in accordance with the OSHA Respirator Protection Standard. Fit testing is to ensure that the seal of the respirator is sufficiently tight to prevent any contaminants from leaking around the edges of the facepiece into the user's breathing air. Qualitative fit testing is conducted by introducing saccharin or Bitrex into an enclosed hood while the user is wearing the respirator to verify the seal of the respirator. If no taste of saccharin or Bitrex is sensed, then it is considered that the user has a complete seal of the respirator.

## Appendix A

## HIERARCHY OF CONTROLS



**Appendix B**

**MEDICAL QUESTIONNAIRE FOR RESPIRATOR USERS  
Western Kentucky University**

*The medical questionnaire is to help determine a worker’s ability to use a respirator. Using a respirator may place a physiological burden on an employee’s health or increase the risk of illness, injury, or death. The medical evaluation must be completed and evaluated by a physician or a licensed health care professional before an employee is fit tested or required to use a respirator. All answers are confidential between you and the medical physician.*

**All respirator users must complete the questions in this section of the questionnaire.  
Check one or all that apply**

**Part A Section 1 (Mandatory) Complete below**

Name:		Date:	
Your Job Title:		Manager:	
<b>Check one:</b>	Male	Female	Weight:
Date of Birth:			
Height:			
Phone:			

**Department Name**

**Type of Respirator (check one or all that apply)**

	<input type="checkbox"/>	N, R, P, Filtering facepiece	
	<input type="checkbox"/>	Half face elastomeric	
	<input type="checkbox"/>	Full face elastomeric	
	<input type="checkbox"/>	I have worn a respirator before	

**Part A Section 2 (Mandatory)**

**YES NO**

Do you currently smoke tobacco?		
Have you smoked tobacco in the last month?		

**Have you ever had any of the following conditions?**

**YES NO**

Seizures?		
Diabetes?		
Allergic reactions that interfere with breathing?		
Claustrophobia?		
Trouble smelling odors?		
Asbestosis?		
Asthma?		
Chronic Bronchitis?		

**YES NO**

Emphysema?		
Pneumonia?		
Tuberculosis?		
Silicosis?		

Pneumothorax (collapsed lung)?		
Lung cancer?		
Broken ribs?		
Any chest injuries or surgeries?		
Any other lung problems?		

**Do you currently have shortness of breath:** **YES NO**

When walking fast on level ground or up a slight hill?		
When walking at an ordinary pace on level ground?		
When washing or dressing yourself?		
That interferes with your job?		

**Do you currently have a cough that:** **YES NO**

Produces phlegm?		
Wakes you up early in the morning?		
Occurs when you are lying down?		
Produces blood		

**Do you currently have?** **YES NO**

Wheezing sensations?		
Chest pain when you breathe deeply?		
Symptoms that might be related to lung problems?		

**Have you ever had any of the following?** **YES NO**

Heart attack?		
Stroke?		
Angina?		
Heart failure?		
Swelling in legs or feet (not caused by walking)?		
Heart arrhythmia?		
High blood pressure?		
Any other heart problems?		
Frequent pain or tightness in the chest?		
Chest pain or tightness during physical activity?		
Heart skipping or missing beats?		
Heartburn or indigestions that is not related to eating?		

**Do you currently take medication for?** **YES NO**

Breathing or lung problems?		
Heart trouble?		
Blood pressure?		
Seizures?		

**Check one or all that apply**

How often do you use a respirator?	1-5 times a year		1-5 in a month		Emergency use only	
Duration respirator worn	1-5 hours/ use		5-8 hours/use		Less than an hour /use	
Expected physical work effort	Light		Moderate		Heavy & intense	
Temperature and humidity extremes	Indoors air conditioned		Indoors, fresh air only		Hot, humid outdoors, confined space	
Other PPE worn with respirator	Tyvek suit		Goggles		Head covering	

**Answer these question only if you have previously used a respirator. If you have never used a respirator, go to the next section 3.**

**Have you ever had these problems while using a respirator?**

**YES NO**

Eye irritation		
Skin allergies or rashes		
Anxiety		
General weakness or fatigue		

**The following questions must be answered by employees who will be using a full-face piece respirator.** Half face respirators or dust mask users may answer voluntarily.

**Section 3**

**YES NO**

Have you lost vision in either eye?		
Do you wear contact lenses?		
Do you wear glasses?		
Are you color blind?		
Do you have any other eye problems?		

Have you ever had an ear injury (including a broken ear drum)?		
Do you have difficulty hearing?		
Do you wear a hearing aid?		
Do you have any hearing or ear problem?		

**Have you ever had**

**YES NO**

A back injury?		
Back pain?		
Weakness in your arms, hand, legs or feet?		
Difficulty fully moving your arms & legs?		
Pain or stiffness at the waist when you lean forward or backward?		
Difficulty moving your head up or down?		
Difficulty moving your head from side to side?		

Difficulty bending your knees?		
Difficulty squatting?		
Difficulty climbing carrying more than 25 lbs?		
Other muscle or skeletal problems that interfere with using a respirator?		

**Any of the following questions may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.**

	YES	NO
Do you work in a place that has lower than normal amounts of oxygen?		
Do you have feelings of dizziness, shortness of breath, or pounding in your chest?		
Other symptoms when working under these conditions?		

At work or home	YES	NO
Have you ever been exposed to hazardous solvents?		
Have you ever been exposed to hazardous airborne chemicals?		
Have you come into skin contact with hazardous chemicals?		
Name the chemicals if you know them:		

**Have you ever worked with any of the materials, or under any of the conditions listed?**

	YES	NO
Asbestos		
Silica		
Tungsten/cobalt (grinding or welding this material)		
Beryllium		
Aluminum		
Coal		
Iron		
Tin		
Dusty environments		
Any other hazardous exposures		
If yes describe these exposures:		

List any second jobs or side businesses you have:	
List your previous occupations:	
List your current and previous hobbies:	

	YES	NO
If you were in the military were you exposed to biological or chemical agents?		
Have you ever worked on a HAZMAT team?		

List any medications you may be taking (including over the counter medications).	

**Appendix C**

**VOLUNTARY USE ONLY**  
**Western Kentucky University Respiratory Program - Voluntary Use**

*Appendix D to CFR 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under 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. **A respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.**
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

I understand the above information, that I must use the correct respirator for the job I am doing and I should use and take care of the respirator according to manufacturer's instructions.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Department \_\_\_\_\_ Job Title \_\_\_\_\_

*This respirator is for nuisance dust only. You have voluntarily chosen to wear this for a comfort reason only. **DUST MASK ARE NOT FOR HAZARDOUS DUSTS, GASES, OR VAPORS.** Do not share among wearers. Store in a clean location, and discard after use.*