MENDOCINO COUNTY RESPIRATORY PROTECTION PLAN

RESPIRATORY PROTECTION PROGRAM
For
COUNTY OF MENDOCINO

XIIV. References

8 CCR 3204: Access to Employee Exposure and Medical Records
8 CCR 5141: Control of Harmful Exposure to Employees
8 CCR 5144: Respiratory Protection

I. INTRODUCTION

The County of Mendocino is committed to maintaining an injury and illness free workplace, and is making every effort to protect our employees from harmful airborne substances. The goal of this program is to ensure the protection of all County employees from respiratory hazards through proper selection and use of respirators. Whenever it is feasible to do so, we accomplish this through engineering controls such as ventilation or substitution with a less harmful substance, and through administrative controls limiting the duration of exposure. If this is determined to be unfeasible, respirators and other protective equipment must be used. This program is mandated by Title 8 California Code of Regulations section 5144 and is part of the County's Injury and Illness Prevention Program.

II. RESPONSIBILITIES

County Risk Manager

The County Risk Manager is responsible for:

- Developing the written provisions governing the Respiratory Protection Program;
- Identifying and maintaining a list of operations requiring respirators;
- Overseeing the Respiratory Protection Program's implementation and modifications, as required by Cal/OSHA;
- Assigning a program administrator as required by Cal/OSHA. The program administrator will be the County Safety Officer; and
- Evaluating the effectiveness of the program throughout the County.

Department Heads

Department heads are responsible for ensuring that the Respiratory Protection Program is implemented in their departments. Each department head is responsible for:

- Identifying hazards within the workplace (see Appendix A) Identification and Location of Airborne Contaminant Exposures and Results of Ongoing Surveillance;
- Ensuring that respirators selected for use are appropriate for the hazards to which employees are exposed;
- Determining when respirator equipment is to be worn;
- Ensuring that all employees within their department, whose duties require the use of respirators, receive a medical evaluation prior to being fit tested, are furnished and fitted for said equipment, and are trained in its proper use and maintenance; and
- Evaluating the effectiveness of the Program within their department.

Supervisors

Supervisors of employees requiring the use of respirators are responsible for enforcing the wearing of respirators when working conditions require the use of such equipment and informing the department head or departmental safety representative of any suspected airborne hazards.

Employees

Employees requiring the use of respirators are responsible for correctly using this equipment, for making sure it remains in good condition, and for informing their supervisor or departmental safety representative of concerns about airborne hazards and any adverse effects when wearing a respirator.

Safety Representatives

The Safety Representative for each department helps department heads and supervisors implement the program.

III. RESPIRATOR SELECTION

Exposure Assessment

In order to reduce the incidence of job related illness or injury from exposure to harmful airborne contaminants; a workplace exposure assessment is conducted to identify harmful exposures, their extent or magnitude, and how to control them. Department Heads are responsible for conducting the exposure assessment and for identifying any relevant workplace and user factors affecting respiratory use. The evaluation of the respiratory hazard(s) shall include the following:

- Identification and development of a list of hazardous substances used in the workplace, by department, or work process (see Appendix A) Identification and Location of Airborne Contaminant Exposures and Results of Ongoing Surveillance.
- Review of work processes to determine where potential exposure to these hazardous substances may occur. This review shall be conducted by surveying the workplace, revising process records, and talking with employees and supervisors.
- Exposure monitoring to quantify potential hazardous exposures, Monitoring will be contracted out when necessary.

If the employee exposure cannot be identified or reasonably estimated, the atmosphere is considered to be immediately dangerous to life or health (IDLH). Results from these evaluations are to be documented. Additional evaluations are necessary if exposures change due to new materials, process changes or other conditions increasing the degree of employee exposure or stress.

Selection Procedures

The Program Administrator will select respirators to be used on site, based on the hazards to which workers are exposed and in accordance with all OSHA standards. See Appendix B Respiratory Protection Equipment Selection Guide and Appendix C Respirator Selection Summary.

Types of Airborne Hazards

Airborne hazards include dusts, fogs, spray, mists, fumes, fibers, gases, smoke and oxygen-deficient air. The level of hazard depends on the toxicity and concentration of the airborne hazard.

Tasks That May Pose Respiratory Hazards

Examples include, but are not limited to:

- Tasks such as welding, grinding, painting or sanding that produce dusts, mists, fumes, vapors, or gases;
- Operations which process, handle, store or dispose of substances which could result in an unwanted airborne hazard, such as the use of solvents to clean parts;
- Work requiring entry into oxygen-deficient environments, such as working in confined spaces where ventilation and access are limited;
- Work around compressed or liquefied toxic gases, such as hooking up a chlorine or sulfur dioxide tank or taking one off line;
- Entering an area where toxic gases are leaking from a container or feed line to make repairs;
- Operations that involving transferring, mixing, reacting or blending of materials that release uncontrolled aerosols, vapors, or gases;
- Cleanup, repair, or other operations where inventorying, equipment dismantling, or assembly may release vapors, gases or aerosols into the work environment;
- Emergencies requiring escape from or entry into contaminated areas or areas where the concentration of air contaminants is unknown.

Voluntary Use of Respiratory Protection in Nonhazardous Atmospheres. Supervisors may provide respirators at the request of employees or permit employees to use their own respirators in nonhazardous areas if the County determines that such respirator use will not in itself create a hazard. If the supervisor determines that any voluntary respirator use is permissible, the employer shall provide the respirator users with the following information:

INFORMATION FOR EMPLOYEES USING RESPIRATORS WHEN NOT REQUIRED UNDER THE STANDARD (29 CFT 1910.134, Appendix D) 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 respiratory 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 the County provides respirators for voluntary use, or if the employee provides their own respirator, the employee needs to take certain precautions to be sure that the respirator itself does not present a hazard. The employee should do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations. Choose respirators certified for use to protect against the contaminant of concerns. 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 respiratory packaging. It will tell the employee what the respirator is designed for and how much it will protect the employee.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against.
- Keep track of your respirator so that you do not mistakenly use someone else's' respiratory.

The supervisor must establish and implement those elements of the respiratory protection program necessary to ensure that any employee who voluntarily uses a respirator is medically able to use that respirator and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

Managing Airborne Hazards
Once an airborne hazard is identified, the best way to protect employees is to eliminate the hazard by using less toxic material. If you need assistance finding a less toxic material, please contact the Risk Management Department at 463-6553.

The next best way is to change the work process, contain the hazardous air, or improve the ventilation. (Changes in ventilation systems may require considerable lead-time.) When these methods are not feasible, or until they are implemented, employees must wear respirators.

Types of Respirators
There are two main types of respirators:
Air Purifying (APR)
Air purifying respirators clean contaminated air and allow employees to breathe without an additional air source. They can only be used where the air has enough oxygen to sustain life and cannot be used to where contaminant concentrations exceed certain limits.

Air-purifying respirator types include:

- Chemical Cartridge
  - Protect against specific gases and vapors.
  - Purifying inhaled air.
  - Provide non-emergency respiratory protection.
  - Are not used for extremely toxic materials, odorless materials, or eye irritants.
- Mechanical/Particulate Filter
  - Protect against airborne particulates such as dust, mist, metal fumes, and smoke.
- Combination Filter
  - A filter that combines the function of a chemical cartridge with a mechanical/particulate filter.
- Combination Mechanical Filter/Chemical Cartridge Powered Air-Purifying Respirators
  - Forced air through the filters.
  - Provide positive pressure air into face piece, with the face piece leakage outward.
  - Protect against gases, vapors and particulates.

Air Supplying (ASR)

These respirators provide a regulated supply of breathable air from a source other than the air in the contaminated work area. An ASR consists of a face piece and equipment for supplying the breathing air by compressors or pressurized cylinders.

- Air-Line
  - Air supply must be monitored or meet Grade "D" breathing air.
  - Uses an air line connected to a remote air pump.
  - Used for specific gases, vapors and particulates.
  - Used for escape from atmospheres immediately dangerous to life and health.
  - Never used in an oxygen deficient atmosphere, due to the risk of equipment or air line failure.
- Self-Contained Breathing Apparatus (SCBA)
  - Uses a pressurized air tank, usually worn on the back.
  - Time limited (usually less than 30 minutes).
  - Used for specific gases, vapors and particulates.
  - Used for escape from atmosphere's immediately dangerous to life and health.
  - Used in an oxygen deficient atmosphere.
  - Air supply meets Grade "D" breathing air.
  - When used in atmospheres immediately dangerous to life and health, a buddy system is required.

IV. MEDICAL EVALUATION

Employees who are either required to wear respirators, or who choose to wear an APR voluntarily, must pass a medical exam before being permitted to wear a respirator on the job. Department Heads are to fill out the Referral for Medical Evaluation form for each employee (see Appendix D). 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. A licensed medical professional will provide the medical evaluations. Medical evaluation procedures are as follows:

- The medical evaluation will be conducted using the questionnaire provided in Appendix E of the respiratory protection standard. 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. 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.
- All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
- The Program Administrator has provided the Health Care Professional with a copy of this program, a copy of the Respiratory Protection standard, the list of hazardous substances by work area, and for each employee requiring evaluation: his or her work area or job title, proposed respirator type and weight, length of time required to wear respirator, expected physical work load (light, moderate, or heavy), potential temperature and humidity extremes, and any additional protective clothing required.
- Any employee required for medical reasons to wear a positive pressure air purifying respirator will be provided with a powered air purifying respirator.
- After an employee has received clearance and begun 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.
    - The supervisor informs the Program Administrator that the employee needs to be reevaluated;
    - Information from this 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.

V. FIT TESTING

Fit testing is required for all employees wearing half-face piece APRs and SCBA. Employees voluntarily wearing half-face piece APRs may also be fit tested upon request.

Before any employee is required to use a respirator with a tight fitting face piece, the employee is fit tested with the same make, model, style and size of respirator that will be used. Fit testing is also done:

- Whenever a different respirator face piece is used;
- At least annually after the initial fit test;
- Whenever the employee reports, or the employee's supervisor makes visual observation of, changes in the employee's physical condition that could affect respirator fit. Such conditions include facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
- If after passing a fit test, the employee subsequently notifies the supervisor that the fit of the respirator is unacceptable; the employee will be given a reasonable opportunity to select a different respirator face piece and to be retested.

The Program Administrator will conduct fit tests following the OSHA approved Bitrex Solution Aerosol QLFT (Qualitative fit test) Protocol in Appendix F Protocol of the Respiratory Protection standard.

The employee will return to his or her supervisor the Qualitative Respirator Fit Test Results form shown in Appendix G.

ACCEPTABLE FIT-TESTING METHODS

Respirator	QLFT	QNFT
Half-Face, Negative Pressure, APR (<100 fit factor)	**Yes**	**Yes**
Full-Face, Negative Pressure, APR (<100 fit factor) used in atmospheres up to 10 times the PEL	**Yes**	**Yes**
Full-Face, Negative Pressure, APR (>100 fit factor)	**No**	**Yes**
Powered APR	**Yes**	**Yes**
Supplied-Air Respirators (SAR), or SCBA used in Negative Pressure (Demand Mode) (>100 fit factor)	**No**	**Yes**
Supplied-Air Respirators (SAR), or SCBA used in Positive Pressure (Pressure Demand Mode)	**Yes**	**Yes**
SCBA – Structural Fire Fighting, Positive Pressure	**Yes**	**Yes**
SCBA/SAR – IDLH, Positive Pressure	**Yes**	**Yes**
Mouthbit Respirators	**n/a**	**n/a**
Loose-fitting Respirators (e.g., hoods, helmets)	**n/a**	**n/a**

VI. USE OF RESPIRATORS

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.
- All employees 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 H Facepiece Pressure Fit Checks of the Respiratory Protection Standard.
- All employees shall be permitted to leave the work area to go to the locker room 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.
- Employees are not permitted to wear tight-fitting respirators if they 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 facepiece-to-face seal.

Respirator Malfunction

APR Respirator Malfunction:

For any malfunction of an APR (e.g., such as breakthrough, facepiece leakage, or improperly working valve), the respirator wearer should inform his or her supervisor that the respirator no longer functions as intended, and to go to a safe area to maintain the respirator. The supervisor must ensure that the em0ployee receives the needed parts to repair the respirator, or is provided with a new respirator.

VII. MAINTENANCE AND CARE OF RESPIRATORS

Cleaning and disinfecting

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station. 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. The following procedure is to be used when cleaning and disinfecting respirators:

- 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 Supervisor will ensure an adequate supply of appropriate cleaning and disinfecting materials at the cleaning station. If supplies are low, employees should contact their supervisor.

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.

Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include to wash their face and respirator facepiece to prevent any eye or skin irritation, to replace the filter, cartridge or canister, detect vapor or gas breakthrough or leakage in the facepiece, or if they detect any other damage to the respirator or its components.

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 a clean, dry location. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.

The Department Supervisor will store Mendocino County’s supply of respirators and respirator components in their original manufacturer's packaging in the department storage room.

Inspection

The following checklist will be used when inspecting respirators:

- Face piece:
    - cracks, tears, or holes
    - facemask distortion
    - cracked or loose lenses/faceshield
- Headstraps:
    - breaks or tears
    - broken buckles
- Valves:

  - residue
  - dirt cracks
  - tears in valve material
- Filters/Cartridges:
  - approval designation
  - gaskets
  - cracks or dents in housing
  - proper cartridge for hazard

Repairs

Respirators that fail an inspection or are otherwise found to be defective should be removed from service and either discarded, repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and using only the respirator manufacturer's NIOSH-approved parts designed for the respirator. This refers to all respirator parts, including clamps, straps, cartridges, valves, regulators, hoses and seals.
- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.
- Reducing admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

VII. TRAINING

The Program Administrator will provide training to respirator users and their supervisors on the contents of the Mendocino County Respiratory Protection Plan 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. See Appendix I Respirator User Training form and Appendix J Training Record.

IX. PROGRAM EVALUATION

Department heads or designee(s) conduct ongoing evaluation of the Respiratory Protection Program to identify deficiencies and make corrections as needed. See Appendix K Respirator Program Evaluation. An important part of the program evaluation includes regularly consulting employees required to use respirators to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment are to be corrected. Factors to be assessed include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);
- Appropriate respirator selection for the hazards to which the employee is exposed;
- Proper respirator use under the workplace conditions the employee encounters; and
- Proper respirator maintenance.

Respirator users should immediately notify their supervisor if they believe they have inhaled a harmful quantity of contaminant or are otherwise affected by harmful contaminants and complete a Report of Industrial Injury form. Department heads will ensure that the circumstances are immediately investigated and that corrective action is taken.

As part of the Respiratory Protection Program evaluation, department heads periodically review the entire program to ensure that:

- Proper respiratory protective equipment is being used, correctly maintained and stored.
- All employees are trained and fit tested.
- Employees are medically qualified to continue using respirators.
- Environmental factors have not changed, or if they have, other toxic substances or conditions which increase the degree of employee exposure are taken into consideration during review of the worksite respiratory protection program.

X. DOCUMENTATION AND RECORD KEEPING

The Risk Management department maintains copies of training and fit test records. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted. Risk Management will also maintain copies of the medical records for all employees covered under the respirator program. The completed medical questionnaire and the physician's documented findings are confidential and will remain at the office of the Health Care Provider. Risk Management will only retain the physician's written recommendation regarding each employee's ability to wear a respirator.

XI. DEFINITIONS

The following definitions are important terms used in the respiratory protection standard in this section.

Air-purifying respirator: a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Assigned protection factor (APF): [Reserved]

Atmosphere-supplying respirator: 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.

Canister or cartridge: a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand respirator: atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation: 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.

Employee exposure : exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI): a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator: a respirator intended to be used only for emergency exit.

Filter or air purifying element: a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask): a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor: a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test: the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

Helmet: a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter: a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood: a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH): an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Interior structural firefighting: the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures, which are involved in a fire situation beyond the incipient stage. (See Article 10.1)

Loose-fitting facepiece: a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC): [Reserved]

Negative pressure respirator (tight fitting): a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere : an atmosphere with oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP) : an individual whose legally permitted scope or practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by subsection (e).

Positive pressure respirator: a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR): an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator: a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT): a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT): an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering: portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA): an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life: the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator: an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-fitting facepiece: a respiratory inlet covering that forms a complete seal with the face.

User seal check: an action conducted by the respirator user to determine if the respirator is properly seated to the face.

APPENDIX A

IDENTIFICATION AND LOCATION OF AIRBORNE CONTAMINANT EXPOSURES AND RESULTS OF ONGOING SURVEILLANCE

Location	Operation	Airborne Contaminant	Exposure	Date Determined

Date_____ Signature_____

Instructions: Form to be completed by Department Head or designee

Distribution:
Original: Department file
Copies: Risk Manager

Retention: 30 years

APPENDIX B
RESPIRATORY PROTECTIVE EQUIPMENT SELECTION GUIDE

Exposure Hazard	Approved Respiratory Protection
--- Chemical Gas or Vapor Contaminants ---	
Atmosphere immediately dangerous to life or health	**Self-contained breathing apparatus operated in positive pressure mode** OR **combination airline respirator with auxiliary positive pressure self-contained air supply** *For use in escape from an atmosphere immediately dangerous to life or health:* **air purifying, full facepiece gas mask respirator with chemical canister approved for escape only** **OR** self-rescue mouthpiece respirator approved for escape only
Atmosphere not immediately dangerous to life or health	Airline respirator **OR** air purifying quarter or half mask or full facepiece respirator with chemical cartridge or canister **OR** powered air purifying respirator with chemical cartridges
--- Particulate – Dust, Fibers, Fume, Mist, Aerosols ---	
Atmosphere immediately dangerous to life or health	**Self-contained breathing apparatus operated in positive pressure mode** **OR** combination airline respirator with auxiliary positive pressure self-contained air supply *For use in escape from an atmosphere immediately dangerous to life or health:* **air purifying, full facepiece gas mask respirator with chemical canister approved for escape only** **OR** self-rescue mouthpiece respirator approved for escape only
Atmosphere not immediately dangerous to life or health	Airline respirator **OR** air purifying quarter, half, or full facepiece respirator with particulate filter cartridge or canister **OR** powered air purifying respirator with particulate filter cartridges **OR** airline abrasive blasting respirator
--- Combination Gas, Vapor, Dust, Fibers, Fume, Mist, Aerosols ---	

Atmosphere immediately dangerous to life or health	**Self-contained breathing apparatus operated in positive pressure mode** **OR** combination airline respirator with auxiliary positive pressure self-contained air supply *For use in escape from an atmosphere immediately dangerous to life or health:* air purifying, full facepiece gas mask respirator with combination chemical and particulate filter in canister approved for escape only **OR** self-rescue mouthpiece respirator approved for escape only
Atmosphere not immediately dangerous to life or health	Airline respirator **OR** air purifying quarter, half, or full facepiece respirator with combination chemical and particulate filter cartridge or canister **OR** powered air purifying respirator with combination chemical and particulate filter cartridge

--- Oxygen Deficient or Enriched Atmospheres ---	
Oxygen availability	Self-contained breathing apparatus **OR** combination airline respirator with auxiliary positive pressure self-contained air supply

Air supplying respirators are required if the oxygen content in the atmosphere is less than 19.5% or more than 23.5%.

NO respiratory protective equipment is approved for work in an atmosphere containing 25% of the lower explosive limits of a contaminant

APPENDIX C
RESPIRATOR SELECTION SUMMARY

Location and/or Operation	**User Name**	**Respirator** Manufacturer, model, size, type	**Air Contaminants**	**Respirator Selection Criteria**

Date:_____ Completed by:_____

Instructions: Form is to be completed by Department Head or designee and updated as needed.
Distribution:
Original: Department file

Copies to: Risk Management

APPENDIX D
REFERRAL FOR MEDICAL EVALUATION

To: Health Care Professional

_____ is being referred to you for a medical examination to (Employee name) determine if he/she can wear respiratory protection on the job.

1. Type and weight of the respirator to be used by the employee:_____
2. Duration and frequency of respirator use (including use for rescue and escape):_____
3. Type of work to be performed while wearing the respirator:_____
4. Additional protective clothing and equipment to be worn:_____
5. Environmental conditions (e.g., temperature and humidity extremes) that may be encountered in the workplace:_____

Upon completion of your examination, please complete the following and return a copy of this form to me.

Date_____ _____
Department Head Signature

_____
Department

* * * * * * * * * *

Based on my opinion and evaluation, _____(employee's name)

_____ has a condition that makes respirator use inadvisable

_____ is approved for respirator fit testing and assignment subject to the following limitations:_____

_____ is approved for respirator fit testing and assignment without restriction.

The employee has been informed of the results of the examination and of any medical conditions that require further explanation or treatment. Any specific findings or diagnosis were referred to the private medical doctor for appropriate treatment. These medical findings will not be revealed in this letter of results, as mandated by law.

Date_____ _____
Health Care Professional

Distribution:
Original: Health Care Professional
Copies to: Department Head
Employee
Retention: Length of employment, plus 30 years.

APPENDIX E
Respiratory Medical Evaluation Questionnaire

Last Name _____ Firs Name _____ Age _____ Height _____ Weight _____

Address _____ City/Sate/Zip _____ Phone _____

Employer _____ Department _____ Work Phone _____

Medical History:

(This information is completely confidential and for review by clinic personnel only. A copy of this, your exam and test results will be given to you and/or sent to your physician at your request. Your employer will only receive a simple statement about your fitness to wear a respirator, with no medical details.)

Please answer all questions completely.

1. Have you ever had or been treated for:

Respiratory Problems:	Yes	No
Asthma	___	___
Bronchitis	___	___
Emphysema	___	___
Chronic cough	___	___
Shortness of breath	___	___
Other lung problems	___	___
Heart Problems:		
Heart disease	___	___
Coronary disease	___	___
High blood pressure	___	___
Chest pain, pressure on exercise	___	___
Family history of heart problems	___	___
Other Health Problems:		
Diabetes	___	___
Epilepsy	___	___
Serious arthritis	___	___
Back/joint problems	___	___
Claustrophobia	___	___
Severe acne	___	___
No sense of smell	___	___
Overweight	___	___
High cholesterol	___	___
Have you ever had it checked?	___	___
Smoking cigarettes	___	___

# of years _____ Packs/day _____

2. Do you exercise regularly?_____ If yes, number of times per week _____ Per month _____

3. Do you take any medications? _____ If yes, please list kind of medication and what it is for:
4. Have you seen a doctor for any reason in the past year? _____If yes, please indicate reason
5. Have you had any serious head or chest injuries? _____ If yes, please describe.
6. What type(s) of respirator will you be wearing?
   ____ Cartridge (mask with filters)
   ____ Airline (mask with hose)
   ____ Self contained Breathing Apparatus (SCBA-mask with air bottles)
7. Will you be wearing other protective clothing with a respirator? (Check all)
   _____ gloves _____ chemical suit
   _____ protective apron _____ goggles
   _____ other:
8. Approximately how often do you expect to be using a respirator?
   _____ Daily ____ Monthly
   _____ Weekly ____ Less than once a month
9. When you are working and wearing a respirator, are your work tasks:
   _____ sedentary (quiet, mostly sitting, light work)
   _____ moderately strenuous (medium work)
   _____ heavy (work up a sweat)
   _____ very strenuous (very heavy)

I understand that omissions or false answers to the above questions may result in my being placed in a dangerous position (to myself and others) because I might be medically cleared for work that I am physically unable to perform safely. I hereby state that I have answered the questions of this medical questionnaire to the best of my knowledge.

_____

Signature Date

APPENDIX F

QUALITATIVE FIT TEST PROCEDURES

SACCHARIN

1. Initial Selection of Respirators
   Selection of respirators with tightly fitting facepieces is made as previously described for irritant smoke testing.

2. Taste Threshold Screening
   The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.

   During threshold screening as well as during fit testing, subjects wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear that allows free movements of the head when a respirator is worn. The test enclosure must have a ¾-inch hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

   Have the test subject don the test enclosure, instructing the subject to breathe through his/her slightly open mouth with tongue extended and to report when he/she detects a sweet taste.

   Prepare the fit test solution by adding 83 grams of sodium saccharin to 100 ml of warm water. Prepare the threshold check solution by putting 1 ml of the fit test solution in 100 ml of distilled water.

   Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, spray the threshold check solution into the enclosure. Direct the nozzle away from the nose and mouth of the person. This nebulizer must be clearly marked to distinguish it from the fit test solution nebulizer.

   To produce the aerosol, firmly squeeze the nebulizer bulb so that it collapses completely, then release it, allowing it to fully expand.

   Squeeze the bulb rapidly ten times, then ask the test subject whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten, regardless of the number of squeezes actually completed.

   If the first response is negative, repeat squeezing the bulb rapidly ten times, then ask the test subject whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed, and the taste threshold is noted as twenty, regardless of the number of squeezes actually completed. The test conductor should note the number of squeezes required to solicit a taste response.

   If the saccharin is not tasted after 30 squeezes, the test subject is unable to taste saccharin and may not perform the saccharin fit test. [Note: if the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.

If a taste response is elicited, ask the test subject to take note of the taste for reference in the fit test.

If the nebulizer is correctly used, approximately 1 ml of liquid will be used at a time in the nebulizer body.

Rinse the nebulizer thoroughly in water, shake it dry and refill it at least each morning and afternoon or at least every four hours.

3. Saccharin Solution Aerosol Fit Test

The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

The fit test uses the same enclosure described in the Taste Threshold Screening procedures, above. Have the test subject don the enclosure while wearing the respirator selected in Step 1. The respirator should be properly adjusted and equipped with a particulate filter(s).

A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent should be used to spray the fit test solution into the enclosure. This nebulizer must be clearly marked to distinguish it from the screening test solution nebulizer.

Prepare the fit test solution by adding 83 grams of sodium saccharin to 100 ml. of warm water.

Instruct the test subject to breathe through the slightly open mouth with tongue extended and report if he/she tastes the sweet taste of saccharin.

Insert the nebulizer into the hole in the front of the enclosure and spray an initial concentration of saccharin fit test solution into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.

After generating the aerosol, instruct the test subject to perform the exercises described under the fit test procedures for irritant smoke.

Replenish the aerosol concentration every 30 seconds, using one-half the original number of squeezes used initially (e.g., 5, 10 or 15).

The test subject should indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed. If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator must be tried and the entire procedure repeated (taste threshold screening and fit testing).

Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.

APPENDIX G
QUALITATIVE RESPIRATOR FIT TEST
RESULTS

Name: _____ SSN: _____

- Clean shave? Y__ N__
- Spectacle Kit? Y__ N__
- Manufacturer/Model _____ Size: S___ M___ L___ XL___
- Bitrex™ (Denatonium Benzoate) Solution, Aerosol, Qualitative

  - ✓ Taste Threshold _____ squeezes
  - ✓ Normal Breathing: P___ F___
  - ✓ Head side-to-side: P___ F___
  - ✓ Head up and down: P___ F___
  - ✓ Heavy Breathing: P___ F___
  - ✓ Read Passage: P___ F___
  - ✓ Normal Breathing: P___ F___ TEST: Pass ___, Fail ___

PASSAGE: When the sunlight strikes rain drops 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 his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

Examiner: _____ Date: _____

Employee: _____ Date: _____

APPENDIX H
FACEPIECE PRESSURE FIT CHECKS

With the exception of hoods and certain powered air purifying respirators, fit checks must be performed by an employee using a respirator every time the respirator is put on to ensure that it is functioning correctly and has a good facepiece seal. Under no circumstances shall a respirator be used unless the user has passed both positive and negative fit checks.

The procedures for conducting positive and negative pressure fit checks must be followed every time an employee is going to use a respirator in an atmosphere that may contain a hazardous substance.

1. **Positive Pressure Fit Check**
   - a. Close off the exhalation valve by placing the palm of the hand over the valve. On some respirators the exhalation valve cover may have to be removed.
   - b. Exhale gently into the facepiece. Air will escape through the respirator if there are face seal gaps, or through the inhalation valves if there is a malfunction of the valves or valve seat, or if the cartridges are not seated properly.
   - c. If a leak is detected, examine the respirator for possible deterioration or need of repair. Make the repairs, reposition the facepiece, and readjust the straps. Repeat the check.
   - d. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most 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 Fit Check**
   - a. Close off the respirator inlet or inhalation valve by covering with the palm of the hand.
   - b. Gently inhale so that the facepiece collapses slightly.
   - c. Hold the breath for ten seconds. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.
   - d. If a leak is detected, examine the respirator for possible deterioration or need of repair. Make the repairs, reposition the facepiece, and retighten the straps. Repeat the check.

3. **Manufacturer's Recommended User Seal Check Procedures**

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 they are equally effective as the positive and/or negative pressure check procedures.

APPENDIX I

RESPIRATOR USER TRAINING

1. Respirator users will be instructed in the nature of the hazards for which the respiratory protection is being provided and informed of possible consequences that may occur if exposed to the hazard without adequate protection. Health hazard guidelines are contained in the training program and Material Safety Data Sheets. The respirator user will also be made aware that every reasonable effort is being made to reduce or eliminate the hazard.

2. Instruction will cover the respirator's capabilities and limitations and the function and possible malfunction of each part of the respirator.

3. The respirator user will be instructed in his/her responsibility for equipment inspection prior to use. Appropriate points of inspection will be included. Each respirator user will use his/her respirator during this part of the training and learn how to obtain replacement parts or new equipment.

4. Instruction will be given on donning methods, proper fitting, and adjustments of the equipment.

5. Instruction and training will cover proper respirator storage, cleaning and maintenance, and methods to assure adequate fit and function of the respirator each time it is donned.

APPENDIX J

Respiratory Program Training Record

Name	Department	Respirator Type	Use	Date	Initial

Trainer's Signature – and initial all dates_____

Instructions: to be completed by Trainer
Distribution:
Original: retained in Departmental file
Copy: Risk Management

APPENDIX K
RESPIRATOR PROGRAM EVALUATION

Name_____ Date_____

Job Title _____ Department_____

	YES	NO
1. Are proper types of respirators selected?		
2. Are the employees wearing respirators properly trained?		
3. Are correct respirators issued?		
4. Are respirators worn properly?		
5. Are respirators properly maintained and cleaned?		
6. Are respirators properly stored?		
7. Is fit testing conducted properly?		
8. Are pertinent records being kept?		
9. Are employees receiving periodic medical screening to determine whether they can safely wear a respirator?		
10. Has air contaminant monitoring been conducted for raw material or production process changes?		

Comments:_____

_____

_____

_____

Signature: _____

Distribution:
Original: retained in Department file
Copy: Risk Management